From Rookie to Researcher: Integrating Information Literacy into Undergraduate Research

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CHAPTER 21

From Rookie to Researcher:
Integrating Information Literacy into Undergraduate Research

Larissa Garcia, Dee Anna Phares, and Kimberly Shotick

Introduction
This chapter describes one library’s collaboration with the university’s office of undergraduate research and chronicles the librarians’ efforts to incorporate information literacy into its programs. Over the course of several years, through relationships fostered between librarians and program directors, what began as a partnership to teach an optional section of the library’s credit course for a few students evolved into a true collaboration to develop an information literacy curriculum for the entire program. Because of their dual identities—existing both as faculty members and partners in student success—librarians were poised to take on a larger role in undergraduate research, connecting the work of academic units and academic support units through information literacy instruction.

Background
Relatively little work has been done on the effect of information literacy instruction on mentored undergraduate research, with even less devoted to exploring collaborations between academic libraries and campus units or initiatives.
That promote extracurricular research. However, an ever-growing body of scholarship points to engagement in undergraduate research as a high-impact educational practice, with Kuh, Lopatto, Reihle and Weiner, Haave and Audet, and Walkington highlighting its role in retention, student success, and student satisfaction. Hensley notes, “Librarians are aware of expanding undergraduate research on their campuses and are beginning to develop instruction to support student needs within the disciplines and for interdisciplinary programs.” What is more, Knapp, Rowland, and Charles suggest that “undergraduate research exhibitions, or ‘research fairs,’” provide opportunities for outreach to faculty and students, which have the benefit of both fostering “relationships and positioning the library as a problem-solver and a resource.”

Northern Illinois University (NIU), located in DeKalb, IL, sixty-five miles west of Chicago, recently realigned its mission and goals to put greater emphasis on research and artistry, marketing NIU as a hub of innovation. To support this mission, the Office of Student Engagement and Experiential Learning (OSEEL) provides hands-on learning opportunities for undergraduate research and community engagement. One of its main programs is Research Rookies, which matches approximately fifty undergraduate students with faculty mentors to conduct original research. Students accepted into the year-long program must attend monthly cohort meetings, commit to five to ten hours per week of work with their faculty mentor, and then present an academic poster of their research at the office’s spotlight event, the Conference on Undergraduate Research and Engagement (CURE). Upon completion of the program, research rookies receive a $500 stipend.

In the early days of the partnership with OSEEL, a librarian taught a section of the library’s information literacy credit course, UNIV 105 Introduction to Library and Information Research, specifically for Research Rookies. Data from 2017 revealed that UNIV 105 had a positive impact on student learning, with research rookies who took the course averaging 18.57 out of 25 on the pre- and post-test used as assessment, compared to an average of 16.88 scored by research rookies who did not.

From the library’s perspective, however, there were several challenges with offering the course. Students could enroll in UNIV 105 once accepted into Research Rookies, but the course was not required. Because program acceptance notifications were sent late in the summer, after most students had already registered for classes, it was always uncertain whether the section would have enough students to run. Librarians who teach UNIV 105 receive release time from the reference desk; therefore, this uncertainty made it difficult to create schedules when staffing shortages due to retirements and budget cuts already placed stress on reference and instruction coverage. Additionally, the Research Rookies section enrolled between eight and twenty-one students each fall, only a third of the cohort. Consequently, librarians sought to reimagine the library’s collaboration with OSEEL so that information literacy instruction could reach more than just a small number of students.
Reflection Leads to Transition

Both OSEEL and the University Libraries aspired to provide the library instruction that would allow all research rookies to not only produce an effective poster for the annual conference but also to effectively participate in and learn from their work as undergraduate researchers. Together, they determined that information literacy should be more central to the program—both in terms of instruction and evaluation.

To expand the library’s reach within the Research Rookies cohort, librarians developed a series of workshops and resources to support the students throughout the program. Early in fall 2019, a librarian presented at their first cohort meeting, providing a basic introduction to library services and resources and acquainting them with the idea of having their own subject specialist librarian to assist them throughout the research process. Later in the semester, a librarian facilitated a workshop on How to Think Like a Researcher that focused on the process of developing research questions, emphasized the importance of evidence-based practice, and discussed the purpose and format of a literature review.

