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# Information Evaluation Instruction: A Three Term Project with a First Year Experience Course

Steve Borrelli
*Washington State University*, sborrelli@wsu.edu

Corey M. Johnson
*Washington State University*, coreyj@wsu.edu



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[ARTICLE]

# INFORMATION EVALUATION INSTRUCTION

## A three term project with a first year experience course

Steve Borrelli
*Washington State University*

Corey Johnson
*Washington State University*

## ABSTRACT

The academy is promoting the need to produce information literate graduates largely because of recognition that work world success is dependent on locating and effectively utilizing information. There needs to be more focus on how to develop the most effective collaborative programs with teaching faculty and benchmark the progress toward research skill mastery. This paper outlines a multiple term collaborative effort targeting student evaluation skill development. Librarians taught hybrid (mostly online with some in-person interaction) lessons to groups of lower undergraduates enrolled in a first year experience seminar. A pre-test/post-test assessment package revealed that students' strongest area of proficiency was in understanding the differences between popular and scholarly sources, with lowest performance concerning understanding the components of a scholarly article. It was also concluded that the semester with the strongest collaborative ties between librarians and seminar instructors/leaders resulted in the greatest improvement in student learning across all measures.

## INTRODUCTION

The higher education landscape is greatly influenced by calls for accountability through outcomes based assessment. Institutions are creating overarching sets of learning outcomes and, through both internal evaluative reporting and regional accreditation processes, are measuring impacts the teaching enterprise is having on student learning. Washington State University has crafted a slate of undergraduate learning outcomes which include student development of information literacy skills. This study features the information literacy work of instruction librarians and teachers in a first-year experience course. For three consecutive academic semesters, educators delivered curriculum designed to enhance students' ability to evaluate information quality in order to ensure the use of appropriate resources for college level research. While students often displayed solid skill in knowing basic differences between popular and scholarly research materials, they struggled to understand basic mechanisms in scholarly writing, such as components of a scholarly article. This type of knowledge would help enable them to make more sophisticated judgments about resource quality.

## LITERATURE REVIEW

Over the last decade, the academy has increasingly acknowledged the importance of and need for students to acquire information literacy skills in order to be successful in the working world (Klusek & Bornstein, 2006); however barriers remain. A common misconception is that today's students have grown up with the internet, are comfortable interacting with the web, and therefore arrive at institutes of higher education fully information literate. However, a study by the Educational Testing Service of 3,000 college students and 800 high school students found only 13% of the students were information literate (Foster, 2006). Washington State University (WSU) librarians have found similar deficiencies in the plant and soil science programs. An assessment of student learning outcomes in 2006 and 2007 revealed that information literacy (IL) was a weakness in these programs (Cerny-Koenig et al., 2007). In many cases, professors feel they do not have space in their syllabi to devote to a library session, or they believe that because they did not have formal research training, these are skills that a student "picks up here and there" (Phelps, Senior & Diller, 2011; Loomis & Herrling, 1993).

The ability to critically evaluate resources is essential to successfully navigating today's information environment, although students often have poorly developed information evaluation skills. Students tend to scan information quickly, spending little time on any one [web] page (CIBER Group, 2008). This behavior suggests a lack of rigor in many undergraduate literature reviews (Scott & Simmons, 2006). Philip Davis and Suzanne Cohen studied student bibliographies from research papers in a microeconomics course at Cornell from 1996 – 1999. One significant finding was that students cited fewer books in 1999 as opposed to 1996. In 1996, only 17% of student bibliographies cited no books, in comparison to 29% in 1999 (Davis & Cohen, 2001). They also saw a trend in the decline of scholarly resources (defined as monographs and journal articles) from 6.1 citations per paper in 1996 to 4.6 in 1999. In the more recent past, researchers from The Citation Project examined nearly two thousand bibliographic entries from undergraduate student papers representing



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sixteen U.S. colleges and universities. They discovered that web pages made up the highest percentage of cited resources, more than books, journals, news sources, government documents and reference works (Jamieson & Howard, 2011).

