

# Librarians as Teachers: Effecting Change in Composition Instruction

Sarah LeMire, Stephanie J. Graves, and Kathy Christie Anders

**abstract:** This study assessed student research papers using a rubric to determine the information literacy skills of students in introductory composition classes. Librarians taught a pilot composition course that infused information literacy (IL) into the traditional English curriculum. The students' IL skills were compared to those of undergraduates enrolled in a traditional composition class, who received only a one-shot library instruction session. Students in the information literacy composition course scored better than their counterparts in six of seven IL skill categories. Results support greater integration of information literacy and composition curricula as a path forward for student success.

## Introduction

For some years now, librarians have focused information literacy instruction efforts on introductory composition classes. Composition classes are often standard curricular requirements, and they frequently teach the fundamentals of writing research papers. Furthermore, many students in such classes are first- or second-year students, ideal timing for introducing students to the academic library. Commonly, librarians teach one-shot sessions for composition classes. They may join such classes as embedded librarians and may even work with instructors to design assignments.

While these methods of instruction are beneficial, separating library instruction from the teaching of writing skills creates the perception of a false division between library research and writing, as though they are discrete processes. Research and writing, however, are intertwined and recursive; they are inherently linked. To bring these areas of instruction together, three librarians—all with degrees in English and years of teaching experience in composition,

information literacy, or both—became the instructors-of-record for a first-year composition course (ENGL 104) at Texas A&M University in College Station. The goal was to seamlessly integrate composition and IL learning into one class, thereby increasing knowledge transfer between the areas and more effectively teaching rhetorically informed research and information skills. The course was part of a university grant-funded project to create unique learning opportunities for first-generation college students. The researchers applied for the opportunity to work with first-generation, provisionally admitted students participating in a program called TEAM (Transfer Enrollment at A&M). They approached the English Department leadership with the novel idea of allowing them to alter the standard curriculum to infuse IL concepts and teach a special section of composition using the revised course of study. ENGL 104 is a high-enrollment course with dozens of sections, in high demand by students, and commonly over capacity each semester. The project was mutually beneficial for both the librarians and the English Department. The department could provide an additional section of the course without funding additional instructors, and the librarians could more fully engage with the English curriculum.

This study sought to measure the impact of infusing information literacy throughout the course curriculum as a way to support the growth and development of information literacy and advance collaboration with the university English Department. At Texas A&M, one of the largest universities in the United States, finding sustainable models for IL instruction is vitally important. This research was also designed to provide evidence for some perennial questions that plague information literacy teaching. Does embedding IL content throughout the first-year composition curriculum provide more effective instruction than a once-a-semester IL session? Would students in the librarian-taught sections (TEAM) become better able than their peers to

incorporate evidence into their research papers, to attribute sources correctly, and to use sources to bolster their rhetorical arguments? Further, what could librarians learn about the curriculum and the students' IL skills that could be applied to future curriculum development and maximize student success?

To test the efficacy of the IL-infused curriculum and librarian-taught course, the researchers developed a rubric to assess the final research papers of students enrolled in the library ENGL 104 courses and those of a sample of students enrolled in traditional sections of ENGL 104. By comparing the IL skills of the two groups, the researchers could determine if and how students in the library-led sections benefited from the curriculum imbued with information literacy content. The study also allowed the researchers to establish a baseline of IL skills for students enrolled in the traditionally taught sections of the course.

### Literature Review

Librarians and composition instructors have worked on integrating information literacy and writing studies for decades. James Elmborg, a prominent scholar in both areas, notes how developments in composition and rhetoric heralded similar changes, on a later timeline, in information literacy.<sup>1</sup> By the 2000s, the link between information literacy and composition was firmly established in the library literature. In 2008, Elizabeth Birmingham and her team noted the need for increased collaboration between writing teachers and librarians to integrate the teaching of IL skills.<sup>2</sup>

Collaborations to integrate information literacy into first-year composition are now common, with numerous accounts detailing how the two areas work in tandem.<sup>3</sup> Research suggests that IL skills are so tied to writing ability that the degree of information literacy students

have affects their grades. Xiaorong Shao and Geraldine Purpur noted positive correlations between both assignment and course grades and IL skills.<sup>4</sup>

Considerably more IL instruction than the traditional “one-shot” may be necessary to substantially benefit students. Comparing the IL skills and grades of four groups of students, who had either no library instruction or one, two, or three library sessions, Miseon Kim and Michael Dolan found that “three or more library sessions would be necessary for students to have a significant impact on the grade they receive on their research paper.”<sup>5</sup> The idea that more IL instruction is required to help students forms the basis of this current study. Rather than try to add more one-shots to a class, the researchers wanted to see if having librarians as instructors of record in a composition class with a fully integrated IL curriculum correlated to increased IL skills.

Practically and conceptually integrating information literacy in innovative ways is a key element of this study. As a matter of practice, in addition to traditional one shots in composition classes, librarians have experimented by working with different types of classes. For example, librarians and faculty at Chandler-Gilbert Community College in Maricopa County, Arizona, and Duquesne University in Pittsburgh sought to increase information literacy skills by pairing IL courses with writing courses in learning communities.<sup>6</sup> The University of Nevada, Las Vegas and the University of Wisconsin-Superior took the approach of encouraging writing instructors to teach information literacy along with writing. In doing so, both universities moved beyond the time limitations inherent in one-shot instruction.<sup>7</sup> This instructor-led model benefited both teachers and students, but it relied on writing faculty to present the material, and librarians were not in the classroom on a daily basis. The model the current study adopted, where the librarians

taught every class, allowed the researchers the practical experience of everyday integration into the classroom.

