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Starting From Scratch: Implementing a Successful, Multifaceted Information Literacy Program for the First-Year Course

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Introduction

Roughly 70 percent of all colleges and universities in the United States have a first-year program of some sort incorporated into the undergraduate curriculum, aimed at improving retention (Graves & Pierard, 2002). First-year programs have a long history of collaboration with libraries in college and university settings. The goals of these programs often include the promotion of information literacy skills in order to better prepare freshmen for future information-seeking needs as they progress through the stages of their academic careers. These collaborations often involve students visiting the library via the first-year program course, which may be referred to as Freshman Seminar, the First-Year Experience, University Studies, etc.

Although students do not typically encounter bibliographic instruction until a point of need (i.e. freshman composition courses), research supports the idea that students benefit all the more from “just in case” instruction presented during introductory freshman courses (Dabbour, 1997). These visits or orientations take place in a variety of formats including physical library tours, workshops led by a librarian in a classroom, or an online module with a virtual tutorial or orientation that can be accessed remotely. Regardless of the format, librarians and first-year program administrators often struggle with the challenge of having the resources to build a successful collaboration that is effective and meaningful for students without compromising valuable class time and other course-related programming. Additionally, achieving buy-in from administrators and program coordinators is not always easy due to the severe time limitations and the perceived burden placed on limited resources.

In many instances, the first-year experience course is worth a single, one-hour credit. Many academic librarians are accustomed to the reality that they may only be allotted fifty minutes to provide instruction on everything that a freshman student will need to know to be successful in his/her first year research endeavors, not to mention the lack of time to assess the effectiveness of the instruction. Online learning resources such as free-standing tutorials and audio and video podcasts have opened new asynchronous avenues for teaching information literacy skills, but used alone they can also create disconnect between new students and their physical orientation with library collections and services. A combination of both virtual and physical instruction can provide an optimal learning environment for promoting information literacy skills to freshmen, while also providing opportunities for

librarians to determine learning outcomes and teach to multiple learning styles using a variety of activities.

This study describes a program created from scratch in which collaboration is initiated by librarians with teaching faculty in the first-year program to provide information literacy skills to incoming freshmen. The program is not only successful logistically, but is designed with assessment needs and evidence of student learning in mind. Additionally, the program design takes into account the needs of learners through utilization of a variety of learning activities and teaching tools that include group interaction, web-based tutorials, individual assignments, and peer-learning.

Background

The University of North Carolina at Pembroke, located in Southeastern North Carolina, is a four-year member institution of The University of North Carolina 16-campus system. Total enrollment for the university is over 6000 students, including 700 graduate students. The university is a regional institution serving largely the eight surrounding counties of this area of the state.

For more than ten years the Mary Livermore Library has collaborated with the university’s Freshman Seminar program, a first-year program on campus designed to enhance the academic and social integration of freshmen into college. Freshman Seminar at UNCP is a required, one-credit hour bearing general education course that provides students the opportunity to learn various study skills and time management, as well as gain familiarity with the college classroom and campus, while becoming engaged in social and community activities.

The library’s role in this collaboration has been historically pedestrian, with the focus on orienting freshmen to the physical premises of the library and less on promoting information literacy skills. Freshman Seminar instructors were encouraged, not required, to bring their sections to the library for one class period during the fall semester for a fifty-minute guided tour of the building. Students were presented with a general overview of the physical premises including collection areas such as reference and serials, the circulation desk, and an introduction to basic library policies and services such as course reserves, printing, interlibrary loan, etc.

Roughly fifty sections of Freshman Seminar are typically taught each fall, with slightly more or less than half of the sections making their way to the library for the tour. This

has left many entering students without any exposure to information literacy or in-depth knowledge of library resources available to them. Overall, the academic emphasis in the library portion of the Freshman Seminar course was largely insufficient for providing any meaningful orientation to finding information, using electronic information tools, and critically evaluating Internet sources for academic content. Not only was the library tour method unproductive and unappealing to students, but the instruction librarians felt that they were not doing all that could be done to support the mission of the university in terms of student learning outcomes.

As the coordinator of instructional services, the author proceeded to restructure the library orientation for the Freshman Seminar course to make it more meaningful for students, seeking to incorporate target information literacy objectives, while actively engaging students in the learning process of finding and using information within the context of academic research. Significant considerations made in the planning process involved examining the best methods of delivery of instruction, deciding on the format of the instructional content based on pre-determined learning objectives, choosing the most effective and practical methods of assessment, accommodating a variety of learning styles, and preparing non-instruction librarians for teaching in the classroom.

Literature Review

Academic librarians have been providing bibliographic sessions, tours, and orientations to students since the 1800s, but it wasn't until the growing complexity of libraries and information resources in the 1970s created a need for a shift toward more sophisticated methods of teaching students how to use information effectively (Guskin, 2007). More recently, academic libraries have been aspiring to collaborate with first-year programs on campuses in efforts to engage new students and to promote information literacy skills for the 21st century. Thomas G. Kirk, Jr. (2007) states that the collaboration between classroom faculty and librarians is essential to success in first-year programs and that classroom faculty should have a good knowledge of how the research process is conducted and what types of resources are available to students so that they will be prepared to complete course assignments successfully.

There is an abundance of literature regarding the redesign or creation of information literacy collaborations with first-year programs at institutions of higher learning. In redesigning the Freshman Seminar library orientation the author was interested in researching the types of collaborations that existed between libraries and first-year programs, as well as best practices in promoting information literacy achievement outcomes for freshmen students. The following review includes brief descriptions of such programs.