There is also evidence in the library literature, conversely, indicating that students do possess some honed information evaluation skills. Holly Heller-Ross (2002) analyzed 78 upper-undergraduate level nursing student research papers which included a total of 441 citations. She determined that on-campus students and distance students both cited relatively similar numbers of web resources, as well as a variety of monographs and journal articles. These nursing students actually cited very few web resources; Heller-Ross determined that these students were often concerned with internet reliability issues, certainly an important factor in medical research. The fact that her student papers came from upper level undergraduates may play a role in this finding as well. WSU librarians recently examined nearly 40,000 instances of 173 quiz questions mapped to the five Information Literacy Standards for Higher Education. They found that of the five standards, students performed best on those questions related to information evaluation (Borrelli & Merrill, 2010). In addition, the fourth report from Project Information Literacy, based on a survey of over 8000 students at 25 higher education institutions, noted that students are applying some quality evaluative criteria in assessing web-based information (Head & Isenberg, 2010).

Students need enhancement of their IL skills, so who should be responsible for educating them? Even after more than a decade of institutional information literacy initiatives across the U.S., there is still some debate in the academy as to who should be teaching IL. Should they be course instructors, librarians, or both? Questions surface regarding what kind of assistance is available from libraries; some librarians think that many teaching faculty lack an understanding of the role librarians play in modern academic libraries (Leckie & Fullerton, 1999). For librarians, there are still barriers to full participation. For example, at big institutions where departmental autonomy is often paramount, opportunities for developing anything beyond the traditional "one-shot" library session are rare (Loomis & Herrling, 1993). Also, university administrators often do not regularly recognize and reward faculty/ librarian collaborative information literacy projects (Rollins, 2009).

A collaborative approach, with extensive consultation between teaching faculty and librarians, is becoming the favored method of providing instruction (Spackman, 2007; Sult & Mills, 2006; D'Angelo & Maid, 2004). Librarians benefit from integration into existing course curricula and instructors from librarian expertise. It is clear that university stakeholders are increasingly deemphasizing traditional library quality measures (e.g., volume counts, number of books checked out) and instead looking for evidence as to what students are able to do as a result of their interaction with library services and resources (Oakleaf, 2008). The devaluation of traditional library measures in favor of a focus on outcome based learning bodes well for robust librarian involvement in curriculum development and delivery. In addition to examining who should provide information literacy instruction is the question about which courses are well suited for information literacy curriculum. First year experience courses are commonly targeted for this work. In the late 1960's the University of

South Carolina sought to "improve the educational experiences of first-year college students" and the freshman seminar movement began in earnest (National Resource Center for the First Year Experience, n.d.). By 1997, 67% of American colleges and universities were offering freshman seminars or similar courses (Dabbour, 1997), and as of 2006 the percentage had grown to almost 85% (University of South Carolina). John Gardner, a leader in the freshman orientation course movement, has stated that "you can't talk about anything that has to do with academic success in the first year without talking about the library" (Spann, 2000, p. 27). Academic librarians across the country are focusing information literacy instruction on freshman seminar courses; WSU is an example of this phenomenon.

## Information Literacy Instruction at Washington State University

In the last decade, the Library Instruction Team has worked with teaching faculty on the development of instructional material, interactive online tutorials, and an online learning environment (the Information Literacy Education learning space) specifically designed to teach and promote information literacy (Borrelli, Johnson & Cummings, 2009). In 2005, the WSU Faculty Senate approved the "Six Learning Goals of the Baccalaureate," including information literacy (Office of Undergraduate Education, 2006). In 2011, the General Education Committee completely redesigned the general education requirements at WSU. As part of this comprehensive restructuring, seven overarching student learning goals were adopted, one being information literacy (UCORE Committee, 2011). The development of information literacy skills is a central undergraduate objective at WSU.

### *Information Literacy Education in the Pathways to Academic Success Seminar (PASS)*

Since its inception in 1996, General Education 104, known as Freshman Seminar (FS) until 2008 and now called Pathways to Academic Success Seminar (PASS), has been a credit-bearing course in the WSU general education program. Unlike other freshman seminars, first year experience courses or "University 101" classes at other schools, this two-credit elective course does not include any curriculum explicitly dealing with study skills, time or money management proficiencies, health and wellness issues, or learning the history of the institution (Jamison & Henscheid, 1998). Rather, students focus on how to increase their problem-solving skills, develop research strategies, critically evaluate information sources, use technology to investigate and present information, and work as members of a team.