Of course, more than practical integration matters for IL instruction. Emphasizing the conceptual adjacencies between information literacy and composition is an equally important part of successful instruction. Librarians such as Mark Thompson have examined how to conceptually bring together learning outcomes and overlapping skill sets in writing and IL instruction for developmental writing.<sup>8</sup> Conceptual integrations of information literacy and composition weave the two areas together by unifying them in theoretical models or approaches, such as a conversational approach to research<sup>9</sup> or coordinating writers' and readers' requirements.<sup>10</sup> Working to integrate information literacy both practically and conceptually, this study evaluates the IL skills of students when librarians became the instructors of record for a composition class and also created the curriculum. The model of having librarians teach a composition class is unique as a means of increasing IL instruction and of interweaving concepts to encourage learning transfer.

To assess IL skills in the study population, the researchers turned to rubrics as a method of evaluation. Rubrics have been popular tools for information literacy assessment. Promoting rubrics as a tool for IL assessment, Megan Oakleaf advocates their use broadly, while Britt Fagerheim and Flora Shrode make a case for their employment in the disciplines.<sup>11</sup> Using rubrics to evaluate information literacy ranges across multiple types of assessment projects. At the University of Mississippi in Oxford, a team of librarians and a librarian instructor have developed a successful grading rubric for a credit-bearing class in information resources.<sup>12</sup> Groups at the University of Washington Vancouver, Carleton College in Northfield, Minnesota, and the New Jersey Institute of Technology in Newark have used differing types of rubrics to

evaluate student portfolios.<sup>13</sup> Aligning with evaluation measures regularly used to assess the IL skills of students in writing course assignments, the researchers in this study developed an analytic rubric to review student research papers.<sup>14</sup>

### Integrated Instructional Model

Librarians have long recognized that the one-shot model of information literacy instruction provides limited opportunity for meaningful development of IL knowledge and skills.

Embedding librarians, instruction, and learning outcomes into the target curriculum is a widely accepted practice for IL instruction. Librarians have also been embedded into disciplinary courses where they teach multiple one-shots, codesign assignments and assessments, and provide instructors with activities and train-the-trainer workshops. These strategies can be effective ways to increase information literacy learning beyond the scope of a one-shot.

These strategies have limitations, however. Even in an embedded environment, librarians may have limited ability to understand the curriculum and make adjustments to meet student needs. For this reason, rather than employing an embedded librarian model, the researchers in this study opted to serve as instructors of record for the course. In this role, librarians can revisit concepts when students need additional material, reinforce ideas in different ways, and adjust due dates or provide opportunities for revision when students need additional opportunities to develop and demonstrate mastery.

The researchers approached this new role by first unpacking the traditional curriculum for the course. Although they had flexibility to adjust the course of study, they intentionally chose to maintain close alignment with the content taught in other sections. They wanted to make sure that the lesson plans, activities, and handouts they designed for this section could also be used by other instructors in future semesters, which was important for the scalability of the model.

As the researchers examined assigned readings in the traditional curriculum, they noted adjacencies between the existing curriculum and IL content. For example, one of the first assigned readings in the composition textbook made reference to Kenneth Burke's parlor metaphor to discuss how writing is a conversation.<sup>15</sup> In this metaphor, Burke likens academic discourse to a parlor discussion in which a participant enters an ongoing conversation about a topic, learns what is being said, and makes a contribution. The researchers noted the clear overlap with the "Scholarship as Conversation" frame of the Framework for Information Literacy for Higher Education.<sup>16</sup>

Once they had reviewed the curriculum, the researchers began to identify strategic areas for change, such as extending the time devoted to an annotated bibliography assignment to provide more opportunity for feedback and revision. They also altered the content and requirements of major assignments and grading rubrics. In particular, they revised two research-based assignments: an annotated bibliography and a researched position paper. They opted to make the criteria for the bibliography more explicit by establishing a single interpretation for evaluative terms, such as *scholarly*, *peer-reviewed*, *academic*, and *credible*. To ensure clarity of expectations, they revised the associated grading rubric to guide students to evaluate sources from both a rhetorical viewpoint and an IL perspective. Next, the researchers revised the researched position paper assignment and grading rubric to mirror the expectations for the annotated bibliography assignment.

Finally, the researchers designed lesson plans and class activities to embed IL content. For example, an activity designed to teach students to analyze the rhetorical situation of a source—that is, its purpose, audience, topic, writer, and context—also included an IL-inspired evaluation of that source. In another example, a class discussion of ethos, a source's credibility

and authority, included a segment influenced by the Framework's "Authority Is Constructed and Contextual" frame.<sup>17</sup> The researchers' goal when designing these lessons and activities was to maintain the course's primary focus on composition and writing, but to recognize points of adjacency with information literacy and to use them to highlight and reinforce IL concepts. To ease future collaboration, the researchers made all the IL changes to the existing ENGL 104 lesson plans, assignments, and assessments.

For this project, the researchers worked with a specific population of students: first-generation, provisionally admitted students. These students participated in a program called TEAM (Transfer Enrollment at A&M), in which they enrolled simultaneously at the university and a nearby community college, Blinn College in Brenham, Texas. In addition to designing a curriculum with an increased focus on information literacy, the researchers wanted to support students in their co-enrollment experience. Therefore, they built in time for a visit from the TEAM program advisor.

## Evaluating Student Performance

### Methodology

The project was a part of a multipronged approach to studying the IL skills of students in first-year writing and composition courses. The first study, published in 2021 by Stephanie Graves, Sarah LeMire, and Kathy Anders, applied a standardized IL assessment survey to students enrolled in the TEAM courses and students in the traditional sections of ENGL 104.<sup>18</sup> Students took the survey at the beginning of the semester and again at the end. The survey measured a total IL score, composed of sub-scores for eight distinct IL skill sets. The results indicated that students in the TEAM courses made greater gains on their total IL score during the semester than



did students enrolled in the traditionally taught course, and those information literacy gains were statistically significant.<sup>19</sup>

While the results of a standardized IL survey were useful, the findings did not make clear if students could apply information literacy outside a multiple-choice test. The researchers were keenly interested in how students utilized IL skills in their actual course assignments. By studying authentic learning artifacts, the researchers could obtain a better picture of how students used IL concepts in their work.<sup>20</sup> One assignment, the final research paper, was particularly well positioned for a study on the application of IL skills. To measure the efficacy of the special library TEAM course, the researchers developed a rubric to measure the degree of IL application in the research papers using a control group consisting of students from traditional ENGL 104 sections who had not had the same IL curriculum as the TEAM group.