Additionally, librarians created a LibGuide (https://libguides.niu.edu/CURE) for anyone participating in CURE that addresses the how and the what of undergraduate research. The guide clarifies what a literature review is, what it is not, and offers suggestions for how to approach the process of reading and critiquing within a particular discipline. It also directs students toward the assistance they might need: tutorials on how to navigate databases, citation management software, the subject specialist librarian directory, and the Chat with a Librarian service. While OSEEL has its own website focused specifically on the conference, the LibGuide reinforces the library’s centrality in the research process and reaffirms its role in providing support for presenters.

Throughout fall 2019, the focus was on providing an information literacy foundation for all research rookies; for spring 2020, the attention shifted to the expression of that research: the academic posters for the annual conference. Hundreds of students produced and presented excellent posters during the ten years of CURE; however, the surveys of scholarship that underpinned their research were not always evident in the final products. Therefore, OSEEL and the University Libraries wanted to ensure that all conference participants, whether they were research rookies or not, understood the importance of situating research in a scholarly context and establishing themselves as part of a larger scholarly conversation. To that end, they worked together to ensure that (1) the CURE poster template explicitly pointed to the need to include references, (2) the judging rubric contained criteria about the inclusion of references, and (3) any information sessions made clear that participants were expected to provide a literature review or list of references on their poster.

With input from the libraries, OSEEL revised its poster template, offering two potential places to include references: as a more formal literature review
that provided an overview of the presenter’s field and/or as a bibliography. Both stressed information literacy, the importance of situating undergraduate research within a larger academic community, and the significance of citation and attribution. A literature review is optional, as some disciplines and projects lend themselves to surveys of scholarship more than others. However, the idea is that a bibliography—by any name and in any form—is essential if one is thinking and behaving like a researcher.

If references are essential, then they must be part of the criteria used to judge the posters. Again, with librarians, OSEEL staff modified the judges’ rubric, adding “References” to the category focused on “Methods.” Now, to receive the highest score in that category—a five, which indicates excellence—posters must include a “list of references, resources and/or literature review.” While seemingly minor, these adjustments to the template and rubric represent a fundamental shift in attitude that affirms research and information literacy as inextricably linked. Both the updated template/poster guidelines and judges’ rubric are available in appendices A and B.

To address the information literacy elements in the template and rubric, librarians planned to participate in multiple in-person information sessions scheduled for all students presenting at CURE. However, due to COVID-19 and campus closures from mid-March through the remainder of the semester, librarians and OSEEL staff instead co-hosted one live online meeting that was recorded and posted to the CURE website. OSEEL presenters explained conference logistics, shared poster guidelines, and offered sample student posters; librarians discussed the importance of literature reviews as foundations for new research, the significance of print and electronic resources, and the value of faculty mentors and subject specialist librarians as guides in the research process.

Because of COVID-19, OSEEL pivoted quickly to hold CURE online, with students providing narration and/or video with their posters in a PowerPoint format. While students were able to share their research, the in-person networking and the Q and A between researchers, judges, and other attendees were not replicable. Therefore, with the uncertainty caused by the pandemic still looming, it was necessary to rethink not only CURE but also the Research Rookies program for the following year.

An Opportunity for True Collaboration

While the library was building momentum to embed research skills throughout the Research Rookies program, the opportunity to completely revamp the curriculum occurred during the summer of 2020 when it became clear that the university would remain mostly virtual for the upcoming academic year. Uni-
University budget cuts led to reduced staffing in OSEEL, so they welcomed more involvement from librarians. Together, it was decided that OSEEL staff would continue to manage the administrative duties and logistics of the program and librarians would develop the program’s learning activities—a true collaboration.

The most significant change to the Research Rookies curriculum was adding a non-credit, asynchronous course in Blackboard, NIU’s learning management system. The course consists of various modules of asynchronous work to help students build and apply the skills they need to understand the research process and form their identity as researchers. The three modules—Thinking Like a Researcher, Developing a Research Proposal, and Practical Research Skills—teach basic research skills and prepare students for writing their research proposal, a requirement of the program; each unit includes a set of learning objects, activities to apply concepts and skills learned, and discussion on a related topic. An outline of the unit modules that includes the learning objects, assignments, and discussion board prompts is available in appendix C.

Librarians developed the learning objects to encourage student engagement and increase accessibility, using a mix of in-house videos (made with Camtasia) and freely available YouTube videos from other academic institutions. To ensure interaction, librarians added quiz questions throughout the tutorials with Kaltura, a video platform embedded in Blackboard; while not graded, students must answer the questions to advance the videos. In accordance with Universal Design for Learning (UDL) principles, key ideas are presented as bullet points with the tutorials to reinforce content and accommodate students who learn best by reading. Also, the Kaltura player includes options to view the full transcript and to increase or decrease the speed of videos, depending on the unique needs of each student.

