

# **Student Learning in Library Research Instruction for University Seminar and Critical Writing, Reading, and Research I & II Assessment Report for Academic Year 2017-2018**

Reported by Matthew Olsen, Instructional Services Coordinator  
July 2018

## **Summary**

During the 2017-2018 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 receive four library instruction sessions designed to address Staley Library's four CWRR learning goals.

All students enrolled in the University Seminar/CWRR sequence (essentially all first-year students at Millikin University) were included in the assessment. While participation varied by question, approximately 225 students took the pre-test and approximately 104 students 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. On average, the scores on the skills part of the assessment were in the green range on the CWRR Artifact Performance Indicator Scale.
- Students' confidence and skills in the research process increased for all 4 of Staley Library's CWRR learning goals, in particular identifying information sources and evaluating information.
- Students' confidence finding articles in library databases and knowing if they have done a good job on an assignment increased the most from the pre-test to the post-test, while their confidence narrowing and defining a topic increased the least. Students' were the most confident finding information on the internet for both the pre- and the post-test.
- The greatest increases in students' information literacy skills were in identifying characteristics of scholarly journal articles and identifying non-biased sources of information. Students showed the smallest increases in their ability to know when to cite a source and identifying the purpose of a library database, although the absolute scores in both of these areas were among the highest.
- Students showed the strongest improvement in skills that are directly addressed in library instruction sessions.
- Scores for this year's assessment were comparable to an average of the previous five years. On Part 1 (research confidence) they were slightly higher (3.40 vs. 3.32), in Part 2 (information literacy skills) for the multiple choice questions they were the same (74% correct answers) and for the open-ended questions they were lower (2.35 vs. 2.51).
- Based on their comments, students appreciate library instruction, especially learning how to find scholarly articles and how to evaluate sources. Their comments also showed that they would like to learn even more about citations and how to incorporate their research into their writing.
- Participation rates were lower for the guided library tour of the new University Commons than they have been for the self-guided tours in the past. Assessment data were not collected for the tour this year. Next year the self-guided tour and an associated assessment will return.

## 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 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 are prepared to critically and ethically use information throughout their lives.

The research instruction program corresponds directly with CWRR learning outcome goal 3: "Conduct research to participate in academic inquiry." The purpose of research instruction for CWRR is stated in Staley Library's four CWRR 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 CWRR learning goals relate to University-wide learning goals:

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

Library CWRR Learning Goal	Corresponding MU Learning Goal
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 devote a majority of their in-class instructional activity to the first-year core courses – CWRR and University Seminar. The librarians use a 2:2 instruction model, with two sessions in the fall and two sessions in the spring. The fall sessions can be taught in either University Seminar or CWRR as best matches the needs of the instructors, but usually one session is taught in each of the classes; 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) appropriately so that students are able to learn, practice, and apply skills in a way that makes them immediately relevant to their research needs.

During the 2017-2018 academic year, the librarians taught 68 sessions (in 49 sections) for CWRR classes, 25 sessions (in 25 sections) for University Seminar classes, 8 sessions (in 4 sections) for the “off-sequence” CWRR classes (i.e., CWRR II offered in the fall rather than the spring semester and CWRR I offered in the spring), and 1 session (in 1 section) for the PACE CWRR classes.

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

## **The Learning Story**

For most Millikin University students, CWRR and University Seminar are their introductions to college-level writing and research. While many first-year students are comfortable using consumer technology and finding information on the internet, those 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 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 sources no matter how they are discovered. They also focus on active learning and give students opportunities to apply the skills that they are learning.

## **Assessment Methods**

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

The 2017-2018 academic year was the twelfth 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 also administered through Moodle after the library instruction was complete in the spring. In both cases, the tests were taken outside of the library instruction time.

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 is another short answer question that asks the students how librarians can help with the research process; it is intended to gauge how students perceive the role of the librarian. The complete list of questions can be found in Appendix A.

---

<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: [http://www.projectinfolit.org/uploads/2/7/5/4/27541717/pil\\_fall2010\\_survey\\_fullreport1.pdf](http://www.projectinfolit.org/uploads/2/7/5/4/27541717/pil_fall2010_survey_fullreport1.pdf)

To facilitate reporting of the range of answers to the short answer questions, responses to question 1 and 9 were coded into fourteen categories, all of which are listed in Appendix A. Each response was assigned up to three codes. The Instruction Coordinator and Library Director Cindy Fuller performed the coding. After review, for any responses the two librarians coded differently, the responses were discussed and the librarians agreed on common codes. Questions 3 and 5 were also graded by the Instruction Coordinator and Cindy Fuller and the grades were averaged to assign a final grade to each response. The grading scale 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 some of the resources and services that are available in the library building. The tour has three 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.

Fall 2017 presented a challenge to the self-guided tour format because the library moved into the University Commons shortly before the start of the semester, thus there was not enough time to create the self-guided tour. The library faculty and staff also felt that the new building warranted guided tours since many members of the Millikin community – students, staff, faculty, and administrators – would be interested in seeing the new facility. Starting in the first week of classes library faculty and staff offered guided tours of the library at 14 set times throughout the week and once on Sundays. The tours ran until the end of September. The tours visited all the floors of the University Commons where library services and materials are provided (main floor, 2<sup>nd</sup> floor, and 4<sup>th</sup> floor). The Instruction Coordinator shared the tour schedule with University Seminar faculty and encouraged them to have their students go on the tour. Any students who did so received a certificate that they could give to their instructor as proof that they completed the tour. Participation rates for the tour are discussed below.

Academic year 2017-2018 also continued the Faculty Assessment of Library Instruction survey. This nine question electronic survey is sent to every faculty member within whose class library instruction was conducted including those outside of the Seminar/CWRR 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.