Dabbour (1997) describes how an experimental Freshman Seminar course was created employing active learning library instruction as opposed to traditional lecture or demonstration. In this study, librarians created an

alternative to the traditional 'one-shot' library instruction lecture by incorporating active learning exercises into the sessions.

The University of Tennessee's first-year program has recently evolved to incorporate a library module created by librarians, which addresses learning objectives, learning outcomes, and corresponding learning activities with targeted assessment (Bullard, Sharp, Bright & Grey, 2007).

Librarians at Washington State University initiated collaboration with Freshman Seminar to provide information literacy instruction which tied its objectives to five information literacy standards developed by The Association of College and Research Libraries (Lindsay, 2003).

Parang, Raine, & Stevenson (2000) described how Pepperdine University revamped its information literacy collaboration with Freshman Seminar classes by incorporating hands-on learning, accommodation of multiple learning styles, and web-based tours and tutorials.

In regards to assessment of such collaborations, many studies featured the use of pre- and post-tests to gauge knowledge acquisition following the re-design of instruction (Knight, 2002; Carter, 2002; Mosby & Sugarman, 2002). At Pepperdine, Freshman Seminar students were asked to complete a six-question quiz based on measurable outcomes (Parang, Raine, & Stevenson, 2000). The evaluation was administered to a group of three classes that had completed both online information literacy modules and attended a face-to-face instruction session.

Because first-year seminar courses vary in range from one credit hour to as many as three, there are different evaluation techniques that have been used by librarians depending on course format, assignment requirements, and learning objectives. For example, at Washington State University, librarians implemented a citation analysis evaluation tool in its two-credit Freshman Seminar course in order to measure the quality of sources students used in their final group project – a multi-media, web-based presentation (Johnson, Lindsay, & Ursin, 2004).

In this study, the focus was on using the principles of active learning because they can be geared toward engaging students and promoting deeper understanding of information literacy skills. According to a seminal paper on active learning co-authored by Bonwell and Eison (1991), students preferred learning environments where active learning is employed over traditional lecture. In active learning environments, students gain a far better understanding of the material when they are able to play a role in participating in the shaping of content, instead of simply having it dictated to them using one-way communication (Leonard, 2002).

Based on this pedagogy, it made sense to include activities that involved collaboration and the opportunity for students to become engaged in differing perspectives of the learning content. Design of program exercises based on active

learning strategies allows students to become acquainted with both the physical library building and how to use electronic information resources in a way that accommodates a multitude of learning styles while also giving students an opportunity to experience research in different settings – individual, group, face-to-face, and web-based. The following section describes a study on how librarians at UNC-Pembroke were able to develop a mix of traditional information literacy classroom instruction with active learning collaborations and self-paced online learning activities to create a robust, first-year program based on learning objectives.

Case Study

The Freshman Seminar course at UNCP is a one-credit hour course that lasts eleven weeks. Due to classroom time constraints faced by Freshman Seminar instructors, the author acknowledged that there would be instructors who would not be willing or able to devote two whole class meetings to face-to-face library instruction. Despite this acknowledgement, it was decided to propose the new information literacy program to Freshman Seminar administrators, asking to speak directly with instructors in order to stress the importance of the program's objectives for student success, and to gauge interest level.

The goal of presenting the program directly to the faculty was to try to get as many instructors to participate in the hopes that momentum would build within the university community for providing all incoming students with the same baseline of information literacy skills during their first college semester.

A presentation was made to the Center for Academic Excellence (CAE), the overseeing administrative unit for first-year programs, and Freshman Seminar instructors at an annual meeting. The presentation described the provision of two, fifty-minute instructional sessions that would also incorporate student completion of out-of-class assignments and an online learning outcomes assessment. This presentation was viewed favorably by faculty for three reasons: They could see the value that the out-of-class components would add to the quality of the program; they liked the idea of an outcomes assessment that would provide evidence of the effectiveness of the instruction; and they appreciated the addition of online learning content that enabled them to spare valuable class time. By adding an out-of-class element, assessment data could be collected through the use of an online pre-test and post-test and three individual assignments that were to be completed and turned into the Freshman Seminar instructor. These assessments were put in place in order for librarians to be able to address learning objectives adapted from the Association of College & Research Libraries' (ACRL) Information Literacy Competence Standards One through Three. Table 1 shows the targeted outcomes for the students completing this program.

Instruction Session One

The first fifty-minute session consists of a lecture-based demonstration and hands-on experience using the library's online catalog and one electronic article database, followed by discussion of the evaluation of Internet websites for academic use. The goal of the first part of the session is to teach primarily to the learning outcomes found in Standard One of the ACRL's Information Literacy Competency Standards. These outcomes rely heavily on skills relating to defining the information need, including: Becoming familiar with information resource types, developing a topic, and exploring key concepts and terms upon which to begin building a search strategy.

Discussion at the beginning of the session includes distinguishing the differences between resources such as books, reference books, periodical articles and websites, including the tools used for locating each (ten minutes). Students are also asked to describe previous academic research and writing experiences with classmates, and are encouraged to think about the importance of having information related skills.

During the second segment of the session, outcomes from Standards Two and Three of the ACRL standards are addressed, with students working toward developing successful search strategies and thinking critically about how to begin evaluating the quality of information sources.

