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A Collaborative Intervention: Measuring the Impact of a Flipped Classroom Approach on Library One-shots for the Composition Classroom

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Abstract

Instruction librarians teaching one-shot information literacy (IL) sessions to freshman composition classes at academic universities across the U.S. United States experience a familiar set of issues. In response, librarians have produced a large of literature detailing flipped instruction approaches, collaborative case studies with outside departments, and critiques of the library one-shot. However, little research exists describing attempts to combine these three approaches in one study. Both a case study and an impact-assessment study, this article describes a collaborative intervention between the Library Instruction team, the Writing Across the Curriculum (WAC) program, and the English department, with the purpose of studying the intervention's impact on student learning. The study found that a flipped classroom approach in the form of a handout activity had a positive impact on student learning. Furthermore, the successful implementation of the study was dependent on effective collaboration between the Library, the English department, and the Writing Across the Curriculum program.

Keywords: one-shot assessment, flipped classroom, composition, departmental collaboration

Introduction

Members of the Library Instruction team at the College of Staten Island observed issues in teaching information literacy in one-shot sessions to freshman composition students. Most concerns will be familiar to any instruction librarian at an academic university. The most pressing issues observed included: students entering the classroom unprepared for the session (confusion around their composition assignment, no working research question), lack of coordination between the composition faculty

and the library instruction faculty, poorly timed library one-shots with regard to assignments due, and a lack of student focus during the "hands on" research time. To combat these issues, the Instruction Team designed, implemented, and assessed a collaborative flipped classroom approach to the one-shot session, which the Library Instruction team taught to freshman composition classes during the Spring 2017 semester. Collaboration was key in designing and implementing the flipped intervention



assignment. Librarians have produced a bounty of literature detailing flipped instruction approaches, collaborative case studies with outside departments, and critiques of the library one-shot, little research describing attempts to combine these three approaches in one study. Both a case study and an impact-assessment study, this article describes a collaborative intervention between the Library Instruction team, the Writing Across the Curriculum (WAC) program, and the English department, with the purpose of studying the intervention's impact on student learning. This paper will (i) discuss the literature to situate the project described within current trends in information literacy instruction, (ii) detail how the collaboration arose and progressed, followed by an implementation of the intervention assignment, and (iii) analyze the results of a rubric applied to the students' intervention assignment.

Literature Review

A tremendous number of publications are available on topics relevant to our study, which include: assessment of information literacy instruction, particularly one-shots, whether flipped or traditional; the application of flipped classroom techniques in library instruction; and collaboration in information literacy between libraries and English departments and/or WAC programs. There is little that combines all three of these strands. Our literature review will take a look at each in turn as they relate to our project, drawing out where there is overlap.

One-shot Assessment

A common theme in the literature on flipped classrooms and collaborations is a critique of that mainstay of library instruction, one-shots. Assessment of one-shots has its own literature all its own. Rinto and Cogbill-Seiders refer to several studies that show a positive impact, and their own study indicated that sections of a composition class "that attended an infor-

mation literacy instruction session scored significantly higher on the annotated bibliography assignment than sections that did not attend."¹ However, they also found "there is compelling evidence that one-shot instruction sessions simply are not conducive to deep, lasting student learning."² Similarly, Artman, Friscaro-Pawłowski, and Monge found one-shots are "an inefficient and inadequate means of preparing students to incorporate meaningful research into their writing. Yet [they] persist."³ Another overview of very strong critiques of one-shots is provided by Wang who cites compelling evidence that "oneshot instructional sessions likely do not fulfill the information literacy needs of students."⁴ However, what instruction librarian today would expect a simple one-shot to satisfy comprehensive information literacy needs of students? Librarians are implementing and evaluating many other instruction methods, from IL throughout the curriculum at various levels to increasing collaboration with discipline faculty, which may include co-teaching and training the trainer, as well as creating credit-bearing IL courses.⁵ Certainly one-shots have limitations, but they do have benefits. Additionally, some instruction librarians may not have the opportunity to implement another mode of instruction. For this reason, studies of impact and assessment are important. As Rinto *et al* say, "It is heartening to see the discussion expanding beyond one-shot instruction, but many instruction librarians are still only afforded a small amount of class time with students. It is therefore important to continue to develop our knowledge about best practices for these one-shot sessions."⁶ In 1993, Barclay published a well-known paper entitled, "Evaluating Library Instruction: Doing the Best with What You Have".⁷ It remains true that for many librarians, one-shots are 'what we have'. In our department, we are fortunate that we have a one credit information literacy course taught by instruction librarians, including all three authors. Therefore, we are keenly aware of the possibilities that

open when a librarian has half a semester of contact with students as discipline faculty, and of the drawbacks of one-shot access.

Perhaps most importantly, the literature finds that well-planned one-shots *developed with faculty collaboration* have value. In implementing this pilot, we believe that the intervention assignment resulting from the collaboration enhanced the one shot session. We share the experience that one-shots are ‘what we have’⁸ and as Smale puts it, “with so much of our library instruction dependent on one-shots for a variety of reasons, it seems like anything we can do to help students get more out of that single session is worth a try.”⁹ We recognize that it won’t be sufficient to achieve all our desired outcomes, but the added benefits of collaboration make it worthwhile to attempt to improve the learning experience of students.