Librarians have worked with FS/PASS in a number of different ways over the years. Librarians often designed a resource guide/ pathfinder for the theme of the FS/PASS section which included ideas for article databases, search strategies for locating books, a list of useful reference books, and some high-quality web sites. All FS/PASS classes met with a librarian at least once during the term. During this library session, the students learned how to use different resources and gain practice with defining their topic and selecting search strategies. In addition to a library instruction session, librarians were invited to take part in the mid-term group research project review process as well as the final grading process using a critical thinking rubric. The frequent



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changes in the expectations for librarians, along with individual librarian/instructor communication issues and turnover, sometimes created challenges in what was otherwise a smooth operating PASS/ Libraries program. A key information literacy standard which did not get careful attention until recently was evaluation of information.

## *PASS Three Semester Collaboration – Evaluating Sources*

Beginning in the spring of 2010, the collaborative program added focused instruction and assessment on evaluating sources. Students received instruction and took two multiple choice tests which assessed their ability to understand: 1) the differences between popular and scholarly articles, 2) components of a scholarly article, and 3) methods of evaluating scholarly content in an online environment. Each semester, students took an ungraded ten question pre-test assessing pre-instruction proficiencies. Following the pre-test, students were assigned four online tutorials: The Cooperative Library Instruction Project's (CLIP) Popular and Scholarly Sources (n.d.), University of California, Berkeley's Evaluating Online Scholarly Information (n.d.), North Carolina State University's Anatomy of a Scholarly Article (n.d.), and California State University East Bay's Annotations and Abstracts (2010), all of which focus on the three aforementioned learning areas. In addition to the tutorials, the students were asked to complete a ten question post-test, for which they were awarded participation points. Each question of the post-test was mapped to one or more of the three focal areas of the study (See Appendix).

In each semester, a librarian was embedded with each section of PASS, providing instruction and reference services for the duration of the semester. The WSU Libraries' home-grown learning management system called Information Literacy Education (ILE) provided the online space where the students accessed the tutorials and tests and where usage and performance statistics were generated and organized. The curriculum and assessments were consistent throughout the three semester study; however, the methodology in delivering and supporting the collaboration varied by term.

In Spring 2010, librarians administered the pre-test in the students' classroom, monitoring students through completion. Following the pre-test, but during the same class session, librarians discussed the results of the questions where students performed the worst in an attempt to address any section-wide misunderstandings. Students were assigned the online tutorials as homework. The post-test was administered in class for 18 of the 20 sections, per time constraints; two sections completed it outside of class. A report was drafted following the post-test regarding aggregate student performance and participation and submitted to PASS administration.

Although the pre-test experience was the same for Fall 2010, the ILE course space was modified so PASS instructors could better monitor compliance concerning tutorial viewing. In addition to modifying the learning management system, librarians monitored participation more closely, providing periodic information about student tutorial access and post-test completion. These measures were designed to help PASS instructors encourage their students to complete the tutorials/post-test in a timely manner and to be sure to review all four tutorials before taking the post-test. As a result of enhanced monitoring of participation, students were more frequently

reminded to complete the tutorials, and instructors pushed back the date for in class completion of the post-test. Five sections completed the post-test in class; three sections did it outside of class.

In Spring 2011, PASS instructors (not librarians) administered the pre-test; five sections completed it in class and four outside of class. No review of the questions where student performance was lowest was included. PASS leaders decided that other curriculum needed to take precedence over the discussion of difficult test questions. Administration of the post-test varied from section to section, with five sections completing it in class and four as homework. Librarians again provided periodic updates regarding student tutorial access and post-test completion. As the post-test period approached, it was noted when student participation with the tutorial content was less than desired; then due dates were extended in order to facilitate participation further. Following the collaboration, librarians again provided a summary which documented student performance and participation. This summary included a three -semester comparison of student learning in each of the three defined sub-areas of evaluating information.

## Assessment Instruments and Participation

Questions for the pre- and post-tests were drafted by WSU librarians based on the content of the four tutorials assigned to the students. In addition to connecting tutorial content to test questions, the twenty pre- and post-test questions were mapped to three focal areas of information literacy knowledge: understanding the differences between popular and scholarly works, comprehending components of a scholarly article, and evaluating scholarly content online. The authors attempted to provide a one to one isomorphic match between questions on the pre- and post-tests. At the time of analysis of student learning, however, it was determined that an isomorphic match was not as complete as intended. Consequently, the authors adjusted the approach to analysis by mapping each question to as many of the three focal areas of the assessment as relevant. Figure 1 shows the distribution of the questions across the focal areas. Data included in the study comprises student participation in the pre- and post-tests and accesses to the curricular material as well as an analysis of student learning (results of the pre- and post-tests). After completing the third iteration of the assessment, an