Students are given a theoretical research topic and asked to generate a meaningful list of keywords to provide a base for searching different resources (five minutes). Demonstrations for using library resources include searching the online catalog by title, author, and keyword. Additional modeling is administered on learning the various limiting and sorting features (five minutes). Next, students are introduced to electronic periodical article databases including a demonstration of Boolean operator implementation using the keyword list generated during the earlier class discussion (ten minutes).

At this point, students are given an opportunity to apply these concepts through a hands-on learning activity by which they work through a variety of searches and record information based on theoretical research topics. Many of these exercises can be directly tied to Standard One and Two by which students are learning to explore different avenues for finding information and learning how to develop a topic and related search strategies (fifteen minutes).

To conclude the first session, a discussion is facilitated to get students thinking about critically evaluating the content of information found on the Web – the main cornerstone of ACRL Standard Three (five minutes). Students are asked to identify the different characteristics of top-level domains. They are also shown a list of results retrieved from performing a search in Google based on an academic research topic. Upon viewing several of the first sites on the list, students contribute observations regarding

evaluation criteria such as authoritativeness, objectivity, relevance, and currency.

Out of Class Assignments

Following the first session, students are instructed to complete a series of supplemental assignments outside of class before returning for the second session one week later. The purpose of the assignments is to allow students to apply skills and concepts learned during the first session and to introduce new concepts that were either lightly brushed on or not at all. Each student is given a slip of paper with instructions on how to access the assignments from a Blackboard site developed by librarians.

The first assignment asks students to view a web-based video tour of the library. The tour is a series of videos that can be completed at the students' own pace. The purpose of this activity is to acquaint freshmen with a visual and audio orientation to the library's collections and service areas in lieu of participating in a time-consuming physical tour of the building. In order to assess completion of the activity, a short, ten-question quiz is linked to the web tour which students print out and return to the librarian at the second instruction session. Quizzes were checked for general understanding, but were not formally graded.

The second assignment is geared toward providing students with a fundamental understanding of the differences between scholarly and popular periodicals, utilizing both print and electronic publications – this activity serves to reinforce some components of Standard Three which was briefly introduced during the first instruction session. Upon downloading and studying a chart that describes the differentiating characteristics of several types of serial publications, students complete a written assignment consisting of four questions that require each to come to the library and work individually. The questions are specifically designed to have students locate articles on popular disciplines and examine them carefully in order to record information relating to the intended outcome.

The third assignment requires students to read a document that lists and describes five criteria for evaluating web pages, again addressing evaluative competencies found in Standard Three. Using the evaluation criteria, each student is asked to complete a worksheet whereby they locate several examples of both 'good' and 'bad' websites pertaining to guided research topics. They are then required to answer several questions about each page in the context of the criteria that are used to justify their decisions. At the end, students are asked to reflect on the exercise and its importance to becoming good consumers of information.

Instruction Session Two

The second fifty-minute session occurs exactly one week after the first session. This gives the students a week to complete the three assignments and allows them the opportunity to ask for assistance from librarians and their Freshman Seminar instructors outside of class. Upon returning for the second session, the assignments are

quickly collected by librarians at the beginning of class. While the assignments are not graded by the instructors in most cases, they are reviewed by librarians to help gauge the effectiveness of the instruction.

This second session is devoted to active learning in the form of collaborative work and peer-learning, with little facilitation by the librarian. At the beginning of the session, the students are grouped into teams of three or four and given a worksheet to complete. Using what they have learned during the first instruction session and through completion of the individual out-of-class assignments, they are directed to find several resources in a variety of formats based on different research topics and to record their findings. Known as the Information Investigation, the activity requires each group to use theoretical research topics to find reference books, scholarly journals in print, electronic articles in a database, and websites on the Internet. This activity is essentially putting together everything students have learned over the course of the first session and assignments into a collaborative peer-learning experience. Within their groups, students are encouraged to work together in finding each resource and to use a reference librarian for help if assistance is needed.

Students are allowed most of the period to work together to collect their resources before being called back to the classroom. Upon their return, the librarian uses the remainder of the time to designate a leader from each group who will present the group's findings. This peer-demonstration is conducted at the front of the class using a SmartBoard projection system that students can manipulate to show how they went about locating items in the catalog, database, and Internet. Feedback from classmates is encouraged during the demonstration period. Following the demonstrations, the librarian closes the session by fielding remaining questions about any content covered throughout the course of the program to reinforce learning and alleviate any remaining confusion or misconceptions.

Results

The program was officially implemented during the fall semester, by which instructors were encouraged to participate by bringing their students to the library twice, as opposed to the traditional 'one-shot' library tour. Librarians were encouraged by the willingness of many instructors to adopt the new information literacy program, although instructors were still given the option of participating in the tour. Nearly half of all participating Freshman Seminar instructors opted for the new information literacy program, while roughly half requested the traditional one-session tour – a few chose to participate in neither offering.

Of those who participated in the new program, most agreed to the requests made of them to participate in the assessment aspect of the program as well. The assessment was to include the collection of the three outside-of-class assignments (virtual tour quiz, scholarly vs. popular, evaluating web pages) and completion of a web-based pre-test and post-test.

Historically, assessment of library instruction was strictly concerned with output data such as number of sessions taught and head count, however more recent trends are aimed at determining learning outcomes (Knight, 2002). According to Barclay (1993), there are essentially four varieties of bibliographic instruction assessments that are commonly used in academic libraries including anecdote, survey, test, and evidence of use. These types of assessments can be used to gauge student learning, effectiveness of instruction, but also affective learning which often involves measuring students' perceptions, awareness, and attitudes toward learning. Anecdotes and surveys rarely offer hard evaluative data of student learning outcomes, while tests and evidence of use are most often used to demonstrate acquisition of knowledge (Carter, 2002).

