In Their Own Words: Using First-Year Student Research Journals to Guide Information Literacy Instruction

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abstract: This action research study explores first-year students’ conceptions of the research process, with a focus on which aspects students find most challenging and how this information can guide stakeholders in developing curricular or service-based interventions. To gather student reflections on the research process, researchers assigned and collected journal entries at four points during the semester. Qualitative analysis of the research journals revealed how students’ self-reported research challenges can be used to identify potential instructional strategies and partnerships between librarians, first-year writing instructors, and writing center staff.

Introduction

Information literacy instruction has formed a key component of first-year writing courses for many years. Libraries allocate significant resources toward developing curriculum, creating online learning materials, and providing instruction for these courses, which prompted the current research team to study the work of students in these classes. Using qualitative analysis of student research journals, this study attempts to pinpoint how student views of the research process and its challenges can be used to identify and direct actions to strengthen instructional support. This study reveals how student experiences call into question traditional distinctions between the roles of librarians and writing instructors and suggest a more collaborative and holistic approach to information literacy instruction.
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This study is part of a larger mixed methods study, funded by a research subsidy from the Consortium of Academic and Research Libraries in Illinois (CARLI), investigating how first-year students pursue the research process. The larger study includes two additional data sets or sources: citation analysis of student bibliographies and student interviews. Guided by the tenets of action research, a form of research that is “practical, cyclical and problem-solving” and is often undertaken by practitioners, the researchers decided to explore possible interventions before completing the data analysis in its entirety. The cyclical nature of action research provided an appropriate methodology for guiding this analysis. This study contributes empirical evidence of first-year students’ self-reported research challenges to a growing body of action research literature in library and information science.

Context
The University of Illinois at Chicago (UIC) is an urban, doctoral-granting research institution. In the fall of 2014, the undergraduate student population was 16,718. There was no majority ethnicity or race, and over 40 percent of the student population were first-generation college students. UIC students receive information literacy instruction during their first year as part of a two-course sequence of required composition courses. The current study focuses on the second of those courses, English 161, which has a significant research paper component. English 161 students are required to explore and conduct research on a topic throughout the semester. In addition to emphasizing research skills, this course introduces the idea of academic discourse, exposing students to the conventions of academic writing. Course assignments are scaffolded, providing successive levels of support to move students toward greater independence. Students complete an annotated bibliography on a proposed research topic during the first part of the semester, followed by a research proposal. Throughout the semester, students complete mini-sections of the research paper, culminating with a final 10- to 15-page paper. Research topics vary depending on the course theme: students write about Chicago infrastructure, superheroes, the politics of parenting, global warming, the school-to-prison pipeline, gender and language, and a multitude of other topics.

Librarians deliver information literacy instruction for English 161 in either a one-shot or two-shot model, depending on the length of the class period. For 50-minute classes, students typically attend two sessions, whereas students in 75-minute classes attend one or two sessions depending on the instructor’s preference. Classes cap at 24 students. The content of sessions varies slightly among different librarians but is generally derived from one or more frames of the Association of College and Research Libraries (ACRL) Framework for Information Literacy for Higher Education. Instruction librarians teach such topics as developing keywords, constructing effective searches, and recognizing
scholarly and popular articles, using a variety of active learning techniques to promote student engagement.

**Literature Review**

Much has been written about the connections between first-year writing programs and libraries. Gwendolynne Reid published a comprehensive annotated bibliography on the subject, so her work will not be repeated here. Rather, this literature review will focus on research studies published after 2014, as well as those involving student research journals.

Individual librarians and first-year writing instructors have formed some useful collaborations in the last few years. Kacy Lundstrom, Anne Diekema, Heather Leary, Sheri Haderlie, and Wendy Holliday worked together to address a complex problem many first-year students have: synthesizing information from sources into their research papers. They created a lesson plan and rubric, a tool that provided clear descriptions of the performance expectations for each part of the work, which helped students improve these skills. Other librarians and first-year writing instructors have collaborated to help students evaluate sources and select research topics. Barry Malo and Barbara D’Angelo have written extensively about their collaborations, most recently in a chapter in the 2016 book *Information Literacy: Research and Collaboration across Disciplines*.

These collaborations take time and require good communication skills and a shared commitment to project success. Toni Carter, a librarian, and Todd Aldridge, a composition instructor, worked together to study the language students used when evaluating sources and the implications of this language for teaching. They found that Carter’s unfamiliarity with the terminology of first-year writing and Aldridge’s with information literacy discourse caused confusion for students. Carter and Aldridge suggest a common language for both librarians and first-year writing instructors to avoid misunderstandings.