## Assessment Data

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

Part 1: Average score = 3.16 (5 point scale)

Part 2: Multiple choice: Average percentage of students answering the question correctly = 64%

Short answer: Average score = 2.06 (3 point scale)

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

Part 1: Average score = 3.40 (5 point scale)

Part 2: Multiple choice: Average percentage of students answering the questions correctly = 74%

Short answer: Average score = 2.35 (3 point scale)

**Table 2. Pre- and post-test results by library CWRR learning goal**

<b>Staley Library CWRR 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>
<p><b>Part 1</b> <b>Questions 7 &amp; 8</b> Pre-Test Avg. = 2.9 Post-Test Avg. = 3.2 Improvement = 9%</p> <p><b>Part 2</b> <b>Questions 4 &amp; 5</b> Pre-Test Avg. = 68% Post-Test Avg. = 78% Improvement = 15%</p> <p><b>Total for LG 1</b> Improvement = 12%</p>	<p><b>Part 1</b> <b>Questions 1, 2, 3, 4 &amp; 5</b> Pre-Test Avg. = 3.1 Post-Test Avg. = 3.3 Improvement = 6%</p> <p><b>Part 2</b> <b>Question 2 &amp; 6</b> Pre-Test Avg. = 63% Post-Test Avg. = 68% Improvement = 8%</p> <p><b>Total for LG 2</b> Improvement = 7%</p>	<p><b>Part 1</b> <b>Questions 6, 9 &amp; 10</b> Pre-Test Avg. = 3.2 Post-Test Avg. = 3.5 Improvement = 9%</p> <p><b>Part 2</b> <b>Questions 3 &amp; 7</b> Pre-Test Avg. = 60% Post-Test Avg. = 77% Improvement = 29%</p> <p><b>Total for LG 3</b> Improvement = 19%</p>	<p><b>Part 1</b> <b>Questions 13, 14 &amp; 15</b> Pre-Test Avg. = 3.3 Post-Test Avg. = 3.5 Improvement = 6%</p> <p><b>Part 2</b> <b>Question 8</b> Pre-Test Avg. = 77% Post-Test Avg. = 78% Improvement = 1%</p> <p><b>Total for LG 4</b> Improvement = 4%</p>

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 about different stages of the research process. Table 3 (below) and Graph 1 (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.

<sup>2</sup> For the pre-test the number of student responses was not the same from question to question. For Part 1 the average number of responses was 230 (mode = 230). For Part 2, questions 2-8 the average was 219 (mode = 220). 474 students were enrolled in the pre-test Moodle assessment 'course.'

<sup>3</sup> The post-test also exhibited different numbers of responses from question to question. For Part 1 the average number of responses was 109 (mode = 109). For Part 2, questions 2-8 the average was 98 (mode = 98). 372 students were enrolled in the post-test Moodle 'course.' The participation rates in the pre- and post-test and their relation to the size of the 2021 class is discussed in the *Improvement Plan* section below.

**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 Average Points (n=230)</b>	<b>Post-Test Average Points (n=109)</b>	<b>Point Change</b>	<b>Percent Change</b>
1. Defining a topic for the assignment	3.08	3.10	0.02	1%
2. Narrowing my topic	3.09	3.00	-0.09	-3%
3. Selecting search terms	3.05	3.29	0.24	8%
4. Finding articles in the research databases on the Library's website (EBSCO, JSTOR, ProQuest, etc.)	2.71	3.31	0.6	22%
5. Finding sources to use "out on the web" (example - Google, Wikipedia, websites)	3.73	3.88	0.15	4%
6. Determining whether a website is credible or not	3.35	3.62	0.28	8%
7. Figuring out where to find sources in different parts of the library	2.69	3.06	0.38	14%
8. Finding up-to-date materials	3.10	3.25	0.15	5%
9. Having to sort through all the irrelevant results I get to find what I need	2.88	3.14	0.26	9%
10. Evaluating the sources that I've found	3.23	3.60	0.36	11%
11. Reading and understanding the material	3.58	3.69	0.11	3%
12. Integrating different sources from my research into my assignment	3.28	3.56	0.29	9%
13. Knowing when I should cite a source	3.58	3.69	0.11	3%
14. Knowing how to cite a source in the right format	3.13	3.42	0.29	9%
15. Knowing whether or not my use of a source, in certain circumstances, constitutes plagiarism	3.27	3.44	0.18	5%
16. Knowing whether or not I've done a good job on the assignment	2.75	3.27	0.51	19%
<b>Average</b>	<b>3.16</b>	<b>3.40</b>	<b>0.24</b>	<b>8%</b>

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

<b>Rating</b>	<b>Pre-Test (n=230)</b>	<b>Post-Test (n=109)</b>	<b>Percent Change</b>
1 – This is very difficult	4%	2%	-47%
2 – This is difficult	22%	16%	-27%
3 – This is neutral	36%	34%	-5%
4 – This is easy	30%	35%	16%
5 – This is very easy	8%	13%	58%

Table 5 (below) and Graph 2 (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 percentage of students answering multiple choice questions correctly**

<b>Multiple Choice Question</b>	<b>Pre-Test (n=220)</b>	<b>Post-Test (n=98)</b>	<b>Percent Change</b>
2. Keywords	60%	65%	9%
4. Database	79%	82%	4%
6. Narrowing	66%	71%	8%
7. Sources	40%	72%	81%
8. Citation	77%	78%	1%
<b>Average</b>	<b>64%</b>	<b>74%</b>	<b>15%</b>

Tables 6, 7, and 10 (below) list the number of student responses that matched a given category for questions 1 and 9 and provide a representative response for each category. Student responses were coded into up to three different categories.

**Table 6. Coded student responses to 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=220)</b>
<b>Other</b> - "I hope to learn how to easily access the things I may need during the semester and how those things work."	98
<b>Library</b> - "I hope to learn how to navigate the library"	69
<b>Finding Resources</b> - "Suggested way to find relevant, credible, recent sources"	56
<b>Citation</b> - "I hope to learn exactly how to cite each type of source"	34
<b>Finding books</b> - "How to find good books for a research paper"	30
<b>Writing papers</b> - "I hope to learn ways to more effectively back up my arguments in my essays."	28
<b>Evaluation of sources</b> - "I hope to learn how to choose better sources for my research."	19
<b>Finding articles</b> - "I hope to learn more about valuable databases"	16
<b>Topics</b> - "I hope to learn how to narrow down my topics"	3
<b>Don't know</b> - "i don't know what i will learn but whatever it is, i hope it will be helpful information to me."	3
<b>Web</b> - "I ... hope to learn more about how to find trustworthy websites that I can use as resources."	2