In this study we relied on both anecdotal and test data. The collection of out-of-class assignments was used as a means of getting students to apply knowledge they had learned in the first instruction session. The assignments were collected but not graded by librarians, thus they were merely used to get a general feel of the level of knowledge attainment that students had acquired during the first session.

Overall, the number of assignments turned in was low, with only half of session one attendees turning them in, most likely because students knew they would not be receiving a grade unless explicitly stated by their course instructor. For this reason, the data collected from the assignments played a minimal factor in determining the success of learning objective achievement; however it did provide the library with feedback on how much emphasis had been placed on the completion of the assignments by course instructors. It also provided us with anecdotal data on which questions posed larger difficulty for students as well as how well the assignment was understood. Generally, for those that turned them in, students performed well and completed the tasks posed in assignment two relating to scholarly vs. popular distinction. Students fared less well in being able to evaluate websites dealing with climate change in assignment three. We found that quite often, little justification was given on why they felt a particular site was authoritative or not. More attention needs to be paid to this critical skill in the future.

Quantitative assessment of student learning is of keen significance for determining the success of the program as well as providing insight for future modifications. The assessment tool used to collect quantitative data was created in the form of an online multiple choice pre-test that was administered to each student prior to the first instruction session. A corresponding post-test was conducted after the second session. Each test consists of twenty questions that are designed to reflect learning objectives derived from the ACRL standards mentioned earlier. See Appendix 1 and 2 for pre-test and post-test questions.

While the questions on each exam are not identical, they are mirrored to test the same competencies using slightly different examples. By changing the text of the questions

for each test and randomizing their display, we were able to prevent cheating that may have skewed the results. There are eleven questions that address ACRL Standard Two: The information literate student accesses needed information effectively and efficiently. There are six questions that address Standard One: The information literate student determines the nature and extent of the information needed). And the remaining three questions address Standard Three: The information literate student evaluates information and its sources critically.

The course instructor provided students with a link to each test and may or may not have provided participation credit to students who completed them. That decision was left to the discretion of the instructor. In our study, a significant sample of 77 students completed both the pre-test and post-test, with the results described below.

Overall, the average increase in score from the pre-test to the post-test proved to be dramatic. Out of the 77 students that had completed both tests, the mean pre-test score was 47 percent and the mean post-test score was 71 percent – an increase of 24 points. In only nine instances did an individual's post-test score not improve when matched up with his pre-test score.

In the context of learning outcomes, students fared the best in learning the outcomes from Standards Two and Three. Overall, they demonstrated a 32% gain in test scores for questions addressing the second standard, and a 38% gain in questions addressing the third standard. For questions relating to Standard One, only a 5% gain was achieved.

The lack of achievement in Standard One indicates that there was not enough time allocated to discussing information types. For example, student scores declined for the post-test question dealing with the purpose of reference books (Question 4). Students were also confused about how to develop a topic (Question 16, Post-test). Only one question during the first instruction session assignment related to developing a topic, and the out-of-class assignments were mostly geared toward proficiency in Standards Two and Three. In the future, more emphasis should be paid to outcomes in Standard One in order set a good foundation for building skills related to developing topics and surveying different information sources.

In Standard Two outcomes, students achieved increases of 25% or more on seven of eleven questions asked. Students showed particularly strong gains in learning how to properly identify parts of a citation. They also proved to be adept at learning how to develop an initial search strategy with Boolean operators (Questions 10, 16, Pre-test). Only one of the questions in Standard Two saw a decline in post-test scores (Question 11). Interestingly, this question related to revising a search strategy to get better results. While we did briefly address this competency in the first instruction, these results tell us that more time is needed to be spent working on adjusting search strategies when the initial search does not yield acceptable results.

Standard Three outcomes were given less emphasis on the pre-test and post-test, although a good deal of content on the out-of-class assignments addressed these competencies. Of the three questions on the tests relating to Standard Three, each saw an increase in student performance. The largest gain was on a question dealing with characteristics of scholarly vs. popular periodicals (Question 12, Pre-test). Students initially performed poorly on the pre-test when answering this question (26%), but showed vast improvements on the post-test (95%) for a gain of nearly 70 percent. This gain is attributed to the emphasis that was placed on this topic in the out-of-class assignments by which students were asked to locate and examine scholarly articles in the print periodicals area of the library.

Overall we felt the results of the testing were very positive, as there were only four questions on the post-test where students had performed more poorly than they had on the pre-test. The most significant signs of improvement of information literacy seemed to come in areas relating to identifying citations and devising search strategies.

A possible correlation may exist between positive student achievement on the post-test and whether or not they completed the out-of-class assignments. A sample of the twelve lowest scores on the post-test (55 percent or lower) and the twelve highest scores (85 percent or better) were matched with the assignments collected for those 24 participants. Of the twelve students scoring 55 percent or lower, only three had turned in both out-of-class assignments. Eight of the twelve students scoring 85 percent or better had turned in both assignments. Although the data points to a trend that shows that students who completed the assignments scored better on the post-test, it is important to note that there were no assignments collected from the top three scorers on the post-test. This may mean that success is not dependent upon completing the assignments, or that there are inconsistencies on the part of faculty when collecting the assignments from students.