Both first-year writing instructors and librarians have used research journals as a learning tool. Educators have long employed journals not only to assess students’ research behavior but also to improve their research skills. Louise Fluk’s 2015 update of her 2009 literature review on research logs reports that they are used for pedagogy, assessment, and prevention of plagiarism. She notes a lack of consistency about terminology used for research logs, with such terms as *information literacy narratives*, *research process assignments*, and *research writer’s journals* all referring to similar assignments. (For consistency, we will use the term *research journal.*) These artifacts can also differ in scope—anything from a simple list of keywords and descriptions, to answers to provided questions, to fully developed essays. In this present case, the investigators provided students with reflective questions to answer.

Research journals have extensive benefits. Librarians have pointed to their pedagogical value, especially their importance in helping students understand the process-oriented nature of research. Others have noted their use as an active-learning tool and as an object of learner-centered teaching. Research journals foster metacognition, encouraging students to reflect on their learning process. Journals can serve not only...
as a cognitive tool but also as an affective tool, revealing the frustrations students feel about the research process.\(^{15}\)

The researchers chose to use research journals primarily to analyze research behavior, as in several other studies, and to gather data in the students’ own words.\(^{16}\) Although this current study does not measure the effects of metacognition on student research skills, the researchers believe that using research journals could benefit students as they reflect on their research experience and gain understanding of their own learning process.

**Data and Methods**

The researchers were drawn to the practical nature of action research. Wilfred Carr and Stephen Kemmis define action research as “simply a form of self-reflective enquiry undertaken by participants in social situations.”\(^{17}\) The outcomes of action research include improving practice, gaining a better understanding of practice, and enhancing the situation in which the practice takes place.\(^{18}\)

The research team worked closely with a first-year writing instructor who taught four sections of English 161, from which students were recruited for this study. This composition class involved writing and researching about philosophy. The team drafted research journals with reflective questions for students to complete, which the instructor assigned for participation credit. Students completed the journals throughout the semester, at different key points of their research (see the Appendix for the reflection prompts). The researchers used Qualtrics software to collect data from the journals, and they placed links on the course LibGuide so students could complete the journals electronically. Each journal focused on a different topic:

- Journal 1 (Week 3): Research Experience
- Journal 2 (Week 5): Research Proposal and Annotated Bibliography
- Journal 3 (Week 14): Research Paper

Two researchers from the team visited each section of the class in Week 2 of a 16-week semester to explain the study to students and answer their questions. Only the librarians (not the course instructor) read the journals, and they were not graded. Students who did not want their work included in the study were instructed to contact the principal investigator to opt out. No students chose to do so.

The university’s Institutional Review Board granted an exemption for this study on the basis that it occurred in a normal classroom setting with usual educational procedures. In addition, procedures were in place to ensure that subjects could not be identified.

Each section of the class attended two information literacy sessions in the library as usual. During the first session, the students completed Journal 1. They wrote the rest of the journals throughout the semester outside class (see Table 1). Although the librarians sent multiple e-mail reminders, a few students failed to complete all four journal entries, forfeiting participation points. At the end of the semester, the researchers downloaded the responses from Qualtrics, removed identifying information, and assigned alphanumeric codes to track responses from different students. All student quotations from data are reported verbatim as a record of how students described their experiences.
The research team used NVivo, a software package for qualitative data analysis, to code the journal responses, and they devised preliminary codes based on the questions asked in the journals. To establish inter-rater reliability, the researchers first coded a few of the same journal entries in a group setting, compared codes, and discussed discrepancies. Then each librarian coded a small sample of journals separately. The research team tested these samples using the kappa coefficient feature in NVivo. The kappa coefficient (also called Cohen’s kappa) is a statistic that measures inter-rater agreement for qualitative items. After obtaining a kappa of 0.7 or greater, the researchers divided the journals among the team for coding.

After the first round of coding, the research team discovered many useful insights and areas for improvement. The researchers then systematically conducted a second round of coding by developing and applying codes pertaining to stakeholders who might help students: the Writing Center, instruction librarians, first-year writing instructors, library facilities, and high school teachers or librarians. Students, of course, are themselves the most important stakeholders. Although organizing student challenges by the specific stakeholder seemed useful before the data were analyzed, the challenges did not break down so neatly. Instead, many student challenges needed to be addressed by multiple constituents (for example, instructors, librarians, and Writing Center staff), working with one another.