**Table 7. Coded student responses to 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=97)</b>	<b>Post-Test Question 1.2 - "What do you wish that you would have learned?"</b>	<b>Number of Student Responses (n=85)</b>
<b>Finding articles</b> - "Being able to know what databases are best for my topic was very helpful."	37	<b>Citation</b> - "I wish that I would have learned how to use APA format."	19
<b>Evaluation of sources</b> - "The most useful thing I learned was how to determine a good source."	32	<b>Nothing</b> - "I think everything was covered extensively."	18
<b>Finding resources</b> - "That Staley has lots of resources to help students research for their papers."	16	<b>Writing papers</b> - "I wished that I would have learned multiple ways to enhance my paper correctly"	12
<b>Keyword</b> - "The importance of knowing which keywords to use in order to narrow your sources down."	9	<b>Finding books</b> - "I would have liked to have used the dewey decimal system to pinpoint books in the library to use for our projects."	11
<b>Library</b> - "Learning how to navigate the libraries website came in handy the most."	8	<b>Other</b> - "I wish I could have learned more about primary sources and how I can conduct research first hand."	11
<b>Other</b> - "How to effectively research my topic"	5	<b>Library</b> - "I wish I could have learned more about how to use the library in the UC "	8
<b>Finding books</b> - "how to find certain books that I need to use on my assignments"	3	<b>Finding resources</b> - "I wish we had learned some key sources in various fields."	5
<b>Citation</b> - "He helped me create citations correctly."	3	<b>Finding articles</b> - "I wish we would have gone deeper into the databases."	4
<b>Nothing</b> - "I don't really remember anything new since its basically all Ive been taught my entire high school career."	3	<b>Evaluation of sources</b> - "I wish I would have learned a little more on how to decide if it is a credible source or not."	3
<b>Interlibrary loan</b> - "I learned how to request articles from the InterLibrary Loan"	1	<b>Don't know</b> - "I can't think of anything I needed to learn that I haven't already because of the helpful sessions."	1
<b>Topics</b> - "I learned how to use Illiad to order and receive online academic journals that cannot be found online."	1	<b>Keyword</b> - "I wish we would have learned more about conducting searches and using key words from our topics."	1

Table 8 and 9 (below) and Graph 3 (Appendix B) show the pre- and post-test scores for the two constructed response questions in Part 2 of the assessment.

**Table 8. Comparison of students' scores pre- and post-test for question 3**

<b>Question 3 – “List and describe three criteria for deciding if a website has the credibility it needs for you to use in your research project.”</b>	<b>Pre-Test (n=219)</b>	<b>Post-Test (n=98)</b>	<b>Point Change</b>	<b>Percent Change</b>
<b>Average (out of 3)</b>	<b>2.39 (80%)</b>	<b>2.46 (82%)</b>	<b>0.07</b>	<b>3%</b>

**Table 9. Comparison of students' 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 (n=215)</b>	<b>Post-Test (n=95)</b>	<b>Point Change</b>	<b>Percent Change</b>
<b>Average (out of 3)</b>	<b>1.73 (58%)</b>	<b>2.24 (75%)</b>	<b>0.51</b>	<b>30%</b>

**Table 10. Coded student responses to pre- and post-test question 9**

<b>Pre-Test Question 9 – "How can librarians help students with the research process?"</b>	<b>Number of Student Responses (n=217)</b>	<b>Post-Test Question 9 – "How can librarians help students with the research process?"</b>	<b>Number of Student Responses (n=95)</b>
<b>Other</b> – "Be available and ready to answer any questions possible."	78	<b>Other</b> – "Just be available for those who want to ask questions and find sources."	37
<b>Finding books</b> – "They can help students to find physical books"	71	<b>Finding resources</b> – "Allowing tools to help aid us in finding credible sources"	29
<b>Finding resources</b> – "They can help guide students in finding credible sources"	70	<b>Finding articles</b> – "Help using the database"	15
<b>Finding articles</b> – "Librarians can help students with the research process by showing students how to effectively use the database swiftly."	34	<b>Finding books</b> – "Suggesting or recommending a book or the section where they have similar books can be really helpful for the students."	14
<b>Library</b> – "Librarians can assist students by showing them where in the library they would find information that they are seeking."	28	<b>Evaluation of sources</b> – "Just give them the tools they need to recognize a credible source"	9

<b>Evaluation of sources</b> – "They can help us figure out if our sources are credible or not."	21	<b>Library</b> – "They can also help locate useful information in the library."	9
<b>Citation</b> – "Help with citing."	20	<b>Citation</b> – "They can teach us the ways to properly cite sources"	8
<b>Web</b> – "They know what websites to use"	13	<b>Topics</b> – "They can help narrow topics, to find the best results"	7
<b>Writing papers</b> – "Provide examples of what not to do in a paper"	10	<b>Writing papers</b> – "Keeps students aware and on track with their paper."	4
<b>Topics</b> – "they can help the student narrow down on their sources so they can focus on their main topic."	6	<b>Don't know</b> – "I am not sure"	2
<b>Keyword</b> – "help look up certain key word"	4	<b>Keyword</b> – "The worksheet we gave to the librarian with our topic and the breakdown of key search words was very beneficial, so it'd be nice to see more of that."	2
<b>Don't know</b> – "I honestly have no idea."	2	<b>Interlibrary loan</b> – "being able to help them get a hold of copies of books from other libraries"	1
<b>Interlibrary loan</b> – "they can help get that book from another library."	1	<b>Web</b> – "By giving them knowledge about sources on the internet"	1
<b>Nothing</b> – "I wouldn't say there's much more for you to do"	1		

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

## Analysis of Assessment Results

Looking across all of the different assessment types, 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 0.24 points or 8%. Students demonstrated an average 15% increase in correct answers on the multiple choice portion of Part 2 and an average .29 point or 17% increase in correct answers on the short answer questions.<sup>4</sup>

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 the short answer portion of Part 2 the percentage of correct answers on the post-test was in the Excellent (Green) range of the scale at 79%. The percentage of correct answers on the multiple choice portion of Part 2 of the post-test fell at the very top of the yellow range at 74%, but as usual there was a wide disparity in the percentage of correct

<sup>4</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  $0.7 > g \geq 0.3$ , and low- $g$  courses are those where  $g < 0.3$ . Applied to this year's assessment, for the selected response questions  $g = .28$  (low- $g$ ) and for the constructed response questions  $g = .32$  (medium- $g$ ).

responses from question to question. Question 4 (databases) was well in the green range at 82%, while question 2 (keywords) was in the mid- yellow range at 65%. The other questions were on the border between the yellow and green ranges. As in past years, the students showed the greatest increase in their scores on questions related to material that the librarians particularly emphasize in their instruction sessions, e.g., keywords and the credibility of peer-reviewed journal articles (questions 2 and 7). On the whole this year's assessment shows that students' information literacy confidence and abilities increased during their first year at Millikin University.

