Major Findings Concerning Lower Undergraduate Information Literacy Skill Development: Fall 2009 – Spring 2016

Corey Johnson

Issue Definition/Approach (Needed Information)

Outcomes Connections

* “Define, analyze, and solve problems” – WSU Seven Goals Document (CCT)
* “Determine the extent and type of information needed” – WSU Seven Goals Document (IL)
* “Identify… information for the problem at hand” – Learning Goals and Objectives from Roots Syllabus
* “Develop an initial thesis statement for your research paper and revise it in light of new sources” – Roots Research Assignments Goals
* “Students will be able to develop topics…” “Students will be able to demonstrate an understanding of writing for an audience” – Engl 101 Master Syllabus

Student Learning Results

* Topic Refinement Skills: In examining Engl 101 student (n=1563) topic refinement data from Spr 13 through Spr 16, 63% of the students were able to show evidence of narrowing an initial topic after doing a brief literature search and reading at least part of a topic relevant source. Ironically, students who started with single concept topics (e.g., basketball, stereotypes, alternative energy) were less likely than their peers with multiple concepts, or otherwise more developed ideas, to successfully refine their topics.
* Thesis Development: This IL skill was the weakest of the eight information literacy skills measured during the 2012-13 RCI final papers assessment study. The mean average score was a 2.26 on a one to five scale (n=275 randomly selected RCI students). From the 2012-13 to the 2015-16 studies the average score rose 0.34, the largest gain among any of the IL skills studied. Steps had been taken to reexamine the curriculum supporting thesis development for the Roots term paper, including elimination of students declaring an initial thesis at the beginning of the term; students had trouble significantly departing from these initially weak thesis statements. Also, more recently students needed to submit their final thesis statements earlier in the semester allowing more time for instructor and/or TA guided revision.
* Information Type Identification 1: During four semesters between fall 2011 to spring 2016, about 3900 Engl 101 students were asked to identify an information type (e.g., book, journal article, dissertation) for a source they found. Eighty-three percent of the students correctly identified the type of source they had selected. The most common point of confusion stemmed from students misidentifying articles (newspaper, magazine, book/movie reviews) as scholarly journal articles. Students were greatly aided in their level of success because about ¾ of the sources came from the Libraries’ main discovery system (WSU WorldCat and later, Search It) and Academic Search Complete, all databases which provide information type icons for each source in the system. In 2015-16, Students were further asked how they knew (beyond a database provided label or icon) the information type of their source. Of the 340 students, 78 (23%) provided no answer, 130 (38%) offered a bad/incorrect explanation, 102 (30%) gave an okay answer, and only 30 (9%) supplied a good explanation. It is presumed that many who did not answer did not know how to answer (this was the most unanswered question in the entire activity).
* Information Type Identification 2: When comparing to student performance on Accessing Information (~68% correct) and Evaluating Information questions (74% correct), students did better concerning Needed Information questions (e.g., types of sources; ~79% correct). Examples of two multiple choice question prompts under the Needed Information category are: “Which of the following is FALSE concerning differences between primary and secondary sources of information?” and “The central library resource for discovering 20th century (1900s) historical magazine articles on your research topic is:” (Source = WSU IL Ten Question Multi-Choice Quiz Project, fall 2010 – spring 2013, n=6400 students (90%+ first year), 64,271 questions asked).

Accessing Information

Outcomes Connections

* “Implement well-designed search strategies” – WSU Seven Goals Document (IL)
* “Access information effectively and efficiently from multiple sources” – WSU Seven Goals Document (IL)
* “Students will effectively identify, locate,…information for the problem at hand…” – Learning Goals and Objectives from Roots Syllabus
* “Gather appropriate sources for your chosen topic…” – Roots Research Assignments Goals
* “Students will use a disciplined and systematic approach to accessing,…information” – Engl 101 Master Syllabus