Flipped Classroom Approach

The library and information science (LIS) literature recounts a history of information literacy instruction, covering the movement toward active learning inspired by developments in pedagogical theory.¹⁰ Educators have been trying to steer instruction away from both behaviorism and the banking model critiqued so well by Freire in *Pedagogy of the Oppressed*.¹¹ Informed by new theoretical developments in education such as social constructivism, they are incorporating active learning methods, in which students are more equal participants in the classroom rather than passive vessels into which teacher-experts transfer information. It has taken a little longer for these developments to permeate in higher education, where the lecture model has held sway for so long. These changes, including the flipped or inverted classroom, have been embraced by many librarian-teachers.

The LIS literature of the last few decades documents these changes in IL instruction within the library¹² beginning with tours and orientations,

moving through to the lectures and demonstrations of early bibliographic instruction, and then to new developments such as hands-on time, information literacy, online modules, videos, tutorials, quizzes, and credit-bearing IL courses. The success of these developments led to an increase in demand for IL instruction that libraries find unsustainable. Therefore, changes have been made has also been a move to ‘train the trainer’, that is teach IL to discipline faculty to collaborate on meaningfully integrating IL into courses.¹³ The flipped or inverted classroom model is one culmination of these changes, arising about a decade ago. The flipped classroom approach go toward mitigating the critiques of one-shots.

In her 2014 overview of ‘the flip’ for librarians, Arnold-Garza finds there are two defining components to the flipped classroom approach: “moving the lecture outside of class, usually delivered through some electronic means, and moving the practical application assignments, formerly homework, into the classroom”.¹⁴ Other authors broaden this definition of the flipped approach to consist of any type of intervention prior to class time- not solely a lecture- allowing more class time to be used for hands-on activity.¹⁵ A scoping review of the use of the flipped classroom approach in higher education finds that,

“it is evident that there is no single model for the flipped classroom to date but core features of the flipped learning approach include: content in advance (generally the pre-recorded lecture), educator awareness of students understanding, and higher order learning during class time. Outcomes of implementing a successful flipped class approach should consider effective student learning that facilitates critical thinking, and importantly improves student engagement, both within and outside the class.”¹⁶



Our pilot project can be viewed as a flipped classroom approach based on this definition. As will be outlined in the Implementation section, students are directed by discipline faculty to complete page one of a four-page handout. They can also access a website developed by a WAC fellow covering research-related issues such as formulating a research question. We direct them to complete the subsequent pages in class after a brief demonstration of search techniques, some discussion on the research process, types of sources. We did not lecture prior to class, but rather provided a handout activity. It is still necessary to demonstrate searching in the classroom, but this preparatory work helps students know what to expect, loosely structures the session, and allows us to spend more time on authentic learning.

Challenges to implementing the flipped technique are overcome by these activities. Ensuring students complete work before the library session when the stakes are low relies on the cooperation of the discipline faculty. Indeed,

“...collaborating with faculty is essential to employing the flipped classroom for any course integrated library instruction. In many cases, it will be a oneshot session; this means that the faculty member holds a lot of power in making the flip successful because he/she must ensure that students come to class prepared to engage with the librarian.”¹⁷

A recent study found that using a flipped classroom approach did not improve student work.¹⁸ Three sections of an English composition class one-shot session were flipped, and student work was compared to that in three sections taught by the usual lecture method. The lecture method classes scored better. This study did not involve collaboration at any level higher than the previous lecture method; a meeting with the discipline faculty to discuss the assignment and expected outcomes in which the benefit of having

the students watch the flipped classroom content was explained. The author notes that they relied on the faculty member to have the students prepare for the library session.

Evidence points to the need for collaboration to make the flipped approach worthwhile and the next section looks at the literature around library collaboration, particularly as it pertains to the one-shot and flipped classrooms.

Collaboration

Research on librarian-faculty collaborations abounds in the LIS literature. Such collaborations are also discussed in the composition and rhetoric literature. It is useful to view our work from this perspective, though it is acknowledged that the library literature has more scholarship on this subject.¹⁹ Rising recognition of the importance of information literacy to learning outcomes in higher education provides an opportunity for librarians.²⁰ A stronger role for librarians opens with the integration of information literacy into general education curriculum and course learning outcomes. In the experience of many librarians, the relatively new ACRL Framework (and for many, the Standards before it, as well) gives librarians the language for successful outreach to faculty and administration, a real seat at the general education table.²¹ Particular parallels are present between writing program outcomes and information literacy outcomes both those created by libraries, and also ACRL.²² Yet, the literature details many remaining hurdles in the path of librarians establishing themselves as equal information literacy instructors in the disciplines, and to building satisfying collaborative relationships;²³ information literacy instruction relies on discipline faculty but the onus is on librarians to understand and appeal to their culture.²⁴ In the worst case scenario, always playing the junior role in a collaborative relationship may lead to exhaustion, frustration and burnout for librarians.²⁵ Also, freshman English composition in many



campuses is taught by contingent or adjunct faculty which can make it difficult to build sustained relationships. Due to our awareness of these challenges we were aware of these challenges, the Library's Instruction team began work with the WAC fellow to develop a thoughtful teaching and learning tool the interactive informational website and instructional handout/ over seven months before we piloted our intervention project.