Unit activities provide students an opportunity to apply the concepts learned from the videos and serve as formative assessment for the librarians. For example, after watching a video about developing research questions, students must revise a set of poorly constructed research questions and submit them via Blackboard. Librarians provide individualized feedback and identify common problems to address during the monthly cohort meeting.

Each module concludes with a discussion board where students reflect on questions related to the content. At the beginning of the semester, students self-identified as being “new to research” or having “experience with research” based on their previous experiences in the classroom. To encourage interaction and engagement among the cohort members, those who identified as having prior experience with research posted replies to the “new to research” students. Because research rookies receive a stipend for their involvement in the program, librarians graded activities and discussion boards with a pass or fail to track participation so that OSEEL could communicate with students who were not completing the work.

Monthly cohort meetings have always been a fixture of the Research Rookies program; however, librarians redesigned the sessions to complement the on-
line modules. Additionally, because meetings were virtual via Blackboard’s web conferencing system, Collaborate, librarians incorporated online active learning techniques and focused on student engagement during the sessions to build a sense of community. Each meeting began with an ice-breaker and included a recap of the previous module’s content, a learning activity, and a preview of the next module. For example, to introduce the concept that authority is constructed and contextual, students read two different articles written by the same author on the same topic but published in different venues for different audiences. In small groups, peer mentors facilitated discussion about the articles and then reported back to the larger group. Because the groups were consistent throughout the semester, students could develop relationships with their group members, with the peer mentor serving as their go-to person. Lesson plans for each cohort meeting are included in the chapter appendix C.

The COVID-19 pandemic changed the program’s structure, creating an opportunity for librarians to take the lead in revising the curriculum. On the end-of-semester satisfaction survey, 100 percent of the research rookies who responded reported that they either strongly agreed or agreed with the statement “I feel comfortable using library resources.” Ninety-two percent of respondents strongly agreed or agreed with the statement “The amount of work in each unit was appropriate for the Research Rookies program.” In the immediate post-lockdown period, the online course will remain a requirement for research rookies, but as restrictions loosen, monthly cohort meetings will likely return to an in-person format. Librarians will continue the information literacy instruction for the program, revising unit modules as needed and leading several of the cohort meetings.

Assessment

To assess the library’s endeavors, librarians needed to access CURE posters from previous years and compare them with those created after the information literacy changes were implemented. Unfortunately, OSEEL did not systematically archive past years’ posters, so librarians could only look at those presentations sent directly to OSEEL electronically by participants or uploaded to the institutional repository, Huskie Commons—about half of the posters in 2019 and about 60 percent of the posters in 2020. Community engagement posters, produced by students in another OSEEL program, and presentations created by local high school students were also excluded from assessment because they were not subject to the same template and rubric.

Librarians looked for information literacy (IL) elements defined as a formal reference list, presence of citations anywhere on the poster, or a formal literature review or background information section with citations included. In 2019, seventy posters were analyzed; forty-one (59 percent) of these included an IL el-
element. Of the fifty-nine posters viewed in 2020, thirty-nine posters (66 percent) included an IL element. Although there were fewer posters with IL elements in 2020 than in the previous year, they constituted a greater percentage of the posters viewed, an increase of seven percentage points from 2019 to 2020. See the Information Literacy Elements on CURE Posters in table 21.1.

Table 21.1. Information literacy elements on CURE posters.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>Total # of Posters*</th>
<th>Posters viewed</th>
<th>References only</th>
<th>Lit Review only</th>
<th>Ref and Lit Rev</th>
<th>Total # posters with IL</th>
<th>% of viewed posters with IL component</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>133</td>
<td>70</td>
<td>7</td>
<td>4</td>
<td>30</td>
<td>41</td>
<td>59%</td>
</tr>
<tr>
<td>2020</td>
<td>94</td>
<td>59</td>
<td>19</td>
<td>3</td>
<td>17</td>
<td>39</td>
<td>66%</td>
</tr>
<tr>
<td>2021</td>
<td>86**</td>
<td>85</td>
<td>23</td>
<td>7</td>
<td>39</td>
<td>69</td>
<td>80%</td>
</tr>
</tbody>
</table>

*Does not include CES or high school posters.
**Does not include CES posters; high schools were not invited this year.