## Figure 1—Number of Pre/Post Questions Related to each Assessment Focal Area

| Pre/Post | Pop/Schol | Anatomy of Schol. Art. | Eval. Schol. Content Online |
|---|---|---|---|
| Pre | 5 questions | 5 questions | 3 questions |
| Post | 6 questions | 5 questions | 6 questions |



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analysis of student learning was conducted for all semesters. Only students who completed both the pre- and post-tests were included in the analysis of student learning. Calculations for percentage change were used to determine percent increase or decrease in data points between the pre- and post-tests. Percentage change was calculated by subtracting the post-test score from the pre-test score, dividing the difference by the pre-test score, and multiplying the result by 100.

## Results and Discussion

### *Overall Analysis*

Across the three semesters, 423 students took both the information evaluation pre- and post- tests. The mean average score for the participants on the pre-test was 40% and 55% for the post-test. In Spring 2010, 264 students completed both tests. Of those, 166 students (63%) showed an increase over pre-test scores. There were 42 students (16%) whose scores did not change and 56 (21%) whose score on the post-test decreased. The average percent change from pre- to post-tests increased 30%. In Fall 2010, 90 students took both tests. Of those, 72 (80%) increased their score, 13 (14%) remained the same and only five (6%) decreased in score. The average percent increase was 62%. In Spring 2011, 69 students completed both tests. Of those, the scores for 46 students (67%) increased, while eight (12%) remained the same and 15 (22%) decreased in score. The average percent increase was 32%. In each semester, over 60% of students taking both tests increased their scores. In both spring semesters, however, about one in five students taking both tests decreased in score. This result can be attributed to substantial numbers of students not engaging with the tutorial content (Kraemer, 2007; Kuzma, 2010; Nichols, 2003) (see Figure 2).

The Fall 2010 semester had the lowest percentage of students who did not access any tutorials, as well as the lowest percentage of students whose score remained constant or decreased; this is evidence that student participation in the curriculum by viewing the assigned tutorials positively impacts student learning. In Fall 2010, students averaged accessing 2.88 of the four assigned tutorials, the highest rate of the three semesters.

In contrast to the modest increases evident in post-test scores for all students completing both tests, when examining the average percent increase for students accessing at least one tutorial in each semester, there were more substantial increases in student learning, supporting the findings of Kuzma (2010) that student engagement with tutorial content positively impacts student learning and post-test scores. In Spring 2010, students who viewed

## Figure 2—Student Participation in Tutorial Content

| | Spring 2010 | Fall 2010 | Spring 2011 |
|---|---|---|---|
| Percent of students taking both tests that did not view any tutorials | 42% | 16% | 70% |
| Percent of students taking both tests whose score decreased or remained the same | 37% | 20% | 33% |

at least one tutorial accessed an average of 3.35 tutorials and had an average percent increase over the pretest score of 75%. In Fall 2010, students accessing at least one tutorial averaged accessing 3.45 assigned tutorials and averaged a percent increase of 91% over pre-test scores. In Spring 2011, students accessing at least one tutorial averaged only 2.04 tutorials accessed and had the lowest percent increase of only 49%. While the percent increase for students accessing at least one tutorial increased each semester, the semester with the strongest collaborative relationship between PASS instructors and librarians (Fall 2010) resulted in the greatest increases of the three semesters while the semester with the loosest collaborative ties resulted in the smallest percent increase from pre- to post-test. The strength of the collaborative ties in the Fall 2010 semester provided informal messages to students that the collaborative content was an integral part of the curriculum, providing additional motivation that affected student learning. As students receive both formal and informal messages from instructors, commitment from all parties to the value of the collaboration is critical for success as evident in the low participation levels in Spring 2011.

From the time of John Dewey, educators have known of the importance of properly motivating students to encourage learning. Providing adequate motivation results in greater student participation with curricular content and hence student learning. Today's undergraduates have rich lives that feature many competing interests. Students make choices as to where to spend their time. Assigning a short 10 question multiple-choice test that is graded only for participation/completion is just not enough to motivate adequate engagement and learning of the content. Instructors care about their students and do not want to see them fail to complete assignments. Thus, the practice of notifying instructors of aggregate tutorial accesses was an effective way to address the lack of motivation due to inadequate allocation of credit.