A successful flipped classroom is dependent on relationships, and discipline faculty buy-in and enforcement. We experienced the benefits of collaboration described in the LIS literature as well as its challenges. Our high-level collaboration was between two departments, implemented across a core course with over a hundred sections. Developing a collaborative project at this scale can clearly be beneficial in encouraging faculty follow-through, as opposed to developing individual collaborative relationships. Writing Program administrators' administrative status encourages program-wide collaboration with libraries.²⁶ Despite the abundant benefits of wide-scale collaboration, a sticky challenge presents itself if individual faculty choose not to comply. Indeed, we experienced this challenge in our project when some department faculty, as well as library faculty, did not complete the planned intervention as intended. This behavior is the nature of academia and a cost of faculty autonomy. A specific analysis of how these challenges presented themselves in our study is addressed in the Collaboration section.

Little LIS literature could be found that combines a look at the flipped approach with an inter-departmental collaborative effort, as we have done here. One paper that specifically addresses both is Cohen's successful collaboration with a faculty member to bring a flipped approach to a business section. Her case study aims to move beyond current scholarship on collaboration in information literacy to show how the flipped classroom can help build relationships with the

disciplinary departments and overcome librarians' obstacles to collaboration and critiques of one-shots.²⁷ While Cohen's study collaborated with the business department, most library collaborations are with first year English classes, as is most of our instruction. There is substantial study of this 'natural alliance' between librarians and first-year composition instructors.²⁸

From the perspective of compositionists, one-shots help to perpetuate the myth that research and information literacy are separate, skills-based, and subordinate processes to writing, aimed toward the arbitrary tasks of the research paper number such as types of sources required, topics of little interest or real-life relevance.²⁹ Librarians acknowledge that research and writing are intertwined processes which, to truly be successful, require collaboration between composition instructors and librarians.³⁰ Artman *et al*, citing Norgaard, note the immense gap in the literature considering the ties between IL and composition; almost all scholarship focuses on details of local implementations. Artman *et al* state that to be most effective intervention cannot be at the time of the one shot; collaboration must come at the design level. "This collaboration must not be reserved until students are in the process of conducting or beginning their research, but must be part of instructional planning envisioned by the instructor or writing program administrator."³¹

Moreover, a study focused on the outcomes of different levels of collaboration showed that greater levels of faculty-librarian cooperation gave "statistically significantly stronger IL performance in culminating student papers."³² The authors concluded that intensive support was not needed. Syllabi and assignment design collaboration, two face-to-face workshops and an online quiz was optimal. They also evaluated the impact of using a rubric on IL and found a statistically significant improvement only with high-level collaboration, at the syllabus design

level. This finding is especially instructive to our study which also works at the department level.

This artificial separation of the related skills of research and writing, mentioned by the compositionists quoted above, led one campus to completely redesign a course through a high-level collaboration between librarians and writing specialists.³³ Their experiences speak to the benefits of collaboration at that point of course design and level. Flipped classroom techniques were used by instruction librarians co-teaching the course. Although the study did not assess student work they concluded that more systematic research on using the flipped approach in information literacy instruction is needed. They did find that collaboration at course, assignment and content design level were key to improvements.

Another study, strongly influenced by work in composition studies, particularly by Norgaard, discusses the “longtime allies”, librarians and writing instructors, whose fields “draw from the same intellectual well, building upon more general pedagogical developments.”³⁴ The authors describe “several pedagogical enactments of IL that are based on social constructivist and sociocultural learning theory... Constructivist approaches emphasize that the prior knowledge of individual learners shape all information seeking, which is conceptualized as a recursive process.” In our intervention, acknowledging our students’ prior knowledge is represented on the handout by the ‘what I know’ box. We repeatedly emphasize information-seeking as a recursive process on the handout, on the accompanying website, and in the class session.

As noted, little in the literature combines the three strands included in this study; the assessment of one-shots, flipped classrooms, and library collaboration efforts. The following case study describes our success with improving our one-shots for first -year English classes by implementing a flipped classroom approach in a

true collaborative effort with our English department and WAC program. This is supported by the results of our analysis of the intervention assignment itself, the handout. The following sections will detail how our collaboration arose, its implementation, and the results of scoring the work of six sections using a rubric.

Collaboration between Library and the English Department

Origins

Similar to many academic libraries, the Library Instruction Program at the College of Staten Island (CSI) has focused on students in first year English composition courses. Such courses are traditionally when students have their first opportunity to write papers requiring college level research and use peer-reviewed sources. The library's relationship with the English Department at CSI spans well over a decade, with second semester English composition courses, called English 151, regularly comprising over sixty percent of all one-shot library instruction classes taught.

In the spring of 2016, a casual conversation started between library faculty member, Professor Jonathan Cope, and the Writing Across the Curriculum (WAC) Coordinator in the English Department, Professor Harry Thorne, around developing an assignment to improve student learning outcomes and make for a more productive instruction session. Both were excited enough about the idea to schedule meetings to discuss implementing a formal approach to research collaboration between our departments. The outcome of these conversations was a plan to create an intervention assignment and an accompanying website. The assignment or intervention would include a section to be completed prior to the library one-shot instruction session and one completed afterwards to ensure that students met the objectives outlined in the lesson plan and could leave the one-shot with



sources in hand. The intervention assignment would also be a useful assessment tool for both English and Library faculty.