The researchers received approval from the Institutional Review Board to collect student papers from participating composition instructors. Consent forms were provided to instructors at the beginning of each semester. Students gave consent for their assignments to be included in the study, and personally identifying information was removed before study assessment. Participation was voluntary. Students who chose not to participate were not penalized in any way. Students were only identified as members of the library's TEAM ENGL 104 sections or the traditional sections of ENGL 104 for comparative analysis. Once the semester was completed, the instructors extracted assignments for consenting students from the campus learning management system and submitted the research papers to the researchers.

Approximately 200 student papers were collected over the course of three semesters. As the instructors for one TEAM course each semester, the researchers gathered student papers over three separate semesters: fall 2017, spring 2018, and fall 2018. Five composition instructors who

taught the traditional ENGL 104 courses volunteered to allow their students to participate in the study and submitted papers over the course of two semesters: fall 2017 and spring 2018.

Regardless of whether they enrolled in a TEAM or traditional section, students met for instruction for three hours per week for the standard 15-week semester. The data set included 51 papers from TEAM sections and 148 papers from traditional sections.

### Developing the Rubric

The researchers developed a rubric based on seven distinct IL skills that were aligned with the assignment (see the Appendix). Each category was assigned a rating of 1 to 4, or not applicable, with 1 representing the lowest score and 4 the highest. The rubric scored the papers on the following seven categories:

- Works cited formatting: evidence of a works-cited bibliography with correctly referenced sources using either American Psychological Association (APA) or Modern Language Association (MLA) citation style.
- In-text attribution: evidence of in-text citations.
- In-text format: evidence that in-text citations follow appropriate citation style guidelines.
- Source usage: evidence that sources cited in the in-text citations appear in the works cited bibliography.
- Peer review: percentage of works cited that are from peer-reviewed sources.
- Popular source quality: evidence that any popular sources used, such as newspapers or magazines for a general audience, are from quality, evidence-based, or academic sources.

- Popular evidence: evidence that students used popular sources for appropriate purposes; for this assignment, popular sources should be used primarily for rhetorical purposes and not as evidence.

Once the rubric was developed, the researchers performed several rounds of norming using student papers randomly selected from the data set. In accordance with literature on developing rubrics to assess IL skills, the researchers conducted extensive norming sessions to ensure interrater reliability.<sup>21</sup> Interrater reliability was determined using Krippendorff's alpha, calculated separately for each of the seven categories on the rubric. A score of  $\alpha \geq .8$ , the usual standard for evaluating Krippendorff's alpha, was regarded as acceptable. The two raters scored four rounds of grading and revised the rubric after each round to come to consensus. After the final round, all seven categories met the threshold for interrater reliability.

### Scoring

After norming was complete, two of the researchers scored the research papers. Each paper was assigned a number, and one researcher scored the odd-numbered papers while the other scored the even-numbered papers. The papers used during the earlier norming had been scored by two people. For the sake of consistency, the researchers dropped the second score and used the scores from the person who was assigned to grade each paper. While the researchers had access to which papers came from the TEAM course, this information was not used during scoring. Instead, the random number assigned to each paper was reported along with the rubric scores. The researchers then compared the scores for the TEAM and traditional sections by running Mann-Whitney U tests in Stata for each of the seven rubric categories. The Mann-Whitney U test was chosen because it is a nonparametric test that is similar to a *t*-test, but it does not assume normal distribution and uses ranked data.<sup>22</sup> A *p*-value of  $p < .05$  was used to determine

significance between the students in the TEAM course and the students in the traditionally taught courses.

## Results

Scoring of the data set revealed several findings. First, the mean scores for all students fell in the middle of the rubric in most categories (see Table 1). The rubric categories that focused on citing sources within the text and on source usage had the highest means:  $M = 3.85$  and  $M = 3.46$ , respectively. The in-text attribution category focused on attributed and unattributed claims, checking for inclusion of parenthetical citations for quotations, paraphrases, and summaries. It did not focus on formatting citations, which was included under a different category. The source usage category evaluated whether the sources students used in the text also appeared in the works cited list, and vice versa. This category also did not consider formatting of references.

The areas of the rubric that focused on usage of popular sources had the lowest means. Specifically, the lowest total means were in popular evidence ( $M = 1.28$ ) and popular source quality ( $M = 2.71$ ). The category of popular evidence was intended to assess whether students used popular sources differently than they did scholarly works; students who employed popular sources for rhetorical effect scored more highly than students who used them for evidentiary purposes. In keeping with the genre expectations for student research papers, the researchers regarded popular sources as inappropriate for evidence in support of an academic thesis but appropriate for rhetorical devices, such as imagery. The category of popular source quality was intended to differentiate between types of popular sources. High-quality popular sources such as a government report would result in a higher score than a biased news site.

