Fall 2014 LS 101 Pretest and Posttest

Prepared by Heather Marie Gillanders, May 2015

# Introduction

In fall 2014, the library conducted its second annual LS 101 assessment project. Our goal was to continue to measure how well students are meeting the course learning outcomes (CLOs); to identify areas for improvement; and to refine the CLOs based upon our results.

# Method

A 30-question pretest and posttest were collaboratively developed by 4 TCC librarians using SurveyMonkey. The questions for both are the same with the exception of a few additional questions at the end of the posttest, which ask students to describe how they feel they have improved as a result of the LS class. These questions were developed specifically to address all 7 CLOs for LS 101, each of which is mapped to our program learning outcomes (PLOs). These include:

1. Follow a plan for finding information using a variety of electronic and print tools   
   (PLO: 1, 2, 3)
2. Generate research questions and create a thesis based on the analysis of resources   
   (PLO: 2, 3, 5)
3. Demonstrate basic use of electronic search strategies, such as Boolean operators and phrase searching   
   (PLO: 2)
4. Describe the standard criteria that qualify information sources as appropriate to use in academic research projects   
   (PLO: 1, 3)
5. Describe and collect the elements necessary for a citation in a standard style   
   (PLO: 4)
6. Incorporate information from research into a written product, using appropriate academic style   
   (PLO: 5)
7. Identify and explain the differences between, major types of information resources (e.g., books, lay periodicals, scholarly journals, wikis, etc.)   
   (PLO: 2)

The pretest was administered at the beginning of fall quarter, the posttest at the end of fall quarter, and results were collected by SurveyMonkey. Data analysis was performed by one librarian.

**Our goal was for 80% of students to demonstrate attainment of each of the CLOs in the posttest by correctly answering each of the questions.**

**NOTE**: Data for respondents who did not complete both the pretest and the posttest were deleted to ensure that we are accurately measuring student improvement.

# Results

## Respondents

Total number of respondents: 33 respondents amongst all 3 fall quarter classes (1 hybrid, 2 full online). The total enrollment for these 3 classes was 64, so over 50% of students participated.

Librarians:

* Librarian A, full online (9 respondents)
* Librarian B, hybrid (9 respondents)
* Librarian C, full online (15 respondent)

## Question responses

**NOTE**: Questions 1-3 were not analyzed, as they were used for identification purposes only.

Question 4:***Were you able to find a scholarly article about gender discrimination?***

**NOTE:** This question asks respondents to self-report and therefore does not measure any of the CLOs*.*

Pretest: Of the 33 respondents who answered this question, 25 (73.33%) indicated that they were able to find a scholarly article; 8 (26.67%) were not able to find a scholarly article.

Posttest: Of the 33 respondents who answered this question, 33 (100%) indicated that they were able to find a scholarly article. **This is a gain of 26.67% in students who stated they were successful in finding a scholarly article.**

**NOTE**: This question included skip logic. Students who answered in the affirmative continued on to question number 5. Those who did not find a scholarly article skipped to question 11.

Question 5: ***Copy and paste (or type) the EXACT title of the article you found.***

**Measures CLOs 7.**

Pretest: Of the 25 articles listed, 19 (76.00%) were, in fact, scholarly, while 6 (24.0%) were actually popular (or were an encyclopedia entry). In other words, while students may have indicated that they were successful, some students failed to correctly identify a scholarly article.

Posttest: Of the 33 articles listed, 27 (81.82%) were, in fact, scholarly, while 6 (18.18%) were actually popular (or were an encyclopedia entry). **This is a gain of 11.82% in students who were actually successful finding a scholarly article.**

Question 6: *What two features of the article helped you decide that it is scholarly?*

Measures CLOs 4 and 7.

Pretest: Of the 49 features listed, 31 (63.27%) were accurate criteria of a scholarly article; 18 (36.73%) were inaccurate.

Posttest: Of the 66 features listed, 50 (75.76%) were accurate criteria of a scholarly article; 16 (24.24%) were inaccurate. **This is a gain of 12.49% the number of accurate criteria listed.** This question, however, is one in which results varied widely between the three LS 101 sections: In the posttest, 13 of 18 criteria (72.22%) respondents listed in Librarian A’s section were accurate, 9 of 18 criteria (50.00%) respondents listed in Librarian B’s section were accurate, and 28 of 30 criteria (93.33%) respondents listed in Librarian C’s section were accurate.

Question 7: ***Copy and paste (or type) an EXACT sentence from the article that you think is interesting or informative.***

**Measures CLO 6.**

**NOTE:** This question was not analyzed due to time constraints.

Question 8: ***Type the name of the database you used to find the article.***

**Measures CLO 1.**

Pretest: Of the 25 respondents who answered this question 12 used Academic Search Premier (48%), 3 used ProQuest (12%), and 3 used CQ Researcher (12%) comprising a total of 72% of the responses.

Databases listed that would be considered appropriate for this question include Academic Search Premier, ProQuest, EBSCO, PsycARTICLES, and Directory of Open Access Journals (DOAJ). Combined, 19 or 76% of students used appropriate databases. OneSearch would not be considered appropriate as it is a search engine, has a number of limitations, and is not a resource we recommend. Gale Virtual Reference (GVRL) and CQ Researcher would also not be considered appropriate. Combined 6 or 24% of students used inappropriate databases.

