



HLC Accreditation 2016-2017

Evidence Document

Academic Affairs

University Libraries

Library Instruction Assessment Reports

Additional information:

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Biology 210L Assessment Report

Academic Year 2016

Wichita State University Libraries

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Background and Justification

Biology 210L refers to the laboratory component of General Biology I, an introductory course in the Biological Sciences offered at Wichita State University. The purpose of the course is to introduce fundamental concepts in cellular and molecular biology, including basic biochemistry, cell and membrane structures and functions, respiratory pathways, metabolism and photosynthesis, reproduction and regulation, phylogeny, evolution and inheritance. The laboratory component serves to develop student skills in experimental method, laboratory procedures and written communication of scientific information.

Early each semester BIOL 210L provides the students with a 2-hour laboratory session in the WSU Ablah library for introduction and instruction in library resources relating to research and scholarly communication in the biological sciences, corresponding to semester-long research and experimental projects they will perform.

Beginning in the Spring of 2015, I taught these sessions using an inherited assignment from the Instruction Librarian whose position I filled. This consisted of an introductory lecture and demonstration of library resources, article databases and search strategies, and citation instruction per the Council of Science Editors Name-Year Style format with a provided online Library Research Guide. After introduction and demonstration, the students used the remaining laboratory period to complete a 10-point graded assignment (see attachment 1).

Reflecting on student interaction, classroom participation and questions throughout the semester, it was determined that the nature of the assignment turned student attention and concern to the complicated steps of the assignment itself and intricacies of citation while missing information literacy understandings and application of processes to their coursework. The lab instructors and I agreed to revise it for Fall of 2015. Determining core learning objectives of:

- Awareness and familiarity of library resources (reference, scholarly articles & scientific journals) specific to the biological sciences
- Identification and evaluation of primary and secondary resources
- Searching strategies for biological databases and journals
- Reference and citation format and function

Redesigning the assignment as an online document in the learning management system (Blackboard), and altering the instruction delivery from introduction and lecture followed by work period to a laboratory model of recursive instruction-discussion-experiment/practice, resulted in a more interactive laboratory period performed in five distinct sections and citation review:

1. Gathering Reference Information
2. Discovering Scholarly Articles
3. Using Scholarly Journals
4. Searching with WSU Library's SmartSearch
5. Evaluating Information Resources (see attachment 2).

While this redesign enabled a richer flow of instruction and practice during the lab session, the tie of the learning objectives (this early in the semester) and the students actual research projects (conducted over the course of the semester) remained disconnected and unsatisfactory. In addition, the varying paces of section completion by students resulted in some disruption to the instruction/practice design.

Assessing classroom participation, work period interaction with students, and consultation with departmental grading faculties it was apparent that students were focusing on discrete steps of assignment performance and correct citation practices but continued to demonstrate weakness in comprehension, understanding, literacy components and application.

For the Spring of 2016, working with the biology lab instruction team, we again redesigned the Library Workshop lab, simplifying the graded assignment and fitting it to a series of BIOL 210L assignments corresponding directly with their semester-long laboratory experiments and written research components. Through various iterations of assignment and instruction design we trained our focus on student comprehension, understanding, and applied learning, rather than discrete skill steps and performance. The graded outcomes for Assignment 2 (see attachment 3) became

1. Locating credible background information on specific topics
2. Locating peer-reviewed articles on TWO specified topics related to their semester-long laboratory and research projects

The following week, Assignment 3 (see attachment 4) was given, utilizing the articles selected in Assignment 2,

1. Creating CSE-Name-Year citations for selected articles
2. Developing knowledge relating to concepts or terms not understood in selected articles
3. Summarizing main points of selected articles

Implementing qualitative assessment (open response paper) and converging library and resource instruction with ongoing laboratory assignments in this way (end project for BIOL 210L involving research presentation with 15 or more sources at end of semester) increased assignment completion percentage (providing direct outcomes tied to coursework) and allowed me to focus library instruction relevance demonstrating notable increase in student understanding and ongoing relevant learning application. Spring 2016 learning outcomes for BIO 201L Library Workshop lab are as follows:

Students will be able to:

- Distinguish and compare scholarly discourse from a variety of academic and online resources
- Collect, evaluate and restate background information utilizing library resources on two topics: the plant genus *Brassica rapa* and potato enzymes
- Locate and select relevant scholarly articles via subject-specific library databases or journals relating to their topics
- Identify parts of a citation and practice CSE-style resource citation, discussing scholarly conversation and ethical research
- Describe pathways and processes of exploring, searching and utilizing library resources (see attachment 5 for full lesson plan)

Instrument and Methods

Assessment methods included – graded laboratory assignments (see attachments 3 and 4) and a voluntary (non-graded) four question *Library Laboratory Review* (“minute paper” format, see attachment 6). Details provided below.

Students were required to locate two peer-reviewed articles on specified topics related to their semester projects, show instructors and indicate whether the articles were examples of primary research or review articles (5 points)

Students were required to create CSE Name-Year citations for selected articles, evaluate and summarize selected articles in written format (5 points)

Students were requested, but not required to complete the *Library Laboratory Review* minute paper – responding to the four following questions:

1. What are some differences between scholarly literature or academic literature and other information resources (blogs, wikis, news articles, etc)?
2. What are some purposes of citation?
3. What aspects of today’s lab (or particular resources) seem most helpful to you?
4. What remains unclear or are there any questions you still have?

In Spring of 2016, 185 students in 8 sections of BIOL 210L attended the Library Workshop lab. Of these students 93% completed the graded assignments (172/185). The average grade on the assignments were 4.6/5.