In 2021, the conference was again virtual but held using the ForagerOne platform. Librarians were able to access all but one of the posters for assessment. Of the eighty-five posters viewed, twenty-three included a reference section, seven had a literature review or background section, and thirty-nine included both elements. Combined, a total of sixty-nine posters, or 80 percent of those viewed, showed the presence of information literacy, a sizeable increase from the previous year.

Librarians also compared the posters by research rookies with those by non-research rookie students to see if the online modules had an impact on the inclusion of references and/or literature reviews. Of the eighty-five posters viewed, thirty-four were created by research rookies: twelve included a reference list, two included literature reviews, and thirteen had both elements, a combined total of twenty-seven posters or 79 percent. There were fifty-one non-Research Rookie posters: eleven included a reference list, five included a literature review, and twenty-six had both elements for a total of forty-two posters or 82 percent. Slightly more students who did not participate in the Research Rookies program included information literacy elements than research rookies who took the course. Given this data, the variety of CURE participants complicates the use of posters as an accurate assessment of the Research Rookies program. Therefore, librarians recently developed a pre- and post-test for the Research Rookies online modules to better assess student learning.

Overall, the increase in information literacy elements on CURE posters over the last two years suggests a correlation with librarians’ efforts in the program; however, the specific factors of causation are not clear. There were two online informational sessions in 2021 (one specifically for Research Rookies and one open session), with more students in attendance than the previous year. Wider
use of the revised template by all CURE participants and/or greater numbers of faculty mentors reminding students to include references and a literature review may also be factors. In addition, the librarians acknowledge that not being able to view all posters in 2019 and 2020 may have resulted in skewed data. Therefore, librarians are developing assessment tools that better determine the impact of each of the information literacy changes implemented in the program. They are currently creating a questionnaire for all CURE participants that asks, for example, if they attended an information session, if they used the poster template, and if they included a literature review and/or reference list. In addition, after collecting three years’ worth of CURE poster data, the librarians are better equipped to ensure that all eligible posters will be viewed and assessed for IL elements going forward.

Concluding Recommendations

There are several takeaways from our experience that can assist librarians seeking to collaborate with undergraduate research offices at their institutions. First, continued outreach to units or groups where a relationship already exists is vital in fostering partnerships that can evolve. OSEEL staff and librarians communicated their willingness to try new methods to reach more students and a desire to grow and adapt to meet the needs of both partners. Therefore, it is useful to reconnect and redefine established relationships within the current context—an approach that can be utilized with other entities across campus.

Ultimately, however, libraries should leverage their dual identities—as academic units and academic support units—when seeking productive partnerships. While not labeled as working in a teaching department, subject specialist librarians at NIU regularly offer instruction to students ranging from those in first-year writing classes to doctoral candidates working on their dissertations. Like so many of our colleagues throughout the academy, library faculty are actively engaged in research, writing, and presenting—in other words, librarians have a great deal in common with faculty in academic departments, including understanding the research process first-hand.

Nevertheless, because we exist to support the information needs of our students and the instructional faculty, we have an ethos of service that aligns us with academic support units. Essentially, academic libraries can provide a bridge that links the two sides of campus. Our relationship with OSEEL, Research Rookies, and potentially other units and programs across the university benefits from the fact that an academic library is not a matter of “either/or,” but of “both/and.”
Appendix A. Template/Poster Guidelines

**Guidelines for CURE Posters**

The conference on undergraduate research & engagement (CURE) is a showcase and celebration of the outstanding research, artistry, and engagement projects that undergraduate students have participated in throughout the academic year. Projects include independent study, capstone projects, SEF, Research Rookies, service-learning related projects and community engagement experiences.

**Research-Based Poster**

<table>
<thead>
<tr>
<th>Objectives/Methods</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Be sure to spell check all text and colleagues proofread the poster. In general, authors should:</td>
<td></td>
</tr>
<tr>
<td>Use 12-point text.</td>
<td></td>
</tr>
<tr>
<td>Simply text by using bullet points.</td>
<td></td>
</tr>
<tr>
<td>Use simple graphics and charts.</td>
<td></td>
</tr>
<tr>
<td>Use text to provide context, avoid capitals and exclamation marks.</td>
<td></td>
</tr>
<tr>
<td>Avoid long numerical tables.</td>
<td></td>
</tr>
</tbody>
</table>