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

Almost all of 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 of the learning goals (see Table 2 above), with a particularly strong increase in goals 1 and 3 (information sources and evaluation of information), as has been the case in past years.

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

Students' self-assessed confidence increased on a majority of the questions in Part 1 and on the whole increased by .24 points (8%). The greatest increase in confidence was in finding articles in the library databases (question 4), knowing whether or not I have done a good job on an assignment (#16), figuring out where to find sources in different parts of the library (#7), and evaluating sources (#10). Using the library databases is covered extensively in library instruction sessions and these results reflect positively on that instruction. The increased confidence in finding sources in different parts of the library is encouraging, but their initial confidence on the pre-test was the lowest of all the questions at 2.69 and by the time of the post-test it was still one of the lowest scores at 3.06.

As in past years, students' confidence in finding sources "out on the web" was the highest result on the post-test (3.88). Students were also confident in knowing when to cite a source (3.69 on the post-test), although they were less confident in knowing how to cite a source in the right format (3.42 on the post-test). Students demonstrated the smallest gains in their confidence in defining a topic (1%) and their confidence in narrowing a topic decreased by 3%. It is hard to know that to make of these results, however, students often express difficulty in starting assignments and these results may be related that that.

Table 4 (above) lists the percentage of responses at each of the five ratings (1-5) across all of the questions on Part 1 for both the pre- and post-test. This comparison shows that fewer students responded with 1s and 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 into Google. Students showed a moderate increase (9%) in their scores between the pre- and post-tests, which was greater than the previous year (2%). The average score on the post-test (65%) falls in the yellow range and should be higher. Identifying keywords is covered to varying degrees in library instruction both in the fall and the spring, and it is an important skill for effective searching not only in library resources, but also on the open web. Students' perennially low scores on this question may necessitate making this a greater focus of library instruction.

**Question 4** on the types of resources available in library databases showed a small improvement (4%) between the two tests, although the score on the pre-test was relatively high (79%) and the score on the post-test was well in the green range at 82% correct. Knowing what library databases are and what can be found in them is an essential skill for scholarly researchers. Learning about the library's databases seems to be important to students given that over a third of them mentioned it on question 1 of the post-test as one the most important things that they learned in library instruction. Nonetheless, the librarians must continue to work in their instruction to push the number of students who can successfully identify a library database even higher.

**Question 6** asks students to narrow a given topic. The scores this year were comparable to last year (71% vs. 72% on the post-test), and they were not high enough to make it into the Excellent (Green) range. As mentioned above, students showed a *decrease* in their confidence in narrowing a topic from the pre-test to the post-test. When combined, this seems to suggest that topic narrowing (and the associated skill of narrowing a search) are skills that the librarians should highlight in their instruction.

**Question 7** on information sources traditionally has the lowest scores, but that was not the case this year, as 72% of students answered this question correctly on the post-test. This increase may be due in part to a change in the question. For this year's assessment we reordered the results and moved the correct answer ("a peer-reviewed article in a nutrition journal") from the last position to the second position. Students continued to pick "a survey conducted by the American Beverage Association" and thereby failing to recognize the potential bias on an industry group researching their own industry as the most popular incorrect answer, they did so at a lower rate than last year. The change to this question does seem to indicate that perhaps more students understand this than we previously thought. In any case, the librarians will continue to inculcate the difficult skill of identifying bias in the short time that they have with the students during their first year.

**Question 8**, which asks about the best time in the research process to record a citation, showed a small increase (1%) in the number of correct responses from pre- to post-test. As in the past, students' scores were high for this question and the difference from the pre- to the post-test was small. Citations and plagiarism are taught by both the librarians and the University Seminar/CWRR faculty, and it is covered more or less intensively depending on the section and the instructor.

### ***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. On the pre-test the responses tended to be rather general. Students expressed an interest in learning about finding resources ("I hope to learn about how to make it easier to find research."), finding their way around the library ("More about the new library and how to locate stuff within."), and finding resources ("What resources will be helpful for me when writing papers this year."). This year we added a new code for writing papers, since a number of students stated that they wanted to learn more about the writing process ("I hope I can learn to be a better writer. Learning how to write efficiently and use a bigger vocabulary. Also I would like to learn more techniques into writing a better style paper. Also I know I get off topic sometimes so if I could learn to organize my writing would be perfect.").

On the post-test a majority of students identified finding articles/using the databases as the most valuable thing that they learned in their library instruction ("I learned the most about just the library data bases."). Students also identified evaluating sources and finding resources as important skill that they learned in the sessions ("Learning how to distinguish between different types of sources was helpful").

For post-test question 1.2, which asks students what they wish they had learned, a majority claimed that they would have liked to learn more about citations ("How to cite better for works cited pages.") or they

claimed that they learned everything that they wanted to learn (“Nothing I’d wish to know.”). The third most popular response dealt with the writing process and incorporating sources into a paper (“How to organize my paper and research. How to find enough different points to write about so I’m not finding different sources that say the same thing.”). Eleven students indicated that they wanted to learn more about finding books in the library (“I wish I learned how to search in the library for books.”) and eight students said they wanted to learn more about the library itself (“I wish we had been able to learn how to properly navigate the library.”). These are very telling responses that indicate that the library as a physical location remains important to students. Perhaps with the return to a self-guided tour, more students will participate and subsequently familiarize themselves with all the resources that we offer in our new building.

**Question 3** asks students to identify three criteria for deciding if a website is credible. Website credibility is a topic that is addressed directly in one of the fall library sessions where students develop criteria for evaluating websites. As is typical, students demonstrated only a modest increase in correct answers from the pre-test to the post-test (3%), but their scores on the pre-test were already quite high (2.39 out of 3 or 80%). Clearly students are receiving some type of website evaluation training prior to starting college, although the criteria that they use tend to be very black and white (e.g., all websites that allow user comments are deemed bad) or they are applied incorrectly (e.g., students correctly identify the importance of a website URL in assessing its authority, but incorrectly identify .com websites as typically the most credible). In the past we have also had a problem with this question in that students fail to identify three criteria for website evaluation or provide only one or two word answers. For this assessment, we made two changes to the question. First, we added “list and describe” to the start of the question, and secondly we pre-filled in the numbers 1, 2 & 3 in the answer box in Moodle to encourage students to identify three criteria. The Instruction Coordinator perceived a greater number of students who did provide three criteria, although students continued to give overly short responses and sometimes gave the same response for multiple criteria. Nonetheless, changes to the question did make it easier to grade, and this year the scores on the post-test were seven percentage points higher than the previous year.