Table 1.  
Descriptive statistics for rubric categories

							Percentiles		
		N	Mean	Standard deviation	Min.	Max.	25th	50th (median)	75th
Works cited	Control	148	2.918919	.8690719	1	5	2	3	4
	TEAM	51	3.784314	.986179	2	5	3	4	4
	Combined	199	3.140704	.9745766	1	5	2	3	4
In-text attribution	Control	148	3.72973	1.007419	1	5	3	4	4
	TEAM	51	4.196078	.7216539	2	5	4	4	5
	Combined	199	3.849246	.9626284	1	5	3	4	5
In-text format	Control	148	3.074324	1.024139	1	5	2	3	4
	TEAM	51	3.333333	1.032796	2	5	2	3	4
	Combined	199	3.140704	1.030005	1	5	2	3	4
Source usage	Control	148	3.5	1.280412	1	5	2	3	5
	TEAM	51	3.313725	1.174567	2	5	2	3	4
	Combined	199	3.452261	1.253876	1	5	2	3	5
Peer review	Control	148	3.02027	1.209203	1	5	2	3	4
	TEAM	51	3.45098	1.154361	1	5	3	3	5
	Combined	199	3.130653	1.207307	1	5	2	3	4
Popular quality	Control	134	2.708955	1.032004	1	5	2	2	3
	TEAM	49	2.734694	.9741558	1	5	2	2	4

	Combined	183	2.715847	1.01425	1	5	2	2	3
Popular evidence	Control	132	1.227273	.574136	1	5	1	1	1
	TEAM	48	1.416667	.7672369	1	5	1	1	2
	Combined	180	1.277778	.6347089	1	5	1	1	1

Next, the researchers analyzed the rubric scores of students in the TEAM sections in comparison to those of students in the traditional sections (see Table 1). Results revealed that the TEAM students had higher total means than students in the traditional sections in six of the seven rubric categories: works cited formatting, in-text attribution, in-text citation format, peer review, popular source quality, and popular evidence.

Although TEAM students had higher means in most rubric categories, only three showed statistically significant differences. The first was the works cited category ( $z = -5.27, p = 0.00$ ) (Table 2). This category focused on one specific skill, the ability to format end references in a correct citation style (typically either APA or MLA, depending on the instructor). The rubric privileged consistency of formatting and inclusion of necessary information over orthographic accuracy. This category revealed the largest disparity between students in TEAM classes and those in traditional sections.

Table 2.  
Mann-Whitney U test comparing the mean scores of students in the TEAM\* and traditional sections on their ability to format a works cited list

Group	Number of Observations	Rank sum	Expected
Control	148	13011.5	14800
TEAM	51	6888.5	5100

Combined	199	19900	19900
Unadjusted variance	125800.00		
Adjustment for ties	-10792.04		
Adjusted variance	115007.96		
H0: works_cited(group==Control = works_cited(group==TEAM)			
Z = -5.274			
Prob >  z  = 0.0000			
Exact Prob = 0.0000			

\*The TEAM (Transfer Enrollment at A&M) group comprised first-generation, provisionally admitted students who were taught composition along with information literacy by librarians. The control group were taught composition in the traditional manner by English instructors.

The second category that showed statistically significant differences was in-text attribution ( $z = -2.90, p = 0.00$ ). As discussed previously, this category had the highest overall mean score of any rubric category. Though the scores of students in the TEAM and traditional sections differed significantly, each group received its highest score in this category. (Table 3).

Table 3.

Mann-Whitney U test comparing the mean scores of students in the TEAM\* and traditional sections on their in-text attributions for quotations and paraphrases

Group	Number of Observations	Rank sum	Expected
Control	148	13834	14800
TEAM	51	6066	5100
Combined	199	19900	19900
Unadjusted variance	125800.00		

Adjustment for ties	-14810.67
Adjusted variance	110989.33
H0: intext_attribution(group==Control = intext_attribution(group==TEAM)	
Z = -2.900	
Prob >  z  = 0.0037	
Exact Prob = 0.0035	

\*The TEAM (Transfer Enrollment at A&M) group comprised first-generation, provisionally admitted students who were taught composition along with information literacy by librarians. The control group were taught composition in the traditional manner by English instructors.

The third statistically significant result was in the peer review category ( $z = -2.23$ ,  $p = 0.03$ ) as seen in Table 4. Students in the TEAM course had a higher mean for the use of peer-reviewed sources than did students in traditionally taught sections ( $M = 3.45$  and  $M = 3.02$ , respectively). This category, which assessed the percentage of peer-reviewed works used as sources, received mean scores near the middle of the rubric (Table 1). The instructors each had their own requirements for use of peer-reviewed sources; some required more than others. Furthermore, some instructors demanded scholarly or academic works instead of peer-reviewed sources, a distinction that provided students with more latitude on what types of sources to include.

Table 4.  
Mann-Whitney U test comparing the mean scores of students in the TEAM\* and traditional sections on the percentage of peer-reviewed sources they cited

Group	Number of Observations	Rank sum	Expected
Control	148	14034	14800



TEAM	51	5866	5100
Combined	199	19900	19900
Unadjusted variance	125800.00		
Adjustment for ties	-7965.23		
Adjusted variance	117834.77		
H0: peer_review(group==Control = peer_review(group==TEAM)			
Z = -2.231			
Prob >  z  = 0.0256			
Exact Prob = 0.0254			

\*The TEAM (Transfer Enrollment at A&M) group comprised first-generation, provisionally admitted students who were taught composition along with information literacy by librarians. The control group were taught composition in the traditional manner by English instructors.

The one category where students in the TEAM sections had mean scores lower than students in the other sections was source usage. This category focused on whether students cited in text the sources that appeared in the bibliography. The findings for both groups showed that it was common for students to cite some sources only in text or only in the works cited, or to cite them in such a way that it was unclear whether the source was included. For example, a book might be listed correctly under the author's name in text but appear under the publisher's name in the works cited. Students in the traditional sections scored slightly higher than TEAM students in this area, though the difference was not statistically significant.

## Discussion

This study was part of a multipronged research project to assess the impact of integrating information literacy into the instructional model. The first part of the project, published in 2021,

documented increases in TEAM students' IL skills on a standardized test using a pretest-posttest methodology over the course of a semester.<sup>23</sup> This corresponding study reinforces those findings, suggesting that the TEAM students also improved their ability to apply IL skills in their research papers. Overall, students in the TEAM sections outperformed their classmates in six of the seven categories studied, further lending credence to the well-established notion that integrating information literacy into course curricula is more effective than one-shot instruction sessions.