The research team shared the preliminary study results with other instruction librarians in the department as a precursor to discussing and brainstorming new ideas for activities focusing on multiple aspects of the research process identified as challenging in the research journals. The instructional team developed a list of priority areas for developing educational activities and organized an online site to store and share activities. Each activity description lists outcomes, related frames and dispositions from the ACRL Framework, and information on how to prepare for, deliver, and assess student learning of targeted skills. The team of instruction librarians will revisit and hone these activities moving forward.

Table 1.
Student research journals analyzed

<table>
<thead>
<tr>
<th>Journal</th>
<th>Week</th>
<th>Sample</th>
<th>Percentage of students who completed journals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3</td>
<td>N = 91</td>
<td>98.9%</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>N = 74</td>
<td>80.4%</td>
</tr>
<tr>
<td>3</td>
<td>14</td>
<td>N = 56</td>
<td>60.9%</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>N = 56</td>
<td>80.9%</td>
</tr>
</tbody>
</table>
The research team also met with the writing program administrator and with two separate small groups of instructors who taught first-year writing to share these findings as well as results from a previous study. Sharing insights with instructors provided a vehicle for conversation about student research skills, confirming that many of the findings resonated with multiple instructors and leading to discussions of how we might collectively address student research challenges.

Findings

The first journal asked students about their overall feelings toward the research process, including in which areas they felt more and less confident. The most-referenced task about which students felt less confident was “finding sources,” followed by the length and depth of the research paper assignment, though an equal number gave no answer (see Table 2). It is unclear if students who did not answer felt more confident or if they just chose not to answer the question. If the former, it is important to consider that students may be overconfident in reporting their research skills.

Prior Library and Research Experience

Research journal responses from Journal 1 revealed that most students (96.7 percent) reported having used a library before, whether a public (23.1 percent), academic (9.9 percent), or school library (26.4 percent); 40.6 percent did not specify the type. These experiences varied greatly, from visiting the library for pleasure reading to using it for research. Some students who reported using a library mentioned doing so only once or twice, while others described more extensive knowledge and use of libraries:

I have used libraries in the past many times, including at school and at home. During school, I have used online library resources as a way to research different topics and to find different resources to use to research the intended topic for a specific class.

Almost all students (96.7 percent) described some form of prior research experience. Descriptions varied; 90.9 percent wrote about research in high school, while 9.1 percent described research in another UIC class or a class at a different institution (if they were transfer students). Students reported a wide range of assignments and courses that included a research component. Some described short research assignments (one or two pages), while others reported more extensive projects. They often provided only broad descriptions of previous experiences. For example, one student stated: “The most in-depth research paper I have been assigned was in 8th grade when I had to research what my dream profession was.” Another student stated, “The most in depth research
Table 2.
Research skills about which students reported less confidence

<table>
<thead>
<tr>
<th>Skill</th>
<th>Number of references</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finding sources, including relevant, credible, “best”</td>
<td>25</td>
<td>23.4%</td>
</tr>
<tr>
<td>Length/depth of research paper assignment</td>
<td>17</td>
<td>15.9%</td>
</tr>
<tr>
<td>No answer (student did not mention anything about which they were not confident)</td>
<td>17</td>
<td>15.9%</td>
</tr>
<tr>
<td>Writing</td>
<td>13</td>
<td>12.1%</td>
</tr>
<tr>
<td>Topic (either not able to find a topic or being less confident about course topic)</td>
<td>6</td>
<td>5.6%</td>
</tr>
<tr>
<td>Research and/or “everything” (for example, “I am not confident about research” or “I am not confident at all.”)</td>
<td>7</td>
<td>6.5%</td>
</tr>
<tr>
<td>Using sources</td>
<td>6</td>
<td>5.6%</td>
</tr>
<tr>
<td>Time (not having enough; procrastinating)</td>
<td>5</td>
<td>4.7%</td>
</tr>
<tr>
<td>Using library (including databases)</td>
<td>4</td>
<td>3.7%</td>
</tr>
<tr>
<td>Citations</td>
<td>4</td>
<td>3.7%</td>
</tr>
<tr>
<td>Developing own ideas</td>
<td>3</td>
<td>2.8%</td>
</tr>
</tbody>
</table>

Fewer students (72.5 percent) reported prior library instruction than described research assignments. Most of these students wrote about instruction on citing sources properly and avoiding plagiarism. In describing their previous research experience, or lack thereof, as well as their feelings about research, 46.2 percent of students voiced feeling ill-prepared to do research, not only at the college level, but in general. The following quotations are representative of students who felt unprepared to do research, had received little instruction in how to conduct research, or both:

In describing their previous research experience, or lack thereof, as well as their feelings about research, 46.2 percent of students voiced feeling ill-prepared to do research, not only at the college level, but in general.
It is sad to say that I do not know how to conduct research for assignments.