54% of the students (100/185) completed the *Library Laboratory Review* and their responses are summarized by question below (students may have provided more than one response – 3 students did not respond to Q1 and 1 student did not respond to Q3):

1. What are some differences between scholarly literature or academic literature and other information resources (blogs, wikis, news articles, etc)?

- 71 responses mentioned the **review process** and **editing** of resources
- 26 responses mentioned **reliability** or **credibility** of the resources
- 28 responses mentioned degrees of **expertise** related to the resources
- 3 responses mentioned the likelihood of **bias** in the resources

2. What are some purposes of citation?

- 74 responses mentioned **giving credit** to sources of information
- 41 responses mentioned **referencing** and **tracking** sources of information
- 24 responses mentioned avoiding **plagiarism**

3. What aspects of today’s lab (or particular resources) seem most helpful to you?

- 49 responses mentioned **database navigation**
- 61 responses mentioned **research strategies**, specifying the following:
 - 13 responses specified **filtering** or **refining** search topics and terms
 - 9 responses specified utilizing **advanced search tools** in databases
 - 6 responses specified **distinguishing primary** and **secondary** resources

- 8 responses specified the [Bio 210 Library Research Guide](#)
- 3 responses specified learning use of **Inter-library loan**
- 10 responses mentioned **citation instruction**

4. What remains unclear or are there any questions you still have?

- 91 responses reported no further questions
- 3 responses requested further **citation instruction**
- 3 responses requested further instruction in **resource distinction and evaluation**
- 3 responses requested further instruction in **database navigation**

In addition, the associated Library Research Guide (<http://libresources.wichita.edu/BIO210L>) received 2154 views during the Spring semester of 2016, providing evidence of its usefulness and application.

Analysis of Assessments

This assessment provides an early example of an ongoing project of developing curriculum-based library instruction and assessments with the General Biology I (BIOL 210L) course laboratory content. The point-bearing biology department assignments have been a consistent assessment tool, adding a *Library Laboratory Review* offers WSU Libraries Instruction & Research Services Group outcomes assessment and reflective student feedback on information literacy instruction. I am working to retrieve statistics on previous BIOL 210L library workshop assignments re: completion percentages and average grades, which will assist in demonstrating the significance of curriculum-based point-bearing integrated library instruction.

The iterative redesign of instruction and assignments moving from discrete skill-based steps and performance toward student comprehension, conceptual and process understanding, and relevant applied learning with mixed assessments of classroom participation, qualitative responses and a quantitative series of project-based assignments provide more robust evidence of student understanding and successful learning application.

The format of voluntary “minute-paper” style open-answer assessment for this initial library instruction assessment tool avoids the drawbacks of multiple-choice quizzes (guiding answers, limited suggestion responses) or graded posts (constrained performance or anxiety) by enabling free reflective assessments by students who select to participate.

It is predicted that integrating library instruction with ongoing semester project assignments increases the percentage of completion of Library Workshop assignments. The percentage of completion of the Spring 2016 assignments (93%) and average grades of 4.6/5 provide evidence for the impact of curriculum-based library instruction and applied learning design. We will continue to collect data as this project evolves.

The responses given to the *Library Laboratory Review* give strong evidence to the accomplishment of Library Instruction learning objectives as well as the impacts of library instruction on student learning. These responses also provide strong evidence of the Library Instruction Program’s fulfillment of ACRL Standards for Information Literacy for Higher Education. The responses related to further questions support the essential learning points and objectives and inform future iterations based on student report and need.

As the assignment and instructional design have developed over the past three semesters, both students and instructors have expressed satisfaction, particularly regarding clarity, understanding, relevance, and equity of grading across multiple sessions and instructors. Both assignment and assessment will continue to evolve during the coming years.

Attachment 1: Inherited BIOL 210L Library Workshop Assignment

Biology 210 Lab – Spring 2015

Introduction to the Use of Library Resources

This exercise includes an introduction to the WSU Libraries with an emphasis on the use of scientific journals. Before you begin this assignment, the Reference Librarian will provide an introduction to the library. This introduction will cover use of physical and online services pertinent to the Biological Sciences in Room 217 Ablah Library.

The following steps will help you prepare for the assignment.

- 1) Familiarize yourself with the Library Guide for the assignment at <http://libresources.wichita.edu/BIO210>
- 2) Bring your Shocker Card to the library for printing and photocopying, if desired.
- 3) Have a Word document open so you can complete the parts of the assignment that don't require printing.

Each student will be assigned one subject from the list on the last page of this handout. After the librarian's introduction, you will have the rest of the laboratory period to complete the assignment. Your laboratory instructor will be available to assist you during that time. The completed assignment is due at the beginning of your next laboratory period. Please note that all written assignments must be typed and submitted at the beginning of the lab period for credit. Steps in the assignment that require something to be turned in for credit are marked with an asterisk (*).

After completing this exercise, you should be able to perform the following tasks:

- 1) Locate research articles about a given subject.
- 2) Locate an article in Ablah Library when given a citation.
- 3) Give the citation for an article using the CSE Style Name-Year system as described in *Writing Papers in the Biological Sciences* by McMillan 5e on p. 137-143.

ASSIGNMENT

1. Using the appropriate **secondary resource**, find introductory information about your subject. (See the Secondary Resource list on the Bio210 Library Guide.)
 - *A) Perform a **title search** for the resource of your choice in the library catalog. Print off the catalog record for the resource you chose. Label this page *1A*, and submit it with your assignment.
 - B) Use the *Electronic Resource* link in the catalog record to access the item.
 - C) Once you have located the resource, look up your subject in that resource. Try a keyword search or use the index/table of contents.
 - *D) In your own words, type a 2-3 sentence description of your subject based on the information found in this resource. Label this *1D* and put this in your Word document.
2. Use **Web of Science** to find a primary research article about your subject.