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| --- | --- | --- |
| Academic Search Premier | 12 | 48.00% |
| ProQuest | 3 | 12.00% |
| CQ Researcher | 3 | 12.00% |
| GVRL | 2 | 8.00% |
| EBSCO | 2 | 8.00% |
| OneSearch | 1 | 4.00% |
| DOAJ | 1 | 4.00% |
| PsycARTICLES | 1 | 4.00% |

Posttest: Of the 33 respondents who answered this question 21 used Academic Search Premier (63.64%), 5 used GVRL (15.15%) and 4 used ProQuest (12.12%) comprising a total of 90.91% of the responses.

Databases listed that would be considered appropriate for this question include Academic Search Premier, ProQuest, and EBSCO. Combined 27 or 81.82% of students used appropriate databases. GVRL and CQ Research would not be considered appropriate. Combined 6 or 18.18% of students used inappropriate databases. **This is a gain of 5.82% in the number of students using appropriate databases.**

|  |  |  |
| --- | --- | --- |
| Academic Search Premier | 21 | 63.64% |
| GVRL | 5 | 15.15% |
| ProQuest | 4 | 12.12% |
| EBSCO | 2 | 6.06% |
| CQ Researcher | 1 | 3.03% |

Question 9**: *How did you choose that database?***

**Measures CLO 1.**

Pretest: Of the 25 respondents who answered this question 16 (64.00%) indicated that they chose the database that they did because they had successfully used it before.

|  |  |  |
| --- | --- | --- |
| It was the first database on the list. | 16.00% | 4 |
| I have used that database successfully before. | 64.00% | 16 |
| I have a different reason for why I chose that database: | 12.00% | 3 |
| I chose it at random. | 8.00% | 2 |

Posttest: Of the 33 respondents who answered this question 24 (72.73%) indicated that they chose the database that they did because they had successfully used it before. **This is a gain of 8.73% in the number of students who selected the database that they did because they had successfully used it before.**

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| --- | --- | --- |
| It was the first database on the list. | 6.06% | 2 |
| I have used that database successfully before. | 72.73% | 24 |
| I chose it at random. | 6.06% | 2 |
| I have a different reason for why I chose that database: | 15.15% | 5 |

Question 10**: *Type up to 4 of the search terms you used in the database to find a scholarly article about gender discrimination.***

**Measures CLO 3.**

Pretest: In the pretest, respondents listed 65 keywords. Of those keywords, 52 were appropriate (80.00%) and 13 were inappropriate (20.00%). Keywords considered inappropriate included those that would not actually be used to search a database (e.g., “TCC Portal” or “Quick search”), phrases that included articles or prepositions (e.g., “Insight into gender inequality/discrimination”), the word “scholarly” (while this term *can* lead students to scholarly articles, it can also lead students to popular articles including the word “scholarly”), or incorrect use of Boolean operators (e.g., “gender discrimination and moral judgment”). The keywords listed most frequently by students were “gender discrimination” (without quotation marks; 20.00% of responses), “discrimination” (16.92% of responses), and “gender” (13.85% of responses). Other terms listed each represented less than 4.00% of responses.

Posttest: In the posttest, students listed 84 keywords. Of those keywords listed, 73 were appropriate (86.90%) and 11 were inappropriate (13.10%). Keywords considered inappropriate were the same as in the pretest. **This is a gain of 6.90% in the number of appropriate keywords listed**. The keywords listed most frequently by students were “gender discrimination” (without quotation marks; 17.86% of responses), “discrimination” (14.29% of responses), “’gender discrimination’” (with quotation marks; 9.52% of responses), and “gender” (8.33%). Other terms listed each represented less than 3.60% of responses.

Question 11**: *If you did not find a scholarly article about gender discrimination, select the barrier(s) that prevented you from finding an article.***

**NOTE**: Only students who answered that they did not find a scholarly article in question 4 answered questions 11–15.

**Measures CLO 7.**

Pretest: Of the 9 respondents who answered this question, 3 (33.33%) selected “I searched at least 1 library database, but I didn't find a scholarly article about gender discrimination,” and 3 (33.33%) selected “Some other reason.” All of the respondents who indicated that they had some other reason each further explicated that they were getting an authentication error message.

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| --- | --- | --- |
| I do not know what the TCC Library databases are. | 11.11% | 1 |
| I do not know where to find the TCC Library databases. | 11.11% | 1 |
| I do not know what a scholarly article is. | 0.00% | 0 |
| I searched at least 1 library database, but I didn't find a scholarly article about gender discrimination. | 33.33% | 3 |
| I did not understand the directions for this task. | 11.11% | 1 |
| Some other reason: | 33.33% | 3 |

Posttest: No respondents answered this question in the posttest.

Question 12**: *Type the name of the database you used.***

**Measures CLOs 1.**

Pretest: Of the 2 respondents who answered this question, 1 indicated that he/she used Academic Search Premier and 1 indicated that he/she used “arts and humanities.”

Posttest: No respondents answered this question in the posttest.

**Question 13: *Why did you choose that database?***

**Measures CLOs 1.**

Pretest: 2 respondents answered this question and each (100.00%) selected “I have a different reason for why I chose that database.” One of these responses explained, “Because we used it in a class, and the other stated, “Because the research has to do with people.”

Posttest: No respondents answered this question in the posttest.

**Question 14: *Type up to 4 of the search terms you used in the database to find a scholarly article about gender discrimination.***

**Measures CLOs 3.**

Pretest: Respondents listed 5 keywords. Of those keywords listed, 4 were appropriate (80.00%) and 1 was inappropriate (20%). Keywords considered inappropriate were the same as those listed in question 10.

Posttest: No respondents answered this question in the posttest.

**Question 15: *Describe your experience with searching.***

**NOTE:** This is an affective question that does not measure any of the CLOs.

Pretest: Of the 2 respondents who answered this question, 1 (50.00%) selected “I knew this was going to be hard and I was right” and 1 (50.00%) selected “I had no expectations, but became frustrated.”