Conclusion and Future Direction

Strengths

The program clearly represents potential for developing an effective information literacy collaboration with the first-year program. The test scores of students who had participated in both sessions and completed the assigned work in between the sessions fared the best. The overall design of the program fit nicely within the allotted time of instruction, although the necessity for more face-to-face instruction will always exist. The addition of out-of-class assignments provided an easy-to-access delivery mechanism for building in supplemental practice that saved valuable class time.

The model we created for addressing learning outcomes through instructor guided discussions and activities during the initial instruction session gave students a solid foundation by which to begin thinking about information literacy concepts and how to address research projects. The out-of-class assignments provided useful opportunities for

individuals to apply this knowledge toward practicing individual skills and competencies in a research-oriented activity. Completing the activities gave students a sense of a simulated research environment without experiencing the stress of receiving a major grade and dealing with strict deadlines.

The peer-learning activity which comprised of most of the second instruction session was highly engaging for students and gave them an opportunity to collaborate and learn from one another. This activity allowed students to share previous research experience while exploring a new learning environment and the unfamiliar resources contained within it. We believe this activity helped to allay fears and anxiety commonly associated with freshmen student research experiences, providing a positive first experience in the college library environment.

The out-of-class assignments themselves were carefully planned out to match targeted learning objectives and seemed to be an effective method of addressing competencies that would have otherwise been neglected due to lack of face-to-face instruction time. The same can be said for the provision of the pre-test and post-test in a convenient online format by which students could access at a time of their choosing. The ability to quickly retrieve and export results into a spreadsheet from web form also made assessment data more accessible to librarians and instructors that may have requested it.

Based on the results of the post-test data, this study can be seen as an effective model for implementing an information literacy program in conjunction with the first-year course, particularly in courses that are awarded less than three credit hours or have a limited allotment of time for library instruction. Despite its initial success however, there are several challenges to be addressed in strengthening the program as it moves forward.

Challenges

A critical element to having a successful program is to achieve buy-in from faculty members that teach sections of the first-year program course. Under ideal conditions, all FRS course instructors would be required to participate in the program. Because only half of the sections of Freshman Seminar participated in the program, the program is only effectively reaching half of our freshmen students – we're still leaving a great percentage of our incoming students with only the research skills they bring with them from high school. Based on the pre-test data we acquired through the first semester, many of these students will be poorly prepared to take on college level research projects. Demonstrating the effectiveness and value to instructors who opted for the traditional tour or no instruction at all is a challenge to be addressed in future iterations.

The importance of marketing and presenting a clear case for the need for information literacy skills is paramount to any program's success. Faculty need to be educated and 'sold' on the benefits of student achievement of information literacy skills during the first year and how that

impacts academic matriculation. A program with sound design and successful execution is of little use if instructors do not see the value of the potential outcome. Therefore, achievement on a large scale is dependent on librarians' ability to get the optimal number of instructors and students to participate.

Faculty commitment to making the program effective must also be stronger among those who volunteered to participate in the program. It is not enough to simply ask students to attend the sessions and complete the assignments, rather further incorporation of the competencies into the course content would help to make more relevant the learning objectives and put them into a larger context.

For many instructors, it was a difficult transition from participating in the traditional library tour which only required one class period, to participating in two instruction sessions with out-of-class components and assessments. Completion of the out-of-class assignments was lower than expected, as was the number of participants who had completed both the pre-test and post-test. This issue is difficult to address because the librarian is not the gate-keeper of the course. Enforcement of assignment completion is predicated on willingness of the instructor to promote enthusiasm for the program and possibly assign grades to completed work. Perhaps this will improve as the program is more actively marketed, word of mouth spreads, and instructors begin to plan for participating in these sessions in advance during their pre-semester preparations.

Future Considerations

Almost every Freshman Seminar instructor at UNC-Pembroke sees the value in promoting information literacy skills to incoming students. But to what degree do they place that value in the context of other course content that needs to be covered? The major initiative moving forward with the program is to demonstrate value to instructors in order to increase participation. Librarians need to play a more active role in the program by attending departmental meetings and working to collaborate with Freshman Seminar instructors on developing research assignments that could be incorporated into the curriculum.

We must also find more streamlined methods of creating learning modules that might be able to replace in-class instruction. These modules could be used to both increase the level of participation and the collection of important assessment data. By making these processes easier for faculty, we should be able to create a greater level of buy-in, thus resulting in more students completing the program. By producing a larger sample size, we can gain a better sense of which objectives are being met and how to address those that are not.

It would have also been beneficial to have collected data indicating how many students attended both the first and second instruction session. Knowing which students attended both sessions versus how many may have only attended one or none, leaves some uncertainty as to the effectiveness of the sessions. Ideally, Freshman Seminar instructors would have provided an incentive for students to attend both sessions and complete the out-of-class assignments and assessments; however, in many of the classes, students were given little or no credit for participating. Librarians did not take roll, thus did not have access to this data.

Although it is unlikely to have affected such a large scoring sample, it is possible that students who completed the pre-test, post-test, and out-of-class assignments had attended neither of the two sessions while still achieving a significant increase in test score. To prevent that scenario in the future, data collection will include a question that asks students if they had attended both sessions.

In addition to measuring traditional learning objectives, it would also be beneficial to add more affective learning questions to the assessment tool in order to help paint a more complete picture of learning outcomes. Future assessments may include methods that measure not only how well students performed in content-based test scores, but how they felt the program has increased their confidence or motivation to become better researchers. This type of data could be extremely useful in further promoting the program to faculty and administrators.