Student Learning Results

* Search Query Construction 1: When comparing to student performance on Needed Information (e.g., types of sources; ~79% correct) and Evaluating Information questions (74% correct), students did worse concerning Accessing Information questions (~68% correct). Students struggled most with understanding how to use Boolean Logic and search symbol expanders/limiters, and knowing the physical locations of varying kinds of library materials (Source = WSU IL Ten Question Multi-Choice Quiz Project, fall 2010 – spring 2013, n=6400 students (90%+ first year), 64,271 questions asked). This data suggests that lower undergraduates need work in implementing well-designed search strategies and likely concerning the use of a disciplined and systematic approach to accessing information.
* Search Query Construction 2: In 2015-16, only 21% of Engl 101 students (n=104) constructed good search queries. The main issues were incorrect usage or omission of Boolean Logic and truncation, searching for “non-nouns” (verbs, articles, prepositions) usually in the form full phrases or sentences, and not incorporating quotes for multi-word concepts.
* Finding Enough Sources: The only measure from the RCI final paper studies that relates to Accessing Information is the Source Quantity outcome from the 2012-13 academic year study. Source Quantity was simply for evaluating if the students meet the minimum number of sources for the paper, both cited at least once in the body of the paper and in the bibliography. Eighty-one percent of the students (222 of 275) met this minimum. It is positive to see that lower undergraduates largely met what the researchers believe to be a standard undergraduate expectation of having roughly one source per written page of a research paper.
* Finding Topic Relevant Sources: Between fall 2013 to spring 2016, about 1200 Engl 101 students were asked to find a topic relevant source for their various research assignments. Seventy five percent of the students found a source that librarians considered a good match to their topic. About 1/3 of that success is can be attributed to the fact that students had popular single concept topics (e.g., The Green Party, consumerism). As librarians and instructors have continued to help students develop multi-faceted topics, success in finding a topic relevant source has become more challenging for students.
* Locating Source Full Text: During the same time period and for the same set of Engl 101 students described in the bullet above, they were asked to judge how they would find the full text of a promising source they located in a database. Eighty-six percent of the students correctly selected among the options: getting the full text in print at library, online electronic full text or ordering the item through interlibrary loan. Student success here can be attributed, in part, to the proliferation of electronically available items and people’s preference for them (about 2/3 of the sources selected were electronically available).

Evaluate Information (Source Analysis)

Outcomes Connections

* “Assess the accuracy and validity of findings and conclusions” – WSU Seven Goals Document (CCT)
* “Assess credibility and applicability of information sources” – WSU Seven Goals Document (IL)
* “Evaluate… information for the problem at hand” – Learning Goals and Objectives from Roots Syllabus
* “Critically analyze the sources that you gather and identify useful passages and information within” – Roots Research Assignments Goals
* "Locate, evaluate, and interpret academic texts online and in the library" Engl 101 Master Syllabus
* "Use interpretive frameworks in order to conduct analysis" – Engl 101 Master Syllabus

Student Learning Results

* Evaluating Information: When comparing to student performance on Needed Information (e.g., types of sources; ~79% correct) and Accessing Information questions (~68% correct), students scored in between concerning Evaluating Information questions (74% correct). Two question samples are: “Which of the following is NOT a recommended criterion to use for evaluating the quality of library or web site resources?” and “Which of the following is FALSE concerning the difference between popular and scholarly library materials?” (Source = WSU IL Ten Question Multi-Choice Quiz Project, fall 2010 – spring 2013, n=6400 students (90%+ first year), 64,271 questions asked).
* Evaluating Information: Between Fall 2014 and Spring 2016, approximately 250 ENGL 101 students completed an evaluation activity. Students were given citations with either abstracts or relevant snippets of text to evaluate based on specific prompts. Students performed best when evaluating concepts of authority. They understood that scholarly authors had particular credentials that made them experts, noted that their works went through a peer-review process, and pointed out the use of facts or statistics. Students sometimes, however, noted the authority in a “strong opinion,” mistaking particular language for authority over facts or citations. Students also succeeded in identifying the most relevant sources for a given topic but often based this on title alone. Students were also proficient in noting the most current source, but it seems they may have only done a date scan rather than looking at the content of the material. Students were able to identify highly accurate sources but mostly alluded to the work’s “peer-reviewed” status, and the presence of facts and absence of bias, rather than citations/references, to make their case. Students were often able to identify the most biased source out of several options. Thus, overall, students generally understand the concept of authority, accuracy, currency, and bias in sources, however lack knowledge about the details of how to specifically verify these components. For the year 2015-16, about half the students were proficient (2 on a rating scale of 0-3) in providing justification for how a particular source could be used in a research paper (statistics, real-life examples, etc.). About a quarter of the students in the fall were able to provide more detailed justification for their choice of source and how they would use it (for example, it has facts tied to sources that are scholarly rather than just saying that it had facts), while another quarter scored a 0 or 1. In the spring, about half of the students scored a 2 on a scale of 0-3, however the other half, except for three students for the first source and 1 for the second (out of 35 students) scored a 1 or 0.