Posttest: No respondents answered this question in the posttest.

**Question 16: *Rate the difficulty of the task to find a scholarly article about gender discrimination.***

**NOTE**: Only students who answered that they found a scholarly article in question 4 answered this question.

**NOTE:** This is an affective question that does not measure any of the CLOs.

Pretest: Of the 25 respondents who answered this question, 15 (60.00%) rated the difficulty level “Easy and I felt successful in completing the task,” 7 (28.00%) rated the difficultly level “Challenging, but I felt successful in completing the task,” and 3 (12.00%) rated the difficulty level “Challenging, and I feel uncertain about how successful I was.”

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| --- | --- | --- |
| Easy and I felt successful in completing the task. | 60.00% | 15 |
| Challenging, but I felt successful in completing the task. | 28.00% | 7 |
| Challenging, and I feel uncertain about how successful I was. | 12.00% | 3 |

Posttest: Of the 33 respondents who answered this question, 28 (84.85%) indicated rated the difficulty level “Easy and I felt successful in completing the task,” 4 (12.12%) rated the difficultly level “Challenging, but I felt successful in completing the task,” and 1 (3.03%) rated the difficulty level “Challenging, and I feel uncertain about how successful I was.” **This is a gain of 24.85% in the number of respondents who felt the task was easy and that they were successful.**

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| --- | --- | --- |
| Easy and I felt successful in completing the task. | 84.85% | 28 |
| Challenging, but I felt successful in completing the task. | 12.12% | 4 |
| Challenging, and I feel uncertain about how successful I was. | 3.03% | 1 |

**Question 17: *Which strategy used in a search engine would help you narrow your results?***

**Measures CLO 3.**

Pretest: 14 of the 33 respondents correctly selected option a, “Sexism AND employment” (42.42%), and 14 of the 33 respondents incorrectly selected option c, “sexism in the workplace,” (42.42%).

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| --- | --- | --- |
| a. Sexism AND employment | 42.42% | 14 |
| b. Sexism OR employment | 12.12% | 4 |
| c. sexism in the workplace | 42.42% | 14 |
| g. I don't know. | 3.03% | 1 |

Posttest: 18 of the 33 respondents (54.55%) correctly selected option a, “Sexism AND employment,” however 15 (45.45%) incorrectly selected one of the other three options. **This is a gain of 12.13% in the number of respondents who correctly selected option a.**

|  |  |  |
| --- | --- | --- |
| a. Sexism AND employment | 54.55% | 18 |
| b. Sexism OR employment | 15.15% | 5 |
| c. sexism in the workplace | 27.27% | 9 |
| g. I don't know. | 3.03% | 1 |

**Question 18: *Which of these is an example of a search for an exact phrase?***

**Measures CLOs 3.**

Pretest: Of the 33 respondents who answered this question, 26 (78.8%) correctly selected “affordable care act.”

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| --- | --- | --- |
| a. affordable care act | 15.15% | 5 |
| b. "affordable care act" | 78.79% | 26 |
| c. health insurance | 3.03% | 1 |
| d. I don't know. | 3.03% | 1 |

Posttest: Of the 33 respondents who answered this question, 30 (90.91%) selected “affordable care act,” which is the correct answer. This is a gain of 12.11% in the number of students who correctly identified an exact phrase search.

|  |  |  |
| --- | --- | --- |
| a. affordable care act | 3.03% | 1 |
| b. "affordable care act" | 90.91% | 30 |
| c. health insurance | 0.00% | 0 |
| d. I don't know. | 6.06% | 2 |

**Question 19: *In the past, has an instructor REQUIRED you to use library sources to complete a writing or presentation research project? (Library sources include books, e-books, database articles, DVDs, CDs, etc.)?***

**NOTE:** This question does not measure any of the CLOs

Pretest: Of the 33 respondents who answered this question, 30 (90.91%) responded that they have been required to use library sources to complete a writing/presentation research project at least once. 3 (9.09%) had never been required to use library sources for a writing/presentation research project.

Posttest: Of the 33 respondents who answered this question, 31 (93.94%) responded that they have been required to use library sources to complete a writing/presentation research project at least once. 2 (6.06%) had never been required to use library sources for a writing/presentation research project.

**Question 20: *How do you feel about writing a paper or making a presentation where you are required to use library sources? Choose "comfortable" or "uncomfortable" and then select a description of your attitude/feeling.***

Pretest: Of the 33 respondents who answered this question, 26 (78.79%) selected comfortable, while 7 (21.21%) selected uncomfortable.

|  |  |  |
| --- | --- | --- |
| Comfortable | 78.79% | 26 |
| Uncomfortable | 21.21% | 7 |

Posttest: Of the 33 respondents who answered this question, 31 (93.94%) selected comfortable, while 2 (6.06%) selected uncomfortable. **This is a gain of 15.15% in the number of students who feel comfortable writing a paper or making a presentation where they are required to use library resources.**

|  |  |  |
| --- | --- | --- |
| Comfortable | 93.94% | 31 |
| Uncomfortable | 6.06% | 2 |

**Question 21: *You would like to learn more about a new Tacoma School District plan that is meant to increase teacher diversity in Tacoma public schools. Which type of source would be the most likely to have information about this new plan?***

**Measures CLO 7.**

Pretest: Of the 33 respondents who answered this question, 22 (66.67%) correctly selected a newspaper article. However, 5 respondents (15.15%) incorrectly selected an article from a scholarly journal, 4 (12.12%) indicated that they did not know, and 2 (6.06%) incorrectly selected a reference book.