Table 1 - Program Outcomes from ACRL Information Literacy Competency Standards

Standard One

The information literate student determines the nature and extent of the information needed.

Outcomes:

- a. Confers with instructors and participates in class discussions, peer workgroups, and electronic discussions to identify a research topic, or other information need
- b. Develops a topic and formulates questions based on the information need
- c. Explores general information sources to increase familiarity with the topic
- d. Identifies key concepts and terms that describe the information need
- e. The information literate student identifies a variety of types and formats of potential sources for information

Standard Two

The information literate student accesses needed information effectively and efficiently.

Outcomes:

- a. The information literate student selects the most appropriate information retrieval system for accessing needed information
- b. Investigates the scope, content, and organization of information retrieval systems
- c. The information literate student constructs and implements effectively designed search strategies
- d. Identifies keywords, synonyms and related terms for the information needed
- e. Constructs a search strategy using appropriate commands for the information retrieval system selected (e.g., Boolean operators, truncation, proximity for search engines, internal organizers such as indexes for books)
- f. The information literate student retrieves information online or in person using a variety of methods
- g. Uses various classification schemes and other systems (e.g. call number systems or indexes) to locate information resources within the library or to identify specific sites for physical exploration
- h. Records all pertinent citation information for future reference

Standard Three

The information literate student evaluates information and its sources critically.

Outcomes:

- a. The information literate student articulates and applies initial criteria for evaluating both the information and its sources
- b. Examines and compares information from various sources in order to evaluate reliability, validity, accuracy, authority, timeliness, and point of view or bias
- c. Determines whether information satisfies the research or other information need
- d. Draws conclusions based on information gathered
- e. Determines probably accuracy by questioning the source of the data, the limitations of the information gathering tools or strategies, and the reasonableness of the conclusions
- f. Selects information that provides evidence for the topic
- g. Determines whether to incorporate or reject viewpoints encountered

Table 2 - Freshman Seminar In-Class Search Activity

Using the Online Catalog:

1. How many items are available by **Emily Dickinson**? _____

2. Let's say we're looking for a book called *The Old Man and the Sea* by Ernest Hemingway. Do a **Title** search for the book and record the following information:

How many copies are at UNCP _____ Location _____
Call Number _____

3. You are given a topic from which to write a paper for a class. The topic is to write an essay that answers the question: *What is the importance of having diversity in the classroom?* Do a **Keyword** Search and find **two** books on this topic that might be useful and write down the title and call number of each.

Title _____ Call Number _____
Title _____ Call Number _____

For one of the books you wrote down. Look at the subject headings and write down one that may help you to find more books on the same topic. How many books were available for that subject heading?

Subject heading _____ # of other books _____

Using An Electronic Resource (Academic Search Complete):

1. You are given a topic from which to write a paper for a class. The topic is to write an essay on *the effectiveness of prevention of obesity in children*. Conduct a Keyword Search and find one article you think would be useful. Look beyond the first couple of articles listed. The article you choose must be available in **full text**. Sort by Relevance. Write down the following information:

How many articles _____ Article Title _____
Source _____
Volume# _____ Issue# _____ Keywords used _____

What was it about the article you chose that makes it useful?

2. Choose a topic that is of interest to you and try two searches on the same topic using different keywords for each search. List your topic here _____

Search 1: List your keywords _____ # of articles _____
Search 2: List your keywords _____ # of articles _____
Which search worked better, why? _____

Table 3 - Scholarly Vs. Popular Assignment

Scholarly Journals versus Popular Magazines Assignment

After reading the Scholarly versus Popular chart on the Blackboard site, you should be able to recognize the difference between periodicals that are popular and those that are considered scholarly. With your newly acquired knowledge, **visit the Mary Livermore Library and complete the following questions:**

1. Find a popular magazine in the Periodicals area of the Library. Write down the title of the magazine and any date of publication that you can find on the cover or inside. Then find an article in the magazine and write down the title of the article, page number, and the name of the author if there is one. Finally, thumb through the pages and using the characteristics of popular magazines, list three reasons why you believe the publication is popular rather than scholarly.

2. Find the current periodicals in the Library (Ask a librarian if you need assistance). Once you find them, notice the color-coded labels on the shelves with an accompanying three-letter abbreviation. Each periodical title in this section has a corresponding label that designates which academic discipline it should represent. Using the labels, locate a scholarly journal in each of the Education (EDU) and Business (BUS) disciplines. Once you've found a scholarly journal for each, write down the following information (again, use the assistance of a librarian if necessary):

Business

Title of the Journal: _____
Volume number: _____ Issue number: _____
Month/Year: _____

Pick an article in the journal and write down the title of the article, the author, and the page number. Then list three reasons why you think the journal is scholarly based on the characteristics of scholarly journals.

Education

Title of the Journal: _____
Volume number: _____ Issue number: _____
Month/Year: _____

Pick an article in the journal and write down the title of the article, the author, and the page number. Then list three reasons why you think the journal is scholarly based on the characteristics of scholarly journals.