Over the course of several meetings that took place during the Spring 2016 semester between the Coordinator of the Library Instruction Program, members of the Library Instruction team, the WAC Coordinator, and the WAC fellow developed details for a website that would be used as a guide for students and faculty in English 151 courses. The primary impetus for the conversation was based on the experiences of Library and English faculty alike who observed that many students attended the instruction session without having developed their research question. As a result, the library lesson did not seem relevant and students were unable to take full advantage of the hands on time to start finding appropriate resources for their paper.

The website, *Writing for Research at CSI* [<http://opencuny.org/writingforresearchcsi/>], was produced online by WAC Fellow, Kevin Hughes, using OpenCUNY, a student-based, open-source, academic, participatory digital platform for this community. The website's homepage outlined the collaboration between the WAC Program in the English Department at CSI and the Library, as well as the library instruction visit. The WAC fellow created the initial draft of the website's text, which two members of the Library Instruction team significantly edited, followed by edits by the rest of the instruction team. The finished site then comprised of writing and research guides, which included a link to a downloadable four-page intervention assignment handout, as well as tabs for picking a topic, developing a good research question, evaluating information sources, and using outlines to guide research. This downloadable handout is the exact document we emailed to the ENG 151 faculty at the point of confirming the one-shot library session.

When creating the handout, we determined a set of learning outcomes that students would ideally master (or at least become acquainted with) during the session, and incorporated questions into the handout that address those very measures. Those include:

1. Ability to create a research topic relevant to the composition course
2. Ability to create a focused research question based on their chosen topics
3. Ability to identify information they already know about their topic, and identify information they would like to know to write their paper
4. Understanding the differences between the variety of formats typically found in an academic library (reference works, books, newspaper articles, magazine articles, academic journal articles), and the ability to identify which resources best suit their information needs
5. Ability to list appropriate keywords to use when searching library databases
6. Ability to locate two relevant sources in the library's holdings using their keywords, and the ability to explain how those sources relate to the topic
7. Ability to reflect on what they learned during the session and articulate why it is useful to their studies or not useful if that is the case

We developed these learning outcomes based on the Library Instruction team's familiarity with the standard syllabus template and learning outcomes of the ENG 151 curriculum, combined with the Library Instruction team's information literacy goals for any instruction session. These learning outcomes mirror the learning outcomes developed for the ENG 151 core curriculum, and



are tailored to guide the student from research inquiry to research outcomes in tandem with the students' writing skills development. Our collaborative work with the English department and subsequent meetings with the WAC fellow were instrumental in developing a teaching instrument that guides students through targeted strategies that so closely mirror their composition assignments.

Implementation of the Project

The project, piloted in Fall 2016, was implemented and promoted in many ways. Meetings were held with the entire Library Instruction team to inform and discuss this new initiative. In coordination with the WAC Coordinator, a flyer was designed and sent to all English faculty members announcing the partnership, as well as an informative email sent to English faculty members directly from the English department. The Library Instruction webpage was updated to include information about the project, including a link to the website and a downloadable version of the four-page assignment. To ensure that all ENG 151 (second semester first-year composition) classes participating in the intervention were aware of the intervention, details about the project, a link to the website, and the assignment in Word and PDF format were sent to English faculty members in the email confirming the Library Instruction session. In an attempt to increase instructor buy-in, the email mentioned that the assignment was developed in collaboration with their department and with the WAC program, so that individual ENG 151 instructors knew that the assignment did not stem from Library faculty alone. The email emphasized that page one and two were to be completed prior to the instruction session, and pages three and four would be done during the session's hands-on time after the library lesson. Additionally, copies of the assignment were also available in the Library's classroom.

The collaboration was also promoted to the broader community in an article in the Fall 2016 College of Staten Island Library newsletter. The Chief Librarian and Coordinator of the Library Instruction program attended an event about WAC Fellows on campus in the College's Faculty Center at the beginning of the Fall semester, where our partnership was discussed in detail and we addressed questions by English faculty members. The initiative was also discussed at CUNY's Library Information Literacy Advisory Committee meetings, which is attended by the Library Instruction/Information Literacy Coordinators throughout the CUNY campuses. The project was very well-received by CUNY colleagues and due to the fact that our website was created on an open-source CUNY platform, others were encouraged adapt the project to their campuses. The collaboration was also mentioned at the Library Association of CUNY Instruction meetings, which led to an invitation to present on our project at a LACUNY Roundtable in Spring 2017.

Unforeseen Challenges, Unexpected Opportunities

After the Fall 2016 pilot, Library faculty and the WAC Coordinator assessed the project, which resulted in both challenges and opportunities. A number of changes to the intervention assignment and website were proposed. However, such revision could not be completed by the WAC fellow as his annual fellowship had expired. As a result, it was decided that the Library should take ownership of the *Writing for Research* website. In the future, not only would there be necessary revisions based on regular assessment of the intervention but the instruction team would move the assignment, which was being updated, to a more prominent place on the site. However, with such limited time, the Library was unable to create a new site over the winter break prior to the Spring 2017 semester. Furthermore, the Library's entire website was in the process of changing its content management



system. Therefore, we decided to wait until our new website was launched. In the interim, we mentioned the website in the revised assignment, as it still contained useful information for students and faculty, but we included only the new assignment in the faculty instruction confirmation.