**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. Student scores increased from the pre- to the post-test by a substantial 30% to 2.24 out of 3 (75%). By the post-test students do seem to better understand the characteristics of scholarly journals, which are a major source of scholarly information across the disciplines. Although the scores are in the green range, it would be nice to see them even higher given the importance of scholarly journals throughout students’ academic careers. Just as with question 3 we also modified the question this year to begin with the phrase “list and describe” and we also pre-filled in the numbers 1, 2 & 3. And, as with question 3, students did usually provide three criteria, although many of their answers remained frustratingly brief and/or vague. Another interesting trend that continued from last year is that students often have a very dim view of magazines and newspapers (“Magazine article are often times exaggerated and made to catch the eye of the public. They are sometimes made up. ... Newspapers will also try to get the public's attention by lying.”). Very few responses gave examples of magazines or newspapers, and it would be interesting to find out which publications the students have in mind, since many provide serious, detailed reporting that is intended for a general audience.

**Question 9**, which asks how librarians can help with the research process, is intended in part to give a better sense of students’ perceptions of the librarians both before and after the instruction sessions. On both the pre- and the post-tests, students identified a range of activities that librarians can help with. Finding articles, books, and other resources were the most popular, but students also noted that librarians can help with the evaluation of sources and can assist with citations. Unfortunately, a number of students took this question as another evaluation of the librarians’ performance, and they made suggestions about what librarians should do in and out of the classroom to help students with their research (“Continue to have sessions like we had for this class as I found it incredibly useful.”). For this year’s assessment the

librarians had changed this question to help address the same issue that we had seen with previous iterations. The librarians will look at this question again to see if it can be better worded to get at students' perceptions of librarians.

### **Participation in the Library Tour**

As mentioned above, the guided library tour in fall 2017 was open to anyone on campus who was interested in learning more about Staley Library at the University Commons, and it was a departure from the self-guided tour that we have used in the past. In August and September, library faculty and staff gave 29 tours to 80 people (not all of whom were first year students). Library faculty also indicated that they gave tours to 12 of the 27 sections of University Seminar. In total, this means that we gave in-person tours to approximately half of the students in HN183/IN140. This is lower than the 65% participation rate in the virtual library tour that we used last year and much lower than the 80% completion rate for the self-guided tour the previous year. However, students who did participate in the guided tour were guaranteed to see all of Staley Library and were able to ask questions during the tour.

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

This year data were collected from two off-sequence CWRR I sections in spring 2018 and two off-sequence CWRR II sections in fall 2017. These classes were small (29 students in the two sections of CWRR I and 30 students in the two sections of CWRR II), but the participations rates were very low, especially for the pre-test, where only 2 students completed Part 1 of the assessment and only 1 student completed Part 2. On the post-test, 15 students completed Part 1 and 10 students completed Part 2. Not only were the numbers small, but also there are problems when assessing the off-sequence courses since the off-sequence CWRR sections are a mix of transfer students, international students, and students retaking CWRR. Thus, some of the students are taking CWRR II for a second time and some have not taken CWRR I.

Due to the small number of respondents and the other difficulties mentioned above, the reliability of the results from the off-sequence classes are clearly in question. If we compare the post-test scores on Part 1 on the assessment with the traditional students we do find similarities. For example, both groups expressed confidence in reading and understanding that material and knowing when to cite a source. The traditional students expressed greater confidence in finding sources on the open web and in evaluating those sources. Both groups lacked confidence in narrowing a topic and finding sources in different parts of the library, but the off-sequence students were least confident in their ability to select search terms.

In Part 2 of the assessment, the average percentage who answered the question correctly on the multiple choices questions was identical between the traditional and off-sequence sections (74%). The off-sequence students did better on identifying keywords, identifying a database, and narrowing a topic, and worse on identifying a non-biased source of information and knowing when to cite a source. For the selected response questions, the off-sequence students did substantially worse identifying criteria for a credible website (1.94 out of 3 or 65%) and roughly the same on identifying characteristics of a scholarly journal article (2.28 out of 3 or 76%). For question one, students in the off-sequence CWRR II class matched their traditional counterparts and identified finding articles / using the library databases as the most useful thing that they learned and also identified citation as something that they wish they had learned more about. Finally, the off-sequence students also most often gave very general answers on how librarians can help with the research process ("Offer help and be available"), followed by finding resources and finding articles. The complete results from both the pre- and post-tests for the off-sequence CWRR classes can be found in Appendix C.

## Improvement Plan

An ongoing challenge with the library assessment is the lack of participation. This year, 47% of the students enrolled in CWRR I participated in the pre-test but only 28% of the students enrolled in CWRR II participated in the post-test. The pre-test participation rate was higher than last year (35%), but the post-test participation was quite a bit lower (39% last year). As in the past, the pre- and post-tests were administered outside of the library instruction sessions and it is up to the CWRR instructors if they allocate class time for students to take the assessment. The advantage of this system is that it does not impinge on the limited library instruction time, but it does mean that it ultimately falls to the CWRR instructors to get their students to participate in the assessment. Because the test is administered outside of class there is also a danger that participation is self-selecting and the results do not represent an authentic sampling of the class of 2021. For example, the participation rate may be higher from the honors sections of CWRR, which would certainly skew the results. Despite the limitations, the Instruction Coordinator continues to stress the importance of the assessment to both CWRR students and faculty.

Although the guided format for the library tours last year was more personal and allowed the library to offer the tours to the entire Millikin community, we are looking forward to returning to the self-guided format and a higher participation rate. Students' relatively low confidence on knowing where to find sources in the library (3.06 out of 5 on the post-test) indicates that there is room for improvement in making students comfortable using all that Staley Library at the University Commons has to offer.

This assessment report continued the practice of having multiple people code/grade the constructed response questions in Part 2. This year library director Cindy Fuller worked with Matthew Olsen. The scores on questions 3 and 5 were averaged<sup>5</sup> and for questions 1 and 9 any disagreements in the coding of questions were discussed and rectified. Having multiple people work through the results of the assessment also helps to diagnose problems with the assessment and to suggest fruitful improvements. This format with multiple coders/graders continues to be successful and will be maintained in the future.