|  |  |  |
| --- | --- | --- |
| An article from a scholarly journal | 15.15% | 5 |
| A reference book | 6.06% | 2 |
| A newspaper article | 66.67% | 22 |
| I don't know | 12.12% | 4 |

Posttest: Of the 33 respondents who answered this question, 23 (69.70%) correctly selected a newspaper article. 8 (24.24%) incorrectly selected an article from a scholarly journal and 2 (6.06%) selected a reference book. No respondents indicated that they did not know**. This is a gain of 3.03% in the number of students who correctly identified a newspaper article.**

|  |  |  |
| --- | --- | --- |
| An article from a scholarly journal | 24.24% | 8 |
| A reference book | 6.06% | 2 |
| A newspaper article | 69.70% | 23 |
| I don't know | 0.00% | 0 |

**Question 22: *You would like to find research that analyzes the long-term outcomes of teacher diversity plans implemented by other school districts. Which type of source would be most likely to have this kind of information?***

**Measures CLO 7.**

Pretest: Of the 33 respondents who answered this question, 24 (72.73%) correctly selected an article from a scholarly journal. 5 (15.15%) incorrectly selected a reference book, 2 (6.06%) selected a newspaper article, and 2 (6.06%) indicated that they did not know.

|  |  |  |
| --- | --- | --- |
| An article from a scholarly journal | 72.73% | 24 |
| A reference book | 15.15% | 5 |
| A newspaper article | 6.06% | 2 |
| I don't know | 6.06% | 2 |

Posttest: Of the 33 respondents who answered this question, 24 (72.73%) correctly selected an article from a scholarly journal. 4 (12.12%) incorrectly selected a reference book and 3 (9.09%) incorrectly selected a newspaper article, and 2 (6.06%) indicated that they did not know. **There was no gain in the number of students who correctly selected a scholarly journal article.**

|  |  |  |
| --- | --- | --- |
| An article from a scholarly journal | 72.73% | 24 |
| A reference book | 12.12% | 4 |
| A newspaper article | 9.09% | 3 |
| I don't know | 6.06% | 2 |

**Question 23: *Below is a citation you might find at the end of an article. What style is it in? Chang, X. Y., & Borden, M. L. (2009). Teacher diversity: Barriers and opportunities in public schools. Education Equality, 12(7), 455-59.***

**Measures CLO 5.**

Pretest: Of the 33 respondents who answered this question, 15 (45.45%) incorrectly identified the citation as being in MLA format. 11 (33.33%) correctly identified it as an APA citation and 7 (21.21%) indicated that they did not know. No respondents selected Chicago or Harvard style.

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| --- | --- | --- |
| MLA | 45.45% | 15 |
| Chicago | 0.00% | 0 |
| APA | 33.33% | 11 |
| Harvard | 0.00% | 0 |
| I don't know | 21.21% | 7 |

Posttest: Of the 33 respondents who answered this question, 23 (69.70%) correctly identified this citation as being in APA format. 10 (30.30%) incorrectly identified it as a MLA citation. No respondents selected Chicago or Harvard style or indicated they did not know. **This is a gain of 24.25% in the number of student who correctly identified the citation as being in APA format.**

|  |  |  |
| --- | --- | --- |
| MLA | 30.30% | 10 |
| Chicago | 0.00% | 0 |
| APA | 69.70% | 23 |
| Harvard | 0.00% | 0 |
| I don't know | 0.00% | 0 |

**Question 24: *Looking at the citation, which part is the journal title? Chang, X. Y., & Borden, M. L. (2012). Teacher diversity: Barriers and opportunities in public schools. Education Equality, 12(7), 455-59.***

**Measures CLO 5.**

Pretest: Of the 33 respondents who answered this question, 17 (51.52%) incorrectly selected “Teacher diversity: Barriers and opportunities in public schools,” 12 (36.36%) correctly selected *Education Equality*, 3 (9.09%) indicated that they did not know, and 1 (3.03%) incorrectly indicated that there is no journal title in this citation.

|  |  |  |
| --- | --- | --- |
| Chang, X. Y. & Borden, M. L. | 0.00% | 0 |
| Education Equality | 36.36% | 12 |
| Teacher diversity: Barriers and opportunities in public schools | 51.52% | 17 |
| There is no journal title in this citation | 3.03% | 1 |
| I don't know | 9.09% | 3 |

Posttest: Of the 33 respondents who answered this question, 18 (54.55%) correctly selected *Education Equality*, 13 (39.39%) incorrectly selected “Teacher diversity: Barriers and opportunities in public schools,” 1 (3.03%) incorrectly selected Chang, X. Y. & Borden, M. L., and 1 (3.03%) indicated that he/she did not know. **This is a gain of 18.19% in the number of students who correctly selected *Education Equality* as the journal title.**

|  |  |  |
| --- | --- | --- |
| Chang, X. Y. & Borden, M. L. | 3.03% | 1 |
| Education Equality | 54.55% | 18 |
| Teacher diversity: Barriers and opportunities in public schools | 39.39% | 13 |
| There is no journal title in this citation | 0.00% | 0 |
| I don't know | 3.03% | 1 |

**Question 25: *There are two science Websites linked below. 1. Click on the links to visit and evaluate each site's homepage (the first page you see). a. Medline Plus b. Health Guidance 2. A friend of yours wants to know which site would be a more reliable source of science information. Which of the sites would you recommend?***

**Measures CLO 4.**

Pretest: Of the 30 respondents who answered this question, 10 (33.33%) correctly selected Medline Plus, 9 (30.00%) selected both, 7 (23.33%) selected Health Guidance, and 4 (13.33%) selected neither.