- A) Perform a basic topic search for your subject.
- B) Select a primary research article on your subject. Use the limiters on the lefthand side of the page to focus only on articles under document types. A primary research article is a journal article that contains original research.
- *C) Print off a copy of the abstract and citation for this article. Label this page 2C and submit it with your assignment.
- *D) If the full text of the article is available through either PDF, HTML, or by checking the 360 Link, then provide the URL or DOI for this article and the publisher/database. If the full test is not available, provide an alternate method for tracking down the article, as discussed by the reference librarian. Label your answer 2D, put it in your Word document, and submit it with your assignment.
- *E) Type the citation information for this article in Name-Year citation format (CSE style), as described in the McMillan writing manual (p. 137-143) and shown in the example below. Label your citation 2E, put it in your Word document, and submit it with your assignment.
Bousfield GR, Ward DN. 1992. Reduction and reoxidation of equine gonadotropin alpha-subunits. *Endocrinology*. 131:2986 – 2998.

3. Use **SmartSearch** to locate a specific article on your subject, given a citation. (The list of citations is available on the assignment webpage.)

- A.) Search for the journal article in SmartSearch using the exact title in quotation marks.
- *B.) Print the citation and abstract for this article. Label this page 3B and submit it with your assignment. If your article is not available, print the screen that says no items found, label it 3B, and submit it with your assignment.
- *C.) If the full text of the article is available, then submit the URL or DOI for the article. Label this item 3C and submit it with your assignment. If the full text is not available, note how you would go about getting this article and label your answer 3C.
- *D.) Go to *Electronic Journals* on the library homepage to search for the name of the journal. Print off the page and highlight which database you would go to for the article you were assigned. Label this page 3D and submit it with your assignment. It's often useful to browse a journal in its entirety and using the Electronic Journals method will allow you to see other articles from the same volume/issue of a journal. Note that not all journals and databases play well with SmartSearch so the only way to really make sure the library doesn't have something is to check the Catalog and Electronic Journals.

4. Using the **MEDLINE (Proquest)** database, find a citation for a research article on your subject.

- A.) Using the "**Advanced Search**" option, search for articles on your subject, limiting your search to "**Peer Reviewed**" and "**Scholarly Journals**" articles. Medline contains materials that are not peer reviewed and/or from scholarly journals so using the limiters for both is important.
- *B.) Print the citation and abstract for one article retrieved by this search. Label this page 4B and submit it with your assignment.

LIST OF SUBJECTS

Photosynthesis

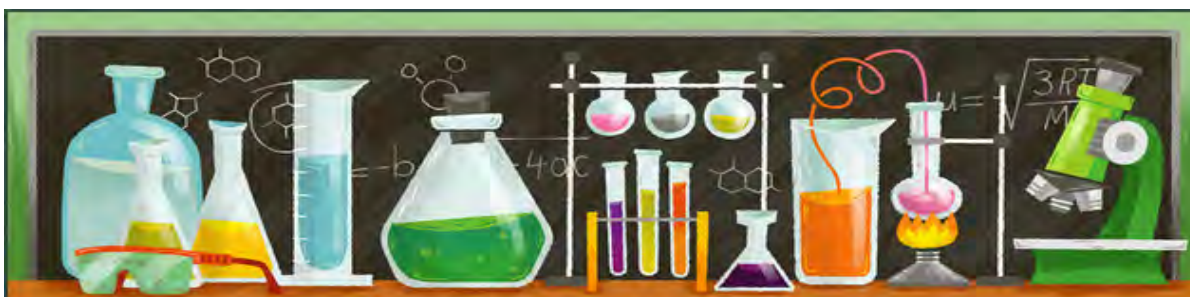
Serotonin

Enzyme Inhibitors

Immunosuppression

Amylase
Recombinant DNA
Ribosomes
Porphyrins
Plasmids
Mitochondria
Chloroplasts
Cellular Immunity
Glucose
Prions
Messenger RNA
Krebs Cycle
Transfer RNA
Endorphins
Membrane Proteins
Plankton
Population Density
Pheromones
Animal Behavior
Pituitary Hormones
Virus Replication
Cellular Differentiation
Water Pollution
Estrogen

Attachment 2: Revised BIOL 210L Library Workshop Assignment, Fall 2015



BI0210L Library Research Assignment

* Required

Informatics

Student Name:

WSU Student ID#: *

Instructor Name:

- Beverly Cory
- Emmy Engasser
- Molly Reichenborn
- Olivia Schouten
- Negar Tehrani

Gathering Reference Information

1. Find appropriate and credible reference resources (1 through WSU Libraries Catalog and 1 from internet/web browser), search for an entry on your topic, and summarize information about your topic in a brief paragraph. Cite selected references using CSE Name-Year format. (1 point)

Citation of selected Reference Resource in WSU ONLINE CATALOG: *

Citation of selected ONLINE Reference Resource: *

State your TOPIC and write a brief description of it from what you've found: *

Digging Deeper: Scholarly Articles

2. Locate a “scholarly”, “peer-reviewed” and “full-text available” article on your topic using a subject-specific database through WSU Libraries. Identify your selection as a primary research article or a scholarly review article. Cite the article in CSE Name-Year format. (1.25 points)

What database (name) did you select to search for articles on your topic? *

examples: Web of Science, PubMed, Medline

What type of scholarly article did you select? *

- Primary Research Article
- Scholarly Review Article

Briefly describe how primary research articles differ from scholarly review articles.