On a scale of 1–10, one being the least and ten being the most prepared, I feel like right now I’m a 3–4.

So, I guess when it comes to library research, everything about it is challenging because I have never had a good experience with it.

**Themes**

As the researchers developed and analyzed codes from the student research journals, many themes emerged. The investigators organized these themes into four broad categories: (1) guidelines remembered from high school, (2) challenges with sources, (3) challenges with writing, and (4) whether students sought help and with whom.

**High School Guidelines**

Despite that not all students had formal research instruction, many of them (68.1 percent) recalled specific research guidelines addressed in high school. Some of these lessons were helpful, others less so. For example, when asked to recall skills they learned in high school, multiple students mentioned using “reliable” or “credible” sources, something librarians also stress at the college level:

Some of the previous instructions that I have on how to conduct a research is to look at the source’s credibility.

Previous classes that assigned research papers always stressed the importance of using reliable sources.

When students spoke in more detail about what constitutes a reliable source, or which types of sources should be avoided for a research paper, the comments became more problematic, but interesting in terms of possible interventions. Without prompting, multiple students (23.1 percent) noted advice from high school which could be characterized as overly simplistic: a mantra or a research “do or don’t.” Many students also recalled “forbidden” sources, especially Wikipedia:

I remember my teachers in high school always telling me to avoid wikipedia and to use google [only] after library research.

I have learned that Wikipedia should never be used for research papers, and that I should focus on articles written by scholarly people.

The last time I received any proper instruction regarding how to conduct research was in my freshman and sophomore year of high school. However, the instruction given was a bit more basic, essentially saying to avoid wikipedia or any other sources that may not have a reliable source, or even without being officially published. Also, using any websites ending with .com, .net, or other similar endings were “banned,” in a sense.

Find good sources. Don’t trust wiki and stay away from .com and .org sources.

The only restriction in place was that all sources must be from reliable websites, namely those not ending in “.com” but rather “.edu,” “.gov,” etc. They also encouraged the use of encyclopedias.
Twelve out of 91 students mentioned primary and secondary sources in Journal 1. Nine of those 12 had research experience and research instruction in the past. Student reflections called attention to misunderstandings of these concepts, with primary rather than secondary sources seen as more suitable for research. One student remembered being told to “stick to mostly primary sources, although some secondary are okay.” Another said students were taught to “use as many primary sources as you can” because “this shows that your research is credible and couldn’t be from any unknown source.”

It is difficult to unpack what these students mean. Are they correctly using the terms primary and secondary? Are they taking lessons learned from one assignment and incorrectly applying them to a different research context (for example, finding primary sources in history versus science)? They may conceive of research as a single type of activity that is the same no matter what the discipline or context.

Research Challenges: Sources

Almost 32 percent of the challenges students referenced in Journals 2 to 4 (those completed during and after the research process) pertained to struggles using sources. The students feared that finding sources would be the most challenging part of the research, but they found sources fairly well (although some students worried about finding the required number of sources). However, students encountered difficulties with synthesis, incorporation, and use:

I think the most challenging part will be going through all of my sources and deciding what information I want to use from each. Each book and journal article contains enough information to write a whole paper on from it alone, thus it will be a challenge to pick and pull the specific ideas that I want to cite in my own paper and build upon.

I think the most challenging aspect would be in synthesizing all of the work from these multiple sources into one research paper. I am at the moment overwhelmed by the amount of pressure.

Part of the challenge may have been that students had difficulties reading and comprehending sources. Typical comments include the following:

It will be hard to keep finding new sources with information, understanding it, and incorporating it into my paper. Philosophers’ writings are not always the easiest to understand, and I have already seen that some of the sources I have contain more difficult information to understand. Finding sources that can break it down in a way I can understand will be a must in order for me to complete the final research paper without overstressing myself.

The most challenging aspect of research was actually reading the sources and attempting to comprehend them. This was difficult because so many sources were found that needed to be read to determine if the source was applicable enough to the topic.

Knowing what to look for was hard. Then, once I figured out what I needed to look for, I couldn’t understand what I was reading.

In addition to difficulties comprehending scholarly articles, students found books perplexing, believing them only useful in their entirety. One student exemplifies this difficulty in Journal 1:
The most difficult thing is that you are not really sure if the book will help you with your paper, or if your book has sections, you don’t know if just reading the section you’ll completely grasp what the author’s trying to say.