3. Find a computer in the Library. From there, go to the Library's homepage to search for an electronic journal article (Hint: go to Electronic Resources). Using the database called Academic Search Complete (the one we used in class), find a scholarly article on a topic of your choice. Once you have found the article, write down the following:

Title of the Journal: _____
 Volume number: _____ Issue number: _____
 Month/Year: _____
 Title of the article: _____
 Page number _____
 Did the article have an abstract? _____
 Was the article available in full-text? _____ PDF? _____ HTML? _____
 What did you type in the search box? _____
 How many results were there? _____

4. Using the same database, look for a popular magazine or newspaper article that discusses "the effects of steroid use in professional sports". When you type in your keywords, remember only to use the main concepts (in other words, keep it simple and don't type in too many words). Once you have found the article, write down the following:

Title of the Magazine or Newspaper: _____
 Volume number: _____ Issue number: _____
 Month/Year: _____
 Title of the article: _____
 Page number _____
 Did the article have an abstract? _____
 Was the article available in full-text? _____ PDF? _____ HTML? _____
 What keywords did you type in the search box? _____
 How many results were there? _____

Table 4 - Website Evaluation Assignment

Website Evaluation Exercise

When conducting academic research, you will sometimes be in need of websites as sources of information, in combination with books and periodical articles. With all of the information available on the Internet these day, it's important to be able to distinguish which sites are considered acceptable for using in a research paper, and which ones are not.

In this assignment, you will be evaluating three web pages to determine if they are acceptable for using as sources in an academic research paper. Before looking at each site, read the handout given to you in your Freshman Seminar library session entitled "Evaluating Web Resources". This handout will provide you a set of criteria that you can use to determine the academic value of an Internet website. Be sure to read both sides of the handout carefully. After you have read it, proceed with this worksheet by visiting each website mentioned, and answering the questions that follow. You will be assuming that you are writing a research paper on climate change. Answer each set of questions with the idea that you are examining each site for reliability. After completing this exercise, you should have some sense as to how to evaluate websites for use in future research papers.

Visit the site: <http://www.climatechange-fraud.com/>

1. Accuracy – Explore the website listed above. There is lots of information presented. Does the information seem accurate? Is it verifiable? Why or why not? _____

2. Author – What can we tell about the author of the information? Is there one? Is there an About Us page, and what can we tell from it? _____

3. Bias/Point of View – Does there seem to be a bias in the presentation of the website? If so, discuss in what way there seems to be bias _____

4. Publisher – What is the reputation of the organization publishing the information? Are they well known? Are they qualified to publish information on climate change? Why?

5. Currency – How timely is the information presented? Does it seem up to date? _____

6. Given the criteria you have used to evaluate this website, would you consider it acceptable to use as a source in a paper on climate change? _____

Visit the site: <http://www.epa.gov/climatechange/>

1. Accuracy – Explore the EPA website on climate change. Does the information seem accurate? Is it verifiable? Why or why not? _____

2. Author – What can we tell about the author of the information? Is there one? Is there an About Us page, and what can we tell from it? _____

3. Bias/Point of View – Does there seem to be a bias in the presentation of the website? If so, discuss in what way there seems to be bias _____

4. Publisher – What is the reputation of the organization publishing the information? Are they well known? Are they qualified to publish information on climate change? Why?

5. Currency – How timely is the information presented? Does it seem up to date? _____

6. Given the criteria you have used to evaluate this website, would you consider it acceptable to use as a source in a paper on climate change? _____

Visit the site: http://en.wikipedia.org/wiki/Climate_change

1. Accuracy – Explore this Wikipedia website on climate change. Does the information seem accurate? Is it verifiable? Why or why not? _____

2. Author – What can we tell about the author of the information? Is there one? _____

3. Bias/Point of View – Does there seem to be a bias in the presentation of the website? If so, discuss in what way there seems to be bias _____

4. Publisher – What is the reputation of the organization publishing the information? Are they well known? Are they qualified to publish information on climate change? Why?

5. Currency – How timely is the information presented? Does it seem up to date? _____

6. Given the criteria you have used to evaluate this website, would you consider it acceptable to use as a source in a paper on climate change? _____

Finally, perform an Internet search on the topic of climate change or global warming. Write down the name of one website you found that you would consider to be acceptable in using as a source for a paper you are writing. List three reasons why you think the source is legitimate.

Name of website and URL: _____

Three Reasons

1. _____

2. _____

3. _____

Table 5

Information Investigation

Please answer each question as a group and record your group's answers in the spaces below. Each group member should complete his/her own worksheet and return to the library classroom when you have finished answering each question. If you need assistance with something, you may ask a librarian, but do not expect them to simply give you the answer.

1. Using the online catalog BraveCat, find a book in the Reference collection that discusses some aspect of 'immigration'. (Hint: Do an Advanced Keyword Search on a topic and limit Location to UNCP Reference) Write down the name of the book and the call number. Locate the book on the shelf, and find a chapter in the book, write down the name of it and what page it starts on.

2. Go to the periodicals area of the Library. Find a current journal in the field of Psychology (use the colored labels to determine the subject). Choose an article and write down the name of the journal, the volume number, the issue number, and the publication date. Locate an article in the journal, then answer the questions below:

What is the title of the article? _____

How many authors are there? _____ Do they work for academic institutions? _____

Does the article have references at the end? _____ If so, how many? _____

3. Go to the Electronic Resources page of the Library website. Using the database Academic Search Complete, find a full-text article that deals with the health effects of second hand smoke. Write down the title of the article, the author(s), the name of the journal or magazine it was published in, the volume number, the issue number, the page number(s), and the keywords you used to find it.

4. Using the knowledge you acquired in your assignment about evaluating web sites, locate a credible website on climate change (global warming) Remember to use the criteria you used to determine if a website was reliable or not. Write down the URL (address) of the website, which search engine you used, and then list three reasons why you think this is a reliable website.