Citation of article selected: *

Going Further: Following References: Finding Scholarly Journals

3. Using the reference list or works cited section of the article you selected in Question 2, choose a citation listed that directly pertains to your topic. Using this citation, search for the journal in the WSU Libraries Catalog and/or Electronic Journals through WSU Libraries. If WSU has access to the source journal, find the article within the journal and cite the article in CSE Name-Year format. (0.75 point)

Name of the journal the referenced/cited article appears in: *

example: Journal of Cell Biology; Bioinformation; Plant Molecular Biology

Do the WSU Libraries have access to this journal? *

- Yes
- No

Citation of selected article: *

Following References: Using WSU's SmartSearch

4. Using SmartSearch perform a Title Search for the article selected in question 3. (1 point) (remember to use quotation marks for exact titles).

Do WSU Libraries have access to this article? *

- Yes
 No

Is full-text available for this article? *

- Yes
 No

If full-text were not available, how would you go about obtaining this article? *

Evaluating Information Resources

5. Evaluate one of your selected resources using the guidelines in Criteria for Evaluating Information Sources (Accuracy, Authority, Objectivity, Currency, Scope) found on the Evaluating Information page of the Library Course Guide for BIO 210L. Write a brief paragraph reporting your evaluation and copy your citation for the selected resource from above: (1 point)

Brief paragraph evaluating your selected resource: *

Citation of resource selected for evaluation: *

(copy and paste from previous response)

CSE Name-Year Format

6. Double check each citation to ensure proper formatting in CSE Name-Year style. (1 point)

- Citations formatted in CSE Name-Year style

Submit

Never submit passwords through Google Forms.

Attachment 3: BIOL 210L Lab Library Workshop Assignment 2 – Spring 2016

Biol 210 Lab Library Workshop and Assignment 2

During this workshop, you will learn how to navigate a variety of library resources. To complete Assignment 2, you will locate peer-reviewed articles from scientific journals. These skills will be used regularly in Biol 210/211 and - if applicable - many upper division biology courses.

- I. Locate credible background information on EACH topic listed below. Read through this background information before the next lab period.
 1. **Enzymes** – used in several future experiments
 2. The plant genus ***Brassica***, which includes the mustard plants we are growing in lab

- II. Locate a peer-reviewed article on ONE of the following topics. This article can either be a primary research article or a review article. Be sure to print off this article and/or save its accession information. This article will be used to complete future assignments.
 1. ***Solanum* enzymes** or **potato enzymes** (*Solanum* is a potato genus)
 2. **Catechol oxidase** (an enzyme found in potatoes)

- III. Locate a peer-reviewed article on ONE of the following topics. This article can either be a primary research article or a review article. Be sure to print off this article and/or save its accession information. This article will be used to complete future assignments.
 1. ***Brassica* habitat**
 2. ***Brassica* climate** or ***Brassica* climate change**
 3. ***Brassica* pollination**
 4. ***Brassica* weed**
 5. ***Brassica* herbicide**
 6. ***Brassica* drought**
 7. ***Brassica* evolution**
 8. ***Brassica* virus**
 9. ***Brassica* genome**
 10. ***Brassica* cultivars** – examples included below
 - a. **Pak choi**
 - b. **Turnip**
 - c. **Chinese cabbage**
 - d. **Broccoli raab**
 - e. **Tsatsai**
 - f. **Turnip rape**
 11. ***Brassica rapa*** (the mustard plant species we are growing in lab)
 12. **Wisconsin Fast Plants®**
 13. **Anthocyanin** (the purple pigment produced by our mustard plants)

Assignment 2 (5 pts total)

**Show your lab instructor the peer-reviewed articles you located for Steps II and III.
Indicate whether each article is a considered a primary research article or a review article.**

Attachment 4: BIOL 210 Lab Assignment 3 – Spring 2016

Reminders for 210L Assignments:

1. **Written assignments must be submitted through Blackboard as Word files (.doc, .docx) or PDF files (.pdf).**
2. Microsoft Office 365 is available to WSU students through myWSU. To download Office 365:
 1. Log in to <http://mywsu.wichita.edu/>
 2. Click on Office 365 located on the Home tab
 3. Follow the Office 365 wizard instructions.
3. If you encounter issues with assignment submission in Blackboard, contact OneStop at <http://www.wichita.edu/onestop> or visit the OneStop office in 122 Jabara Hall.
4. Written assignments are due by the beginning of class on the due date. Late assignments are not accepted for credit.

Name:

WSU ID Number:

210 Lab Assignment 3 (5 pts)

During the library workshop, you located a peer-reviewed article on the plant genus *Brassica*; this genus contains the mustard plants we're growing in lab. While reading through this article, keep track of 1) the main points of the article and 2) any scientific terms that you have not learned to date.

1. In the space provided below, type out the citation for the *Brassica* article. Use CSE Name-Year citation format, as described on p. 136-142 of *Writing Papers in the Biological Sciences*, 5e. (1 pt)

2. Select two scientific terms from the article that are unfamiliar to you. Look up credible background information on these topics using the methods discussed at the library workshop. In your own words, define these two terms in the space provided below. To earn credit, be sure to avoid plagiarism and write in full sentences. (2 pts)
 - a.

 - b.

Continued on Next Page

If you selected a primary research article on *Brassica*, complete Question 3. If you selected a review article on *Brassica*, skip Question 3 and jump to Question 4.

3. **Primary Research Article:** Summarize two main points from the *Brassica* article that are directly attributable to the author(s) of this paper. To earn credit, be sure to avoid plagiarism and write in full sentences. (2 pts)

a.

b.

If you selected a review article on *Brassica*, complete Question 4. If you selected a primary research article on *Brassica*, skip Question 4.