Study findings also suggested that TEAM students performed better on some IL areas. One particular area of interest was citing sources, a skill commonly taught during traditional library instruction sessions. In the ENGL 104 curriculum, students are graded on their ability to integrate and format citations correctly. The researchers specifically increased discussion of both citation integration and citation formatting as part of the revised curriculum for TEAM sections, and this increased focus appears to have resulted in higher student scores in these rubric categories. In particular, students in the TEAM sections scored highly in formatting end references, achieving a mean of 3.78 compared to students in the traditional sections, who scored a mean of 2.92. While these scores are promising, formatting is only one aspect of correct citation. Both TEAM students and those in traditional sections frequently omitted sources from either the reference list or the text, although the APA and MLA citation formats require inclusion of all sources referenced in text, not those consulted. Additional work is needed to help students fully understand how to ethically attribute sources.

In the same vein, findings also showed that TEAM students were more proficient at in-text attribution than non-TEAM students were. Both groups showed similar ability in formatting in-text citations, however. In other words, TEAM students more consistently provided attributions for quotations and paraphrases but did not format them any better than non-TEAM

students did. This reflects the manner of teaching information literacy in the TEAM sections, where the instructors focused on the rhetorical elements of citation, such as identifying authorship and charting scholarly conversations, rather than stressing merely orthographic features of citations. This approach to teaching the purpose and conversational nature of citation is consistent with contemporary IL pedagogy, as seen in the Framework for Information Literacy for Higher Education.<sup>24</sup> IL pedagogy intersects in this area with composition pedagogy, which emphasizes writing to a given rhetorical situation, where authors consider the purpose and audience of their work as significant features in constructing their argument.

Students in both the TEAM sections and in traditional ENGL sections frequently used poor-quality popular sources. Because their assignments called for use of credible sources as well as scholarly ones, the scoring rubric distinguished between high-quality popular sources that had not been peer-reviewed, such as a court case, and popular sources that had a high likelihood of bias or little editorial review. Regardless of the instructional model, students often used one or more poor-quality sources in their research papers. In their works cited pages, they commonly listed these poor-quality sources along with high-quality popular sources and peer-reviewed and scholarly works.

Additionally, students in both the TEAM and traditional sections failed to distinguish between popular and peer-reviewed sources in their writing. They often used popular sources in the same manner that they used scholarly works, giving both the same credence as evidence for their arguments. In the rubric design and scoring, the researchers were careful to distinguish between popular sources that could be used for rhetorical effect in writing and poor-quality sources that were of questionable authority. This mimicked the curriculum in the TEAM sections, which attempted to help students understand the difference between using a source as a

rhetorical device and as evidence. This finding suggests that more work needs to be done to help students understand how to employ sources for evidence versus rhetorical effect.

TEAM students scored higher on the rubric in using peer-reviewed sources as a larger overall percentage of their sources than non-TEAM students did. This finding could reflect increased proficiency in selecting peer-reviewed sources on the part of TEAM students. It could, however, also indicate a difference in how different instructors specified the required source types for their assignments.

### Limitations

The rubric study approach had several limitations. It measured students from a specific population at one institution, first-generation provisionally admitted students rather than students in the traditional student population. As such, the study findings are not generalizable. The study was successful, however, at providing information about the efficacy of the instructional model and provided a baseline for further reflection on students' IL skills.

No identifying information about the students was collected, other than the students' status as enrolled in either the TEAM course or the traditionally taught English course. The university had pre-identified students in the TEAM course as first-generation students, and they were only provisionally admitted to the university. The demographics of the students in the traditionally taught classes who volunteered to participate are unknown since personally identifiable information was not collected. The traditionally taught courses might also have included some first-generation students, but it is unclear to what extent. This makes any comparison of first-generation students in the TEAM sections and the traditional sections statistically problematic. Instead, the researchers chose to focus on the curricular differences between how the two courses were taught as the independent variable.

Additionally, there could be subtle differences in the assignment prompts among the instructors. Though the class was based on the template syllabus, instructors had the freedom to offer variations on the research paper assignment. Some instructors required a specific citation style, while others offered students a choice. Some instructors required a specific number of peer-reviewed sources in the works cited page, while others asked that a percentage of the total sources be scholarly. In addition, the number of sources required varied by instructor (approximately 6 to 10). These variations were known to the researchers during the construction of the rubric, and every attempt was made to accommodate them in the rubric scale. For instance, researchers did not count the number of peer-reviewed sources but calculated a percentage of the total to apply the scale. Still, slight variations in the assignment requirements could have affected the score outcomes.

Finally, this study only assessed students' IL skills. It did not evaluate their proficiency in composition. Future research should investigate the impact of an integrated instructional model and IL-infused curriculum on students' composition skills.

### Reflections on the Instructional Model

The study results clearly indicate that an IL-infused composition curriculum benefited the TEAM students' information literacy skills. There were challenges to implementation, however. The researchers had difficulty allocating all the class time and instruction focus to information literacy that they wished, given the already full curriculum of a first-year writing course. At Texas A&M University, the introductory composition requirement consists of only one class that must cover many writing topics in a short time. A freestanding, credit-bearing IL course would allow for more in-depth instruction, although it might lose the benefits of curricular integration.

This instructional model, in which librarians teach credit-bearing composition courses, is also not scalable for current library staffing patterns as a long-term solution for IL programming. Most libraries cannot afford to allocate librarians to the teaching of composition courses and certainly not at the scale needed for multi-section composition programs. Even as a short-term pilot, the study required significant resources of librarian time, support from library administrators, and help and collaboration from English Department administrators. The expenditure of those resources yielded significant benefits for the librarians, the English Department, and the students, however. Other libraries looking to make meaningful changes to their IL program within a specific course could look to this study as a model for systemic change.