In this case, the student is afraid he or she will need to read a whole book to determine if it can be used in the paper. Another student stated, “Print sources are the most difficult to figure out if they contain useful information for your paper or not.” Yet another student noted, “I’m not good at finding information from books because I’m impatient and am not good at paying attention to detail.” Andrew Asher and Lynda Duke similarly found that any barrier, no matter how small, became a reason for students to turn to another source.

Students became frustrated that they could not understand sources, but on a broader level, they struggled to understand the research process itself. The process necessitates that students delve into, and engage with, a variety of resources to comprehend their topic. Students expressed anxiety about finding a “perfect” or “best” source on their topic. They believed that if they could only find an ideal source, or a perfect piece of information, then they could write a successful paper.

Write a successful paper. Examples below are indicative (italics added).

I would like to pick the best source for my research.
I think finding the correct books might be a little more challenging.
The most challenging part is finding the exact book you need.

Research Challenges: Writing

In many ways, students did not differentiate between research and writing skills, answering questions about their research challenges with responses that some might consider more germane to the writing process. Many dimensions of writing are vexing and challenging to students. Many students commented on the difficulty of organization, incorporating ideas from sources, and effectively and cohesively creating their own argument.

Many students commented on the difficulty of organization, incorporating ideas from sources, and effectively and cohesively creating their own argument:

I feel that doing the research to acquire 10 pages of info is not the difficult part. I think organizing the paper to fit the research you did is much harder.

I think the most challenging part will be the organization of my paper and making sure it flows well. I feel this because there is so much content to include and so many parts of my argument that I have to include that it might be hard organizing all of my thoughts into a cohesive flow.
The most challenging aspect will be synthesizing all of the information and organizing my thoughts in order to make a persuasive argument.

A greater problem is that students often lacked the confidence to voice their own ideas, to construct effective arguments, and to interject their own opinion into their arguments. They did not feel that they could argue with the “experts” or that they themselves might add meaningful and new ideas:

The most challenging part of the research process was trying to develop my own argument on the level of arguments that I had read.

[The hardest part is] how to compile several differing arguments into my own argument.

I think the most challenging part of the research process is having so much information at your fingertips and not knowing how to condense it all and put it on paper in your own thoughts and words.

I have trouble elaborating, and sometimes I agree with other people’s ideas. This makes it hard to come up with my own original ideas.

Research Challenges: Getting Help

Despite the writing difficulties students noted, they rarely commented explicitly about their experiences using the Writing Center. The journals did not specifically ask about the Writing Center, though they did ask students whether and where they sought help. One student regretted not using the Writing Center (as well as the library), admitting, “I should have taken advantage of more library resources and the writing center.”

Many students, however, commented on receiving useful help from their instructor and peers:

The feedback from the professor was especially helpful in revising my essays. I found this most helpful.

The suggestions I received from my peers that edited my paper were definitely helpful.

The comments and instructions of my instructor were the most useful in revising and advancing my research because he obviously has considerable knowledge on both the topic of the paper as well as various research methods. Peer review was also a helpful tool because you got to see how your classmates approached their research and get ideas from them.

In addition to getting help from their course instructor and peers, many students spoke in general terms about the help they received from librarians:

I had help from librarians and a few of my friends. I would say the librarians were more helpful because they knew how to use different tools to help me find the sources I wanted.

Although I found them by myself, the professor and librarians have both been very helpful in terms of how to access and efficiently search for the sources. Support such as how to use databases and searches, as well as keywords and items to look for were the most helpful.
Discussion

Students in first-year writing courses embark on their first significant research experience with a range of knowledge and experience, as well as some fear and trepidation.21 Naturally, they want to hold onto the simple absolutes they learned in high school. These absolutes resonate for a reason: they are memorable and easily digestible.

Academic librarians should understand that students will want to employ the familiar ideas learned in high school and that a shift away from binary thinking will be difficult; it may confuse students who are accustomed to certainty. Nonetheless, librarians can expand upon what students learned before college by using the ACRL Framework to teach students to write nuanced, thoroughly researched papers that incorporate a diverse array of viewpoints.

To address the issue of students adhering to strict guidelines recalled from high school, the research team has moved toward more nuanced instruction regarding popular and scholarly articles. Rather than pitting popular and scholarly articles against each other, a better choice might be to have students engage each type and explore its contribution to research on a topic. In addition, these findings have spurred discussions on how to incorporate activities that build upon beliefs students bring from high school, while challenging them when necessary. Academic librarians might also want to engage in productive conversations with high school librarians to foster a smoother transition from high school to college-level research and work collaboratively to prepare students for the complexities implicit in finding and evaluating information.