4. **Review Article** (4a & 4b)

- a. In your own words, summarize one main point from the *Brassica* review article. To earn credit, be sure to avoid plagiarism and write in full sentences. (1 pt)
- b. Review articles contain findings from a vast array of primary research articles. **When citing information from review articles, it is proper to give credit to the primary source of this information.** Using the References Cited section at the end of the review article, identify the primary source(s) of the information you summarized in 4a. Using CSE Name-Year format, type out the citation(s) for the primary source(s). (1 pt)

BIOL 210L – Spring 2016 Lesson Plan

This lesson plan addresses Standards 1.1-4, 2.1-5, 3.2&7, and 5.3 of the ACRL Information Literacy Standards.

Learning Outcomes:

Students will be able to:

- Distinguish and compare scholarly discourse from a variety of academic and online resources
- Collect, evaluate and restate background information utilizing library resources on two topics: the plant genus *Brassica rapa* and potato enzymes
- Locate and select relevant scholarly articles via subject-specific databases or journals on their topics
- Identify parts of a citation and practice CSE-Style resource citation, discussing scholarly conversation and ethical research
- Describe pathways and processes of exploring, searching and utilizing library resources

Materials:

- Resource Evaluation Process Cards
- Smartboard Citation Activity
- Presentation Slides
- Ebsco Host Accounts

Lesson:

Introduction

Activity – Group Resource Evaluation & Discussion

In groups of 5 to 7, students will take 5-10 minutes to order their resource types according to formative processes. Students will then share their rankings with the class and explain why they decided to order things the way that they did. Discussion will concern how different “processes” contribute to the relative “value” of information in various contexts, while exhibiting that there is no one “correct” order.

Questions:

- What are some differences between “scholarly literature” or “academic research publications” and other information resources?
- When is a twitter post or blog entry *valuable*?
- When might you consult a Wikipedia article?

- Explain the difference between a news or magazine article / report and a scholarly article or book.

Introduce Library Resources

- Library home page (pathways from MYWSU & web addy – overview of resources
 - Have students login to EBSCO host and explain why (citation lists, folders, resource management)
- Research Guides – find BIO 210 course guide – practice pathway
- Briefly explain Smartsearch function, Catalog, and demonstrate/practice pathways to Biological Sciences databases and journals.

Activity – General Reference Topic Search

Students will utilize WSU Libraries reference holdings (links in Research Guide) and an open web resource (suggested links in Research Guide) to find information on their topics. Students will share and summarize information they find [format?].

Rapid Cycling *Brassica* Plants

Potato Enzymes

Demonstrate a number of pathways to reference articles while students also are searching for their own. Keep in mind resource evaluation from first activity as they select *appropriate* and *reliable* resources, open discussion around WHAT resources selected and WHY appropriate for their BIO 210 assignment.

Searching Subject Databases for Scholarly Articles

- Demonstrate pathways into databases: search options: limiters: keywords: abstracts
- Demonstrate subject-specific scientific journals: search options:
- Note differences between open-web, SmartSearch & database & journal search returns (demonstrate by searching topics in each and discuss amount & variation of returns)
- Discuss differences between General Reference Resources and scholarly articles (content): reiterate Primary Research Articles / Secondary Reference Resources (materials & methods – results – discussion / expert review and report)

Activity – Smartboard Citation Activity

Examine the parts of a citation and their import for scholarly conversation. Discuss various citation styles and conventions emphasizing accuracy and efficiency needs for uniformity, standardization and database / research referencing. Ethics of citation / plagiarism (reference resource evaluation activity and attribution of Time, Effort, Research, Editing and Authorship.

CSE Style (Name-Year System):

Work through (or have student volunteers) rearranging the parts of a citation into CSE-Style:

Author (Name). Date (Year). Title. Source. Volume/Issue. Pages.

For following resources:

- Journal Article (Name. Year. Title. Source. Vol/Iss:Pages.)
- Journal Article with more than one author (Names separated by commas. Year. Title. Source. Vol/Iss:Pages.)
- Work with unknown author (Organization if known. Year. Title. Source. Vol/Iss:Pages.)
- Online resources (Title [Internet]. Year. Source; [updated Date; cited date]. Available from: URL.

See examples in *Writing Papers in the Biological Sciences* Fifth Ed. Victoria McMillan pp 136-

141

Questions?

Work Period:

Students will use class period to locate primary research articles on two topics given. May print or save or email or place in EBSCOhost folder. Students will practice citing selected resources (both general reference and research articles).

Attachment 6: *Library Laboratory Review* – Spring 2016

LIBRARY LABORATORY REVIEW

- *What are some differences between scholarly or academic literature and other information resources (blogs, wikis, news articles, etc)?*
- *What are some purposes of citation?*
- *What aspects of today's lab (or particular resources) seem most helpful to you?*
- *What remains unclear or are there any questions you still have?*

Wichita State University Libraries
University Libraries Instruction Team
ENGL 102 Assessment Report
Fall 2015 - Spring 2016

Background

Since 2012 instructors teaching English 102 have been required to bring their students into the library for instruction with faculty librarians. English 102 is a required freshman composition class and the library instruction component is timed to coincide with the first major research project in the course, the Analytical Comparison Essay. The library session includes a 10 point graded assignment to assess the effectiveness of the instruction called the Search Strategy Worksheet.

During the session, librarians focus on the skills necessary for effective database searching: keyword concept mapping, use of Boolean operators and search filters and, importantly, strategies to revise and improve search results. Students complete the Search Strategy Worksheet in phases throughout the instruction session; each skill is first demonstrated by the librarian then practiced individually using the worksheet and finally discussed as a group. In this way the skills required in the search process are scaffolded through guided practice.