Librarians cannot and should not take over teaching first-year composition full-time. Nevertheless, the short-term experience of filling a composition instructor's shoes for a semester can give librarians new insights into the curriculum, into the teaching experience, and into students' IL needs. These understandings can give librarians opportunities to alter their IL approach, collaborate with composition instructors to revise assignments and grading rubrics, and develop a deeper sense of kinship with those instructors. For example, the researchers provided IL-infused assignments, lesson plans, and activities to course instructors to support increased information literacy instruction in all sections. The coordinator for the ENGL 104 courses also met regularly with the librarians to discuss and revise the curriculum, and the librarians provided additional IL training for teaching assistants and faculty assigned to teach the course.

This study has resulted in new collaborations to integrate information literacy in composition and writing courses. The researchers have embarked on a new project to develop an

IL-infused composition textbook that integrates IL concepts with rhetoric and composition theories. The text will be issued as an open educational resource (OER) and will be the first of its kind to blend both writing and IL theories throughout, rather than treating information literacy as a distinct and separate chapter. These efforts combine to form a multimodal approach to embedding information literacy into the composition program. It is also a scalable solution to library instruction that has the potential for greater impact than the traditional one-shot instruction model. While the results of these next steps are still emerging, early feedback from English Department faculty has been positive.

## Conclusion

University composition classes are a primary channel for information literacy instruction for many libraries. The standard research paper assignment used in these courses offers a ripe opportunity for IL conversations, but limiting those discussions to a one-shot has constrained librarians' ability to truly impact student learning. The traditional one-shot instruction model is ill-equipped to make meaningful changes in how students perform researched writing. It sends the message that research can be learned in less than an hour and is divorced from the process of writing. We know this to be untrue. Writing and research are iterative and recursive processes that inform each other. This study provided evidence that IL concepts intentionally infused throughout composition curriculum and assignments can make a positive difference in student learning, amplifying the message that writing and research are coexistent skills and processes. Librarians have made this argument for years, but this change in the instructional model and the data collected through multiple assessments provided the vehicle for deeper conversations about true curricular integration.

While this study required a large allocation of librarian time and effort to accomplish its goals, the payoffs have been immense and long-lasting. The structural benefits of librarians as full-fledged teachers of the course led to increased engagement with the English faculty, opportunities to inform curricular changes to assignments, and a new model for IL instruction in composition courses that includes an information-literacy-infused OER. Libraries seeking to make significant changes to their IL programs, moving past the one-shot model to true integrated collaboration, could use this project as a model for systemic change.

### Acknowledgments

Many thanks to Sara DiCaglio for early collaboration and support on this project. We would also like to thank Sarah Bankston and Jared Hoppenfeld for their feedback on a draft of this article.

*Sarah LeMire is the coordinator of First-Year Programs at Texas A&M University in College Station; she may be reached by e-mail at: [slemire@tamu.edu](mailto:slemire@tamu.edu).*

*Stephanie J. Graves is the director of Learning and Outreach at Texas A&M University in College Station; she may be reached by e-mail at: [stephaniegraves@library.tamu.edu](mailto:stephaniegraves@library.tamu.edu).*

*Kathy Christie Anders is the graduate studies librarian at Texas A&M University in College Station; she may be reached by e-mail at: [kanders@library.tamu.edu](mailto:kanders@library.tamu.edu).*

### Appendix

	<b>Blank</b>	<b>1 star</b>	<b>2 stars</b>	<b>3 stars</b>	<b>4 stars</b>	<b>5 stars</b>
--	--------------	---------------	----------------	----------------	----------------	----------------



<b>Works cited</b>	N/A	Works cited does not exist.	Works cited elements are present. Citations are not in a single recognizable format. Many (~75%) citations may not contain all required elements or too many.	Works cited elements are present. Citations are in a single recognizable format. Some (~50%) citations may not contain all required elements or too many, or they may not be in the correct order.	Works cited elements are present. Citations are in a single recognizable format. Most (~75%) citations contain all required elements in the correct order and no extraneous information, though one or two may have errors. Errors may be orthographic in nature.	All works cited elements are present. All citations are in a single recognizable format. All citations contain all required elements in the correct order.
<b>In-text quotation and paraphrase attribution</b>	N/A	In-text quotation and paraphrase attributions are missing.	Quotations and paraphrases are rarely attributed.	Some (~50%) quotations and paraphrases are attributed.	The majority (~75%) of quotations and paraphrases are attributed.	All quotations and paraphrases are attributed.
<b>In-text citation format</b>	N/A	In-text quotation and paraphrase attributions are missing.	For those in-text citations that exist, they are not in any recognizable format or just wrong.	For those in-text citations that exist, they are in a recognizable format. Few (less than 50%) are correctly formatted.	For those in-text citations that exist, they are in a recognizable format. Most (more than 50%) are correctly formatted.	For those in-text citations that exist, they are in a recognizable format. All are correctly formatted.
<b>Source usage</b>	N/A	None of the sources in the works cited appears in the paper.	Three or more sources from the works cited are missing from the	No more than two of the sources from the works cited are missing from	No more than one source from the works cited is missing from the paper, OR	All the sources in the works cited clearly appear in the paper. There

			paper, or three or more in-text citations are missing from the reference list. Clearly, some sources are missing from the works cited or from the in-text citations.	the paper, or no more than two in-text citations are missing from the reference list. Incorrect formatting makes it unclear if all the sources are present and all the citations appear in the reference list.	no more than one in-text citation is missing from the reference list. There is no unclear formatting.	are no sources in the paper that are missing from the works cited.
<b>Peer review</b>	N/A	None of the sources used are peer-reviewed.	Few of the sources (less than 50%) used are peer-reviewed.	Some (~50%) of the sources used are peer-reviewed.	Most (~75%) of the sources are peer-reviewed.	Almost all the sources (greater than 75%) used are peer-reviewed.
<b>Quality of popular sources</b>	N/A	All the popular sources are poor quality.	One or more sources are of poor quality. Popular sources may not be academic in nature or from reputable sources.	No poor-quality sources used. Popular sources may not be academic in nature but are from reputable sources that are appropriate for the topic.	No poor-quality sources used. Some sources used are academic in nature, and the others are from reputable sources that are appropriate for the topic.	All the popular sources are academic or scholarly in nature.
<b>Popular evidence</b>	Does not apply (all sources were scholarly, or there were no sources used).	All popular sources are treated as evidence in the same manner as scholarly sources.	A few of the sources (less than 50%) are used for rhetorical effect, but most are used for evidence.	Some popular sources (~50%) may be used for rhetorical effect, but others are used for evidence.	Popular sources are used mostly (~75%) for rhetorical effect.	Popular sources are used only for rhetorical effect.