Several of the questions in Part 2 of the assessment were revised this year, with mostly positive results. Asking students to "list and describe" the criteria or ways of distinguishing in questions 3 and 5 definitely made it easier to identify the parts of the answers when grading the responses and resulted in *slightly* more substantial answers. Reordering the answers in question 7 on sources resulted in higher scores for this year's assessment. We will maintain that ordering for next year and see if that trend continues. As mentioned above, question 9 continues to be misunderstood by some students and may warrant revision. The Instruction Coordinator will bring this up with the other librarians.

One question that is a particular concern is #2 in Part 2 of the assessment on keywords. By the time of the post-test, only 65% of the students answered this correctly, well into the yellow range. This is also part of a trend, as last year only 66% of students answered this question correctly. Keywords are certainly discussed in many of the library instruction sessions, but perhaps a more sustained discussion and/or exercises are needed for students to turn natural language queries into the most effective keywords. A related concern that students often bring up in question 1 in the pre- and post-test is the difficulty that they experience narrowing down their results to those resources that are the most useful. They often claim that this is a particular problem in the library databases. While the assessment does not address this particular skill directly, this is something that librarians could work on more with students.

Finally, there are several important changes that are coming to the honors sections of CWRR and University Seminar that will affect library instruction and the assessment. First, the honors sections of HN150 and HN183 are no longer cohorted, which means that students in these classes will not be learning from the same librarian. Since we typically cover very different material in these classes, this shouldn't present too

---

<sup>5</sup> The standard deviation between the two coders was low for question 3 (0.18) but higher for Question 5 (0.32).

much of a problem, but it may be an opportunity to rethink our instruction. A more substantial change is taking place to the Honors CWRR I and II classes, which are being renamed to HN 150: Honors Writing Studio 1 and HN 151: Honors Writing Studio 2. These classes will focus much more on independent work through the development of a sustained writing project that the students propose in the fall semester and then execute in the spring semester. Library instruction in these classes will be geared towards helping students develop their proposal and work on their project, which will be very different from the work that we do with the traditional CWRR classes. The librarians are planning on largely keeping the instruction the same for the upcoming academic year, but will likely substantially revise it in subsequent years. This may necessitate changing our assessment of library instruction or even assessing our instruction with the honors classes differently, which would be possible given that they now are now designated as HN150 and HN151.

## **Conclusion**

On the whole, the assessment of library instruction in University Seminar/CWRR indicates that students are learning important information literacy skills 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 are skills that library faculty are uniquely qualified to develop in students throughout the curriculum. The close relationship that library faculty enjoy with faculty members across campus allows them to provide instruction in a way that is most beneficial to students. In particular with University Seminar/CWRR, the opportunity to meet with cohorts on several occasions allows the librarians to introduce and then reinforce multiple concepts with the students. It also allows an opportunity for students to begin to develop a relationship with the librarians and to see them as a valuable academic resource. The library faculty look forward to working again with their CWRR and Seminar colleagues during the 2018-2019 academic year.

# 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. List and describe **three** criteria for deciding if a website has the credibility it needs for you to use in your research project.

4. If you are searching in the database "Academic Search Premier" as seen in the image below, 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 of energy drinks on Yahoo! Answers.  
*A peer-reviewed article in a nutrition journal.*  
A website for one of the energy drink manufacturers.  
A survey conducted by the American Beverage Association.

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. How can librarians help students with the research process?

### Categories for Part 2, Questions 1 & 9

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, writing, 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.

### **Grading Scale for Part 2, Question 3**

0 = No correct criteria, "I don't know" or similar answer

1 = One correct criterion

2 = Two correct criteria

3 = Three correct criteria

### **Grading Scale for Part 2, Question 5**

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

1 = One difference correctly identified

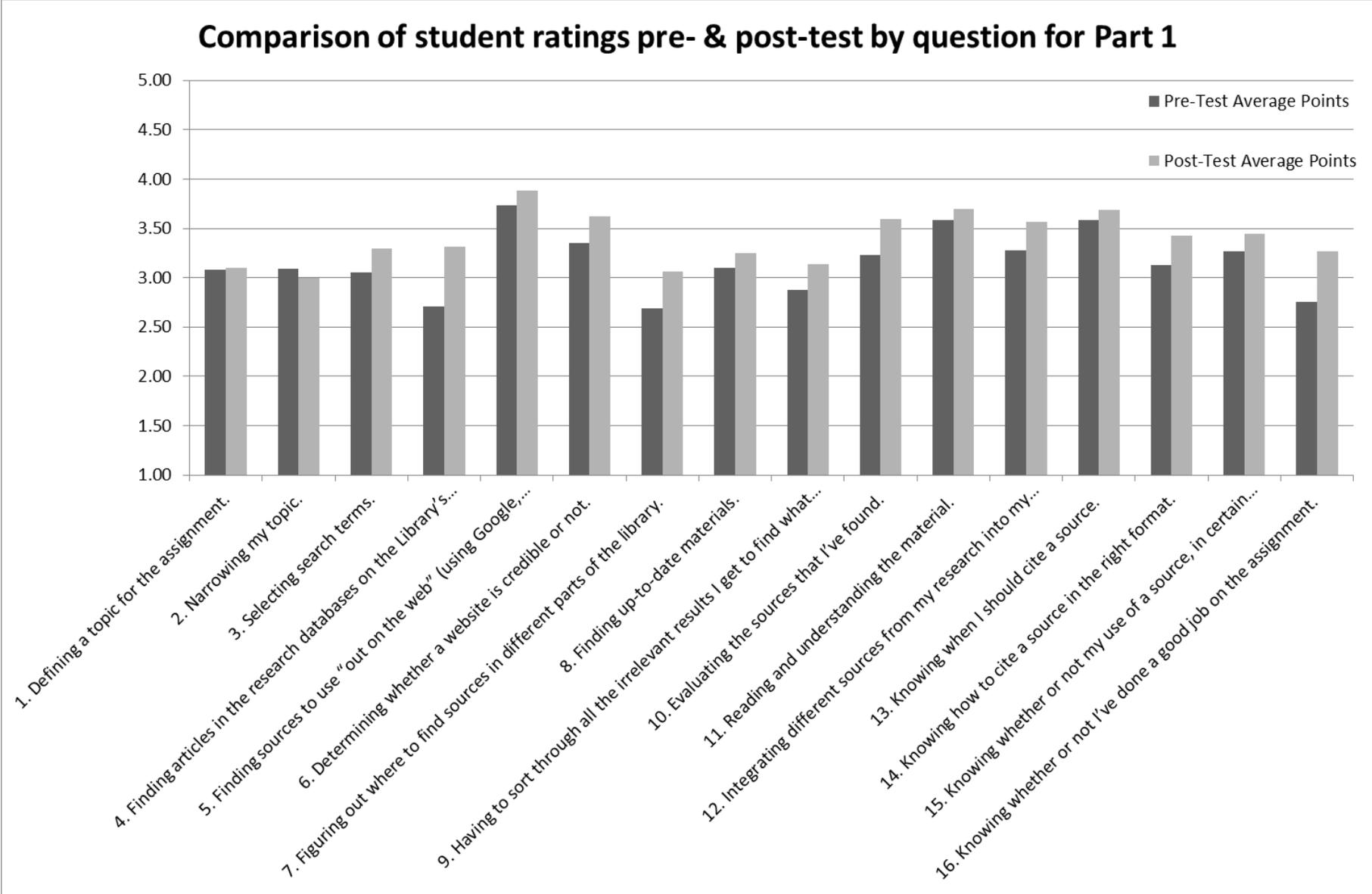
2 = Two differences correctly identified