Instrument

The assessment tool is an active learning worksheet completed during the library instruction session (see Attachment 1). It is designed to guide students through the steps of selecting keyterms for their research topic, building an advanced search query, evaluating results, and modifying search terms based on their evaluation. Students practice using their own research topics, allowing them to build a skill set directly required to fulfill the research component of English 102. The worksheet is housed in Qualtrics in order to collect and analyze student responses.

The Search Strategy Worksheet assesses student learning through an authentic search task, capturing the search queries and thought processes of students as they work their way through actual database searching in real time. A major advantage is that it facilitates both formative and summative assessment. In class, this activity enables instruction librarians to monitor students' progress and offer timely interventions. After class, data can be viewed on individual and aggregate levels to identify weak spots in student learning and modify instruction to address these issues in future sessions.

The Search Strategy Worksheet is viewed as a valid device for assessing these skills because it guides students through step-by-step practice and encourages self-evaluation of their effectiveness. The collected data shows students' grasp of synonyms and use of Boolean operators as well as their mental flexibility and thought processes used in revising searches. This data enables librarians to observe the process of student learning as their understanding of the search process evolves throughout the class. Furthermore, the student learning outcomes (below) are based on national standards and these skills are highly transferable to other classes and situations.

Student Learning Outcomes

As a result of library instruction students will be able to:

- Construct advanced searches using Boolean operators and filters
- Evaluate search results for relevance
- Modify search terms appropriately

Implementation of Previous Assessment Results

Blog Assignment


During the summer of 2015 it was decided to transition away from the previous assessment tool, known as the Blog Assignment, which was utilized from Fall 2012 to Spring 2015. Three major insights gained from this assignment were incorporated into the new worksheet design for overall improved instruction: the number of learning objectives was reduced, greater emphasis was placed on the selection of search terms, and students were given more guidance and increased time to revise and reflect on their search queries.

The Blog Assignment asked students to respond to seven questions at the end of the instruction session. These seven questions encompassed a wide range of learning objectives from choosing a database and selecting keywords, to finding and citing an article, to contemplating how the search could be improved, and finally responding to a classmate. Due to the extensive nature of this question set students often gave only brief and sometimes vague replies to each question, making meaningful assessment of learning difficult for any one of these objectives. See figures 1 and 2 for examples of typical responses.

In contrast, the new English 102 lesson plan significantly reduces the number of learning objectives to ensure greater depth of learning within a narrower skill set. The eliminated components – citation styles and source evaluation – will be addressed elsewhere in the freshman curriculum. Of the objectives in the original lesson plan the highest priority was placed on the process and mechanics of database searching. Question 3 of the Blog Assignment (“Write the

keywords you used to search for articles in the database”) revealed that students continue to struggle with this fundamental aspect of database searching even after instruction (see Figures 1 and 2 below). Emphasis on this basic foundational skill enables first-year students to develop a proficiency they can build upon throughout their academic careers.


Questions 6 and 7 of the Blog Assignment (“What are some strategies for revising your search to find additional articles?” and “How might the results from your new search be different than your first search?”) revealed that students also had difficulty conceptualizing the next step after running an initial search (see Figures 1 and 2 below). For example, some students commented that adding more synonyms would reduce their search results when this technique actually increases results. Accordingly, the Search Strategy Worksheet includes extensive time for guided experimentation and reflection because choosing and revising search terms are skills that require hands-on practice. Rather than simply asking students to speculate how they would revise the search they are guided through three separate iterations and asked to reflect on the effectiveness of each. Finally, because students complete the worksheet as they work instead of answering questions after they search the worksheet captures a more authentic reflection of their actual search habits than the previous assessment and provides them with more guidance throughout the process.

 **Name redacted** says:
April 23, 2015 at 1:13 pm

1. Using electronic video games to help children learn
- 2 Smart search- it searched for a very specific article
3. learning, games, helpful or not?
5. I chose this article because it was very interesting how the teachers did an experiment with the children from multiple schools, to see if there would be an effect on learning.
6. Using and, or, and thinking of different word choice to describe what I am looking for
7. one new word could bring up a whole new article that could be relevant.

[Reply](#)

Figure 1: Blog Assignment Response

 **Name redacted** says:
March 3, 2015 at 10:24 am

1. How Physical Fitness may promote school success
2. Smart Search – It was very simple to use and made it easy to filter through articles to time the right one
3. Physical fitness promotes school success
4. 1. Tomporowski PD, Davis CL, Miller PH, Naglieri JA. Exercise and children's intelligence, cognition, and academic achievement. *Educ Psychol Rev* 2008; 20: 111–31.
5. I chose this article because it is very well done and very interesting. This article is relevant to my topic because it covers everything I wanted to argue about how physical fitness promotes school success, and they do it at a middle school level.
6. I could use more key words or use synonyms for the words I am already using.
7. It might filter out most of the “junk” articles.

[Reply](#)

Figure 2: Blog Assignment Response

For more examples of Blog Assignment responses, see here:

<https://wsulibraries102.wordpress.com/>

Worksheet Pilot Test

The Search Strategy Worksheet was first developed and pilot tested in Fall 2015 as a non-graded assignment and fine-tuned for graded implementation in Spring 2016 (see Attachment 2). 543 students submitted the pilot worksheet and analysis of their responses yielded several insights that were incorporated into the current version of the assignment. Results from the pilot test reinforced our findings from the Blog assessment; particularly that search term selection is an important priority for first-year students and that even more time is required for experimentation and reflection.

One limitation of the pilot worksheet was a lack of space for students to experiment and revise their queries. While students were asked to run two sets of search terms and compare the results they had no opportunity to try again using the insights they gained from these initial searches. Accordingly, a third guided search was added to the worksheet to allow students to immediately apply their learning and test the outcomes.