## Notes

1. James Elmborg, "Lessons from Forty Years as a Literacy Educator: An Information Literacy Narrative," *Journal of Information Literacy* 11, 1 (2017): 58, <https://doi.org/10.11645/11.1.2190>.
2. Elizabeth Joy Birmingham, Luc Chinwongs, Molly Flaspohler, Carly Hearn, Danielle Kvanvig, and Ronda Portmann, "First-Year Writing Teachers, Perceptions of Students' Information Literacy Competencies, and a Call for a Collaborative Approach," *Communications in Information Literacy* 2, 1 (2008): 6–24, <https://doi.org/10.15760/comminfolit.2008.2.1.53>; James K. Elmborg, "Information Literacy and Writing across the Curriculum: Sharing the Vision," *Reference Services Review* 31, 1 (2003): 68–80, <https://doi.org/10.1108/00907320310460933>; Wendy Holliday and Britt Fagerheim, "Integrating Information Literacy with a Sequenced English Composition Curriculum," *portal: Libraries and the Academy* 6, 2 (2006): 169–84, <https://doi.org/10.1353/pla.2006.0023>; Heidi L. M. Jacobs and Dale Jacobs, "Transforming the One-Shot Library Session into Pedagogical Collaboration: Information Literacy and the English Composition Class," *Reference & User Services Quarterly* 49, 1 (2009): 72–82, <https://doi.org/10.5860/rusq.49n1.72>; Rolf Norgaard, "Writing Information Literacy: Contributions to a Concept," *Reference & User Services Quarterly* 43, 2 (2003): 124–30, <https://www.jstor.org/stable/20864155>; Rolf Norgaard, "Writing Information Literacy in the Classroom: Pedagogical Enactments and Implications," *Reference & User Services Quarterly* 43, 3 (2004): 220–26, <http://www.jstor.org/stable/20864203>; Michelle Holschuh Simmons, "Librarians as Disciplinary Discourse Mediators: Using Genre Theory to Move toward

Critical Information Literacy,” *portal: Libraries and the Academy* 5, 3 (2005): 297–311, <https://doi.org/10.1353/pla.2005.0041>.

3. Randall McClure, ed., *Rewired: Research-Writing Partnerships in a Frameworks State of Mind* (Chicago: ACRL, 2016); Randall McClure and James P. Purdy, eds., *The Future Scholar: Researching and Teaching the Frameworks for Writing and Information Literacy* (Medford, NJ: Information Today, 2016); Grace Veach, *Teaching Information Literacy and Writing Studies: Volume 1, First-Year Composition Courses* (West Lafayette, IN: Purdue University Press, 2018).
4. Xiaorong Shao and Geraldine Purpur, “Effects of Information Literacy Skills on Student Writing and Course Performance,” *Journal of Academic Librarianship* 42, 6 (2016): 670–78, <https://doi.org/10.1016/j.acalib.2016.08.006>.
5. Miseon Kim and Michael Dolan, “Correlations between Information Literacy Competency and Student Writing Performance in an English 101 Course at an Urban Community College,” *Community & Junior College Libraries* 23, 1–2 (2017): 29–39, <https://doi.org/10.1080/02763915.2018.1469289>.
6. Mary Beth Burgoyne and Kim Chuppa-Cornell, “Beyond Embedded: Creating an Online-Learning Community Integrating Information Literacy and Composition Courses,” *Journal of Academic Librarianship* 41, 4 (2015): 416–21, <https://doi.org/10.1016/j.acalib.2015.05.005>; Marcia Rapchak and Ava Cipri, “Standing Alone No More: Linking Research to a Writing Course in a Learning Community,” *portal: Libraries and the Academy* 15, 4 (2015): 661–75, <https://doi.org/10.1353/pla.2015.0054>.
7. Melissa Bowles-Terry and Kaitlin Clinnin, “Professional Development for Research-Writing Instructors: A Collaborative Approach,” *Communications in Information Literacy* 14, 2

- (2020): 325–45, <https://doi.org/10.15760/comminfolit.2020.14.2.8>; Jamie White-Farnham and Carolyn Caffrey Gardner, “Crowdsourcing the Curriculum: Information Literacy Instruction in First-Year Writing,” *Reference Services Review* 42, 2 (2014): 277–92, <https://doi.org/10.1108/RSR-09-2013-0046>.
8. Mark S. Thompson, “Melding the Nitty Gritty of Critical Thinking and Information Literacy into English Developmental and Composition Classes” in *Imagine, Innovate, Inspire: The Proceedings of the ACRL 2013 Conference, Indianapolis, April 10–13, 2013*, Dawn M. Mueller, ed. (Chicago: ACRL, 2013), 414–22, [http://www.ala.org/acrl/sites/ala.org.acrl/files/content/conferences/confsandpreconfs/2013/papers/Thompson\\_Melding.pdf](http://www.ala.org/acrl/sites/ala.org.acrl/files/content/conferences/confsandpreconfs/2013/papers/Thompson_Melding.pdf).
9. Anne-Marie Deitering and Sara Jameson, “Step by Step through the Scholarly Conversation: A Collaborative Library/Writing Faculty Project to Embed Information Literacy and Promote Critical Thinking in First Year Composition at Oregon State University,” *College & Undergraduate Libraries* 15, 1–2 (2008): 57–79, <https://doi.org/10.1080/10691310802176830>.
10. Jerry Stinnett and Marcia Rapchak, “Research, Writing, and Writer/Reader Exigence: Literate Practice as the Overlap of Information Literacy and Writing Studies Threshold Concepts,” *Literacy in Composition Studies* 6, 1 (2018): 62–80, <https://doi.org/10.21623/1.6.1.4>.
11. Britt A. Fagerheim and Flora G. Shrode, “Information Literacy Rubrics within the Disciplines,” *Communications in Information Literacy* 3, 2 (2009): 158–70, <https://doi.org/10.15760/comminfolit.2010.3.2.78>; Megan Oakleaf, “Using Rubrics to Assess Information Literacy: An Examination of Methodology and Interrater Reliability,” *Journal of*