Before conducting the assessment study, the Library Instruction team revised the assignment over the winter break to address issues of student confusion discovered while running the pilot in the Fall semester. During that time, the authors clarified the text in the assignment to match the originally stated goals. These changes were shared with the WAC Coordinator for further review. Changes based on our pilot assessment included:

- having students identify what they need to “learn,” rather than “know,” in the flipped portion assignment, which is more in keeping with our campus’s assessment language
- how we defined resource terms
- removing the break-out group section and instead introduced a question for individual students to address what type of resource was most relevant to their paper and why
- after students wrote down two citations to sources they found, we changed the questions related to why students selected those sources to emphasize how they are relevant to their research question
- for qualitative, data-gathering, we added a question for students to reveal the most important thing they learned in the Library Instruction session.

Methodology

Research Design

As library Information Literacy instructors, our goal when teaching a one-shot instruction session is for our students to leave the hour and half hour session with the knowledge and skill set required to perform the research needed to write their final papers. This is, of course, an overstatement of the capability of any given one-shot session; as discussed in the preceding literature review, one cannot expect true mastery of the research skill set after a single meeting with a librarian. Realistically speaking, our expectations tend to range from (a) hoping the students will know the library exists and that they will remember the name of the instruction librarian for future consultations to (b) hoping the student will emerge from class with a fully self-sufficient skill set to locate, assess, and properly utilize the research materials needed to complete their papers. Our goals for our collaborative ENG 151/WAC intervention lay between those two extremes.

To find out if students could effectively produce this desired set of skills during our 1.5 hour one-shot session, we (as described in the preceding section) created a handout that teaches--in concert with the librarian’s instruction--these very skills. The handout guides students from one skill to the next in the order listed above. To assess whether students mastered these skills, we made copies of their filled in handouts, and graded them on a rubric scale of 0-4. [See Appendix with handout.]

Scoring

We developed a question-specific rubric allowing us to score the results on a scale of 0-4. Unanswered questions received a zero score. The rubric for each question detailed specific outcomes related to the question. Generally, one meant a lack of mastery and four meant mastery. Each handout was scored twice by different researchers.

Sample Selection



The College of Staten Island Library Instruction team implemented the Intervention Project with all ENG 151 one-shot sessions during the spring semester of 2017. Of the 49 sessions taught during the semester, three instruction librarians (the authors of this paper) selected a total of six of those sections to collect and score. One hundred-three students participated in the scored part of the study. The CUNY College of Staten Island IRB Review Board granted the researchers an exemption to perform the study.

Limitations:

- *Lack of Control Group*: Because the handout is both an intervention tool (students enter the library classroom already prepared with a topic, research question, and a list of concepts they know and need to know) and an instruction tool in itself, we did not have a control group to provide a point of comparison. If we were merely studying the efficacy of the flipped instruction itself, we could have quizzed students who came prepared versus unprepared as a control. Alternatively, we could have quizzed students who showed up for class versus those who did not. However, our handout guides students from the beginning to the end of the research process as it relates to their composition paper; completing the handout (partially) teaches the lesson. Therefore, it is possible that students could score well on the handout without receiving the library instruction if the student carefully read the handout and thoughtfully followed the instructions. The handout and WAC website were designed to provide instruction to students unable to attend a library one-shot, while also providing the librarian with an ideal setting for student learning when they do attend. Therefore, for the purposes of this study, we are accepting the scored outcome of the handout as evidence that the handout assists students in learning the material. Future research could conduct a more robust

study that could provide controls, additional variables, in-depth student interviews, and/or longitudinal tracking of student success.

- *No Control Over Composition Faculty's Participation*: While this handout was designed with significant buy-in from the English department, the Writing Across the Curriculum Program, and the Library Instruction team, individual composition instructors and instruction librarians exercise independence over how they teach their classes. We could ask, but not insist, that composition instructors provide their students with the handout prior to the one-shot, but we had no control over how (or whether) they taught their students how to complete the first page of the handout (topic, research question, what they know & need to know).

- *No Control Over Library Faculty's Participation*: While this handout was designed by four out of seven members of the Library Instruction team, Library Faculty likewise exercise independence over how they teach their classes. We could emphasize in meetings throughout the year leading up to our project's implementation that we had created a tool we believed would increase student participation and learning outcomes, but we could not actually insist anyone use it to teach their one-shots.

- *No Control Over Student Participation*: We did not incentivize student participation in any way. The handout was not graded, nor did we give students gifts or prizes for completing the handout. The handout was simply presented to them as an assignment that would benefit them in completing their research papers (which are graded). Because of this, numerous students left answers blank, which we address in the discussion of results.



Discussion of Results

We calculated two variations in the results: one that treats answers left blank as zeros, and another that removes the zeros from the calculation. Treating non-answers as zeros assumes the student saw the question, did not know how to answer it at all, and moved on. Treating blank answers as non-entries assumes the student may have known the answer but skipped it because they found it irrelevant to their own knowledge acquisition. (Anecdotally, one author can say that during a trial run of this study, during which she collected data that she did not include in the final study, numerous students told her they did not fill out the citation section because they chose instead to email the located articles to themselves. During the true study period all librarian researchers made a point of asking the class to please fill out all areas including citations, even if they emailed articles to themselves. However, it's worth acknowledging that a student skipping a question because they found the answer obvious is a real possibility.) We acknowledge the limitation of the study by including both sets of data.