### *Sub Areas of Evaluating Information*

Of the three sub-areas of evaluating information assessed, students' pre-test scores demonstrated the lowest proficiency across semesters in the area of evaluating scholarly content online. Students demonstrated the strongest proficiency in the area of understanding the differences between popular and scholarly sources (see Figure 3).

On the post-test, students demonstrated the lowest proficiency in the area of understanding the components of a scholarly article and the strongest proficiency in the area of understanding the differences between popular and scholarly sources. The percent increase between pre- and post-test scores indicates an improved understanding in each of the three sub-areas of evaluating information. For each of the three sub-areas assessed, students demonstrated the greatest percent increase in Fall 2010. The smallest percent increase between the pre- and post-tests was for understanding the components of a scholarly article. The largest percent increase was in the area of understanding how to evaluate scholarly content online (see Figure 4).

On average, students in each semester demonstrated an improved understanding in the three areas of evaluating information assessed, as evidenced by increases in percent change in each semester the exercise was conducted. In both the pre- and post-tests, students demonstrated the strongest proficiency in understanding the differences



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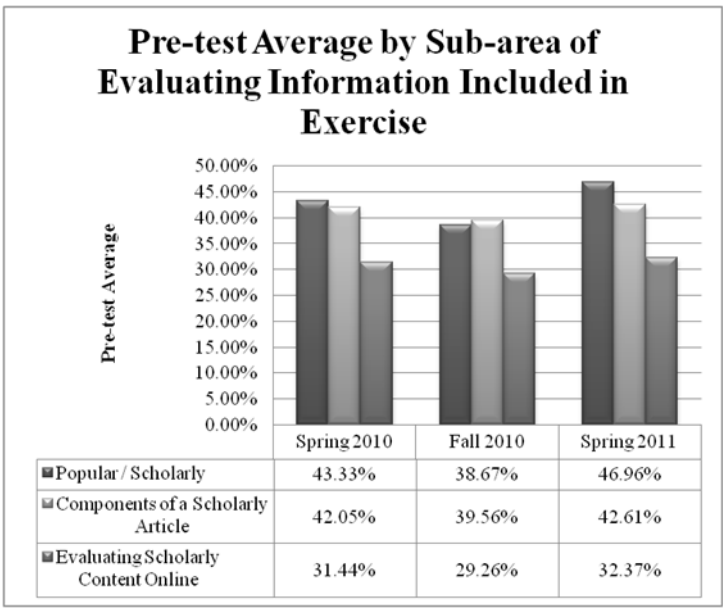
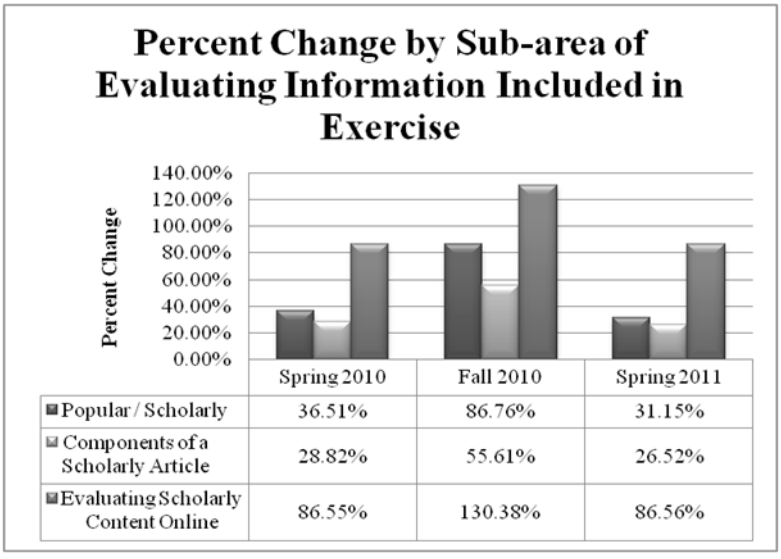
## FIGURE 3 — PRETEST AVERAGE BY SUB-AREA




## FIGURE 4 — PERCENT CHANGE BY SUB-AREA



between popular and scholarly sources.