Encouragement to draw upon diverse viewpoints and types of sources might also help students who struggle to read and understand scholarly sources, a type of resource many of them are encountering for the first time. Our findings corroborate several other studies that point to the challenges students have with comprehending sources in general, and scholarly articles in particular.22 Rebecca Howard, Tricia Serviss, and Tanya Rodrigue found that this lack of understanding leads to students “writing from sentences” rather than from whole sources.23 The result are papers that exhibit “patchwriting,” their term for papers where students use source language nearly verbatim, with only a few words deleted or added. Although it is important for students to be introduced to scholarly articles, perhaps less emphasis could be placed on using them until the students progress to writing within their majors. These types of changes will involve many conversations with writing program directors and instructors.

“Patchwriting” also points to students viewing the research process as “finding sources” rather than learning about a topic.24 Many students did not understand that there was no perfect source, and that part of the research process involves reading and engaging with multiple sources in meaningful ways. Several researchers have found that the language used in instruction sessions influences student understanding of the
research process. For this reason, the researchers have become more cognizant of the vocabulary librarians use during instruction sessions. By avoiding such terms as right and best when explaining sources, librarians hope to dispel the idea that there is one perfect source.

Anne-Marie Deitering and Sara Jameson have also noted this challenge and argue that critical thinking is crucial for students to “make the shift from thinking about research as a way to find supporting quotes, to thinking about research as a way to expose themselves to new ideas so they can build new knowledge.” Similarly, Asher and Duke observed students “fitting their research papers to sources, rather than using sources as a basis for furthering an argument.” Although instruction librarians have long argued that information literacy is more than just “finding sources” and have worked with students to develop more complex skills, we may need to move further still by collaborating with writing instructors to help students comprehend sources. As a possible intervention, one instructor shared a source analysis assignment that could be adapted for a library instruction session or used by other writing instructors. Although difficult in one- and two-shot sessions, creating more critical thinking exercises will be crucial. As Louise Limberg argues, “Greater emphasis should be put on use aspects [of sources] rather than searching skills.”

Identifying relevant sources, then reading and understanding them, are difficult tasks. Using sources to support one’s own ideas in an argument that contributes to the scholarly conversation is even more challenging, especially for first-year students new to academic discourse. Students wrote in their journals that they did not feel they could argue with “experts,” and they expressed trouble with critical thinking. How can librarians help them to find their voice and give them the confidence to use it? Further, do librarians and instructors play the same role in encouraging students to see themselves as contributors to the scholarly conversation? If not, how might their roles complement one another?

Because librarians see students less frequently than instructors do, perhaps this role falls most heavily on the classroom teacher. Not only do librarians see students less often but also previous studies report that many students feel reluctant to get help from librarians. As expressed in this study, however, student experiences with librarians revealed less reticence. The students in this study all attended library instruction sessions; perhaps becoming familiar with at least one librarian encourages students to seek a librarian’s help. While it is difficult to discern from their comments if the help students refer to occurred during the library sessions or afterward, the fact that all students in this study became familiar with at least one librarian may have encouraged them to seek a librarian’s help.
Future Actions

As evidenced by this study, students handled difficult ideas pertaining to research and writing in research journal reflections. Students’ thought process as recorded in their journals provided a rich source of qualitative data leading to new insights into how they approach and grapple with the complexities of research. We believe that expanding the use of student research journals would both enhance learning and provide valuable data for ongoing assessment. One pedagogical action we would like to undertake is to incorporate student research journals and reflection-focused activities into additional English 161 classes. While this intervention would necessitate buy-in from writing instructors, the benefits to student learning and assessment would be considerable. Assessing more sections of the course would allow us to gauge whether insights gained from the first round of this study hold true with a greater segment of the student population. Writing research journals will allow students to reflect on their research process, which could, in turn, give them greater confidence in selecting, using, and critically engaging with sources.

Building and maintaining meaningful collaborative relationships between librarians and instructors is an ongoing and time-consuming process. Many researchers suggest that we could benefit from becoming familiar with each other’s disciplinary frameworks. The “Framework for Success in Postsecondary Writing” developed by the Council of Writing Program Administrators (WPA), the National Council of Teachers of English (NCTE), and the National Writing Project (NWP) outlines eight habits of mind and five experiences that it calls “critical for college success.” Brenda Refaei and M. Lauren Wahman note that this framework can be a “lens to see how the writing and research processes transect” and that using this vocabulary of intersection can lead to more worthwhile conversations. This document and ACRL’s Framework have much in common, including research inquiry, gathering and evaluating sources, a nonlinear research process, scholarship as a conversation, student as content consumer and also content creator, and an emphasis on metacognition. Teresa Grettanno and Donna Witek mapped the ACRL Framework with student learning outcomes and the “Framework for Success” developed by the WPA, NCTE, and NWP, showcasing how each document can inform the other.