Authors should review their poster so that it is suitable for the brevity of the poster format. Respect your audience’s general mental level of processing. Use organization and layout of the poster to focus the audience’s attention on the central theme. Refer to your advisor or other sources to provide a more in-depth understanding of the research.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Images</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABSTRACT:</td>
<td></td>
</tr>
<tr>
<td>Short summary of your research</td>
<td></td>
</tr>
<tr>
<td>Should match what you submit with registration</td>
<td></td>
</tr>
<tr>
<td>Some disciplines DO NOT put an abstract – check with your mentor</td>
<td></td>
</tr>
</tbody>
</table>

| SIGNIFICANCE & RATIONALE: |
| Provides an overview of what your project entails |
| How your research addresses a topic |
LITERATURE REVIEW (IF APPLICABLE)
- Puts research into context
- Offers an overview of the field

METHODS
- Overview of how you conducted your project
- Can be understood by an expert as well as someone with no prior experience
- May include images/diagrams

ANALYSIS/RESULTS:
- Highlights what your research shows
- May include graphs, charts, images

DISCUSSION/CONCLUSION:
- Wraps up your findings
- Provides ideas for future steps
- Final thought you are leaving the viewer with

REFERENCES & ACKNOWLEDGEMENTS:
- Reference any citations on the poster using your field specific format
- Acknowledge your mentor, any program sponsors, and funding sources

POSTER “DO’S”
- 32”x40” (CURE required size)
- Include the NIU institutional logo
- Use a plain, solid-color background
- Have 30-40% empty space
- Use high quality charts, images, and graphs

POSTER “DON’TS”
- Use fancy background options
- Forget to add charts, images, and graphs
- Be text heavy and use multiple fonts
- Use overly technical language
- Forget to acknowledge those that helped you
PROJECT OVERVIEW (ABSTRACT):

- Short summary of your project or work (no more than one column)
- Include catching facts or information to capture audience

COMMUNITY IMPACT:

- What community need(s) have been addressed with your program?
- How have the results of your program impacted your partner community?

STUDENT IMPACT:

- How does the service-learning experience connect to your academic or professional goals?
- What did you learn about yourself, the community and the social need you were addressing?

OUTCOMES/RESULTS:

- What deliverables or outcomes were made by this community engaged project?
SUSTAINABILITY:
• How will the program be carried on beyond your time in the community?
• How will the community partner continue the service project?

CONCLUSION:
• Explanation of the ways the results satisfy the research objective
• How your findings impact scholars in your field and members of the broader intellectual community.

ACKNOWLEDGEMENTS:
• Reference any citations on the poster using your field specific format
• Acknowledge your mentor, community partner organization (s), any program sponsors/ office, and funding sources

POSTER “DO’S”
✓ 32”x40” (CURE required size)
✓ Include the NIU institutional logo
✓ Use a plain, solid-color background
✓ Have 30-40% empty space
✓ Use high quality charts, images, and graphs

POSTER “DON’TS”
× Use fancy background options
× Forget to add charts, images, and graphs
× Be text heavy and use different fonts
× Use overly technical language
× Forget to acknowledge those that helped you
## Appendix B: Judges’ Rubric

Directions: Use the rubric below to score the student’s presentation and then provide written feedback in the space provided. Rubric scores will be used to calculate the winners for each category. We have included space for written feedback in an effort to enrich the student’s learning experience and help them understand how they can improve.