Although student scores were lowest on the pre-test in the area of understanding how to evaluate scholarly content online, across the semesters, they demonstrated the greatest increase in percent change between pre- and post-tests in this area. Post-test results indicate that of the three areas of evaluating information included, students demonstrated the lowest proficiency in the area of understanding the components of a scholarly article.

## CONCLUSIONS

While student learning was evident in all semesters, limitations to the study remain. Only participation points were awarded to students for completing the post-test; no additional credit was allocated for accessing the tutorials, which may have resulted in less time devoted to watching the tutorial content than desired. Technical limitations only allowed for determining if students accessed a tutorial, not whether the tutorial content was viewed in its entirety. Future efforts would benefit from adding a worksheet or other instrument to be completed along with the tutorial, as verification that the student was engaged with the material for the duration. Using newly available "event tracking" technology would allow for improved monitoring of tutorial completion overall; however, it would not provide information about a particular user and would also be limited to tutorials hosted on one's own server, limiting the scope of available tutorials to only those available at one's home institution. The lack of isomorphic matches between pre- and post-test questions resulted in a less than ideal approach for evaluating student learning. Additionally, each of the three focal areas were given equal weight in the analysis; however, there were slightly different numbers of questions in each of the three areas. Further, not all sections completed the post-test in the same manner, resulting in some sections completing it in class while others outside of class. The analysis did not account for this difference. Lastly, the questions themselves may have tested students on content for which they were already familiar.

Although flawed, the study provides further evidence that strong collaborations with libraries often result in demonstrable increases in student learning. Fall 2010, the semester with the strongest collaborative ties, resulted in the greatest improvement in student learning across all measures. Regardless of the strength of the collaborative relationship, student learning was evident each semester, implying that focused exposure to the concepts and ideas of evaluating information results in student learning. Further, the study provides additional evidence that online tutorials remain a viable avenue towards student learning.

Providing adequate motivation to engage with an assignment is a critical component in designing for learning. Undergraduates are strongly engaged in their communities; participation points alone may not be enough incentive to compete for their attention. Regardless of impact on final grade for the course, the authors recommend frequent communication with collaborating instructors about student engagement with the learning materials.

The ubiquitous nature of the online world requires some competency in evaluating online content. Students arrive at institutes of higher education with personally developed evaluative skills. They also arrive with the knowledge that they will have to



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integrate sources into their work to attain good grades. As such, the motivation of developing skills in understanding how to evaluate scholarly content online is implicit. This may explain why evaluating scholarly content online was the area of greatest percent increase across focal areas in all semesters.

Students' test results indicate that they struggle understanding the components of a scholarly article. Undergraduates in research institutions often are challenged with integrating scholarly research into their work. Students would benefit from being introduced to carefully selected scholarly material early in their education. Discussions about approaches to reading scholarly works efficiently, where to locate information within an article, and knowing when one is looking for information that may be found in a scholarly source would be avenues to explore for further impact. Students demonstrated a strong understanding of the differences between popular and scholarly sources across semesters. If students show they understand the differences, yet continue to rely more heavily on quickly available open web resources than scholarly sources, addressing the motivation for students to choose scholarly sources may alter their practice.

Information evaluation skills are a central component of information literacy. While there is some evidence to show that students apply effective criteria in judging the quality of information, there is plenty of data indicating that student information evaluation skills are underdeveloped. This study confirms conclusions from the wider literature that strong collaborative ties between instructors and librarians create the best environment for student learning and that information literacy skills can be uniquely enhanced in first year experience courses. Evaluation skill instruction will continue to improve as instructors and librarians seek innovative ways to engage and challenge students.

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## APPENDIX — QUESTION MAPPING TO FOCAL AREAS

1. Popular and Scholarly Sources
2. Components of a Scholarly Article
3. Evaluating Scholarly Content Online

| Question | Answer Choices | Pre/ Post test | 1 | 2 | 3 |
|---|---|---|---|---|---|
| Which of the following is FALSE concerning characteristics of a scholarly source? | • scholarly articles are for a general audience and free of jargon<br>• scholarly articles are examined by other colleagues in one's field of expertise<br>• scholarly articles include in-text citations and bibliographies<br>• scholarly articles are mostly free of color photography and advertising | Pre | X | | |
| Which of the following is a key use of popular sources? | • popular sources often provide useful overviews of topics<br>• popular sources often provide in depth research and data on a topic<br>• popular sources often are peer reviewed meaning judged for quality by subject experts<br>• popular sources often provide bibliographies which can be used to find more sources | Post | X | X | X |
| All of the following are characteristics of a popular article EXCEPT: | • extensive bibliography<br>• little technical jargon<br>• can be purchased at newsstands<br>• color photography and advertising | Pre | X | X | |
| Information that is "non-scholarly" could also be described as | • popular<br>• vetted<br>• peer-reviewed<br>• fact-checked | Pre | X | | |
| If a book or article has been "vetted," you can be reasonably sure that | • a group of editors has verified the information<br>• almost anyone could have put it on the Internet<br>• it is full of errors<br>• it is an example of popular information | Post | X | | |