*the American Society for Information Science and Technology* 60, 5 (2009): 969–83,  
<https://doi.org/10.1002/asi.21030>.

12. Elizabeth Choinski, Amy E. Mark, and Missy Murphey, “Assessment with Rubrics: An Efficient and Objective Means of Assessing Student Outcomes in an Information Resources Class,” *portal: Libraries and the Academy* 3, 4 (2003): 563–75,  
<https://doi.org/10.1353/pla.2003.0078>.
13. Karen R. Diller and Sue F. Phelps, “Learning Outcomes, Portfolios, and Rubrics, Oh My! Authentic Assessment of an Information Literacy Program,” *portal: Libraries and the Academy* 8, 1 (2008): 75–89, <https://doi.org/10.1353/pla.2008.0000>; Danya Leebaw, Kristin Partlo, and Heather Tompkins, ““How Is This Different from Critical Thinking?” The Risks and Rewards of Deepening Faculty Involvement in an Information Literacy Rubric,” in Mueller, *Imagine, Innovate, Inspire*, 270–80,  
[http://www.ala.org/acrl/sites/ala.org.acrl/files/content/conferences/confsandpreconfs/2013/papers/LeebawPartloTompkins\\_HowIsThis.pdf](http://www.ala.org/acrl/sites/ala.org.acrl/files/content/conferences/confsandpreconfs/2013/papers/LeebawPartloTompkins_HowIsThis.pdf); Davida Scharf, Norbert Elliot, Heather A. Huey, Vladimir Briller, and Kamal Joshi, “Direct Assessment of Information Literacy Using Writing Portfolios,” *Journal of Academic Librarianship* 33, 4 (2007): 462–77,  
<https://doi.org/10.1016/j.acalib.2007.03.005>.
14. Alexandria Chisholm and Brett Spencer, “Through the Looking Glass: Viewing First-Year Composition through the Lens of Information Literacy,” *Communications in Information Literacy* 13, 1 (2019): 43–60, <https://doi.org/10.15760/comminfolit.2019.13.1.4>; Mark Emmons and Wanda Martin, “Engaging Conversation: Evaluating the Contribution of Library Instruction to the Quality of Student Research,” *College & Research Libraries* 63, 6 (2002): 545–60, <https://doi.org/10.5860/crl.63.6.545>; Lorrie A. Knight, “Using Rubrics to

- Assess Information Literacy,” *Reference Services Review* 34, 1 (2006): 43–55, <https://doi.org/10.1108/00907320610640752>; Erin E. Rinto, “Developing and Applying an Information Literacy Rubric to Student Annotated Bibliographies,” *Evidence Based Library & Information Practice* 8, 3 (2013): 5–18, <https://doi.org/10.18438/B8559F>; Erin E. Rinto and Elisa I. Cogbill-Seiders, “Library Instruction and Themed Composition Courses: An Investigation of Factors That Impact Student Learning,” *Journal of Academic Librarianship* 41, 1 (2015): 14–20, <https://doi.org/10.1016/j.acalib.2014.11.010>; Sue Samson, “Information Literacy Learning Outcomes and Student Success,” *Journal of Academic Librarianship* 36, 3 (2010): 202–10, <https://doi.org/10.1016/j.acalib.2010.03.002>.
15. Kenneth Burke, *The Philosophy of Literary Form* (Berkeley: University of California Press, 1941), 110–11; Andrea Lunsford, Michal Brody, Lisa Ede, Beverly Moss, Carole Clark Pepper, and Keith Walters, *Everyone’s an Author: With Readings*, 2nd ed. (New York: W. W. Norton, 2016), 7.
  16. Association of College and Research Libraries (ACRL), “Framework for Information Literacy for Higher Education,” 2016, <http://www.ala.org/acrl/standards/ilframework>.
  17. ACRL, “Framework for Information Literacy for Higher Education.”
  18. Stephanie J. Graves, Sarah LeMire, and Kathy Christie Anders, “Uncovering the Information Literacy Skills of First-Generation and Provisionally Admitted Students,” *Journal of Academic Librarianship* 47, 1 (2021): 102260, <https://doi.org/10.1016/j.acalib.2020.102260>.
  19. Graves, LeMire, and Anders, “Uncovering the Information Literacy Skills of First-Generation and Provisionally Admitted Students.”
  20. Scharf, Elliot, Huey, Briller, and Joshi, “Direct Assessment of Information Literacy Using Writing Portfolios.”

21. Oakleaf, "Using Rubrics to Assess Information Literacy."
22. Timothy C. Urda, *Statistics in Plain English*, 4th ed. (New York: Routledge, 2018).
23. Graves, LeMire, and Anders, "Uncovering the Information Literacy Skills of First-  
Generation and Provisionally Admitted Students."
24. ACRL, "Framework for Information Literacy for Higher Education."