<table>
<thead>
<tr>
<th>Category</th>
<th>Excellent = 5</th>
<th>Very Good = 4</th>
<th>Good = 3</th>
<th>Fair = 2</th>
<th>Poor = 1</th>
<th>SCORE (out of 5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significance/Originality</td>
<td>Research/Project is impactful and significantly advances knowledge within its intended field of study or to society.</td>
<td>Research/Project contributes to its intended field of study or to society.</td>
<td>Research/Project is sound and has ordinary content that may or may not impact its intended field of study or to society.</td>
<td>Research/Project is not sound and there is at least one Inconsistency.</td>
<td>Research/Project is not sound and there are 2 or more inconsistencies.</td>
<td></td>
</tr>
<tr>
<td>Organization/Appearance</td>
<td>Well organized and the flow provides an understanding of the material. Easy to read. Good balance of white space.</td>
<td>Appropriate organization but there are too much or too little white space.</td>
<td>The flow and format are understandable but poor choice of colors that make it difficult to read.</td>
<td>Poster is unorganized or does not flow. Inappropriate font, colors, and/or sections of the poster are difficult to read.</td>
<td>Aesthetics prevent concepts from being understood. Poster does not comply with poster requirements.</td>
<td></td>
</tr>
<tr>
<td>Knowledge</td>
<td>Demonstrates in-depth knowledge about the subject and project.</td>
<td>Demonstrates basic knowledge of the subject and basic concepts of the project.</td>
<td>Understands basic concepts of subject but struggles with high level concepts of the project.</td>
<td>Understands basic concepts of subject but struggles with project details.</td>
<td>Struggles with basic concepts of both subject and project.</td>
<td></td>
</tr>
<tr>
<td>Methods/References</td>
<td>Thorough understanding of methods conveyed w/ high confidence and understanding for the topic and discipline. List of references, resources and/or literature review present.</td>
<td>Better than average understanding of methods spoken w/ confidence.</td>
<td>Basic understanding but not spoken with confidence.</td>
<td>Minimal understanding of methods.</td>
<td>Notable to adequately explain methods. Lack of references, resources and/or literature review.</td>
<td></td>
</tr>
<tr>
<td>Use of Figures and Graphs</td>
<td>Excellent use and design of figures and graphs. Graphics (e.g., tables, figures, etc.) are engaging and enhance the text content is clearly arranged so that the viewer can understand order without narration.</td>
<td>Better than average use of figures and graphs with one error. Graphics (e.g. tables, figures, etc.) enhance the text content.</td>
<td>Appropriate use of figures and graphs.</td>
<td>Figures and graphs are out of proportion or not needed.</td>
<td>No use of data where needed. Figures and graphs do not convey what is stated.</td>
<td></td>
</tr>
<tr>
<td>Virtual Presentation/Professionalism</td>
<td>Maintains eye contact with camera/audience (if video). Speaks in fluid sentences. Exhibits a professional demeanor in appearance and communication.</td>
<td>Maintains eye contact most of the time (if video). Shows high interest in the project. Communicates effectively with confidence about the full project.</td>
<td>Some eye contact (if video) and shows some interest in the project. Communicates skillfully about the full project.</td>
<td>Some eye contact (if video) but does not show interest in the project. Does not communicate skillfully about the full project.</td>
<td>Student cannot be heard, does not engage, and lacks interest in project.</td>
<td></td>
</tr>
</tbody>
</table>

**Category Score** (total above out of 30) /30

**Tie Breaker:** In the event of a tie, please indicate on a scale from 1 (lowest) to 100 (highest) your overall rating of this poster presentation. (try not use multiples of 5, e.g., 91 is good, 90 is not) /100

**Comments**

*What did the student do well?*

*What should the student focus on to improve?*
Appendix C. Asynchronous Course for Research Rookies via Blackboard

Unit 1: Thinking Like a Researcher

Learning Objectives
Students will begin to develop their identity as a researcher by

- acknowledging they are developing their own authoritative voices in a particular area and recognizing the responsibilities this entails, including seeking accuracy and reliability, respecting intellectual property, and participating in communities of practice;
- developing awareness of the importance of assessing content with a skeptical stance and with a self-awareness of their own biases and worldview;
- questioning traditional notions of granting authority and recognizing the value of diverse ideas and worldviews.

Students will learn to develop appropriate research questions by

- determining an appropriate scope of investigation;
- breaking complex questions into simple ones, limiting the scope of investigations.

Learning objectives for all units adapted from the American Library Association’s “Framework for Information Literacy for Higher Education.”

Learning Objects

- Thinking Like a Research video, https://libguides.niu.edu/c.php?g=113155&p=7836574

Assignment
Developing Strong Research Questions Practice: Revise the following research questions so that they are strong roadmaps for the research process.

1. Has unemployment across the globe increased during the pandemic?
2. Why does Canada have a better healthcare system than the United States?
3. What effect does social media have on people?

Discussion Board
Confirmation Bias Continued: After viewing the Defining Confirmation Bias video, consider the questions below:

- Can you think of specific examples or scenarios in everyday life when confirmation bias makes it difficult for people to overcome what they already know or believe about another individual, group of people, or place?
• As you begin to think like researchers and participate in research with your faculty mentor, what are some strategies for overcoming confirmation bias not only in your everyday life, but in the work you will be doing with your faculty mentor?

Unit 2: Developing a Research Proposal

Learning Objectives
Students will begin to develop an understanding of the research environment by
• identifying interested parties, such as scholars, organizations, governments, and industries who might produce information about a topic and then determine how to access that information;
• monitoring gathered information and assessing for gaps or weaknesses;
• demonstrating intellectual humility (i.e., recognizing their own intellectual or experiential limitations);
• defining different types of authority, such as subject expertise (e.g., scholarship), societal position (e.g., public office or title), or special experience (e.g., participating in a historic event).