Use Information (Integration)

Outcomes Connections

* “Integrate and synthesize from multiple sources” – WSU Seven Goals Document (CCT)
* “Combine and synthesize existing ideas, images, or expertise in original ways” – WSU Seven Goals Document (CCT)
* “Use information to accomplish a specific purpose” – WSU Seven Goals Document (IL)
* “Use responsibly and share information for a the problem at hand” – Learning Goals/Objectives from Roots Syllabus
* “Connect newly found sources to those you previously located and, when appropriate, to class material” – Roots Research Assignments Goals
* "Use patterns and categories to organize their resources" Engl 101 Master Syllabus
* "Create summary and synthesis of academic materials" Engl 101 Master Syllabus

Student Learning Results

* Source Analysis: This IL skill area is defined in the RCI rubric as the ability to understand the relationship between the nature of the sources and the corresponding conclusions that can be made from them. Source Analysis was the weakest or next to weakest skill compared to the five to seven other IL skill areas in all three years of the RCI study. From the 2012-13 to the 2015-16 studies, the average score dropped 0.23 (five point scale), the largest decline among any of the IL skills studied. Source Analysis is an outcome where improvement in both curriculum and student performance are needed.
* Argument Building: This IL skill area is defined in the RCI rubric as the ability to create relevant, convincing and strong arguments with effective examples. Across the four years, the skill has been in the bottom half of the IL skills examined. In terms of overall results, 31% (n=396) of the students were at the Minimal/Middle of First Year level, 41% (n=522) of the students were at the Emerging/End First Year level, 21% (n=269) were at the Developing/Middle of Undergraduate Experience Level, and 4% (n=53) were at the Competent/End of Undergraduate Experience Level. Argument Building is an outcome where improvement in both curriculum and student performance are needed.

Use Information (Legally/Ethically)

Outcomes Connections

* “Understand how one thinks, reasons, and makes value judgments, including ethical and aesthetical judgments” – WSU Seven Goals Document (CCT)
* “Access and use information ethically and legally” – WSU Seven Goals Document (IL)
* “Use responsibly and share information for a the problem at hand” – Learning Goals/Objectives from Roots Syllabus
* “Learn how to cite sources correctly according to historical disciplinary standards” – Roots Research Assignments Goals
* Students will “Follow MLA guidelines for formatting and citation (if appropriate)” – Engl 101 Master Syllabus

Student Learning Results

* Citation Usage: For all four years of the RCI study (2012-13 through 2015-16), the outcomes related to proper bibliography construction and in-text citation application/creation were at the top or next to the top in terms of overall mean average score compared to the other IL outcomes. In terms of overall results across the four years of the study, 21% (n=377) of the students were Developing/Middle of First Year level, 37% (n=658) of the students were at the Emerging/End of First Year level, 29% (n=519) were at the Developing/Middle of Undergraduate Experience Level, and 9% (n=154) were at the Competent/End of Undergraduate Experience Level.