| | | | | | |
|---|---|---|---|---|---|
| When you are trying to determine whether a source is scholarly or not, you should look for everything EXCEPT | • last update information on the web page<br>• publisher name or icon on the web page<br>• journal title on the web page<br>• information about the editorial board on the web page | Pre | X | | X |
| Information that is not substantive | • includes letters, summaries, or brief lists<br>• is often in PDF format<br>• includes bibliographies<br>• tends to be longer than shorter | Post | | | X |
| Which statement is TRUE about Google Scholar? | • Google Scholar sometimes retrieves items that are not scholarly<br>• Google Scholar leads you exclusively to scholarly information that is free<br>• Google Scholar primarily searches commercial websites<br>• Google Scholar features scholarly journal articles but not books | Pre | | | X |
| Which statement is FALSE about Google Scholar? | • Google Scholar results indicate whether or not an item is peer-reviewed<br>• Google Scholar results provide information about how to find the resource item<br>• Google Scholar results include information about how many times the item was cited<br>• Google Scholar results include lists of related items | Post | | | X |
| When scholarly information is described as "creating discourse," it means | • scholarly information helps researchers communicate with one another and build community<br>• scholarly information provides discussion points for classes<br>• it is easier to talk about scholarly information than popular information<br>• scholarly information is free of commercial, political, social, or personal bias | Pre | X | | X |



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| | | | | | |
|---|---|---|---|---|---|
| All of the following are reasons why scholarly information is important EXCEPT: | • scholarly information is freely available for everyone<br>• scholarly information creates discourse<br>• scholarly information aims to be free of commercial, political, social, or personal bias<br>• scholarly information builds knowledge | Post | X | | X |
| This section of a scholarly article is provided so that readers examining the article can decide quickly whether the article meets their needs | • abstract<br>• introduction<br>• conclusion<br>• references | Pre | | X | |
| Which of the following rarely appears in a scholarly article? | • pictures<br>• graphs<br>• equations<br>• references | Post | X | X | X |
| Which of the following is the least likely location for the author(s) credentials to appear? | • in the conclusions section of the article<br>• with the authors' names, listed at the beginning of the article<br>• as a footnote to the article<br>• in an endnote to the article | Pre | | X | |
| The literature review, an overview of research related to the author's research, if not its own section, is typically found in the | • introduction section of the article<br>• abstract of the article<br>• references section of the article<br>• conclusions section of the article | Post | | X | |

| | | | | | |
|---|---|---|---|---|---|
| This is a brief summary of the article used to decide quickly whether the article meets the researcher's need. | • abstract<br>• conclusion<br>• publication statement<br>• introduction | Pre | | X | |
| Which of the following is NOT a characteristic of a scholarly article? | • The text in the body of article is free of technical terms and jargon<br>• The author's basic jobs credentials are provided<br>• The body of the article frequently contains charts, graphs and other statistical data<br>• The article's conclusion is a summary of the results | Post | X | X | X |
| To locate the most current information on a given topic, you should look at | • popular sources<br>• scholarly sources<br>• reference sources<br>• book sources | Post | X | | |
| Which of the following is NOT an element of an annotation? | • annotations contain information about the publisher of the annotated item<br>• annotations contain information about the author(s) of the annotated item and his/her/their qualifications<br>• annotations contain information about the major thesis, theories and/or ideas of the annotated item<br>• annotations contain information about the relationship of the annotated item to others in the field | Pre | | X | |
| Which of the following is NOT a characteristic of an annotation? | • annotations are written by the author of the annotated item (like an abstract)<br>• annotations are written in 3rd person<br>• annotations are short - not over 150 words (basically one paragraph)<br>• annotations contain information about the major thesis, theories and/or ideas of the annotated item | Post | | X | |



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