Learning Objects
• What is a Literature Review? https://www.youtube.com/watch?v=Ry_54WleO7Y
• The Anatomy of a Scholarly Article, https://www.youtube.com/watch?v=6VV4MBzrGfM
• Authority is Constructed, https://www.youtube.com/watch?v=LnzbCRmLeXM
• NIU Libraries Virtual Services and Resources Tour, https://youtu.be/3Tt7snsdX7s

Assignment
Draft Research Question/Problem
1. Submit a draft of your research question/problem or creative concept that will be addressed.
2. Consult with your faculty mentor and/or librarian subject specialist about the resources and classic/seminal studies you should consult for your research project.

Note: After receiving feedback, you can use this as a starting point for the Statement of Project Objectives section of your research proposal.

Discussion Board
Considering Authority in Different Contexts: For most of your research projects and your research proposal, you will be required to consult and cite academic sources (scholarly articles and books) to provide background and context. However, some research topics may be very specific to a location or very contemporary, so peer-reviewed sources may not (yet) exist. Describe a scenario or
research question that may not be discussed in scholarly sources. Where would you go to get authoritative information?

**Unit 3: Practical Research Skills**

**Learning Objectives**

Students will develop the ability to conduct research by

- designing and refining needs and search strategies as necessary, based on search results;
- understanding how information systems (i.e., collections of recorded information) are organized in order to access relevant information;
- using different types of searching language (e.g., controlled vocabulary, keywords, natural language) appropriately;
- following ethical and legal guidelines in gathering and using information.

Students will begin to develop research communication skills by

- developing Responsible and Ethical Research Practices;
- following ethical and legal guidelines in gathering and using information;
- demonstrating intellectual humility (i.e., recognize their own intellectual or experiential limitations).

**Learning Objects**

- Adapting your Search Strategy, [https://www.youtube.com/watch?v=-FyOpanD2Jjw&t=4s](https://www.youtube.com/watch?v=-FyOpanD2Jjw&t=4s)
- How to Conduct a Basic Search in HuskieSearch, [https://www.youtube.com/watch?v=FhS5f2QRW6o](https://www.youtube.com/watch?v=FhS5f2QRW6o)
- How to Request Items through I-Share, [https://youtu.be/s_8dgxsO8QQ](https://youtu.be/s_8dgxsO8QQ)
- EBSCOHost Advanced Searching, [https://www.youtube.com/watch?v=DjKNxiqiuwpY](https://www.youtube.com/watch?v=DjKNxiqiuwpY)
- Accessing the Full Text of Articles Using FIND IT, [https://www.youtube.com/watch?v=RZ2n54uEr58](https://www.youtube.com/watch?v=RZ2n54uEr58)

**Assignment**

Mini Reference List: For your research proposal, you need to include a Literature Cited section, which is the list of references cited or consulted for your proposal. To help you get started with this section, find 3-5 scholarly sources on your research topic that you could potentially use in the Background/Context section of your research proposal. Your reference list should follow APA format (or the citation format for your field of study).

**Discussion Board**

Research Process Reflection: Post (Create Thread) a reflection on your search process thus far. Be sure to include the search terms, tools used (i.e., Huskie-
Search, specific databases), and the number of results found in each resource. Then, answer the following questions:

- Which terms and tools provided the most relevant results?
- How did you evaluate the results to determine relevance?
- How did you feel during the search process? Successful, concerned, frustrated, proud, etc?
- What might you do differently next time you need to search for information?

Then read and reply to at least 2 other research rookies. Your reply should include consideration of some of the following questions:

- Did you use the same database or tool? Did you have the same results or different results?
- Did you experience the same feelings during the search process?
- Can you offer any suggestions for alternative search terms or tools to try?
Appendix D. Synchronous Research Rookies Cohort Meetings via Blackboard Collaborate

Cohort Meeting/Unit 1: Thinking like a Researcher

I. Welcome, Announcements, and Updates
   • Learning Activity adapted from “Visual Explorer” activity in Entering Research.
     ○ Students choose a visual representation in response to the question: “Find a picture online that best represents research to you. Describe why you chose that image in a few sentences. There is no right or wrong answer. You may want to search feeling or action words in Google image search to find an image. Right click to save it, and then upload it to the discussion board with your explanation.” Students write or post images to Padlet and share.
     ○ Facilitators give overall thoughts about what research is. For example, everyone has experience doing research: how did you decide to come to NIU? Apply for Research Rookies? Often research rookies think of research only as conducting an experiment in a laboratory, but research looks different in different fields/disciplines.
   • What does it mean to be a researcher?
     ○ Short lecture on the characteristics of a researcher

II. What is research?
   • Learning Objectives
   • Learning Activity on Confirmation Bias adapted from Facing History and Ourselves, https://www.facinghistory.org/resource-library/standing-democracy/challenge-confirmation-bias)
     ○ Can you solve this? https://www.youtube.com/watch?v=vKA4w2O61Xo. Stop the video at 1:10. Ask students if they can guess the rule. Ask them to explain their thinking. Then play the video to the end. Why do people have trouble guessing the rule?
     ○ Facilitators: Confirmation bias is our subconscious tendency to seek and interpret information and other evidence in ways that affirm our existing beliefs, ideas, expectations, and/or hypotheses….Instead of trying to falsify a hypothesis to test it, people tend to try to confirm it (as seen in the video). Con-
firmation bias is a phrase that comes up a lot, especially when we talk about social media (people posting stories and tending to believe stories that are inline with their thinking), which is one of the reasons fake news is successful. It is something that we need to be aware of as researchers – being open to what the evidence or data tell us when we conduct or participate in research projects—and that you’ll consider more in this unit.

• Assignments and Due Dates

**Cohort Meeting/Unit 2: Developing a Research Proposal**

I. Padlet Ice Breaker: What is something you have been watching or playing recently?
   • Add an image, words, GIFs, whatever you prefer
   • You can comment and like the responses of others

II. Unit 1 Recap
   • Pick out a few examples and talk about why they are strong
   • General observations about the discussion board posts

III. Introduce Unit 2
   • Learning Objectives
   • Learning Activity: Discussion of Authorship
     o Students read two articles by the same author on the same topic, but for different publications. In breakout groups, peer mentors lead the discussion:
       ▶ Which article do you trust more? Why?
       ▶ How would you use each article?
       ▶ Which one did a scholar/faculty member write?
   • https://www.foodpolitics.com/2013/10/today-is-world-food-day-perspectives/
   • https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001242
   • Back in the main group, ask peer mentors to report on their small group discussion. Larger questions for discussion led by facilitators:
     o What are the advantages of both mediums?
     o What are the disadvantages of both mediums?
   • Assignments and Due Dates

**Cohort Meeting/Unit 3: Practical Research Skills**

I. Padlet Ice breaker: What is something FUN you’ve done recently?
   • Add an image, words, GIFs, whatever you prefer
   • You can comment and like the responses of others
II. Unit 2 Recap
- Pick out a few examples and talk about why they are strong
- General observations about the discussion board posts

III. Introduce Unit 3
- Learning Activity 1: In groups, students must brainstorm for potential search terms and fill out the handout online. In the larger group, ask one peer mentor to share their research question and search strategy.

SAMPLE: How has Facebook impacted the level of trust in online news sources in teens?

1. Identify three keywords in the boxes below

<table>
<thead>
<tr>
<th>Keyword 1</th>
<th>Keyword 2</th>
<th>Keyword 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td>Online news</td>
<td>trust</td>
</tr>
</tbody>
</table>

2. Identify 2-3 synonyms for each keyword

<table>
<thead>
<tr>
<th>Keyword 1</th>
<th>Synonym 1</th>
<th>Synonym 2</th>
<th>Synonym 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook</td>
<td>Social media</td>
<td>twitter</td>
<td></td>
</tr>
<tr>
<td>Keyword 2</td>
<td>Web news</td>
<td>Online media</td>
<td></td>
</tr>
<tr>
<td>Keyword 3</td>
<td>Belief</td>
<td>reliability</td>
<td></td>
</tr>
</tbody>
</table>

3. Which 2-3 keywords would you start with?

<table>
<thead>
<tr>
<th>Keyword 1</th>
<th>Keyword 2</th>
<th>Keyword 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social media</td>
<td>trust</td>
<td>Online news</td>
</tr>
</tbody>
</table>

- Learning Activity: Database Search
  - Facilitator demos searching in a database. Then give everyone 5 minutes to use their search terms in the database and prepare answers to these questions:
    - What search terms did you use?
    - How many results did you get?
    - Did you limit your results? If so, how?
    - Did the results seem to be mostly relevant, or will you need to revise your search terms?
    - Were you able to access the full text of any articles?
  - Pick a random person: Who has a Nov birthday? Have them share their screen and show us what they did.

- Assignments and Due Dates
Notes


Bibliography