3 = Three differences correctly identified

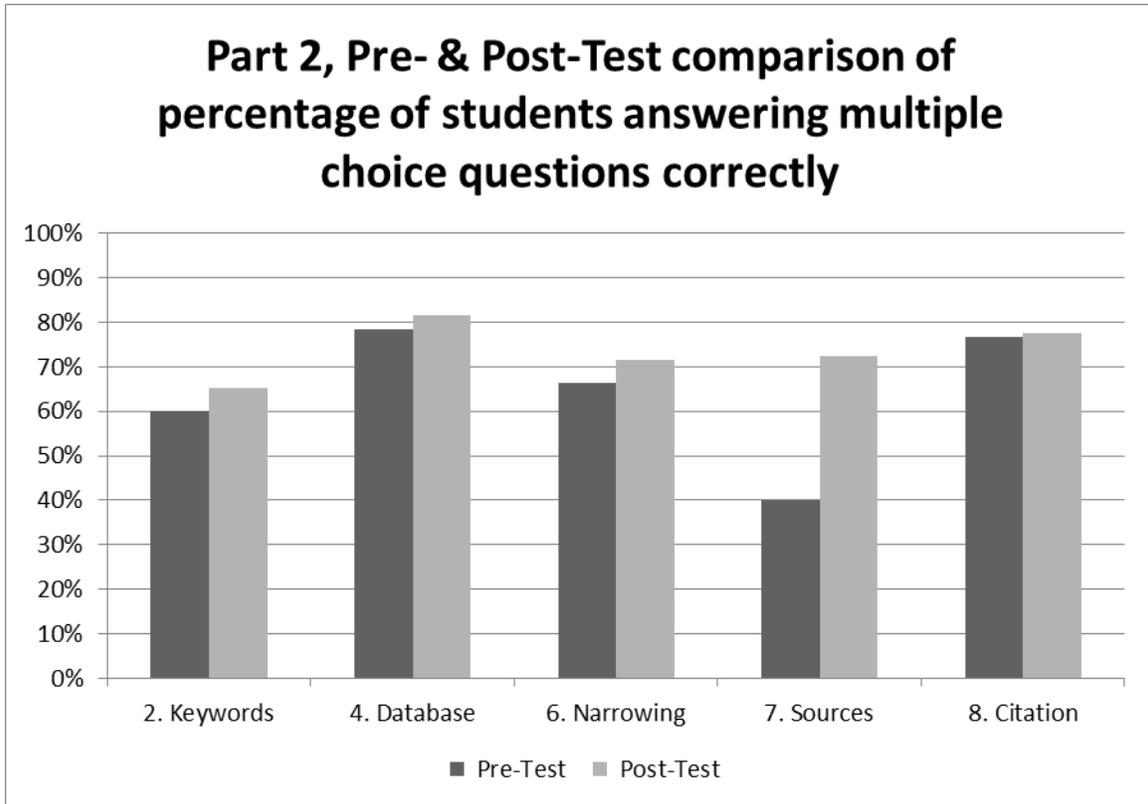
## **Appendix B**

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

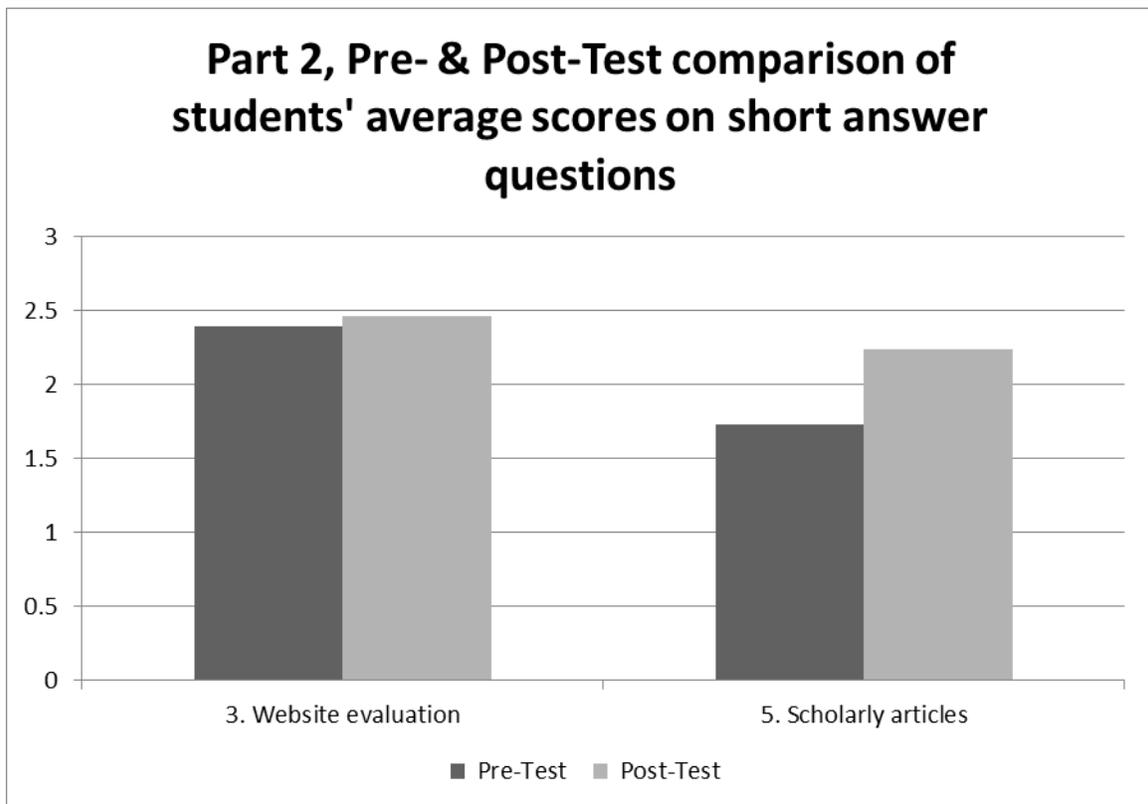
Graph 1



**Graph 2**



**Graph 3**



## Appendix C

### Off-Sequence CWRR Results<sup>6</sup>

#### Part 1

**Table C.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=2)</b>	<b>Post-Test Average Points (n=15)</b>	<b>Point Change</b>	<b>Percent Change</b>
1. Defining a topic for the assignment	3.00	3.20	0.2	7%
2. Narrowing my topic	2.00	3.00	1.0	50%
3. Selecting search terms	3.00	2.87	-0.13	-4%
4. Finding articles in the research databases on the Library's website (EBSCO, JSTOR, ProQuest, etc.)	2.50	3.40	0.9	36%
5. Finding sources to use "out on the web" (example - Google, Wikipedia, websites)	4.50	3.47	-1.03	-23%
6. Determining whether a website is credible or not	2.50	3.47	0.97	39%
7. Figuring out where to find sources in different parts of the library	2.50	3.13	0.63	25%
8. Finding up-to-date materials	2.50	3.87	1.37	55%
9. Having to sort through all the irrelevant results I get to find what I need	2.50	3.33	0.83	33%
10. Evaluating the sources that I've found	3.50	3.67	0.17	5%
11. Reading and understanding the material	2.50	4.07	1.57	63%
12. Integrating different sources from my research into my assignment	3.00	3.67	0.67	22%
13. Knowing when I should cite a source	4.00	3.80	-0.2	-5%
14. Knowing how to cite a source in the right format	4.00	3.60	-0.4	-10%
15. Knowing whether or not my use of a source, in certain circumstances, constitutes plagiarism	2.00	3.80	1.8	90%
16. Knowing whether or not I've done a good job on the assignment	3.00	3.67	0.67	22%
<b>Average</b>	<b>2.94</b>	<b>3.50</b>	<b>0.56</b>	<b>19%</b>

<sup>6</sup> The off-sequence results are from two sections of CWRR II in fall 2017 and two sections of CWRR I in the spring 2018.

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

<b>Rating</b>	<b>Pre-Test (n=2)</b>	<b>Post-Test (n=15)</b>	<b>Percent Change</b>
1 – This is very difficult	3%	4%	20%
2 – This is difficult	34%	14%	-60%
3 – This is neutral	31%	25%	-19%
4 – This is easy	28%	43%	52%
5 – This is very easy	3%	14%	355%

**Part 2**

**Table C.3. Pre- and post-test comparison of percentage of students answering multiple choice questions correctly**

<b>Multiple Choice Question</b>	<b>Pre-Test (n=1)</b>	<b>Post-Test (n=10)</b>	<b>Percent Change</b>
2. Keywords	100%	70%	-30%
4. Database	100%	100%	0%
6. Narrowing	100%	80%	-20%
7. Sources	0%	60%	-
8. Citation	100%	60%	-40%
<b>Average</b>	<b>80%</b>	<b>74%</b>	<b>-8%</b>

**Table C.4. Coded student responses to 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=1)</b>
<b>Finding books – "How to find the book you are looking for"</b>	1