Faculty / Librarian Buy-in

While we could not control whether ENG 151 faculty would follow our suggestion to assign our handout to their students one week before our one-shot instruction session, instruction librarians could control whether we gave the handout to the students during class (we pre-printed a stack of blank handouts and had them on hand in the classroom for this purpose). However, buy-in from the English faculty was high: in the fall during our "pilot" phase where we tested the efficacy of the handout and delivery process, we taught thirty sessions and recorded that 93 percent of the ENG 151 faculty came to the one-shot session having given their students our handout as an assignment the week before. Because ENG 151 is the second of two composition courses required of freshman,

the spring session brought in more classes; of the 48 sessions we taught, 90 percent of the ENG 151 faculty complied. Only one of our seven instruction librarians chose to not use the handout, preferring a different method of instruction instead. A second librarian reported using the handout when the ENG 151 professor assigned it but not passing out the extra supply of handouts during the one-shot session if the ENG 151 professor did not assign it. Therefore, while buy-in was high from both English faculty and librarians, we recommend that both the teaching librarian and the composition instructor confirm their mutual desire to use an "intervention handout" while booking the session.

Overall Scores

Overall, students scored above 3 on each question when excluding blank answers. When averaging all questions together, students scored a 3.32 average (excluding blanks) and a 2.91 average (treating blanks as zero point scores). When breaking the scores down to the question level, we see that scores fluctuate between questions. (See Figure 1). Students tended toward a 3.12 average when locating a clear, focused, re-searchable topic and question; a 3.38 when articulating what they know versus what they need to know to write their papers; a 3.11 when articulating the types of resources the library has and why they would use them for their topic; 3.44 when listing relevant keyword combinations; 3.56 for listing two citations for sources relevant to their research question; a 3.43 when articulating why those sources are relevant for their topic; and a 3.21 when listing what they learned during the session. (See Figure 1 for results when blank answers treated as zeros.)

These scores lead to multiple conclusions. On average, students achieved a reasonable level of mastery for a one-hour lesson in the library, especially considering most students take ENG 151 in their first year of school. Students seemed to grasp the most concrete and goal-oriented

concepts most easily, such as keywords, citations, and annotations. The annotations scored the highest. The most conceptual questions that require the deepest level of higher reasoning received the lowest scores (developing a proper research topic and question; identifying which library resources will yield the most fruitful results given their topic). Trends in low scores will be discussed in greater detail later.

Figure 1. Overall Scores

	Q1 & Q2 From topic to research question	Q3 What stu- dent knows / needs to know	Q4 Types of library resources student will use and why	Q5 Keywords	Q6a Citations for two sources relating to Q1 & Q2	Q6b Why student considers this source relevant (annotation)	Q7 Student describes what they learned today	Average of averages
Averages when blanks are not counted	3.12	3.38	3.11	3.44	3.56	3.43	3.22	3.32
Averages when blanks are scored as zeros	3.12	3.04	2.84	3.20	3.12	2.63	2.44	2.91
Times stu- dent left an- swer blank	0	10	9	7	13	24	23	



Trends in Blank Responses

The only question that students did not skip is the first one: identifying a topic and developing a research question. The questions that students skipped most often are the final question (what did you learn) and the annotation question (explain how this source is relevant to your research question). Regarding the final question, the researchers believe that students considered this question optional. It is also the final question, so any student short on time would naturally skip this one. As for the annotation question, we conclude that this question is simply more difficult to answer than listing a citation. Listing a citation is a results-based response; the citation is the fruit of their labor when completing the handout. Describing why the source is useful requires the student to deeply analyze their results by reading the abstract, quickly critically analyzing its value, and articulating that value in words. If a student fell short on time, they would naturally skip this question. Alternatively, if a student is accustomed to cutting corners, this question would be a time-efficient one to cut. It's also possible that students found this question less personally useful. If we assume the handout is for them as opposed to for the librarians, perhaps filling in an annotation did not seem immediately rewarding. Librarians could improve this result by incorporating into their lesson a discussion of why and how annotations help students make sense of the research they uncover. Given that the students who did fill this area out tended to score highly (3.43). Therefore, we concluded that CSI freshman are making the connection between the research they find and its value for their topic.

Trends in Low Scores

As mentioned earlier, students scored the lowest on crafting a research question and identifying library resources, then describing how they relate to their topic. One could argue that these two areas are the deeper-thinking areas of the

two disciplines: composition and information literacy. A research question is a standard and core component of any research paper; also the bridge between composition and research. It's worth noting, too, that every single student in the study filled in the topic/question section—the difficult part of developing a clear, focused, and answerable research question is not choosing a topic one finds interesting but focusing the topic so that it leads to solid research. For the purposes of this study, it's worth noting that the composition professor taught the students about developing appropriate topics and asked the students to fill this section in before coming to class; the strength of their research questions were out of librarians' control. On the other hand, developing questions that lead to research takes practice, and one could argue that all researchers need to start their research to learn what research exists on their general topic before focusing it. Indeed, we saw evidence that students adjusted and corrected the focus of their research topic while filling out the handout, which will be discussed in the next section.