|  |  |  |
| --- | --- | --- |
| a. MedLine Plus | 33.33% | 10 |
| b. Health Guidance | 23.33% | 7 |
| c. both | 30.00% | 9 |
| d. neither | 13.33% | 4 |

Posttest: Of the 31 students who responded to this question, 16 (51.61%) correctly selected Medline Plus, 8 (25.81%) selected both, 6 (18.4%) selected Health Guidance, and 1 (3.23%) selected neither. **This is a gain of 18.25% in the number of students who selected the correct Web site.** This question, however, is one in which results varied widely between the three LS 101 sections: In the posttest, 5 of 7 respondents (81.25%) in Librarian A’s section correctly selected MedLine, 2 of 9 respondents (22.20%) in Librarian B’s section correctly selected MedLine, and 9 of 15 respondents (60.00%) in Librarian C’s section correctly selected MedLine.

|  |  |  |
| --- | --- | --- |
| a. MedLine Plus | 51.61% | 16 |
| b. Health Guidance | 19.35% | 6 |
| c. both | 25.81% | 8 |
| d. neither | 3.23% | 1 |

**Question 26: *Describe at least 2 things about the sites that helped you decide.***

**Measures CLO 4.**

Pretest: Of the 49 criteria listed, 31 (63.27%) were accurate.

Posttest: Of the 66 criteria listed, 50 (75.76%) were accurate. **This is a 12.49% gain in the number of student who accurately evaluated the 2 Web sites.** This question, however, is one in which results varied widely between the three LS 101 sections: In the posttest, 13 of 16 criteria (81.25%) respondents listed in Librarian A’s section were accurate, 7 of 21 criteria (33.33%) respondents listed in Librarian B’s section were accurate, and 23 of 36 criteria (63.89%) respondents listed in Librarian C’s section were accurate.

One criterion that students continue to list as evidence of reliability is the fact that one of the sites is a .org. While .org sites can be reliable, they can also be just as unreliable as .com sites. In addition, many students list the amount of information as evidence of reliability (e.g., “lots of information and pictures”). Quantity of information does not necessarily correlate to quality of information.

**Question 27: *Your friend is interested in gender discrimination as a topic for a research paper. Her instructor told her the topic is too broad and that she will have to narrow her topic. The article above is one of her sources. Using the above excerpt, suggest a narrower gender discrimination topic for your friend to research. Type your suggestion below.***

**Measures CLO 2.**

Pretest: Of the 30 students who responded to this question, 19 (63.33%) suggested a narrower topic.

Posttest: Of the 29 students who responded to this question, 23 (79.31%) suggested a narrower topic. **This is a gain of 15.98% in the number of students who were able to suggest a narrower topic.**

**Question 28: *Your friend also needs to develop several possible research questions for her paper. Using the above source, your friend developed these two questions. Which one do you think is a better question to research?***

**Measures CLO 2.**

Pretest: Of the 30 respondents who answered this question, 18 (60.00%) correctly selected “In cases of workplace gender discrimination, how do the types of filed complaints differ between men and women?”

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| --- | --- | --- |
| 1. Why do we discriminate against people based on their gender? | 6.67% | 2 |
| 2. In cases of workplace gender discrimination, how do the types of filed complaints differ between men and women? | 60.00% | 18 |
| 3. Both | 26.67% | 8 |
| 4. Neither | 6.67% | 2 |

Posttest: Of the 29 respondents who answered this question, 15 (51.72%) correctly selected “In cases of workplace gender discrimination, how do the types of filed complaints differ between men and women?” **This is a loss of 8.28% in the number of students who selected the correct research question.** This question, however, is one in which results varied widely between the three LS 101 sections: In the posttest, 2 of 6 respondents (30.30%) in Librarian A’s section correctly selected option 2, 5 of 8 respondents (62.50%) in Librarian B’s section correctly selected option 2, and 8 of 15 respondents (51.72%) in Librarian C’s section correctly selected option 2.

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| --- | --- | --- |
| 1. Why do we discriminate against people based on their gender? | 10.34% | 3 |
| 2. In cases of workplace gender discrimination, how do the types of filed complaints differ between men and women? | 51.72% | 15 |
| 3. Both | 24.14% | 7 |
| 4. Neither | 13.79% | 4 |

**Question 29: *Your friend is including information from the above source in her paper. She is worried about citing and plagiarizing and has asked you for advice. Which of these is cited and integrated correctly (not plagiarized)?***

**Measures CLOs 5 and 6.**

Pretest: Of the 30 students who answered this question, only 8 (26.67%) correctly identified answer “b.”

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| --- | --- | --- |
| a. Gender discrimination in the workplace is a pervasive problem in the United States. Sex discrimination exists in various forms but women aren't always the victims: about 10% of complaints filed come from men (Carroll, 2005). Whether male or female, gender discrimination has serious implications for everyone | 20.00% | 6 |
| b. Gender discrimination in the workplace is a pervasive problem in the United States. While many people may think of gender discrimination as strictly a women's issue, men can also be victims (Carroll, 2005). Whether male or female, gender discrimination has serious implications for everyone. | 26.67% | 8 |
| c. neither are plagiarized | 30.00% | 9 |
| d. both are plagiarized | 6.67% | 2 |
| e. I don't know. | 16.67% | 5 |

Posttest: Of the 29 students who answered this question, only 6 (20.7%) correctly identified answer “b.” **This is a loss of 5.98% in the number of students who selected the correct answer.** This question, however, is one in which results varied widely between the three LS 101 sections: In the posttest, 0 of 6 respondents (0.00%) in Librarian A’s section correctly selected option b, 1 of 8 respondents (12.50%) in Librarian B’s section correctly selected option b, and 5 of 15 respondents (33.30%) in Librarian C’s section correctly selected option 2.

|  |  |  |
| --- | --- | --- |
| a. Gender discrimination in the workplace is a pervasive problem in the United States. Sex discrimination exists in various forms but women aren't always the victims: about 10% of complaints filed come from men (Carroll, 2005). Whether male or female, gender discrimination has serious implications for everyone | 6.90% | 2 |
| b. Gender discrimination in the workplace is a pervasive problem in the United States. While many people may think of gender discrimination as strictly a women's issue, men can also be victims (Carroll, 2005). Whether male or female, gender discrimination has serious implications for everyone. | 20.69% | 6 |
| c. neither are plagiarized | 80.00% | 16 |
| d. both are plagiarized | 6.90% | 2 |
| e. I don't know. | 10.34% | 3 |

**NOTE:** Questions 30-33 on the posttest, which ask students to describe how they feel they have improved as a result of the LS class, were not analyzed due to time constraints.

# Discussion

Students’ confidence that they had found a scholarly article improved as a result of having taken an LS 101 course. In the pretest 73.33% of students indicated that they found a scholarly article, compared with 100% in the posttest. **This is a gain of 26.67% in the number of students who believed they had found a scholarly article.** When each of the articles students found were looked up however, 76.00% were, in fact, scholarly in the pretest and 81.82% were scholarly in the posttest. **This is a gain of 11.82% in the number of students who successfully found a scholarly article and meets the 80% benchmark.** In addition, students’ ability to accurately articulate the features/criteria of a scholarly article, improved as a result of having taken an LS 101 course. Prior to taking LS 101 only 63.27% of the criteria that students listed were accurate. After taking LS 101, 75.76% of the criteria were accurate. **While students did not quite meet the 80% benchmark, this is a gain of 12.49% and indicates that students are becoming more adept at recognizing the key features of a scholarly article as a result of the LS class and are making progress toward the achievement of CLOs 4 and 7.**

In the pretest, 76.00% of students used appropriate databases compared with 81.82% in the posttest. **This meets the 80% benchmark and is a gain of 5.82% in the number of students who used appropriate databases, demonstrating that students are becoming more familiar with our resources and gaining an ability to compare and contrast those resources as a result of the LS class (CLO 1).** In addition, when asked why they chose the database that they did to search for an article on gender discrimination, students in the pretest most often indicated that they had successfully used it before (64.00%), compared with 72.73% in the posttest. **This is a gain of 8.73% in the number of students who selected a database based on successfully having used it before; while that does not necessarily mean that the database the student chose was the *best* choice for the topic, it does shore up this notion that students are becoming more familiar with our resources and gaining confidence in using them as a result of the LS class.**

The number of appropriate keywords used to search for a scholarly article about gender discrimination also increased as a result of the LS class. In the pretest, students listed 65 keywords that they used to search for an article on gender discrimination. Of those keywords listed, 52 were appropriate (80.00%) and 13 were inappropriate (20.00%). In the posttest, students listed 84 keywords. Of those keywords listed, 73 were appropriate (86.90%) and 11 were inappropriate (13.10%). **Though students were already at the 80% benchmark prior to taking LS 101, this is a gain of 6.90% in the number of appropriate keywords listed** **and indicates that the LS class is also helping students with achieving CLO 3.**

When students were asked to rate the difficulty of the task to find a scholarly article about gender discrimination in the pretest, 27 students (60.00%) rated the difficulty level “Easy and I felt successful in completing the task,” 7 (28.00%) rated the difficultly level “Challenging, but I felt successful in completing the task,” and 3 (12.00%) rated the difficulty level “Challenging, and I feel uncertain about how successful I was.” In the posttest, 28 (84.85%) indicated rated the difficulty level “Easy and I felt successful in completing the task” and 1 (3.03%) rated the difficulty level “Challenging, and I feel uncertain about how successful I was.” **This is a gain of 24.85% in the number of students who felt the task was easy and that they were successful; again, the LS class seems to increase students’ confidence about conducting research using library resources.**

Students also showed improvement in the use of Boolean operators (CLO 3). When asked, “Which strategy used in a search engine would help you narrow your results?” 42.42% of students correctly selected “Sexism AND employment” in the pretest, while 54.55% selected the correct answer in the posttest**. While 54.55% is well below the 80% benchmark, this is still a gain of 12.13% in the number of students who correctly identified the correct way to narrow a search using a Boolean operator.**

When asked, “Which of these is an example of a search for an exact phrase?” 78.79% correctly selected “affordable care act” in the pretest. In the posttest 90.91% selected “affordable care act.” **Though students were already close to the 80% benchmark in the pretest, this is a gain of 12.11% in the number of students who correctly identified an exact phrase search.** Thus students are making some progress toward the achievement of CLO 3; however, they are much more adept at phrase searching than in their use of Boolean operators.

Students showed little improvement, however, in their ability to identify appropriate information sources (CLO 7). For example, students were askedwhich type of source would be the most likely to have information about a new Tacoma School District plan meant to increase teacher diversity in Tacoma public schools. In the pretest 66.67% of students correctly selected a newspaper article. In the posttest 69.70% correctly selected a newspaper article**. This is a gain of just 3.03% in the number of students who correctly identified a newspaper article, and students did not meet the 80% benchmark.** Furthermore, when asked in which type of source they would be most likely to find research that analyzes the long-term outcomes of teacher diversity plans implemented by other school districts, 72.73% of students correctly selected an article from a scholarly journal in the pretest. In the posttest 72.73% correctly selected an article from a scholarly journal. **Therefore the number of students who correctly identified an article from a scholarly journal remained static and did not meet the 80% benchmark.**

Students did make substantial progress toward the achievement of CLO 5 as a result of having taken the LS class. While 33.33% of students correctly identified the style of a given citation in the pretest, 69.70% did so in the posttest. **This is a gain of 24.25% in the number of students who correctly identified the style of a given citation, however students did not meet the 80% benchmark.** In addition, when asked to identify the journal title in a given citation, only 36.36% were able to do so in the pretest. In the posttest 54.55% were able to do so. **This is a gain of 18.19% in the number of students who correctly identified the journal title in a citation, however students were far from meeting the 80% benchmark.**

Students are also developing their ability to evaluate sources (CLO 4) as a result of the LS class. In the pretest 33.33% of students correctly identified the more reliable of 2 Web sites. In the posttest, 51.61% selected the correct Web site. **While students were far from achieving the 80% benchmark, this is a gain of 18.25% in the number of students who selected the correct Web site.** When asked to list the criteria that they used to evaluate these sites, 63.27% of the criteria listed in the pretest were accurate. In the posttest, 75.76% were accurate. **While students did not quite meet the 80% benchmark, this is a 12.49% gain in the number of students who accurately evaluated the 2 Web sites.** One criterion that students continue to list as evidence of reliability is the fact that one of the sites is a .org. While .org sites can be reliable, they can also be just as unreliable as .com sites. In addition, many students list the amount of information as evidence of reliability (e.g., “lots of information and pictures”). Quantity of information does not necessarily correlate to quality of information.

When asked to narrow a broad research topic, 63.33% were successful in the pretest, while 79.31% were successful in both the pretest and the posttest. **This is a gain of 15.98% in the number of students who were able to suggest a narrower topic and comes very close to the 80% benchmark.** However, when asked to select which of two research questions would be better to research, students were *less* successful in the posttest than in the pretest: In the pretest, 60.00% correctly selected “In cases of workplace gender discrimination, how do the types of filed complaints differ between men and women?” In the posttest, only 51.72% selected the correct research question. **This is a loss of 8.28% in the number of students who selected the more researchable question and is far from the 80% benchmark.** Therefore, while students seem adept at narrowing a topic, the LS class is not helping them with developing a good research question (CLO 2).

Furthermore, students had difficulty with correctly integrating sources (CLO 6). When asked to select a paraphrase that was not plagiarized and cited correctly, 26.67% identified the correct answer in the pretest. In the posttest only 20.69% selected the correct answer. **This is a loss of 5.98% in the number of students who selected a paraphrase that was not plagiarized; and is significantly lower than the 80% benchmark.**

It is important to note that there were some significant variations by instructor on 5 of the questions: Students in Librarian C’s section were most successful in answering the question about the criteria of a scholarly article (question 6), exceeding the 80% benchmark with a 93.33% success rate, while students in the other two sections did not meet the 80% benchmark. Students in Librarian A’s section performed above the 80% benchmark on questions related to Web site evaluation (questions 25 and 26), while students in the other two sections did not meet the 80% benchmark. Students in Librarian B’s section performed better on the question related to effective research questions (question 28), however they still did not meet the 80% benchmark with just a 62.50% success rate. Students in Librarian C’s section performed far better on the question about source integration (question 29) than students in the other two sections, however only 33.30% were successful, which is still quite low.

There are several limitations of this study. First, the results were compiled by one librarian (who is not a statistician), and it is possible that another librarian might have scored open-ended questions differently (i.e. no norming was done). In addition, since responses from respondents who did not complete both the pretest and the posttest in winter 2014 were not deleted, the results cannot accurately be compared with this year’s data. Nevertheless, some similarities did emerge (see the longitudinal comparison document or the summary from last year). Finally, questions 17, 18, 25, and 29 were changed this year, which further affects our ability to compare results.

# Implications

Student confidence increased in a couple of key areas as a result of having taken LS 101. First, they became more comfortable with finding scholarly articles. Next, they became more comfortable with selecting and searching the library databases. Additionally, while students indicated that they were relatively comfortable (78.79%) in general with writing a paper or making a presentation requiring library resources prior to taking LS 101, they were even more so (93.94%) after having taken the course. While student confidence may not equate to evidence of learning, it is still an important indicator of student success. Debra Gilchrist has stated that research shows “student confidence is key to retention and success” and that this evidence should be one of the things we consider when developing our library instruction programs and other services.[[1]](#footnote-1) Furthermore, Bickerstaff, Barragan, and Rucks-Ahidiana found that “experiences in which students feel a sense of success can powerfully shape their commitment and their enthusiasm for academic behaviors.”[[2]](#footnote-2) Students’ perceived success at and increased confidence from finding scholarly articles, searching databases, and so forth, then, may help them to persist in their associate’s program.

Students’ actual achievement of the course outcomes varied. While the majority of students who completed the pretest (90.91%) indicated that they had been required to use library sources to complete a research paper/presentation at least once, the pretest data shows that their information literacy skills were lacking in several areas. As demonstrated by the posttest results, completion of the LS 101 class results in improvement of some of these skills. Areas in which students met or exceeded the 80% benchmark include finding a scholarly article (CLOs 4 and 7), selecting appropriate databases (CLO 1), using appropriate keywords (CLO 3), and identifying a phrase search (CLO 3). Areas in which students were within 5% of the 80% benchmark include identifying the characteristics of a scholarly article (CLOs 4 and 7), evaluating a Web site (CLO 4), and narrowing a broad topic (CLO 2).

There were other areas in which students did not meet the 80% benchmark, but in which they improved by at least 10% after having taken LS 101 including using a Boolean operator to narrow a search (CLO 3), identifying a citation style (CLO 5), and identifying the journal title within a given citation (CLO 5). Because we are seeing measurable improvement in these skills, we need to consider whether or not the outcomes related to these skills should be modified. For example, perhaps we should identify intermediary outcomes that would be achieved in the process of working toward the achievement of these outcomes as they are currently written. Alternatively, we might consider benchmarking these particular outcomes lower than 80%, understanding that we are introducing students to certain concepts/skills in the LS 101 class, but that these concepts/skills will not truly be achieved without iterative development over time. The need for these changes is supported by findings from the Standardized Assessment of Information Literacy Skills (SAILS) project developed at Kent State University in partnership with Association of Research Libraries (ARL), which has tested 160,000 students at over 200 institutions of higher learning and found that students continue to develop and improve their information literacy skills over their academic career, with associate’s students performing the least well and doctoral candidates the most.[[3]](#footnote-3)

Also noteworthy are the areas in which students showed the greatest improvement including identifying a citation style (24.25% gain; CLO 5), evaluating a Web site (18.25% gain; CLO 4), and identifying a journal title within a given citation (18.19% gain; CLO 5).

Finally, there were areas in which students neither met the 80% benchmark nor showed great improvement including selecting a newspaper article when it is the best source for a given information need (CLO 7), selecting a scholarly journal article when it is the best source for a given information need (CLO 7), identifying an effective research question (in fact, students were *less* successful after taking LS 101; CLO 2), and identifying a paraphrase that is not plagiarized (students were also *less* successful at this task after taking LS 101; CLO 6). These are the areas of greatest concern and require (1) revising the related outcomes and (2) revising the current curricula.

Our approach to how we teach CLO 7 needs to change and perhaps be combined with CLO 4 because each is, in fact, dependent upon the other. It may be that the checklist approach we take to teaching source evaluation is leading students to think of sources as being either “bad” or “good” and puts too much emphasis on scholarly sources, thus leading students to think that scholarly sources will be the best for every information need or that sources that do not meet the standard evaluation criteria are never appropriate in any context. We have to shift this perception. Instead, we should put more emphasis on the information timeline (i.e. how information is created), as well as on source types and specifically how, when, and why each is type of source is useful. We should then ask our students to articulate how a particular source is useful within a given research context.

This shift in our curriculum is supported by the Association of College and Research Libraries (ACRL), which lists “Authority is Constructed and Contextual” and “Information Creation as a Process” as two of the six frames of information literacy. Both of these frames support this notion that the appropriateness of a source is dependent on the information need and context.[[4]](#footnote-4) This shift is further supported by Joseph Bizup who has written, “If we want students to adopt a rhetorical perspective towards research-based writing then we should use language that focuses their attention not on what their sources and other material are … but on what they as writers might *do* with them.”[[5]](#footnote-5) Currently students think of sources as simply a way of meeting a given requirement (e.g., an assignment requiring four peer-reviewed sources) rather than as evidence. We need instead for students to ask themselves what evidence is needed for their research topic and which sources are most likely to provide that evidence.[[6]](#footnote-6)

Furthermore, we must address the fact that the LS 101 class did not help, and, in fact, hindered students’ ability to develop a good research question (CLO 2) and to appropriately integrate sources (CLO 6). Since these particular skills require an ability to synthesize information and are therefore at the highest level of Bloom’s taxonomy (i.e. “creating”), in addition to the fact that this is a 100-level course and the development of information literacy skills is iterative and takes time, this finding is not surprising.[[7]](#footnote-7) We need to revise the learning outcomes so that they are at a more appropriate level of Bloom’s taxonomy for our students and then modify the current curricula to help them achieve these outcomes. Again we can look to the ACRL for guidance here, which also lists “Research as Inquiry” and “Scholarship as Conversation” as two of the frames.[[8]](#footnote-8) We need to help our students understand the iterative nature of research and that scholars engage in a formal conversation via the research that they produce (and that they as students can also participate in this conversation). We then need to ask them to demonstrate this understanding by describing or visualizing it in some meaningful way rather than asking them to create new knowledge themselves.

We will perform this assessment one final time in fall 2015 in order to verify the results found in this report, however we are confident enough in these results that we will proceed with revising the CLOs and the LS 101 curricula. Once these changes have been implemented, we will then modify our pretest/posttest to align to the new CLOs and measure student achievement of the outcomes once again.

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4. Association of College and Research Libraries Board, “Framework for Information Literacy for Higher Education,” Association of College and Research Libraries, <http://www.ala.org/acrl/standards/ilframework> (accessed May 13, 2015). [↑](#footnote-ref-4)
5. Joseph Bizup, "BEAM: A rhetorical vocabulary for teaching research-based writing," *Rhetoric Review* 27.1 (2008): 75. [↑](#footnote-ref-5)
6. Anne-Marie Deitering, Meredith Farkas, and Sara Seely, “Good for What? Teaching Sources for Sustainable Lifelong Information Literacy” (PowerPoint presentation at the Association of College and Research Libraries Conference, Portland, Oregon, March 26, 2015), 18-21. [↑](#footnote-ref-6)
7. In fact, synthesis has been found to be one of the biggest challenges for students in assessment projects conducted around the country including Project Information Literacy, as well as projects done at Champlain College in Vermont and at the University of Nebraska, Omaha. [↑](#footnote-ref-7)
8. Association of College and Research Libraries Board, “Framework for Information Literacy for Higher Education.” [↑](#footnote-ref-8)