Only after instruction librarians and writing instructors have established a partnership can meaningful collaboration on assignments occur. These assignments and activities can focus on developing critical thinking skills and understanding the big picture of research, as opposed to the mechanics of the research process. One such exercise could involve summary exercises, where students summarize their sources. This exercise could help students understand their sources better and encourage them to engage with sources more fully and critically. Some librarians have experimented with the BEAM method, a rhetoric and composition strategy that gives students a framework for using...
sources as background, exhibit, argument, or method. This technique compels students to reflect on their sources, especially in relation to one another and to the student’s own argument. Librarian Robert Miller teamed with writing instructor Sandie Friedman to co-teach a successful library session that highlights this method, among other strategies. Lundstrom, Diekema, Leary, Haderlie, and Holliday describe another lesson they used to help students with synthesis skills. They found that breaking down the process into smaller tasks, while time-consuming, helped students improve on these challenging skills. These techniques could be employed during library sessions, in workshops outside class, as a class assignment, or during one-on-one appointments.

In addition to building partnerships with instructors in the first-year writing program, we should explore potential for greater collaboration with the Writing Center. While students scarcely mentioned the Writing Center in research journals, many of them did consult Writing Center tutors. Professors recommend them heavily to students, and each English 161 student must visit the Writing Center at least once. Librarians, writing instructors, and Writing Center staff might view their roles as separate and distinct, but students do not necessarily adhere to these divisions. A student might ask a librarian for help with organizing a paper or developing an argument, for example. Some libraries do have more collaborative service models, where a reference desk might be staffed with both librarians and writing tutors, or where librarians and first-year writing instructors team-teach classes. More research could be done on how these partnerships work to strengthen students’ research and writing skills.

Conclusion

For every student who struggled with an aspect of the research process, other students reported little to no difficulty with the same concept or skill, and further reported that the skill in question had been adequately addressed in class or through library instruction. Content is seldom missing from instruction sessions or classes; however, it often needs to be further developed or reinforced to address the learning needs of a greater number of students. Instruction sessions, paired with previous experience and instructor support, allow students to develop their skills. To help students further improve their abilities, librarians can address misconceptions and reinforce concepts as needed, whether through in-class instruction, research consultations, or the development of online learning materials targeting key skills. Librarians need to reach out to students who feel apprehensive about the research process, in addition to providing guidance to those who may have overestimated their research skills.

This study employed active research methods to elucidate the student perspective of the research process and its implicit challenges. Qualitative data yielded valuable insights into the research process from the student’s point-of-view and provided ideas for possible collaborations among librarians and instructors. As the researchers continue the cycle of action research, enlisting first-year writing instructors and Writing Center
staff as research partners would be important in further improving the instruction and services offered to first-year students.

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**Appendix**

**Journal Questions**

**Journal 1: Research Experience**

1. Previous research experience
   Later on in the semester, you will be asked to do research for your annotated bibliography and research proposal assignment, as well as your final research paper. Describe the most in-depth research project you’ve completed up to this point. What sorts of sources were you required to use in your research and how did you go about finding them? What did you find most challenging or exciting about the research process?

2. Experience using libraries
   Describe how you’ve used libraries in the past (either by visiting them in person, or using them online). What do you feel most comfortable about with using libraries to do research? What do you find most challenging?

3. Previous research classes or workshops
   Describe any previous instruction you’ve received relating to how to conduct research for research assignments. Try to recall what skills were taught, and how you think the instruction might help prepare you—or not—to complete the research assignments for your English 161 course.

4. Overall mind-sets about research
   Later on in the semester, you will have to do research to find sources for your research proposal, annotated bibliography assignment, and final research paper. How prepared do you feel to conduct in-depth research for a 10-page research paper? Discuss any aspects of the research process you feel more confident or less confident about.
Journal 2: Research Proposal and Annotated Bibliography

1. Research topic
   For your Research Proposal and Annotated Bibliography assignment, you identified a research topic and summarized 10 sources, explaining why each one would support your inquiry/thesis. Describe your process for identifying the sources you used. Include specific tools you used to find sources, search keywords you entered, and approximately how long you spent searching for sources.