As for the IL question, "which of these resource types do you think are most relevant for your research paper and why," this concept also requires some practice before students start to understand it, and electronic research (on the WWW and in the library) arguably serves to further distance students from differentiating resource types. The student population at CSI tends to enter college as freshmen without a grasp on the difference between newspapers, magazines, blogs, online versions of print serials, encyclopedias, monographs, and academic journals. When Instruction Librarians first meet composition students, we struggle to catch them up on basic definitions while we are teaching them how to find these resources through databases, federated search tools, and information aggregators. The authors believe that true mastery in this area cannot be achieved in a single

one-shot, but that given these barriers the student scores of 3.11 (when not scoring blanks) or 2.84 (when counting blanks as zeros) is not unimpressive. Like the student who revises the research question after starting research, most students are likely to develop a stronger sense of genre of material through the practice of conducting research. This possibility makes it all the more crucial that instruction librarians in institutions similar to CSI meet with students in the classroom as early as possible in their college careers. Another potential for improving a student's comprehension of information formats is to include it as a separate class within a longer credit bearing IL course.

Discussion of Qualitative Data

One can learn much about the student's thought process about their research by analyzing these results on the handout level, by thoughtfully reading how the students' answers progress. The questions themselves led the student down the path of gathering research by starting with the widest concept (general topic) and ending with the most focused information, the citations (and annotations). Perhaps the most unexpected trend that emerged is the frequency with which students started with an unfocused, murky research question but managed- through a combination of excellent keywords, a quality research collection to search within, and their own savvy selection skills- lists of citations for discovered materials of high quality. One might expect to see a student with a hazy research question to proceed to score poorly on all the subsequent questions, but this was not the case. The score-range from question to citation raised quite a bit (3.12 to 3.56) and qualitative exploration helps us understand why.

Numerous cases exist where students who scored low on the topic to research question section recovered their score in the citation/annotation section. The chief reason for low scores on topic/research question was stu-

dents choosing a vague or too broad topic. Many of these students scored higher on the citation section by finding results that are far more focused and relational to each other than their questions predicted. For example, one student studying, "Are there alternatives to fossil fuels?" (we scored this a 2 for too broad and a yes/no question), located two sources that, together, narrowed the student's focus to the ways in which America can transition from using fossil fuels to renewable energy. These two sources (and the described reasons for using them) show that the student was able to shift from a broad topic to a more narrowed topic by following the path the handout provides. For example, by the time the student listed keywords, the topic had already sharpened to "fossil fuels, climate change, renewable energy, United States." The student was then able to select from the search results two sources that directed the topic into one that is more manageable. Although we did not conduct detailed research interviews (future research could provide this) the handouts themselves reveal a fairly detailed look into the students' thought processes.

Another example of this sequence is the student who chose "why discriminate against immigrants" as a topic. This topic seems so broad as to be unanswerable, but the student managed to locate two sources, "The Last Time We Closed the Gates," and "Immigration in the Era of Color-Blind Racism." In both annotations, the student mentioned how American racism affects immigration policy. Again, the student's keywords seem to have greatly affected the search results, although the student also chose results from the pool that indicate a narrowed focus. A third student chose the broad topic "what are the pros and cons of renewable energy?" Intriguingly the two sources the student selected speak far more specifically to the financial benefits and risks of renewable energy in the international market: "Economic Properties of Wind Power: a European Assessment," and "DeRisk-

ing Concentrated Solar Power in Emerging Markets: the Role of Politics and International Finance Institutions." Again and again, students corrected their own work through the process of filling in the handout during the IL instruction session with a librarian and composition instructor present.

A final example perhaps illustrates the point best. This student's research question was far too broad (how does child abuse impact the world?) and in this case the student did not correct their topic through source selection. However, the student showed evidence, through filling in the handout, of rethinking their topic before they got to the citation question, at which point the student simply wrote, "There are really a lot of books, articles, and journals for my topic. I just got to revise everything." While this situation could seem like a moment of failure, we would argue it is a point of learning. The student can see that so many resources available on the general topic of child abuse that they will need to zero in on something more specific (we hope). On the final question (what did you learn today?) this student wrote, "Usually I use different [web]sites to look up additional information. Today I've learned that there are a lot of true and good sources [in the library] that help me make a basis for my paper." This student will need additional assistance from the composition instructor to narrow the topic, and potentially a follow-up reference session with a librarian to go back to the beginning and revise, but it seems the process of locating a bounty of authoritative resources in the library is what taught the student this lesson.

Conclusion

Building upon our long-standing relationship with the English department, the Library embarked on a collaboration that introduced a flipped method to teaching one-shot library instruction classes. A year after first implementing the intervention assignment, we believe we have improved the manner in which we introduce information literacy skills and concepts to freshman students writing their first research papers in composition classes. Our case study details suggestions for collaborative outreach with the department that houses the targeted course (in our case collaboration with the English department to improve the Library's teaching methods for the freshman composition course ENG 151), and outlines a successful model to introduce research methods for first-year students and to create a more effective library instruction session. The data from our assessment of the project supports existing literature on the effectiveness of the flipped classroom technique and on building collaborations between libraries and other academic departments. Like any partnership in its nascent stage, we experienced growing pains, including one of our primary collaborators, a WAC Fellow, completing his term, which created a greater impetus for the Library to administer the project's website. Overall, the collaboration succeeded because of teamwork, adaptability, and flexibility, all while meeting the desired learning objectives. The authors believe this case study offers the foundation to develop a manageable partnership between the Library and English departments in order to meet the needs of composition students writing their first research paper with limited library instruction.

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³ Margaret Artman, Erica Frisicaro-Pawlowski and Robert Monge, "Not Just One Shot: Extending the Dialogue about Information Literacy in Composition Classes," *Composition Studies* 38(2) (2010), 98.