The pilot test also included a qualitative feedback question at its conclusion asking students the two most valuable things they learned. Of the 352 students who responded 51% specifically stated that they found the instruction about keywords and synonyms valuable. However, in-class observations revealed students struggling with proper implementation of Boolean operators while completing the pilot worksheet. Although librarians had given directions and demonstrations, even more emphasis was placed on this skill in the Spring semester leading to overall greater success.

Finally, responses to the questions asking for an evaluation of search results indicated that many students were unsure what criteria to use in making this evaluation. Clearer guidelines were added to the worksheet including example questions to stimulate reflection and these sections yielded notably more detailed responses in the Spring semester.

The quality of assessment data collected through the worksheet was also improved. The pilot worksheet did not instruct students to document their search terms which made it difficult for librarians to track the relationship between the quality of terms and the students' analysis of their results. The current version asks students to copy and paste their search terms for each query making it easier for librarians to evaluate students' journey through their entire learning process.

Method

The Search Strategy Worksheet was completed by 442 students in 22 course sections during the Spring 2016 semester.

A rubric was designed based on results from the pilot worksheet assigned in Fall 2015, reflecting levels of competency for each desired learning outcome with five criteria worth two points each. Grading was distributed among three instruction librarians and the English 102 instructors with half of each class (the first half alphabetically) graded by a librarian and the other graded by the course instructor. A rubric norming session was held and guidelines were drafted to create standardization in grading expectations and ensure consistency among graders

Grading Rubric

| | Accomplished (2) | Developing (1) | Novice (0) | Score |
|---|---|--|---|--------------|
| Worksheet Completion | Completes entire worksheet. | Completes some, but not all, of worksheet. | Does not complete worksheet. | |
| Keyword Concept Map | Identifies all main keywords from the topic. Synonyms are grouped with like concepts. | Identifies <i>some</i> but not all of the main keywords from topic and/or groups unlike synonyms together. | Does not identify appropriate keywords or synonyms. | |
| Conducts Searches with Advanced Techniques | Correctly connects terms with AND/OR operators. | Uses AND/OR connectors inappropriately (does not group similar terms together). | Does not attempt to use AND/OR to connect terms. | |
| Evaluates Search Results for Relevance | Thoughtfully evaluates relevance of results, including reflection on the connection between results and search terms. | Evaluates results, but does not reflect on why the search was or was not effective, or how search terms may have affected results. | Does not evaluate results. | |
| Modifies Search Terms Based on Results | Modifies search by eliminating terms that seem to bring irrelevant results and/or adding new terms. | Modifies results, but not in a systematic or logical way. | Does not modify search. | |
| Total Score | | | | |

Analysis of Outcomes:

A random sample of 190 students (43% of total responses) was analyzed. From this sample 33% of students scored the full 10 points on the assignment. 37% received 8 and 9 total points. The average score was 7 points.

Students scored the highest average points (1.7%) on the *Worksheet Completion* criteria. Students also had a relatively high average score (1.4%) on the *Keyword Concept Map* criteria. This is an encouraging finding because selection of keywords and synonyms is a foundational skill which other search tasks in this assignment build upon. Students also had an average score of 1.4% for the criteria *Evaluates Search Results for Relevance*. In this section students demonstrated critical thinking and reflection toward their search results in order to identify strategies for improvement.

Students scored the lowest average points (1.2%) on the *Conducts Searches with Advanced Techniques* criteria that asks students to construct a search query using proper Boolean logic. These relatively low scores may suggest that more time and greater focus should be placed on this skill in future classes.

Students averaged 1.3% on the *Modifies Search Terms Based on Results* rubric criteria which combines students' understanding of advanced search techniques with their evaluation of the results from previous searches.

Based on this analysis, the Search Strategy Worksheet is considered a success as both an in-class activity and an assessment tool for capturing rich data about student search skills. It is expected that modifications to the instruction based on these results will help further improve student learning in future semesters.

**Wichita State University Libraries
University Libraries Instruction Team
English 102 Assessment Report
Academic Year 2012-2013**

Background

Starting in fall 2012, the WSU population of both instructors teaching ENGL 102 (College English 2) and students in those courses participated in research workshops with faculty librarians. These research workshops occurred right before or shortly after the assignment of the second course assignment, the Analytical Comparison Essay. The librarian taught students concepts related to the research process, including narrowing a research topic, picking an appropriate scholarly database for research, critically evaluating peer reviewed journal article findings, and identifying strategies for revising searches.

After research sessions with a librarian, students completed an assignment that is designed to reinforce the concepts covered in the workshop while helping them find scholarly articles for their Analytical Comparison Essay. Additionally, in order to introduce digital literacy skills, the assignment was completed in an online blog format rather than on a paper worksheet.

Justification

Rather than simply lecturing to students about the research process, this research project used a recursive process of teaching and learning interaction, designed to assess student learning in the ENGL 102 University Libraries research sessions. Equally, the project incorporated reflection on practice, as librarians were able to evaluate how effectively they instructed students based on their performance on the assignment, as well as analyses of the research rubric. At the same time, students were able to incorporate the knowledge they gained from the research session to reflect critically on scholarly articles they will use for their essays. These skills are also transferable and can be used in other classes that require research.

In order to assess student recall of knowledge acquisition, learning outcomes were developed to guide the curriculum plan for the University Libraries research sessions. These student learning outcomes were also used to design the assessment instrument.

Student Learning Outcomes

As a result of Library Instruction, students will be able to:

1. Select appropriate levels of information sources for their information needs.
2. Critically apply scholarly information to their topic/thesis statement.
3. Evaluate information sources for authority and relevancy.
4. Blog their responses on the blog post set up for their class section.