2. Current satisfaction with sources
   After completing your Research Proposal and Annotated Bibliography assignment, do you feel that the sources you’ve chosen will be useful and relevant to your topic? For example, are there gaps in coverage of certain aspects of your inquiry or do you feel that you have a well-rounded collection of sources?

3. Research guidance
   Did you receive any guidance in the research process, whether through workshops, support from your course instructor, or support from librarians, peers, or other individuals? If you did receive help in finding sources or completing your proposal and annotated bibliography, what form of support was most helpful to you and why?

4. Current challenges
   Reflect on your feelings about progressing from the Research Proposal and Annotated Bibliography assignment toward completing your final research paper for the class. What will be most challenging, if anything, and why?

Journal 3: Research Paper

1. Final argument
   For your Research Paper, you were asked to summarize, analyze, and synthesize outside sources and to craft an original argument on your topic. Summarize your argument/thesis statement below.

2. Sources chosen
   How did the final list of sources in your works cited page compare to the sources you used in the Research Proposal and Annotated Bibliography assignment? Describe how the list of sources you used changed from one project to the next, and how you arrived at your final selection of sources.

3. Source quality
   What criteria or standards did you apply in selecting high-quality sources for your research paper? Do you feel confident that you used high-quality, reliable sources? Summarize the overall strengths and weaknesses of the types of sources you used (no need to go through them one-by-one, just provide an overall picture).

4. Research activities
   Describe in detail any research you conducted between the Research Proposal and Annotated Bibliography assignment and turning in your final Research Paper. How much time did you spend on research, and what tools were most helpful to you in finding useful sources?
5. Research guidance

Did you receive any guidance in the research process between the time you completed your Research Proposal and Annotated Bibliography assignment and the final Research Paper, whether through workshops, support from your course instructor, or support from librarians, peers, or other networks or individuals? If you did receive help in finding sources or completing your proposal and annotated bibliography, what form of support was most helpful to you and why?

Journal 4: Final Reflections

1. Research challenges

Having just completed your final research paper, assess the strengths and weaknesses of your final assignment. What aspects of the research process did you find most challenging and why? Are there any areas in which you feel you could have benefited from more guidance?

2. Thinking forward

Do you feel that your research skills and confidence evolved throughout the semester? Why or why not? Comment on how the research skills addressed in this class will shape how you do research for future assignments. What are the most significant skills you attained? Are there areas of the research process in which you lack confidence?

3. Research guidance

If you sought help with research in finding your sources and/or writing your paper, assess the strengths and weaknesses of the help you received. Did you have any unanswered questions afterward? Were there ways in which the support provided could have been more helpful in addressing your needs?

Notes


18. Ibid.


24. Holliday and Rogers, “Talking about Information Literacy.”


26. 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.”


28. Louise Limberg, “Is There a Relationship between Information Seeking and Learning Outcomes?” in Information Literacy around the World: Advances in Programs and Research, Topics in Australian Teacher Librarianship, ed. Christine Bruce and Philip Candy (Wagga Wagga, Australia: Centre for Information Studies, 2004), 204.


35. Howard, Serviss, and Rodrigue, “Writing from Sources, Writing from Sentences.”


38. Lundstrom, Diekema, Leary, Haderlie, and Holliday, “Teaching and Learning Information Syn thesis,” “plainCitation”:”Lundstrom et al., “Teaching and Learning Information Syn thesis.””, “citationItems”:”id”:1087,”uris”:[”http://zotero.org/users/588618/items/G7WVXNNF”],”uri”:[”http://zotero.org/users/588618/items/G7WVXNNF”],”item Data”:”id”:1087,”type”:”article-journal”,”title”:”Teaching and Learning Information Syn thesis”,”container-title”:”Communications in Information Literacy”,”page”:”60-82”,”volume”:”9”,”issue”:”1”,”abstract”:”The purpose of this research was to determine how information synthesis skills can be taught effectively, and to discover how the level of synthesis in student writing can be effectively measured. The intervention was an information synthesis lesson that broke down the synthesis process into sequenced tasks."
Researchers created a rubric which they used to assess students’ levels of information synthesis demonstrated in their final research essays. A form of counting analysis was also created to see if other methods could help in measuring synthesis. Findings from the rubric analysis revealed that students appear to benefit from the synthesis lesson. The level of synthesis, however, remains low overall. In addition, the study showed that the different measures of synthesis established were able to identify different levels of information integration. Discovering effective ways to measure and teach synthesis continues to be essential in helping students become information literate.