**Table C.5. Coded student responses to post-test question 1**

<b>Post-Test Question 1.1 - What was the most useful thing that you learned from the library session(s)?</b>	<b>Number of Student Responses (n=9)</b>	<b>Post-Test Question 1.2 - What do you wish that you would have learned?</b>	<b>Number of Student Responses (n=7)</b>
<b>Finding articles</b> – "The most useful thing was the review of the databases"	8	<b>Nothing</b> – "Nothing besides how to work all that."	3
<b>Finding books</b> – "How to find books"	1	<b>Citation</b> – "I wish we would have gone over the specifics of MLA formatting, especially for unusual sources, such as one that does not have an author."	2
<b>Evaluation of sources</b> – "The most useful thing I learned was how to sift through sources on databases and pick out relevant articles."	2	<b>Finding articles</b> – "That not all the articles requested are digital. Some are physical copies."	1
<b>Interlibrary loan</b> – "The most useful thing that I learned over the session was how to find the full texts of sources that are not in our data base through using the Iliad."	1	<b>Finding books</b> – "How to find a physical copy of a book easier and faster"	1
<b>Keyword</b> – "Learning ... what type of words one can use to find different areas that we are interested in."	1		
<b>Library</b> – "to know how to use well the website"	1		

**Table C.6. Comparison of students' scores pre- and post-test for question 3**

<b>Question 3 – "List and describe three criteria for deciding if a website has the credibility it needs for you to use in your research project."</b>	<b>Pre-Test (n=1)</b>	<b>Post-Test (n=9)</b>	<b>Point Change</b>	<b>Percent Change</b>
<b>Average (out of 3)</b>	<b>2.00 (67%)</b>	<b>1.94 (65%)</b>	<b>-0.06</b>	<b>-3%</b>

**Table C.7. Comparison of students' 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 (n=1)</b>	<b>Post-Test (n=9)</b>	<b>Point Change</b>	<b>Percent Change</b>
<b>Average (out of 3)</b>	<b>1.50 (50%)</b>	<b>2.28 (76%)</b>	<b>0.78</b>	<b>52%</b>

**Table C.8. Coded student responses to pre- and post-test question 9**

Pre-Test Question 9 - "How can librarians help students with the research process?"	Number of Student Responses (n=1)	Post-Test Question 9 - "How can librarians help students with the research process?"	Number of Student Responses (n=7)
<b>Other</b> - "Help them find what they are looking for"	1	<b>Other</b> - "to get what they need on time and in a good quality"	5
		<b>Finding resources</b> - "Helping us find the resources we need, and pointing us in the right direction Is perfect."	2
		<b>Finding articles</b> - "Requesting articles takes time and I often forget why I request certain journals."	1
		<b>Citation</b> - "how to properly cite specific kinds of sources within my research paper."	1
		<b>Library</b> - "teach them about all the resources in the library"	1