Instrument

Students were required to navigate to the blog post for their class section at <http://wsulibraries102.wordpress.com> and submit their answers to the questions listed below. In order to learn about scholarly communication and reflect on collaborative research, students were also required to respond to at least one other classmate's post. The Blog Post Assignment was a graded assignment worth 10 points. The reviewers retrieved student data through the WordPress blog and, after grading, returned the rubrics back to the instructor for distribution to the students.

Blog Post Assignment Questions

1. What is your topic?
2. Which database(s) did you decide to use to search for articles? Why did you make this choice?
3. Write the keywords you used to search for articles in the database.
4. Provide the citation in MLA format for one of the articles you think will be useful for your essay.
5. Why did you choose the article listed above? How is relevant to your topic? Your answer should include an evaluation of the source (hint: think about the criteria on the CAARP test).
6. What are some strategies for revising your search to find additional articles?
7. How might the results from your new search be different than your first search?

Method

In Fall 2012 and Spring 2013, 1,007 students in 48 sections of ENGL 102 attended a University Libraries research session. Of these students, 83% completed the Blog Post Assignment. Two reviewers used the rubric to score student assignments; these scores were averaged for the final grade.

For the populations of WSU English 102 students ($N=364$) during the Fall 2012 semester, rubric scores for Reviewer 1 and Reviewer 2 ($\mu_1 = 8.701$ and $\mu_2 = 8.014$) were computed. For the populations of WSU English 102 students ($N=471$) during the Spring 2013 semester, rubric scores for Reviewer 1 and Reviewer 2 ($\mu_1 = 8.85$ and $\mu_2 = 9.231$) were computed. Cronbach's Alpha was then calculated for internal consistency reliability of the rubric based on the blind reviewers' scores, and the standardized intraclass correlation coefficient (ICC=0.819) was measured at a strong level obtained from a two-way mixed model ANOVA ($F=127.644$, $df(1)$, $p<0.01$). As an additional measure, intraclass reliability between the blind reviewers' scores was also computed using Pearson's R correlation, since the population size was large ($N>15$). Results showed high significance ($r=0.694$, $p<0.01$), suggesting that intraclass reliability between the blind reviewers scoring schemas was also high. Overall, these tests showed reliability of the instrument and that the robustness of independent raters' scores was strong.

Grading Rubric

| | Novice (0) | Developing (1) | Accomplished (2) | Score |
|---|---|---|--|-------|
| Completion of Blog Assignment | Does not complete any of the questions on the blog. | Partially completes the questions on the blog. | Fully completes the questions, showing proficiency with the blog format. | |
| Selection of Database | Does not choose an appropriate database for the topic/information need. | Chooses an appropriate database for the topic/information need, but does not explain why it was chosen. | Chooses an appropriate database for the topic/information need and provides an explanation on why the tool was chosen. | |
| Evaluation of Sources | Does not provide an evaluation of the article chosen. | Provides an evaluation of the article chosen, but does not comment on relevance to the topic. | Thoroughly evaluates the article chosen, and comments on the relevance to the topic. | |
| Reflection on the Search Process | Does not reflect on strategies for revising a search. | Lists other database(s) or keyword(s) to search, but does not reflect on how this might change the results. | Gives options for revising their search, and reflects on how this might change the results. | |
| Response to Another Student | Does not comment on another student's response. | Comments on a response, but comment is brief and lacks depth. | Provides a thoughtful 1-2 sentence comment showing critical thinking. | |
| Total Score | | | | |

Analysis of Outcomes Assessment

62% of students received 10 total points on the assignment. 33% received 8 or 9 total points.

Students scored highest on the *Completion of Blog Assignment* rubric criteria, scoring an average of 2 points. This criteria is tied directly with the digital literacy component of the assignment (student learning outcome 4). As students navigated the online blog to complete the assignment, they demonstrated proficiencies using Web 2.0 technologies. These high scores indicate that students were successful in acquiring and utilizing this particular digital literacy skill.

Students scored an average of 1.9 points on the *Reflection on the Search Process* rubric criteria. This result holds particular weight, as it shows students are engaging in critical thinking processes when evaluating and incorporating appropriate scholarly sources into their research. These scores also highlight learning outcomes used by the Library Instruction Program national standards based curriculum mapping that

emphasizes critical reflection during the learning process.
<http://libresources.wichita.edu/curriculummapping>

Students scored lowest on the *Response to Another Student* rubric criteria, scoring an average of 1.7 points. Since several students neglected to complete this part of the assignment, librarians might need to provide more emphasis on this point in the future.

Scores improved slightly from the fall to the spring semester. Noting changes in scores from one semester to the next allowed librarians to assess their success in teaching the Library Instruction Program curriculum. Adjustments or increased emphasis on teaching curriculum components were made, depending on an increase or decrease in average scores. As a result of this reflection on teaching practice:

Students showed an average of a 0.3 point increase on the *Reflection on the Search Process* rubric criteria.

Students averaged 1.9 points in spring 2013 on the *Evaluation of Sources* rubric criteria, up from an average of 1.8 points in fall 2012.

Students averaged 1.8 points on the *Selection of a Database* rubric criteria in both semesters.

Based on this analysis, the Blog Post Assignment is viewed as a successful method for assessing both the impact of the Library Instruction Program in ENGL 102 and student learning in this course as a result of information and digital literacies instruction. Moreover, critical reflection on the research process was perhaps the most important aspect of our learning outcomes, and student scores, in general, were high. Equally, our own reflection on teaching practice facilitated improved student scores from the fall to the spring semester. Anecdotally, both students and instructors expressed satisfaction with the assignment. This assessment process will continue to evolve during the coming year.