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⁶ Rinto and Cogbill-Seiders, "Library Instruction and Themed Composition Courses," 15.

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¹¹ Bowles-Terry, Davis and Holliday, "'Writing Information Literacy' Revisited," 226.

¹² Artman, Frisicaro-Pawlowski and Monge, "Not Just One Shot," 101-104; Sult and Mills, "A Blended Method," 370.

¹³ Sult and Mills, "A Blended Method," 369.

¹⁴ Sara Arnold-Garza, "The Flipped Classroom Teaching Model and its use for Information Literacy Instruction," *Communications in Information Literacy* 8(1) (2014), 8.

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²⁴ Cohen, "The Flipped Classroom as a Tool," 6-7.

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²⁶ Artman, Frisicaro-Pawlowski and Monge, "Not Just One Shot," 105.

²⁷ Cohen, "The Flipped Classroom as a Tool," 6.

²⁸ Artman, Frisicaro-Pawlowski and Monge, "Not Just One Shot"; Bowles-Terry, Davis and Holliday, "'Writing Information Literacy' Revisited"; Jennie Nelson, "It Takes a Whole Campus: Information Literacy in Composition and Across the Curriculum," *Journal of Teaching Writing*,

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APPENDIX: Handout

Writing for Research at the College of Staten Island

The CSI Library provides the resources and guidance you need to write a great research paper. This handout will help you understand the research and writing process, and how your library can help.

Please complete page 1 before coming to the library session. Bring this handout with you.

What's your paper topic?

You may have already been given you a topic, or you might have to choose one yourself. In either case, it is very important to *understand your assignment*. Check with your instructor if you are unsure what topics are available to you. For more detailed guidance on topic selection, consider completing the guide "Picking a Topic: What Interests You?", which is available on the [Writing for Research](#) website. Please write your topic down here.

TOPIC _____

What's your research question?

Behind every good research paper is a good research question. Developing a research question is a process, and you will likely need to revise your question before it will make for a good research paper. The key to a good research question is making sure it *can be answered*, and that it is *focused*. For more details on research questions, see the guide "Developing a Good Research Question" on the [Writing for Research](#) website. Write your research question below.

QUESTION _____

What do you need to know?

The next step is to figure out what you need to know in order to answer your research question. Consider your research question carefully. In the left box below, write down some things you already know about your topic. In the right box, write down some things that you will need to know in order to answer your research question.

What I know	What I need to know



What resources should you use?

The following 3 pages will be completed during your library instruction session.

The librarian will discuss the different resources available to you, and how they can help with your research. It is important to think about which resources will provide reliable information and will help to answer your research question. For more details on selecting resources, use the guide “Comparing and Evaluating Information Sources”, which can be found on the [Writing for Research](#) website.

- *Reference materials*: a good place for starting your research
 - *Library reference materials*: Encyclopedias, almanacs, dictionaries, text books, and other materials that provide basic information on various topics. Information is considered reliable.
 - *Wikipedia*: A popular online community-edited encyclopedia. Though it usually provides reliable information, it should not be cited in a research paper because of the possibility of mistakes and misinformation
- *Library books*: A wide range of books are available for checkout at your library. Whether a particular book is a good resource for your paper depends the content, intention, and reliability of the book.
- *Periodicals*: a type of publication that comes out periodically
 - *Scholarly journal articles*: Articles written by professional scholars and published in academic journals. There are many different journal articles on a wide range of topics available through your library.
 - *Newspapers and magazines*: These vary in what they cover and how trustworthy it is, but can be useful depending on the quality of the publication and your research topic. However, you will probably need to use academic resources in your research as well.
- *Blogs and websites*: Blogs and websites are very diverse. Before you use information posted on the internet, consider who wrote the information, the purpose of the blog or website, and whether they provide evidence or citations to support any claims.

Based on your research question and discussion with your librarian, which of these resource types do you think are relevant for your paper, and why?

1.	2.
Reason:	Reason:

Searching the Library's Databases

The CSI website allows you to search for a wide variety of resources.

1. Before you begin, write down some **keywords** that are specific to your research question.

_____	_____	_____
_____	_____	_____

2. Navigate to the CSI Library website (<http://www.library.csi.cuny.edu/>). Use your keywords to start your search.
(Remember, it's a normal part of the research process to revise these search terms. Try using search terms in different combinations. Also, think of synonyms for your terms.)
3. Select one or two results from your search. Write down the title, author, date of publication, and why it is relevant to your research question.

<u>Title, Author & Date</u>	<u>How is it relevant?</u>
1.	
2.	



What now?

Writing a research paper is a process, and you will almost certainly be accessing library resources multiple times in the course of writing. Your paper will change as you develop it, and so will the information you need. It may be useful to keep an outline on hand to help keep you on track as your paper develops. The guide “Using Outlines to Guide Research” can help with this, and is available on the [Writing for Research](#) website.

You may discover that a certain resource you found is not as useful as you hoped, that you need additional or different information, or you may learn about a useful resource you did not know about before. With the skills you learned today, you should be able to find many useful resources on your own, but you may also want to get the help of a reference librarian. You can make an appointment to speak with a librarian about your research and they can direct you to some useful resources you may not have found on your own.

What’s the most important thing you learned today?

Additional comments:

