

# **Student Learning in Library Research Instruction for University Seminar, Critical Writing, Reading, and Research I & II, and Honors Writing Studio 1 & 2**

## **Assessment Report for Academic Year 2021-2022**

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### **Summary**

During the 2021-2022 academic year, Staley Library continued to use a pre-test, post-test format to assess the information literacy confidence and skills of first-year Millikin University students. Between taking the pre-test and the post-test, students typically receive four library instruction sessions designed to address Staley Library's four learning goals.

All students enrolled in the University Seminar/CWRR/HWS sequence (essentially all first-year students at Millikin University) were included in the assessment. While participation varied by question, approximately 210 students (50% of the enrolled students) took the pre-test and approximately 120 students (39%) took the post-test.

Key findings from the assessment include:

- Students showed an overall increase in their confidence with the research process and in their information literacy skills from the pre-test to the post-test assessment.
- Students' confidence and skills in the research process increased for all 4 of Staley Library's learning goals, especially "identifying information sources" and "evaluating information."
- This assessment cycle continued the practice of separating the results for the traditional (CWRR) and honors (HWS) students. The HWS students expressed higher confidence in the research process on the pre-test and the post-test and higher scores on the pre- and post-test of the skills portion of the assessment, while the CWRR students made higher percentage gains from the pre-test to the post-test on part 2 of the assessment. On average, the scores on the skills part of the assessment for the CWRR students were in the low-end of the Green range on the CWRR Artifact Performance Indicator Scale and the HWS students' scores were well into the Green range.
- Students claimed that learning about finding articles in the library databases and finding resources generally were the most useful things that they learned through their library instruction. Almost all students claimed to have used scholarly journals and websites as research resources for their assignments in their first year at Millikin University while far fewer students reported using paper books or reference sources like encyclopedias or dictionaries. This year continued a trend of students reporting higher e-book usage over paper books on research assignments.
- The self-guided tour for University Seminar students returned to an in-person format in the fall, and the participation rate greatly increased (although not to pre-pandemic levels). A large majority of the students who completed an optional survey at the end of the tour claimed that it met its learning goals.

## Goals

The mission of Staley Library’s instruction program is to empower students to become information literate adults who are confident in their information seeking abilities and who are able to apply critical thinking skills in the discovery, evaluation, and ethical use of information. The program supports the academic curriculum of Millikin University and strives to develop students who are not only successful academically, but also who are prepared to use information critically and ethically throughout their lives.

The research instruction program corresponds directly with the Critical Writing, Reading, and Researching (CWRR) and Honors Writing Studio (HWS) learning outcome goal 3: “Conduct research to participate in academic inquiry.” The purpose of research instruction for CWRR and HWS is stated in Staley Library’s four learning goals:

1. Students will identify the use and purpose of potential information sources and formats.
2. Students will develop and implement search strategies to retrieve resources using library and non-library tools.
3. Students will evaluate the information that they find to determine its context, value, and to identify bias or deception.
4. Students will understand ethical aspects of information and information technology.

These goals correspond to the University-wide learning goals:

1. Millikin students will prepare for professional success.
2. Millikin students will actively engage in the responsibilities of citizenship in their communities.
3. Millikin students will discover and develop a personal life of meaning and value.

Table 1 (below) shows how Staley Library’s learning goals relate to University-wide learning goals:

**Table 1. Staley Library’s learning goals mapped to the University’s learning goals**

<b>Library Learning Goal</b>	<b>Corresponding MU Learning Goal</b>
Students will identify the use and purpose of potential information sources and formats.	1, 3
Students will develop and implement search strategies to retrieve resources using library and non-library tools.	1, 3
Students will evaluate the information that they find to determine its context, value, and to identify bias or deception.	1, 3
Students will understand ethical aspects of information and information technology.	2, 3

## Snapshot

Staley Library faculty focus most of their in-class instructional activity on the first-year sequential University Studies courses – CWRR, HWS, and University Seminar. The librarians use a 2:2 instruction model for CWRR and University Seminar, with two sessions in the fall and two sessions in the spring. In the fall one session is taught in University Seminar and one session in CWRR; the two spring sessions are both taught in CWRR as there is no spring University Seminar equivalent. The fall sessions use active learning to cover research basics and evaluating internet sources, while the spring sessions cover more advanced topics such as evaluating types of articles, advanced keyword/topic development, and appropriate source choice for an assignment. In all cases, the librarians work with the University Seminar and CWRR faculty to schedule the library session(s) at a time that students learn and apply skills in a way that makes them

immediately relevant to their research needs. This academic year most classes returned to an in-person format, although a few sections of CWRR continued to be offered online.

Honors Writing Studio requires a slightly different approach. The HWS students spend the fall semester developing a detailed research proposal that they use in the spring to write a research paper and to produce a multi-modal project. Thus, it is necessary to provide them with more library instruction early on so that they can successfully complete their proposal and be well-situated for the spring semester. The librarians met twice with each HWS 1 class in the fall not only to familiarize them with Staley Library research resources, but also for work on keyword development and source choice. In the spring semester, the librarians met with three of the HWS 2 sections to review material from the fall semester and to discuss incorporating research in their writing.

During the 2021-2022 academic year, the librarians provided instruction to 48 sections of CWRR and HWS, 18 sections of University Seminar, and 6 sections of the “off-sequence” CWRR (i.e., CWRR II offered in the fall and CWRR I offered in the spring). Most of the instruction was done in-person. Each semester there were several online sections of CWRR and in the spring semester a few classes were moved online temporarily due to weather. Online, synchronous classes allow us to more or less match what we do in the classroom, and for the online, asynchronous classes we provided a mixture of online guides, videos, and the students complete worksheets, to which we provide feedback via email.

Matthew Olsen coordinates the research instruction program and shares the instruction with library faculty Rachel Bicicchi, Elizabeth Hollendonner, and Amanda Pippitt (Library Director). All library faculty, including the Instructional Services Coordinator, report to the Library Director.

## **The Learning Story**

For most Millikin University students, CWRR/HWS and University Seminar are their introduction to college-level writing and research. While many first-year students are comfortable using consumer technology and finding information on the internet, these abilities do not necessarily translate into well-developed information seeking and evaluation skills. The library faculty are the campus leaders in increasing students’ information literacy skills, not only to promote academic success, but also to develop the skills necessary for life-long learning. To this end, the librarians work closely with University Seminar and CWRR/HWS faculty to tailor their instruction so that it matches the course content and provides an authentic learning experience for students. Librarians teach students to use both the specialized scholarly research resources found in the library and non-library sources, and they stress the importance of evaluating information no matter how it is discovered. They also focus on active learning and provide students opportunities to apply the skills that they are learning.

## **Assessment Methods**

### **Pre- and Post-Test Assessment Methods**

The 2021-2022 academic year marked the sixteenth complete year of data collected via a pre- and post-test. As in previous years, the pre-test was administered via Moodle before the students met with a librarian in the fall; the post-test was administered through Moodle after the library instruction was completed in the spring. In both cases, the tests were almost always taken outside of the library instruction time. This assessment cycle was the third time that CWRR and HWS students’ results were gathered separately.

The sixteen questions in the first part of the assessment are based on the Project Information Literacy report, "Truth Be Told: How College Students Evaluate and Use Information in the Digital Age."<sup>1</sup> These questions are designed to measure students' confidence level with the academic research process (affective learning). The five-point scale that students use to rank their confidence assigns tasks a range from "very difficult" to "very easy." The complete list of questions is provided in Appendix A.

The second part of the assessment consists of seven questions that assess the students' information literacy skills. Five of the questions are selected-response questions (multiple-choice) and two of the questions are constructed-response (short answer). There are two additional questions in Part 2 of the assessment. Question 1 on the pre-test is a short answer question that asks students what they would like to learn in their library instruction sessions. Question 1 on the post-test has two parts: "What was the most useful thing that you learned from the library sessions?" and "What do you wish that you would have learned?" Question 9 on the pre-test asks students about their experience with information literacy instruction prior to arriving at Millikin while the post-test asks about the research resources that students used during their first year at Millikin. The complete list of questions can be found in Appendix A.

To facilitate reporting of the range of answers to the short answer questions, the responses to question 1 were coded into fourteen categories (Appendix A). Each response was assigned up to three codes. The Instruction Coordinator and Library Director Amanda Pippitt performed the coding. After review, for any responses the two librarians coded differently, the librarians discussed and then agreed on common codes. Questions 3 and 5 were also graded separately by the Instruction Coordinator and Amanda Pippitt and the grades were averaged to assign a final grade to each response. The grading rubrics for questions 3 and 5 can also be found in Appendix A.

### **Other Forms of Evaluation**

In addition to the library instruction sessions, new students have traditionally participated in a self-guided tour of the library during the first month of the fall semester. The goal of the library tour is to introduce students to the "library as place" and to familiarize them with the library's resources and services. The tour has three broad learning goals:

1. Students will feel comfortable while researching, locating resources, studying, and relaxing in the library.
2. Students will know how to locate many of the resources available in the library.
3. Students will know who to ask if they have questions.

This fall the tour returned to an in-person, mystery narrative format and a worksheet that guides students physically around the library. The students' grades on the worksheet were shared with their University Seminar instructors.

Academic year 2021-2022 also continued the Faculty Assessment of Library Instruction survey. This electronic survey is sent to every faculty member for whom library instruction was conducted including those outside of the first year University Studies sequence. The faculty can then give anonymous or signed feedback, which the librarians use to improve their library instruction. To view the survey questions please contact the Instruction Coordinator.

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<sup>1</sup> Head, A.J., & Eisenberg, M. B. (2010). *Truth Be Told: How College Students Evaluate and Use Information in the Digital Age* (Project Information Literacy Progress Report). Retrieved from the Project Information Literacy website: [https://projectinfolit.org/pubs/evaluating-information-study/pil\\_evaluating-information\\_2010-11-01.pdf](https://projectinfolit.org/pubs/evaluating-information-study/pil_evaluating-information_2010-11-01.pdf)

## Assessment Data

### Fall Pre-Test<sup>2</sup>

Part 1: Average score – CWRR = 3.06 / HWS = 3.28 / weighted average = 3.12 (5 point scale)

Part 2: Multiple-choice: Average percentage of students answering the question correctly –

CWRR = 65% / HWS = 88% / weighted average = 71%

Short answer: Average score – CWRR = 1.86 / HWS = 2.32 / weighted average = 1.97 (3 point scale)

### Spring Post-Test<sup>3</sup>

Part 1: Average score – CWRR = 3.35 / HWS = 3.66 / weighted average = 3.40 (5 point scale)

Part 2: Multiple-choice: Average percentage of students answering the questions correctly –

CWRR = 76% / HWS = 92% / weighted average = 78%

Short answer: Average score – CWRR = 2.29 / HWS = 2.43 / weighted average = 2.31 (3 point scale)

**Table 2. Pre- and post-test results by library learning goal [scores are weighted averages of the CWRR & HWS results]**

<b>Staley Library Learning Goals (LG)</b>			
<b>1. Information Sources</b>	<b>2. Search Strategies</b>	<b>3. Evaluation of Information</b>	<b>4. Ethical Aspects of Information</b>
<b>Part 1</b> <b>Questions 7 &amp; 8</b> Pre-Test Avg. = 2.85 Post-Test Avg. = 3.29 Improvement = 15%	<b>Part 1</b> <b>Questions 1, 2, 3, 4 &amp; 5</b> Pre-Test Avg. = 3.11 Post-Test Avg. = 3.36 Improvement = 8%	<b>Part 1</b> <b>Questions 6, 9 &amp; 10</b> Pre-Test Avg. = 3.16 Post-Test Avg. = 3.48 Improvement = 10%	<b>Part 1</b> <b>Questions 13, 14 &amp; 15</b> Pre-Test Avg. = 3.21 Post-Test Avg. = 3.48 Improvement = 9%
<b>Part 2</b> <b>Questions 4 &amp; 5</b> Pre-Test Avg. = 72% Post-Test Avg. = 87% Improvement = 21%	<b>Part 2</b> <b>Question 2 &amp; 6</b> Pre-Test Avg. = 68% Post-Test Avg. = 72% Improvement = 5%	<b>Part 2</b> <b>Questions 3 &amp; 7</b> Pre-Test Avg. = 65% Post-Test Avg. = 73% Improvement = 13%	<b>Part 2</b> <b>Question 8</b> Pre-Test Avg. = 75% Post-Test Avg. = 83% Improvement = 11%
<b>Total for LG 1</b> Improvement = 18%	<b>Total for LG 2</b> Improvement = 7%	<b>Total for LG 3</b> Improvement = 12%	<b>Total for LG 4</b> Improvement = 10%

Part 1 of the assessment is designed to measure students' confidence level with the entire academic research process. Students are asked to rank on a scale from 1 (very difficult) to 5 (very easy) how they feel

<sup>2</sup> For the pre-test the number of student responses was not the same from question to question. For the CWRR students, on Part 1 the average number of responses was 158 (mode = 158). For the HWS students on Part 1 the average was 55 (mode = 55). For CWRR on Part 2, questions 2-8 the average was 156 (mode = 156). For HWS on Part 2 the average was 51 (mode = 51). 363 students were enrolled in CWRR I and 67 students were enrolled in HWS 1. The participation rate on the pre-test was higher than last year (50% vs. 44%).

<sup>3</sup> The post-test also exhibited different numbers of responses from question to question. For Part 1 for the CWRR students the average number of responses was 103 (mode = 103). For HWS on Part 1 the average was 19 (mode = 19). For CWRR on Part 2, questions 2-8 the average was 92 (mode = 93). For HWS on Part 2 the average was 17 (mode = 17). 249 students were enrolled in CWRR II and 65 students were enrolled in HWS 2. The participation rate on the post-test was 39%. This participation rate is substantially higher than the 21% participation rate last year.

about different stages of the research process. Table 3 (below) and Graphs 1 and 2 (Appendix B) provide a question by question listing of student scores on both the pre-test and post-test, and Table 4 (below) shows the average number of responses at each level of difficulty for all questions in part 1.

**Table 3. Comparison of student ratings pre- and post-test by question for Part 1**

<b>Question Scale 1 - 5 1 = very difficult   5 = very easy</b>	<b>Pre-Test CWRR / HWS (n=158 / 55)</b>	<b>Post-Test CWRR / HWS (n=103 / 19)</b>	<b>Point Change CWRR / HWS</b>	<b>Percent Change CWRR / HWS</b>
1. Defining a topic for the assignment	3.00 / 3.29	3.15 / 3.47	0.15 / 0.18	5% / 6%
2. Narrowing my topic	3.01 / 3.15	3.18 / 3.63	0.18 / 0.49	6% / 16%
3. Selecting search terms	3.00 / 3.25	3.26 / 3.95	0.26 / 0.69	9% / 21%
4. Finding articles in the research databases on the Library's website (EBSCO, JSTOR, ProQuest, etc.)	2.68 / 2.69	3.08 / 3.37	0.39 / 0.68	15% / 25%
5. Finding sources to use "out on the web" (example - Google, Wikipedia, websites)	3.60 / 3.82	3.82 / 3.95	0.21 / 0.13	6% / 3%
6. Determining whether a website is credible or not	3.20 / 3.51	3.53 / 3.84	0.34 / 0.33	11% / 10%
7. Figuring out where to find sources in different parts of the library	2.61 / 2.62	3.15 / 3.11	0.54 / 0.49	21% / 19%
8. Finding up-to-date materials	3.09 / 3.07	3.43 / 3.47	0.33 / 0.40	11% / 13%
9. Having to sort through all the irrelevant results I get to find what I need	2.85 / 3.07	3.20 / 3.42	0.36 / 0.35	13% / 11%
10. Evaluating the sources that I've found	3.22 / 3.45	3.57 / 3.84	0.36 / 0.39	11% / 11%
11. Reading and understanding the material	3.43 / 3.62	3.69 / 3.79	0.26 / 0.17	8% / 5%
12. Integrating different sources from my research into my assignment	3.09 / 3.62	3.48 / 3.84	0.39 / 0.22	13% / 6%
13. Knowing when I should cite a source	3.32 / 3.85	3.58 / 4.32	0.26 / 0.46	8% / 12%
14. Knowing how to cite a source in the right format	3.01 / 3.25	3.31 / 4.00	0.30 / 0.75	10% / 23%
15. Knowing whether or not my use of a source, in certain circumstances, constitutes plagiarism	3.02 / 3.24	3.26 / 3.63	0.24 / 0.40	8% / 12%
16. Knowing whether or not I've done a good job on the assignment	2.76 / 2.98	2.68 / 3.00	0.10 / 0.02	4% / 1%
<b>Average</b>	<b>3.06 / 3.28</b>	<b>3.35 / 3.66</b>	<b>0.29 / 0.38</b>	<b>10% / 12%</b>

**Table 4. Percentage of responses at each level of difficulty for all questions in Part 1**

<b>Rating</b>	<b>Pre-Test CWRR / HWS (n=158 / 55)</b>	<b>Post-Test CWRR / HWS (n=103 / 19)</b>	<b>Percent Change CWRR / HWS</b>
1 – This is very difficult	4% / 2%	3% / 1%	-32% / -52%
2 – This is difficult	24% / 20%	19% / 13%	-20% / -37%
3 – This is neutral	39% / 34%	30% / 25%	-21% / -26%
4 – This is easy	28% / 36%	35% / 41%	27% / 17%
5 – This is very easy	5% / 8%	12% / 20%	139% / 141%

Table 5 (below) and Graphs 3 and 4 (Appendix B) show the percentage of students who answered each question correctly on the pre- and post-test for the five multiple-choice questions in Part 2.

**Table 5. Pre- and post-test comparison of the percentage of students answering multiple-choice questions correctly**

<b>Multiple-Choice Question</b>	<b>Pre-Test CWRR / HWS (n=156 / 51)</b>	<b>Post-Test CWRR / HWS (n=93 / 17)</b>	<b>Percent Change CWRR / HWS</b>
2. Keywords	50% / 86%	57% / 94%	14% / 9%
4. Database	68% / 82%	89% / 76%	31% / -7%
6. Narrowing	72% / 94%	80% / 88%	11% / -6%
7. Sources	65% / 86%	76% / 100%	18% / 16%
8. Citation	70% / 90%	80% / 100%	14% / 11%
<b>Average</b>	<b>65% / 88%</b>	<b>76% / 92%</b>	<b>18% / 5%</b>

Tables 6, 7, 8, and 9 (below) list the number of student responses that matched a given category for question 1 and provide a representative response for each category. Student responses were coded in up to three different categories.

**Table 6. Coded student responses to CWRR pre-test question 1**

<b>Pre-Test Question 1 – "What do you hope to learn from the library sessions?"</b>	<b>Number of Student Responses (n=156)</b>
<b>Finding resources</b> – "From the library sessions, I hope to learn how to research more effectively and find better ways to find information for my different topics."	52
<b>Library</b> – "I hope to learn about how to navigate the library more easily and be able to find the things I need easily."	45
<b>Other</b> – "I want to learn whether or not i did a good job on an assignment without it being like shooting a dart in to a dartboard in the dark."	41
<b>Finding books</b> – "Where and how to find the books the things i need to be fit for assignment's!"	31
<b>Citation</b> – "I hope to learn how to better cite sources and create an accurate bibliography."	28

<b>Finding articles</b> – "I hope to learn about how to access the library database that the school offers."	24
<b>Writing papers</b> – "I hope to learn how to correctly write essays and papers."	11
<b>Evaluation of sources</b> – "I hope to learn how exactly to tell when a site is not trusted and to know where other online sources are."	10
<b>Don't know</b> – "I'm not sure what to expect or learn from that."	4
<b>Keyword</b> – "[H]ow to narrow my searches into key words in order to make researching easier."	3
<b>Topics</b> – "I want to learn how to find strong topics"	3
<b>Web</b> – "[L]earn how to know which websites to choose."	3
<b>Nothing</b> – "I don't have anything in particular that I am wanting to learn."	1

**Table 7. Coded student responses to HWS pre-test question 1**

<b>Pre-Test Question 1 – "What do you hope to learn from the library sessions?"</b>	<b>Number of Student Responses (n=50)</b>
<b>Finding Resources</b> – "I hope to learn how to research more efficiently."	24
<b>Library</b> – "I hope to get a better idea of where everything is in the library"	16
<b>Other</b> – "Why the different levels"	14
<b>Finding books</b> – "I hope to learn where to find the good books."	9
<b>Finding articles</b> – "More info about databases, I know some already from past schools so learning how Millikin's works if I don't know it already. "	8
<b>Evaluation of sources</b> – "how to determine credibility of sources"	8
<b>Citation</b> – "How to cite physical books."	5
<b>Writing papers</b> – "I ... hope to learn more about how to write a proper research paper."	1

**Table 8. Coded student responses to CWRR post-test question 1**

<b>Post-Test Question 1.1 – "What was the most useful thing that you learned from the library sessions?"</b>	<b>Number of Student Responses (n=92)</b>	<b>Post-Test Question 1.2 – "What do you wish that you would have learned?"</b>	<b>Number of Student Responses (n=83)</b>
<b>Finding articles</b> – "The most useful thing that I learned from the library session was all of the different databases that are available to me "	48	<b>Citation</b> – "How to cite my sources right."	17
<b>Finding resources</b> – "I discovered more resources to find information that can able to support my further research. "	19	<b>Nothing</b> – "I am veery happy with the information that was shared with me."	15
<b>Evaluation of sources</b> – "The most useful things I learned from that session was how to check the credibility of the sources I am using for my research "	14	<b>Finding articles</b> – "I wish we learned how to find more up to date articles, or what to do when you get stuck."	9



<b>Other</b> – "How to use Staley Library"	8	<b>Evaluation of sources</b> – "I wish I had learned a little better if the sources I used were good enough."	8
<b>Keyword</b> – "I learned some useful ways to use search terms"	7	<b>Writing papers</b> – "I wish I would have learned how to get started on a paper."	8
<b>Topics</b> – "The most useful was helping narrow my topic for my research paper."	7	<b>Finding resources</b> – "I wish they told us how to find credible videos and interviews. "	8
<b>Interlibrary loan</b> – "I think the most useful thing I learned was how to order articles if our library didn't have one."	4	<b>Other</b> – "maybe if the internet worked during my class just to help set in stone things"	6
<b>Citation</b> – "[H]ow to cite sources properly."	2	<b>Web</b> – "When is it more appropriate to use google scholar instead of the library databases"	6
<b>Nothing</b> – "Everything that was discussed was stuff that I had already learned."	2	<b>Library</b> – "I would have enjoyed to learn how to navigate the library again."	5
<b>Don't know</b> – "I don't remember but what was taught was helpful at the time for sure."	1	<b>Topics</b> – "I think that I wish I could have learned some better ways to form the questions that I am asking."	4
<b>Library</b> – "Learning how to navigate the library website"	1	<b>Interlibrary loan</b> – "more on how to get books/journals from other schools"	3
<b>Writing papers</b> – "[H]ow to incorporate it [sources] into my work. "	1	<b>Don't know</b> – "I am not sure!"	2
<b>Web</b> – "The types of information that is found on the internet"	1	<b>Finding books</b> – "Maybe how to go to the library and find physical copies of books. "	1
		<b>Keywords</b> – "I wish I had learned how to use different words to find sources that are relevant to my topic. "	1

**Table 9. Coded student responses to HWS post-test question 1**

Post-Test Question 1.1 - "What was the most useful thing that you learned from the library sessions?"	Number of Student Responses (n=17)	Post-Test Question 1.2 - "What do you wish that you would have learned?"	Number of Student Responses (n=14)
<b>Finding articles</b> - "The most useful thing I learned from the library sessions was how to reach databases that are specific to my research topic."	7	<b>Citation</b> - "I wished we learned the proper way to cite sources with different kinds of sources."	4
<b>Keywords</b> - "Learning how to generate more key words to aid in searching for sources by reframing the way in which I view my topic was the most helpful thing I took away from the library sessions."	5	<b>Finding articles</b> - "I wish we would have talked more about the differences between the databases and when to use a certain one."	2
<b>Other</b> - "I learned how to save all of the sources I found into one location on my laptop."	3	<b>Finding books</b> - "I wish I would have learned how to find relevant sources that the library had itself, such as books that contained key information."	2
<b>Evaluation of sources</b> - "I also liked the discussions of evaluating the quality of sources."	2	<b>Nothing</b> - "I wouldn't say that there's anything specific I wish I learned because I think I had the right skills for this class, and it was just a matter of putting them together."	2
<b>Nothing</b> - "In full honesty, I don't remember much from those sessions."	2	<b>Finding resources</b> - "A more in-depth overview of how to specifically access resources would have been beneficial."	2
<b>Interlibrary loan</b> - "The most useful thing I have learned from the library session is how to submit a request for approval for scholarly articles."	1	<b>Interlibrary loan</b> - "I wish I had more knowledge on how to request materials."	1
<b>Finding resources</b> - "Learning about the resources specific to Millikin was very helpful."	1	<b>Keywords</b> - "What to do if all the search terms you are using are not quite bringing you the results you need or want."	1
		<b>Library</b> - "I wish I would have learned more about Millikin's library."	1
		<b>Writing papers</b> - "Learning different writing format styles"	1

Tables 10 and 11 (below) and Graphs 5 and 6 (Appendix B) show the pre- and post-test scores for the two constructed response questions in Part 2 of the assessment.<sup>4</sup>

**Table 10. Comparison of student scores pre- and post-test for question 3**

<b>Question 3 - "Describe a strategy for evaluating an online source (website, social media post, etc.) for credibility."</b>	<b>Pre-Test CWRR / HWS (n=156 / 51)</b>	<b>Post-Test CWRR / HWS (n=91 / 17)</b>	<b>Point Change CWRR / HWS</b>	<b>Percent Change CWRR / HWS</b>
<b>Average (out of 3)</b>	<b>1.69 / 2.10 (56% / 70%)</b>	<b>1.99 / 2.24 (66% / 75%)</b>	<b>0.30 / 0.14</b>	<b>18% / 7%</b>

**Table 11. Comparison of student scores pre- and post-test for question 5**

<b>Question 5 - "List and describe three ways that scholarly journal articles differ from magazine articles or newspaper articles."</b>	<b>Pre-Test CWRR / HWS (n=155 / 51)</b>	<b>Post-Test CWRR / HWS (n=91 / 17)</b>	<b>Point Change CWRR / HWS</b>	<b>Percent Change CWRR / HWS</b>
<b>Average (out of 3)</b>	<b>2.02 / 2.55 (67% / 85%)</b>	<b>2.58 / 2.62 (86% / 87%)</b>	<b>0.56 / 0.07</b>	<b>28% / 3%</b>

Tables 12 and 13 (below) show the pre- and post-test responses to question 9 on Part 2 of the assessment.

**Table 12. Student responses to pre-test question 9**

<b>Pre-Test Question 9 - "Prior to coming to Millikin University did you receive instruction in any of the following areas? (check all that apply)"</b>	<b>Number of Student Responses CWRR / HWS (n=154 / 51)</b>	<b>Percent of Student Responses CWRR / HWS</b>
Understanding the strengths and weaknesses of different information sources	103 / 41	67% / 80%
Using library databases (Gale, EbscoHost, etc.)	75 / 25	49% / 49%
Using a library catalog	33 / 13	21% / 25%
Developing keywords to use in your searches	90 / 35	58% / 69%
Evaluating websites	110 / 42	71% / 82%
Creating MLA, APA, Chicago, etc. style citations	113 / 49	73% / 96%

<sup>4</sup> The average standard deviation between the two coders for question 3 was 0.11. For question 5 it was 0.17.

**Table 13. Student responses to post-test question 9**

<b>Post-Test Question 9 - "Which of the following information sources have you used for assignments in any of your classes during your first year at Millikin University? (check all that apply)"</b>	<b>Number of Student Responses CWRR/ HWS (n=93 / 17)</b>	<b>Percent of Student Responses CWRR/ HWS</b>
Paper books	37 / 6	40% / 35%
E-books	63 / 10	68% / 59%
Encyclopedias or dictionaries	41 / 8	44% / 47%
Scholarly journals	85 / 17	91% / 100%
Newspapers or magazines	62 / 7	67% / 41%
Websites	90 / 17	97% / 100%

Table 14 (below) shows the average and median scores on the worksheet for the library tour. Table 15 (below) presents the results of the optional survey at the completion of the tour.

**Table 14. Student scores on the self-guided tour worksheet<sup>5</sup>**

<b>Average Score</b> (out of 10) (n=245)	8.8
<b>Median Score</b> (out of 10) (n=245)	8.9

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<sup>5</sup> These scores and the survey results represent participation by students in University Seminar and Honors University Seminar.

**Table 15. Self-guided tour survey results**

	<b>Number of Student Responses</b>	<b>Percentage of Student Responses</b>
<b>How long did it take you to complete your investigation? (n=165)</b>		
5 - 10 minutes	5	3%
10 - 15 minutes	72	44%
15 - 20 minutes	56	34%
more than 20 minutes	32	19%
<b>Now that you have completed the tour ...</b>		
<b>do you feel more comfortable using Staley Library? (n=165)</b>		
Yes	140	85%
No	10	6%
Not sure	15	9%
<b>do you feel more confident about finding library resources? (n=165)</b>		
Yes	130	79%
No	13	8%
Not sure	22	13%
<b>do you know who to ask for help in the library? (n=165)</b>		
Yes	164	99%
No	0	0%
Not sure	1	1%
<b>How do you feel about the Dr. I.B. Smart story used in the investigation? (n=165)</b>		
I liked it	76	46%
It was ok	73	44%
I didn't like it	8	5%
I didn't pay any attention to the story	8	5%

Similar data tables for the off-sequence CWRR classes are included in Appendix C.

## Analysis of Assessment Results

Looking across all the different assessment types, CWRR students showed an improvement in every area between the pre- and post-test. In Part 1, overall student confidence in the research process increased by 10%. In Part 2, they demonstrated an average 18% increase in correct answers on the multiple-choice portion and an average 23% increase in correct answers on the short answer questions. The HWS students showed an 12% increase in confidence in Part 1, an increase of 5% in the multiple-choice portion of Part 2, and an increase of 5% in correct answers on the short answers.<sup>6</sup>

<sup>6</sup> Another measure of the students' progress from the pre- to the post-test is to look at the *average normalized gain*, which is a measure commonly used in physics education for pre- and post-test assessments, e.g., Hake, A. (1997). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for an introductory physics course. *American Journal of Physics*, 66(1), 64-74. Average normalized gain  $\langle g \rangle$  is the average actual gain ( $\%post - \%pre$ ) divided by the maximum possible average gain ( $100\% - \%pre$ ). High- $g$  courses, i.e., those with a large gain from the pre- to the post-test, are those where  $g \geq 0.7$ , medium- $g$  courses are those where  $0.7 > g \geq$

Mapped to the CWRR Artifact Performance Indicator Scale (where Nominal (Red-Stop) = 0-52%, Adequate (Yellow-Caution) = 53-74%, and Excellent (Green-Go) = 75-100%), for CWRR on the multiple-choice portion of Part 2 the percentage of correct answers on the post-test was at the low end of the Excellent (Green) range at 76%. The percentage of correct answers on the short answer portion of Part 2 of the post-test also fell in the Excellent (Green) range at 76%. Students showed the most improvement on the questions about databases (#4) and sources (#7). Question 2 on keywords fell into the Adequate (Yellow) range with only 57% correct. The Honors Writing Studio students were well into the Green range on the multiple-choice portion of Part 2 with an average of 92% correct and were also in the Green range on the short answer portion of Part 2 of the post-test with 81% correct. Only question 4 on databases was at the low end of the Green range with 76% correct. The CWRR students continued to show the greatest increase on questions related to material that the librarians particularly emphasize in their instruction sessions, e.g., the purpose of library subscription databases and the credibility of different information sources (questions 4 and 7), although their low scores on both the pre- and post-test question about keywords (#2) is puzzling since the librarians typically spend time on this topic in class. Nonetheless, this year's assessment shows that the students' information literacy confidence and abilities increased during their first year at Millikin University.

### **Analysis of Assessment Results by Library Instruction Goal**

Almost all the questions in Parts 1 and 2 can be mapped to particular Staley Library CWRR learning goals. Students' confidence and correct answers increased across all the learning goals (see Table 2 above), with the strongest increase in goals 1 and 3 (information sources and evaluation of information), as has been the case in past years. Students also showed improvement in goal 4 (ethical aspects of information) and goal 2 (search strategies).

### **Analysis of Assessment Results for Part 1**

CWRR students' self-assessed confidence increased on Part 1 by .29 points (10%) while HWS students increased (.38 points or 12%). CWRR students showed the greatest increase in confidence in finding resources in the library (question 7), finding articles in the research databases on the library's website (#4), sorting through irrelevant sources to find what they need (#9), and integrating sources from their research into their assignment (#12). Students showed the smallest increase in knowing whether they have done a good job on the assignment (#16) and defining a topic (#1). Students had the highest overall scores on the post-test on questions 5 (finding sources out on the web) and 11 (reading and understanding the material) and the lowest overall scores on questions 16 (knowing if I've done a good job on the assignment) and 4 (finding articles in research databases).

The HWS students expressed higher average confidence on both the pre- and the post-test and had a higher percentage increase from the pre- to the post-test. The honors students showed the highest increase in confidence from the pre-test to the post-test on finding articles in the research databases (#4) and knowing how to cite a source in the right format (#14) and the smallest increase in knowing whether they have done a good job on an assignment (#16) and finding sources on the web (#5). Their highest overall scores on the post-test were on questions related to citation (#13 & #14), selecting search terms (#3), and finding sources on the web (#5). They expressed the lowest confidence knowing whether they had done a good job on the assignment (#16) and figuring out where to find sources in different parts of the library (#7). In fact, the honors students' confidence on that task was .04 lower than the CWRR students, although like the CWRR students their confidence increased around 20% from the pre-test to the post-test.

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0.3, and low-*g* courses are those where  $g < 0.3$ . Applied to this year's assessment, for the selected response questions  $g = .24$  (low-*g*) and for the constructed response questions  $g = .32$  (medium-*g*). These results are lower than last year (.42 & .38).

Table 4 (above) lists the percentage of responses at each of the five ratings (1-5) across all the questions on Part 1 for pre- and post-test for both CWRR and HWS. This comparison shows that fewer students responded with 2s (low confidence) and 3s (neutral) from the pre-test to the post-test, while the number of students who found tasks easy or very easy (4 or 5) increased, with most responses falling into the neutral or easy categories by the time of the post-test. Overall, it does seem that students are more confident in the research process by the end of their second semester at Millikin University.

## **Analysis of Assessment Results for Part 2**

### ***Multiple-Choice Questions***

**Question 2** asks students to determine the best keywords to use to enter a query in Google. CWRR students showed an increase in their scores between the pre- and post-tests of 14%. The average score on the post-test of 57% correct was the lowest of the multiple-choice questions on the post-test and falls in the Yellow range. It is also lower than last year (66% correct) and much lower than the year before (80% correct). For this question, as with the other skills questions in Part 2, the HWS students performed much better than the CWRR students. On the pre-test 86% of the HWS students answered this question correctly and on the post-test 94% got it correct.

**Question 4** on the type of resources available in library databases also showed a very strong improvement (31%) for CWRR students between the two tests, and by the time of the post-test 89% of the CWRR students answered this question correctly, which is well into the Green range. Interestingly, the HWS students' scores decreased from the pre-test to the post-test by 7%, although their average score was still in the Green range at 76%. Knowing what library databases are and how to search in them effectively are essential skills for scholarly researchers and a major focus of library instruction.

**Question 6** asks students to narrow a given topic. The CWRR students showed an increase from the pre- to the post-test of 11%, with 80% correct by the post-test. Here too the HWS students' scores decreased slightly from the pre-test to the post-test (-6%), although their scores were high on both the pre-test and the post-test (94% correct and 88% correct).

**Question 7** on information sources showed a strong increase in correct answers for the CWRR students (18%), although the average score on the post-test (76% correct) was lower than last year (90% correct). This is a question that students have typically had a hard time with, and changes to the question on previous assessments have brought the scores more in line with the other questions. For this assessment cycle one of the responses was changed from "A discussion of energy drinks on Yahoo! Answers" to "A discussion on the subreddit (Reddit forum) r/energydrinks/." If anything, Reddit should be more familiar to students than Yahoo! Answers, so it is hard to see how that change explains the lower number of correct responses. The HWS students performed very well on this question and had 100% correct on the post-test.

**Question 8**, which asks about the best time in the research process to record a citation, also showed a 14% increase in the CWRR students' scores from pre- to post-test from 70% correct to 80% correct, which is within the Green range. The HWS students scored 100% correct on this question on the post-test.

### ***Short Answer Questions***

**Question 1** of the pre-test provides important insights into students' understanding and expectations of the library and scholarly research as they begin their college careers. The CWRR students were most keen on learning how to find resources and how to navigate the library, which are typically popular answers on this question. A trend that continued this year was a desire by the students to learn how to be more efficient in their research. Several students also admitted that they were unfamiliar with using the library

for scholarly research and needed guidance (e.g., “Never used library before so confused please help.” or “I want to learn how to find the information I want effectively. I come to the library and don't know where to start now.”)

The HWS students also identified finding resources and navigating the library as the things they most often wanted to learn. The HWS responses do tend to be more detailed, and the students sometimes self-identified their strengths and their weaknesses (e.g., “I hope to learn how to research more efficiently. The writing portion of the essay is never too difficult, but sometimes finding the right source can be challenging.”).

On the post-test the most valuable things the CWRR students claimed to have learned in their library instruction (question 1.1) were finding articles, i.e., using the databases, and more generally finding resources. Using the library databases to find scholarly articles has typically been the most popular answer to this question. The most common response to question 1.2, which asks what students wish they had learned was how to be more proficient with certain aspects of citation (e.g., “I wish I would have learned how to in-text citation correctly the sources that I am using for my paper.”) Some students did say while what they learned was helpful, they wish they had learned more on a topic like using the databases (e.g., “I wish we learned how to find more up to date articles, or what to do when you get stuck. I could not find very many current sources for my paper.”) or the writing process (e.g., “I wish I learned how to better come up with research questions that would constitute my paper as “adding on” to the “conversation” revolving an academic topic.”) For the HWS students, using the databases to find articles was the most useful thing that they learned, and using keywords while searching was the second most popular answer. The highest number of HWS students also said that they wish they had learned more about citation or citation styles. There was a wide range of other responses to question 1.2 for the HWS students (see Table 9 above).

**Question 3** was substantially revised for this assessment cycle. Rather than asking the students to identify criteria for evaluating a website, we instead asked students to describe a strategy for evaluating any web-based source of information including social media. This change is reflective of our new approach to teaching evaluation of sources where we rely less on checklists and more on using critical thinking in a way that mirrors the approach of professional fact checkers. Because of this new question and a new rubric, the scores on the pre- and post-test were lower than last year, although the CWRR students did demonstrate an 18% increase in correct scores from the pre- to the post-test. The HWS students showed a smaller increase from pre-test to post-test, but their average score was .41 points higher than the CWRR students on the pre-test and .14 points higher on the post-test. As we have seen for several years, students do seem to arrive at Millikin with some familiarity with web source evaluation, although the instruction that they are receiving either focuses on the appearance of the website (e.g., is it a .com or a .org site?) or possibly they are learning some type of checklist for evaluating websites – at least one student mentioned the CRAAP test by name. Interestingly several of the CWRR students mentioned on the pre-test that having a teacher look at a website is a good way to assess it (e.g., “Send the page to a friend or to your teacher to have a second opinion on the credibility of the website.”). One of the strategies that we mention by name in some of our instruction sessions is “lateral reading,” i.e., looking at other sources to provide background and context to help evaluate a source rather than simply reading through the source that is being assessed. No students mentioned this strategy by name on the post-test, although numerous CWRR and HWS students identified the importance of looking at other sources to assess an author’s credibility, which is a form of lateral reading. The upshot seems to be that while students did improve in their evaluation of online sources as a result of our instruction, there is room for improvement in developing these important skills.

**Question 5** asks students to describe three ways that scholarly journal articles differ from magazine or newspaper articles. Part of a spring library instruction session is devoted specifically to this topic and students are given criteria for distinguishing scholarly journals from other periodical types. The CWRR students’ scores increased 28% from the pre-test to the post-test, where 86% of the students correctly identified three differences between scholarly and popular sources. For the HWS students the increase was smaller (3%), but 87% of the students on the post-test correctly identified three differences. As in the past,



students do tend to display very binary thinking between scholarly and popular sources, i.e., scholarly journals are always credible, excellent sources of information while popular sources are just trying to sell you something. Students have an especially low opinion of magazines (e.g., “in magazines most stuff is for humor or gossip and barely anything is really true”). Several of the CWRR and HWS students on the post-test cast the difference between the two source types in terms of primary and secondary sources (e.g., “1. they are peer-reviewed 2. they are primary sources 3. they have done the research themselves”). While it is true that scholarly journals can be primary sources, newspapers can also be primary sources. It depends on the context, which these students did not acknowledge.

**Question 9** on the pre-test focuses on students’ prior information literacy experience while the post-test asks about their use of resource types during their first year at Millikin. As we have found in the past, between the CWRR and HWS students, the HWS students report more previous exposure to various aspects of information literacy instruction, but the percentage of the two groups’ responses track closely, e.g., more students report previous instruction on creating citations and evaluating websites and less prior instruction on using a library catalog. One change from last year is that on the previous assessment 29% of CWRR students claimed they had learned about library databases, and this year that number was 49%, which was the same as the HWS students.

Post-test question 9 asks students to identify the information sources they used in any of their classes in their first year at Millikin. 97% of the CWRR students claimed to have used websites and 91% said they used scholarly journals (HWS students claimed 100% usage in both categories). The least commonly used item was paper books at 40%, which was true for the HWS students at 35%. This year continued a trend observed over several years of students claiming higher usage of E-books over paper books. This year there was almost a 30 percentage point higher usage of E-books over paper books by the CWRR students and only a slightly smaller difference in usage for the HWS students.

This question on both the pre- and post-test helps the librarians to better understand the information literacy that students bring to Millikin and the types of resources they are using while they are at Millikin.

### **Analysis of Results for the Self-Guided Tour**

There were 165 unique responses to the optional survey that students complete after taking the self-guided tour, which represents approximately 67% of the 245 students who completed the tour. A sizable majority of respondents claimed to have met the tour’s learning goals of making students feel more comfortable in the library (85%), more confident using library resources (79%), and more knowledgeable about who to ask for help in the library (99%). 90% of the students claimed that they either liked or thought the story aspect of the tour was ok. The complete survey results are in Table 15 above. It is important to note that the survey was optional, and these self-selected responses may not be representative of the students who completed the tour.

As in the past, students filled out a worksheet while completing the tour. The worksheet is intended as a self-check on students’ knowledge, and it is not intended to be overly difficult to avoid frustrating the student during an outside of class activity. 245 students submitted a worksheet, and the average score was 8.8 (median = 8.9) out of 10 (Table 14 above). Based on a class of 427 this means that approximately 57% of first year students completed the self-guided tour.

Overall, the tour accomplished its purpose of introducing students to the physical library and its services. While the participation rate was higher than last year’s virtual tour (39%) it was substantially lower than the previous in-person tour (72%).

## **Analysis of Assessment Results for Off-Sequence CWRR classes**

This year data were collected from three off-sequence CWRR I sections in spring 2022. 44 students were enrolled in the three sections, and 18 students completed the assessment for a participation rate of 41%, which is higher than the typical off-sequence participation rate. Assessing the off-sequence classes always presents challenges since these sections are populated with a mix of transfer students, international students, and students retaking CWRR. Not only do students come into these classes with extremely varied backgrounds and preparation, but also some of them are taking the class for a second time.

For part 1 of the assessment, the overall confidence for the off-sequence CWRR classes was higher on the pre-test than for the CWRR classes (3.26 versus 3.06). In Part 2 of the assessment, the overall average percentage who answered the questions correctly on the multiple-choice questions was lower in the off-sequence sections (56% correct vs. 65% correct for the traditional CWRR classes). For question 3 (web source evaluation) the off-sequence scores were the same as the traditional CWRR classes (1.69) while they were lower for question 5 (1.63 versus 2.02). As with the traditional CWRR classes, the most popular response to question 1 was a desire to learn about finding credible sources. The results for question 9 were also similar, although fewer students in the off-sequence classes claimed to have learned each of the various information literacy skills prior to coming to Millikin University.

The complete results for the off-sequence CWRR classes can be found in Appendix C (below).

## **Improvement Plan**

As campus-wide teaching and learning returned to a more normal, in-person form last year, participation rates on the assessment also increased. Both the pre-test and especially the post-test saw substantial gains year over year (6 percentage point increase on the pre-test and an 18 percentage point increase on the post-test). No matter what form our assessment takes next year, we will seek to build upon those gains.

While the participation rate for the self-guided tour also increased last year, it did not recover completely. Learning about the physical library was the second most popular response on pre-test question #1 (What would you like to learn?) and the tour in the most efficient way to familiarize students with the library. The librarians will continue to work with University Seminar faculty to stress the importance of the tour and the need for their students to complete it.

The change to question 3 on Part 2 of the assessment on web source evaluation resulted in much lower scores for the CWRR and the HWS students but provided much more useful data on students' abilities. As noted in past reports, students increasingly come to Millikin having received instruction on evaluating websites. However, that instruction, or at least how it is manifested in the students, typically results in evaluations that are based on superficial characteristic of websites like the domain name ending or black and white thinking (e.g., all blogs are bad). As web sources and the ways they can deceive users have become more sophisticated, students' evaluation methods need to evolve as well. The librarians' instruction has moved away from a checklist approach to evaluating website to one based on principles like lateral reading and critical thinking. The 18% gain from pre-test to post-test (7% for the HWS students) shows that our strategy is working while there remains room for improvement. By the post-test many students were still relying on checklist approaches to evaluating web sources using only information found within the source, and very few students mentioned critical thinking principles like determining the reasonableness of a site or considering their own bias or perspective. The librarians will continue seeking out best practices for teaching web source evaluation. These more sophisticated techniques are also difficult to teaching a single class period. We will need to look for other opportunities in the curriculum to develop students' skills in this area.

The major changes to the first-year writing program next academic year will have profound effects on Staley Library's instruction program and our associated assessment. The librarians have developed a plan of instruction for Writing Practicum (IN180/IN280) that uses a mixture of videos, flipped classroom instruction, and in and out of class assignments to provide information literacy instruction in an efficient manner. Because Writing Practicum is not strictly sequenced like CWRR using a pre-test/post-test format will be very difficult. This will certainly be a loss, especially on the skills-based (Part 2) section of our current assessment which has been providing valuable insights into the skills and knowledge that students have when they come to Millikin and how our instruction benefits them over their first year at the University. We are currently exploring a mixture of artifact assessment of the research papers for IN180 and IN280 and smaller in-class assessments to replace our current assessment. We will continue using our current assessment with the HWS classes and any legacy CWRR classes.

## **Conclusion**

Overall, the assessment of library instruction in University Seminar/CWRR/HWS indicates that students are learning important information literacy skills and increasing their confidence in the research process over the course of their first year at Millikin University. Finding, evaluating, and using information effectively and ethically are important 21<sup>st</sup> century skills, and they are skills that library faculty are uniquely qualified to develop in students throughout the curriculum. The 2022-2023 academic year will present challenges and opportunities as we re-imagine our library instruction program to match the new Writing Practicum sequence and incorporate best practices in our teaching. The close collaboration between the library and writing faculty during the planning process has been very fruitful, and the library faculty are pleased that they will continue to have multiple opportunities to meet and work with students to introduce and reinforce concepts throughout these new courses. They look forward to the upcoming year and working again with their Writing Practicum, HWS, and Seminar colleagues to make our students more information literate.

# Appendix A

## Pre- and Post-Test Questions

### Part 1

When you think about the ENTIRE research process—from the moment you get the assignment until you turn in your research paper—what is the level of difficulty for the following tasks? [Scale of 1 to 5: 1 = Very difficult, 2 = Difficult, 3 = Neutral, 4 = Easy, 5 = Very easy]

1. Defining a topic for the assignment.
2. Narrowing my topic.
3. Selecting search terms.
4. Finding articles in the research databases on the Library's website. (EBSCO, JSTOR, ProQuest, etc.)
5. Finding sources to use "out on the web" (using Google, Wikipedia, or other search sites).
6. Determining whether a website is credible or not.
7. Figuring out where to find sources in different parts of the library.
8. Finding up-to-date materials.
9. Having to sort through all the irrelevant results I get to find what I need.
10. Evaluating the sources that I've found.
11. Reading and understanding the material.
12. Integrating different sources from my research into my assignment.
13. Knowing when I should cite a source.
14. Knowing how to cite a source in the right format.
15. Knowing whether or not my use of a source, in certain circumstances, constitutes plagiarism.
16. Knowing whether or not I've done a good job on the assignment.

### Part 2

(Correct answers are indicated in italics)

1. (Pre-Test) This year, a librarian will visit your CWRR and Seminar classes to begin talking about Information Literacy. What do you hope to learn from the library sessions?
1. (Post-Test) This year, a librarian visited your CWRR and Seminar classes to begin talking about Information Literacy.
  1. What was the most useful thing that you learned from the library sessions?
  2. What do you wish that you would have learned?
2. You are asked to write a research paper addressing the following question: "Should colleges be allowed to restrict student speech?"

You have decided to do a Google search using two keywords.  
Which **two keywords** will get the best results?

  - College and censorship*
  - College and student
  - College and speech
  - College and restriction
3. Describe a strategy for evaluating an online source (website, social media post, etc.) for credibility.
4. If you are searching in the database "Academic Search Premier" as seen in the image below [a screenshot of database is included], what type of research resources should you expect to find in your results?

*Journal Articles*

Books

5. List and describe **three** ways that scholarly journal articles differ from magazine articles or newspaper articles.
6. You have been assigned to write a research paper on a current events issue and you have decided to write about privacy on the Internet. Your professor tells you that your topic is too general. Of the following, which is the best way to **narrow** your Internet privacy topic?
- Focus on the relationship of Facebook use and self-esteem.
  - Focus on methods that schools are using to prevent online bullying.
  - Focus on social media companies and how they use personal data to make money.*
  - Focus on whether e-books affect student learning.
7. You are doing research for a speech on the potential health benefits and drawbacks of energy drinks (Monster, Red Bull, etc.). Which source is most likely to have **objective and accurate** information on this topic?
- A discussion on the subreddit (Reddit forum) r/energydrinks/.
  - A peer-reviewed article in a nutrition journal.*
  - A website for one of the energy drink manufacturers.
  - A survey conducted by the Coca-Cola Company.
8. When is the best time in the research process to make note of the details about your sources (author, title, date, etc.), so that you can cite them properly?
- The first time you access a source you might want to use.*
  - After you have finished writing the section of the paper that uses information from a source.
  - When you are working on your reference list.
  - When the teacher asks you for proof that you did not plagiarize the information in the paper.
9. (Pre-Test) Prior to coming to Millikin University did you receive instruction in any of the following areas? (check all that apply)
- Understanding the strengths and weaknesses of different information sources
  - Using library databases (Gale, EbscoHost, etc.)
  - Using a library catalog
  - Developing keywords to use in your searches
  - Evaluating websites
  - Creating MLA, APA, Chicago, etc. style citations
9. (Post-Test) Which of the following information sources have you used for assignments in any of your classes during your first year at Millikin University? (check all that apply)
- Paper books
  - E-books
  - Encyclopedias or dictionaries
  - Scholarly journals
  - Newspapers or magazines
  - Websites

### Categories for Part 2, Question 1

A = Finding articles (also using databases)

B = Finding books (and other print materials, also using the catalog)

C = Citation (also plagiarism)

D = Don't know

E = Evaluation of sources

I = Interlibrary loan

K = Keywords (development or selection)

L = Library – navigating the physical library or website

N = Nothing

O = Other – entire research process, information literacy, etc. [use for very broad answers]

P = Writing papers, the mechanics of writing

R = Finding (credible) (re)sources [use if they don't specify format or mention the library "databases"]

T = Topics – defining, narrowing, etc.

W = Web – using Google, Bing, Wikipedia, etc.

### Rubric for Part 2, Question 3

0	1	2	3
No strategy, "I don't know," or failure to answer the prompt, e.g., explaining a search strategy or expressing a preference for scholarly articles	Strategy based on the <b>appearance</b> of the website, e.g., - URL - Format – nicely laid out, free of obvious errors - Ads - Sources or Reference List	Strategy based on a <b>checklist</b> that focuses on the site alone, e.g., - Currency - Relevance - Authority - Accuracy - Purpose	Strategy based on <b>lateral reading</b> or <b>critical thinking</b> , e.g., comparing different sources, assessing authority using external sources, tracing claims, evaluating claims based on logical reasoning, considering one's own biases or perspective

This rubric is based on the work of Grace Liu and her *4-Step Source Assessment*:  
<https://sandbox.acrl.org/library-collection/4-step-source-assessment-strategy>

### Grading Scale for Part 2, Question 5

Possible answers:

- **Purpose:** To inform, report, or make available original research. In-depth analysis of issues related to a discipline.
- **Format:** Lengthy articles with defined sections, e.g., abstracts, methods, results, conclusions, and bibliography. May be published quarterly.
- **Authors:** Written by scholars, professors, or researchers in the field, discipline, or specialty.
- **Language/Audience:** Use terminology/jargon of the discipline. Reader is assumed to have a scholarly background. Written by experts for experts.

- **Graphics:** Graphics and charts to illustrate articles, but seldom glossy pages, pictures, or advertisements.
- **Sources:** Sources cited with footnotes/endnotes and bibliographies.

0 = No differences correctly identified, "I don't know" or similar answer

1 = One difference correctly identified

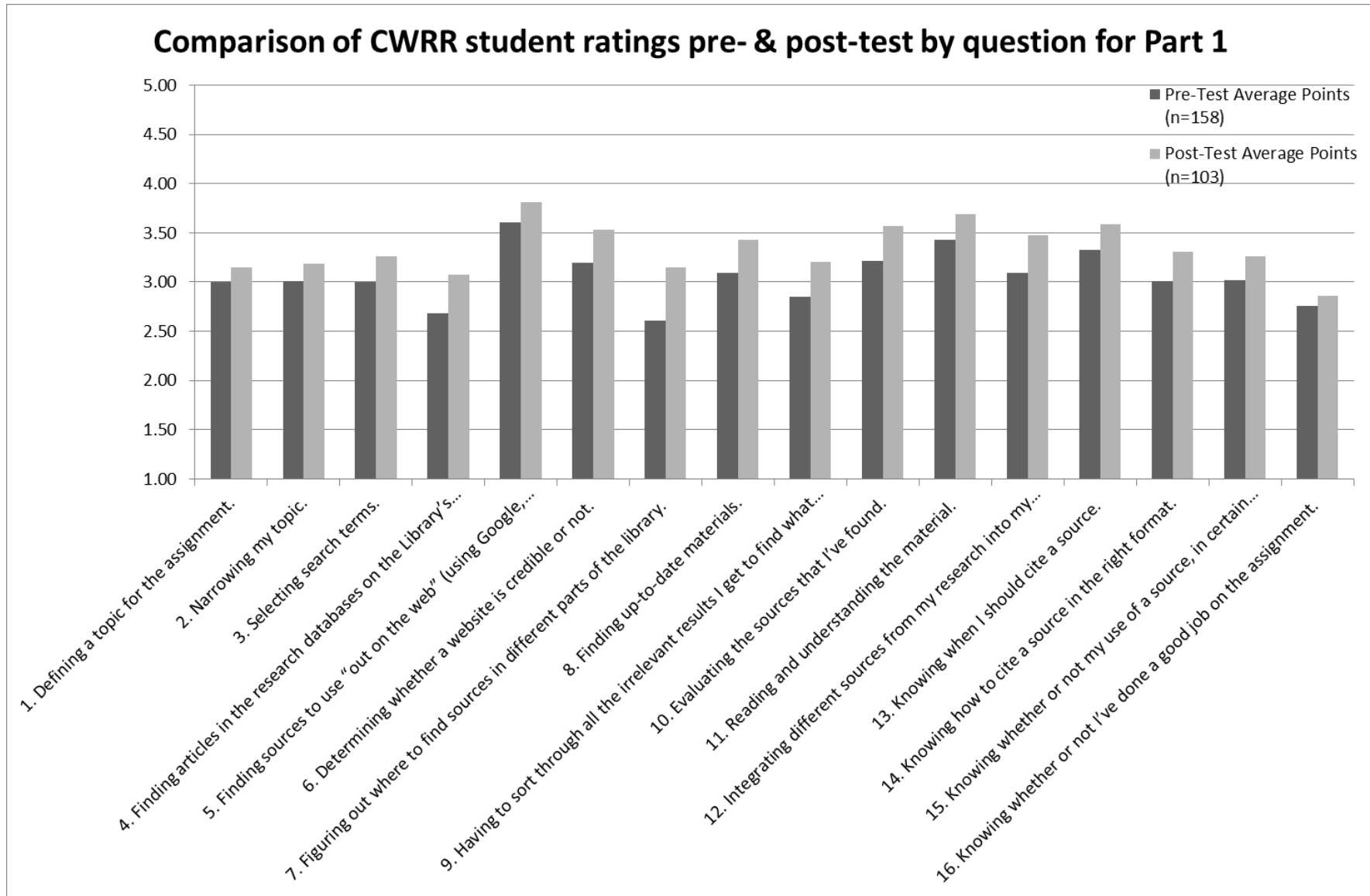
2 = Two differences correctly identified

3 = Three differences correctly identified

## **Appendix B**

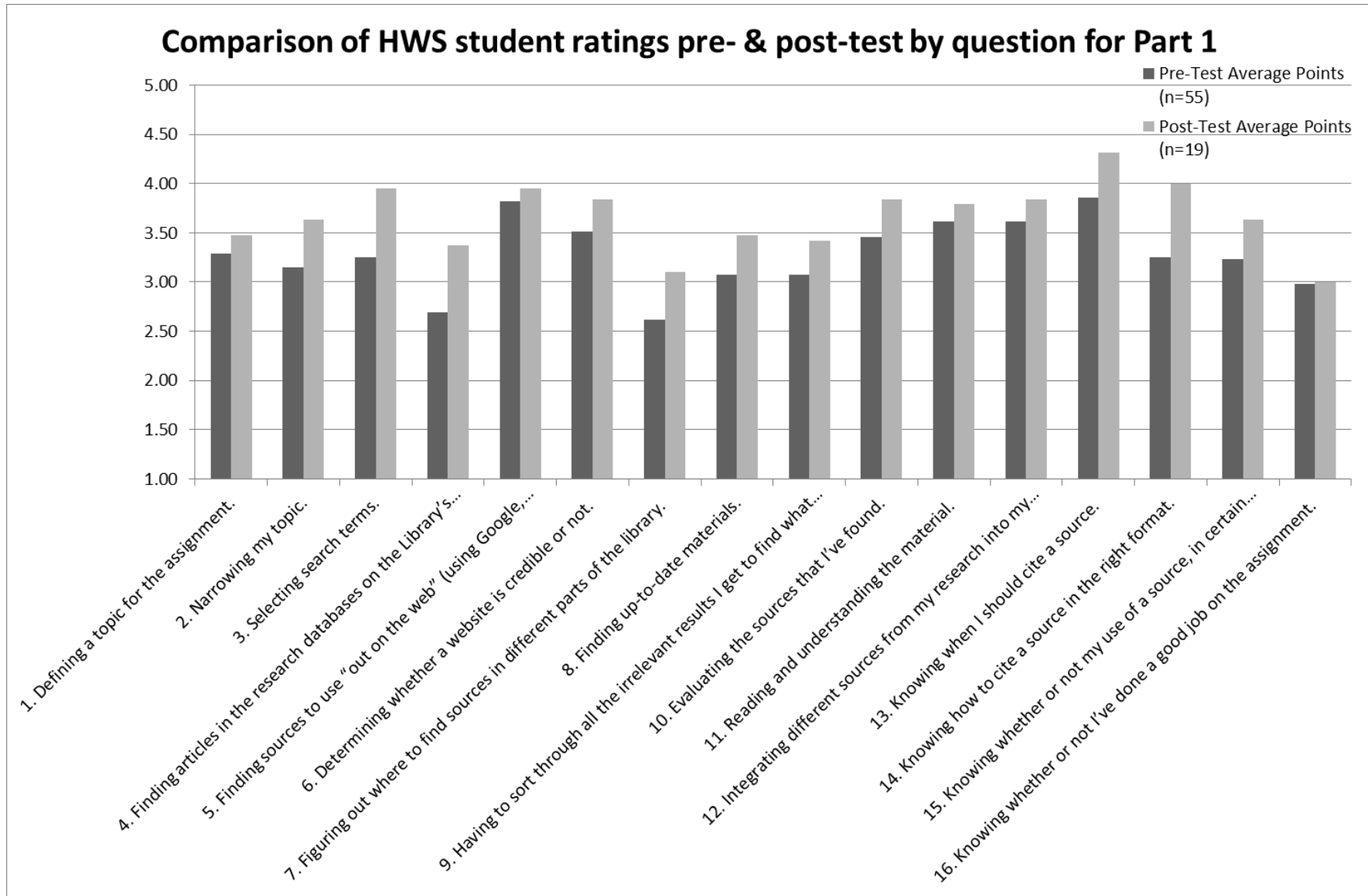
### **Graphical Representation of Pre- and Post-Test Results**

Graph 1

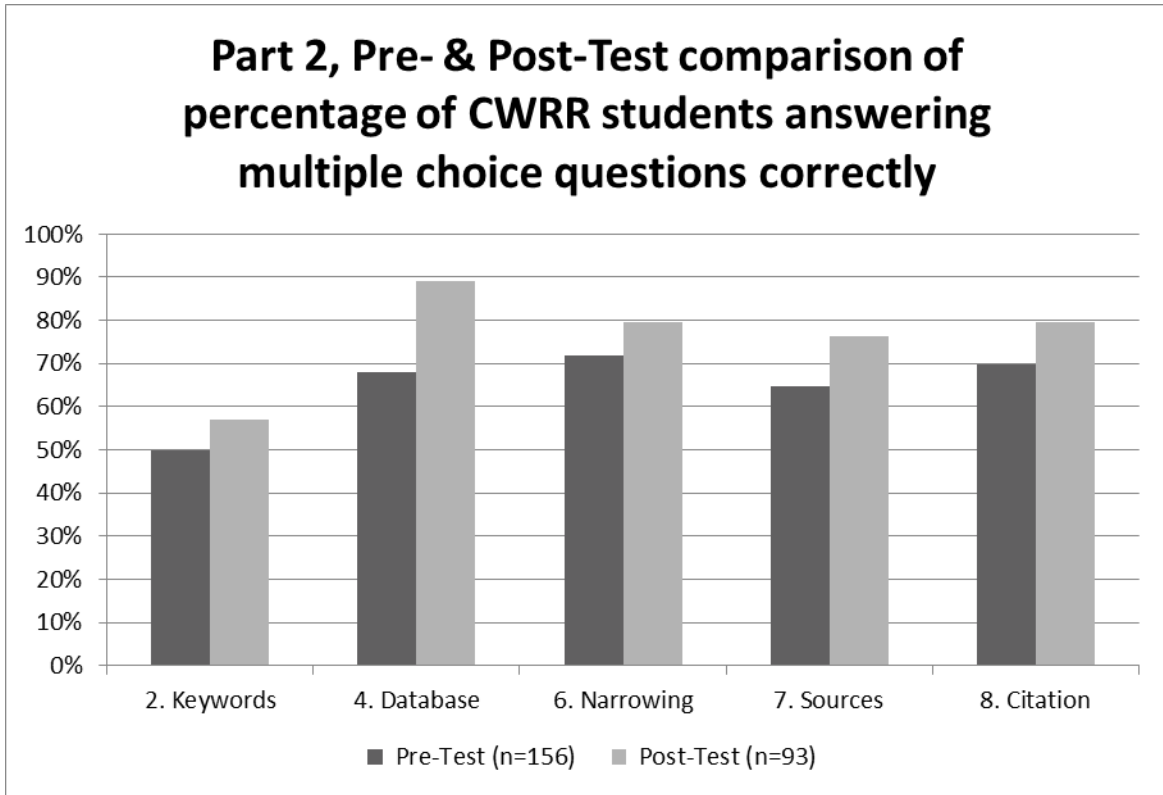




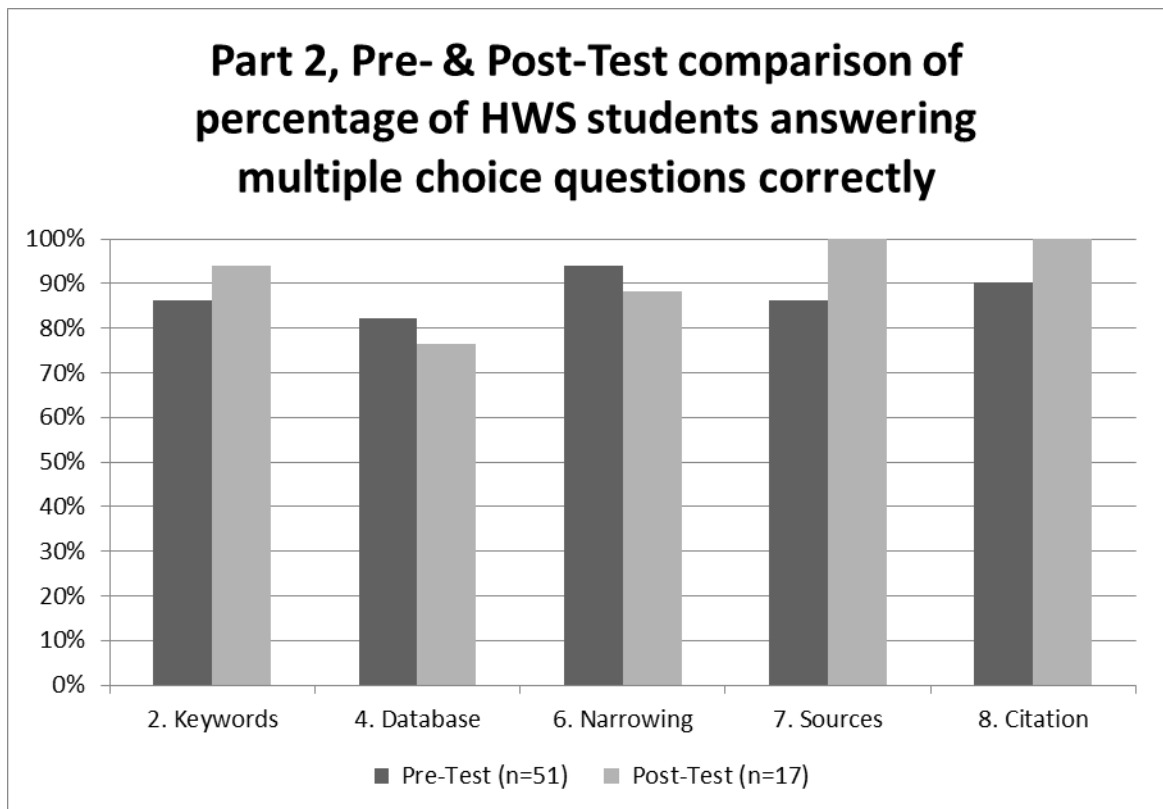
Graph 2



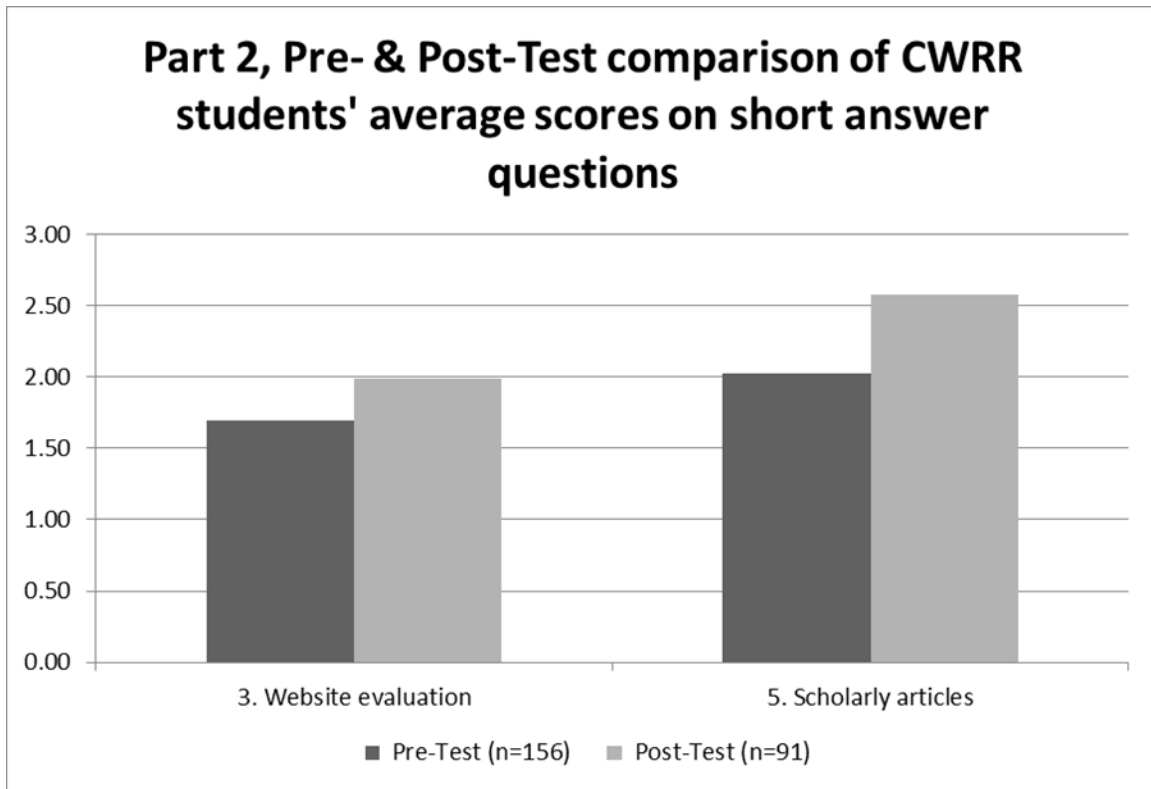
**Graph 3**



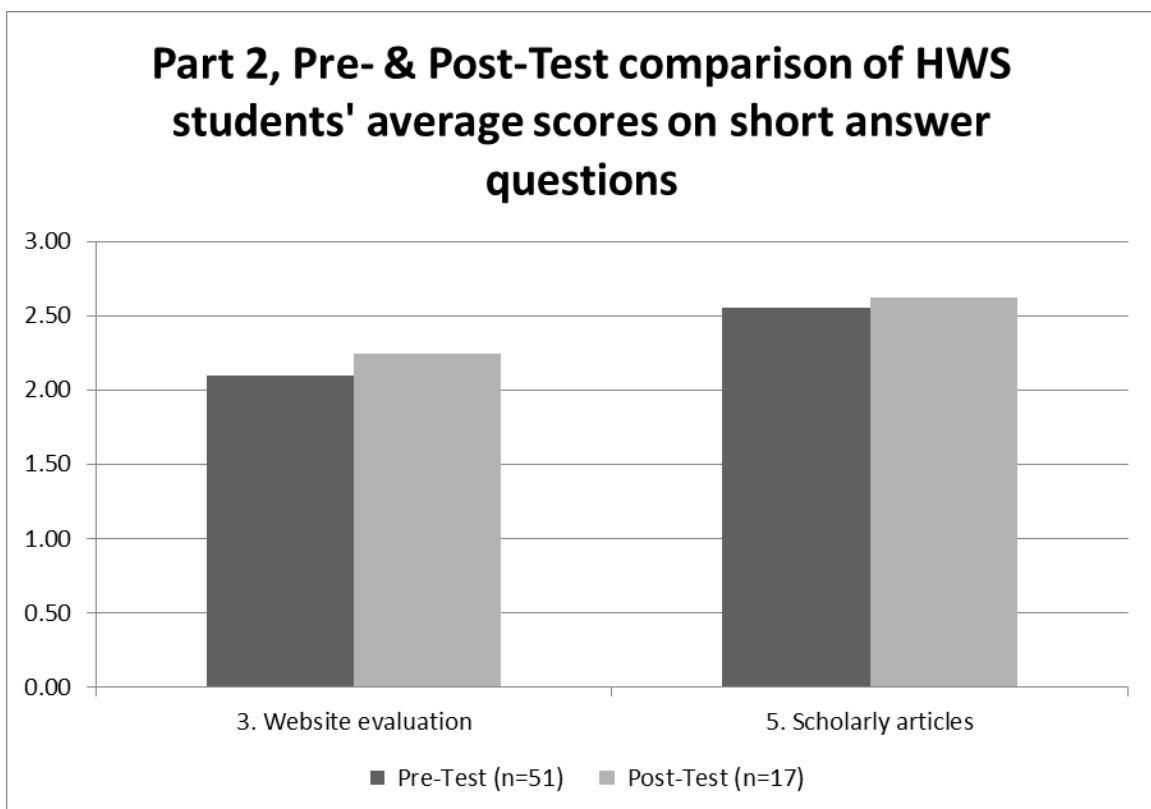
**Graph 4**



**Graph 5**



**Graph 6**



## Appendix C

### Off-Sequence CWRR Results<sup>7</sup>

#### Part 1

**Table 1. Student ratings by question for Part 1**

<b>Question Scale 1 - 5 1 = very difficult 5 = very easy</b>	<b>Pre-Test Average Points (n=8)</b>
1. Defining a topic for the assignment	2.89
2. Narrowing my topic	3.33
3. Selecting search terms	3.18
4. Finding articles in the research databases on the Library's website (EBSCO, JSTOR, ProQuest, etc.)	3.00
5. Finding sources to use "out on the web" (example - Google, Wikipedia, websites)	3.83
6. Determining whether a website is credible or not	3.47
7. Figuring out where to find sources in different parts of the library	2.94
8. Finding up-to-date materials	3.50
9. Having to sort through all the irrelevant results I get to find what I need	3.00
10. Evaluating the sources that I've found	3.39
11. Reading and understanding the material	3.72
12. Integrating different sources from my research into my assignment	3.33
13. Knowing when I should cite a source	3.44
14. Knowing how to cite a source in the right format	2.50
15. Knowing whether or not my use of a source, in certain circumstances, constitutes plagiarism	3.17
16. Knowing whether or not I've done a good job on the assignment	3.44
<b>Average</b>	<b>3.26</b>

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<sup>7</sup> The off-sequence results represent three sections of CWRR I in spring 2022.

**Table 2. Percentage of responses at each level of difficulty for all questions in Part 1**

<b>Rating</b>	<b>Pre-Test (n=18)</b>
1 - This is very difficult	3%
2 - This is difficult	20%
3 - This is neutral	36%
4 - This is easy	31%
5 - This is very easy	10%

**Part 2**

**Table 3. Percentage of students answering multiple-choice questions correctly**

<b>Multiple-Choice Question</b>	<b>Pre-Test (n=18)</b>
2. Keywords	24%
4. Database	83%
6. Narrowing	67%
7. Sources	56%
8. Citation	50%
<b>Average</b>	<b>56%</b>

**Table 4. Coded student responses to question 1**

<b>Pre-Test Question 1 - "What do you hope to learn from the library sessions?"</b>	<b>Number of Student Responses (n=18)</b>
<b>Finding Resources</b> - "I hope to learn about how to find credible sources"	7
<b>Other</b> - "consistency"	6
<b>Finding articles</b> - "How to use the system and resources that Millikin and the library database has to offer."	4
<b>Citation</b> - "when to use the proper in-text citation when I am sourcing a paper within my paper"	3
<b>Finding books</b> - "how I can ask to use a book outside of the library"	2
<b>Evaluation of sources</b> - "What is a credible source and how well know the difference?"	1
<b>Keyword</b> - "the synonyms, related, names, places, and the types of people or organizations that might care about the topic"	1
<b>Library</b> - "how to find things in the library that I could use"	1

**Table 5. Student scores for question 3**

<b>Question 3 – “Describe a strategy for evaluating an online source (website, social media post, etc.) for credibility.”</b>	<b>Pre-Test (n=16)</b>
<b>Average (out of 3)</b>	<b>1.69 (56%)</b>

**Table 6. Student scores for question 5**

<b>Question 5 – “List and describe three ways that scholarly journal articles differ from magazine articles or newspaper articles.”</b>	<b>Pre-Test (n=16)</b>
<b>Average (out of 3)</b>	<b>1.63 (54%)</b>

**Table 7. Student responses to question 9**

<b>Pre-Test Question 9 – "Prior to coming to Millikin University did you receive instruction in any of the following areas? (check all that apply)"</b>	<b>Number of Student Responses (n=18)</b>	<b>Percent of Student Responses</b>
Understanding the strengths and weaknesses of different information sources	12	67%
Using library databases (Gale, EbscoHost, etc.)	7	39%
Using a library catalog	3	17%
Developing keywords to use in your searches	8	44%
Evaluating websites	11	61%
Creating MLA, APA, Chicago, etc. style citations	9	50%