Table 6

Results of Pre-Test/Post-Test (N=77)

Question	ACRL Standard Addressed	Pre-Test Score (47% mean)	Post-Test Score (71% mean)	Diff. +/- (+24%)
1.	Two	35.23%	70.45%	+35.22%
2.	Two	13.64%	73.86%	+60.22%
3.	Two	68.18%	76.14%	+7.96%
4.	One	38.64%	23.86%	-14.78%
5.	One	84.09%	76.14%	-7.95%
6.	One	43.18%	82.95%	+39.77%
7.	One	63.64%	79.55%	+15.91%

8.	Two	37.50%	64.77%	+27.27%
9.	Three	54.55%	87.50%	+32.95%
10.	Two	38.64%	94.32%	+55.68%
11.	Two	63.64%	46.59%	-17.05%
12.	Three	26.14%	95.45%	+69.31%
13.	Three	46.59%	59.09%	+12.50%
14.	Two	42.05%	79.55%	+37.50%
15.	Two	42.05%	92.05%	+50.00%
16.	Two	39.77%	90.91%	+51.14%
17.	One	70.45%	39.77%	-30.68%
18.	One	47.73%	77.27%	+29.54%
19.	Two	59.09%	85.23%	+26.14%
20.	Two	31.82%	52.27%	+20.45%

Appendix 1: Pre-test

To select your answer for questions 1-7, please write the correct letter on the answer blank.

(1-3.) Correctly identify the parts of the following citation by writing the proper corresponding letter in the blank:

| Barthelme, Frederick. | "Architecture of Southern Colonial Porches." | Kansas Quarterly | 13. | 3-4 | (1981) : | 77-80.

(A) (B) (C) (D) (E) (F) (G)

Sample. Author A

1. Issue Number
2. Journal Title
3. Volume Number

(4-7.) Each of the following items can be useful for finding information. Choose the letter that represents what you can likely expect to find in the resource listed.

4. Reference Book

- A. A short article about a person, place, or event
- B. A long scholarly research article
- C. Both A and B

5. Google

- A. Non-academic websites
- B. Academic websites
- C. Both A and B

6. Journal

- A. Advertisements and photographs
- B. Articles with references
- C. Both A and B

7. Electronic Resources

- A. A newspaper article
- B. A scholarly journal article
- C. Both A and B

8. Which of the following would you use to search for books on “No Child Left Behind”?

- A. Electronic Resources
- B. Journal Finder
- C. BraveCat
- D. Brave Web

9. You are researching where outbreaks of avian flu have occurred. Which of the following is more likely to be an authoritative source of information?

- A. <http://www.cdc.gov/flu/avian/>
- B. http://en.wikipedia.org/wiki/Avian_flu
- C. <http://avianflu.typepad.com/>
- D. <http://disease.net>

10. You are interested in purchasing a hybrid automobile from a foreign manufacturer. You searched for *Honda* and got 17 hits. Which of the following searches would help you retrieve *more* than 17 hits?

- A. Honda OR Toyota
- B. Honda AND Toyota

11. You are looking for information on the impacts that global warming has on mammals, birds, and reptiles. In conducting your search in one of the library’s electronic resources, you typed in *global warming* and retrieved over 5,000 articles. Which of the following searches would help you to *narrow* your results?

- A. global warming and impacts
- B. global warming or greenhouse gases
- C. global warming and animals
- D. global warming or insects

12. A journal article is more likely to have been written by:

- A. A reporter
- B. A professor
- C. A military officer
- D. A stock broker

13. A summary of a journal article is referred to as:

- A. An abstract
- B. Full-text
- C. A PDF
- D. A citation

For questions 14-15, match the correct citation with the citation type by entering a letter in the blank.

14. Alcock, R. (1997). “Consumption and sustainable development”. *Science* 276 (5319): 1632-1633.

—

15. Engel, J. Ronald and Joan Gibb Engel, *Ethics of Environment and Development: Global Challenge and International Response* (Tucson: University of Arizona Press, 1990)

—

- A. Journal article citation
- B. Book citation

16. Which of the following search strategies should be used in an academic database for finding articles on the topic ‘effects of video games on childhood obesity’.

- A. children AND obesity
- B. video games AND obesity
- C. effects of video games on obesity
- D. effects AND video games

17. Before you actually begin to look for your resources, it’s best to:

- A. Search the Internet
- B. Change topics
- C. Create a set of keywords
- D. Create your bibliography

18. Which of the following is not the name of a collection in the Library?

- A. Reference
- B. Media
- C. American Indian
- D. General

19. By using the ‘relevancy’ drop-down menu in an electronic database you are:

- A. Starting a new search
- B. Sorting the articles by date
- C. Weeding out articles that are not full-text
- D. Sorting the articles by importance

20. One major difference between a full-text article that is available in HTML format and one that is available in PDF format is:

- A. PDF articles are harder to email
- B. HTML articles usually do not contain page numbers
- C. PDF articles are just plain text
- D. HTML articles require special software to print out the article

Appendix 2: Post-test

To select your answer for questions 1-7, please write the correct letter on the answer blank.

(1-3.) Correctly identify the parts of the following citation by writing the proper corresponding letter in the blank:

| Garrett, Laurie. | “The Next Pandemic?” | Foreign Affairs | 17. | 1 | (2005): | 124-129.

(A) (B) (C) (D) (E) (F) (G)

Sample. Author A

- 1. Volume Number ___
- 2. Journal Title ___
- 3. Article Title ___

(4-7.) Each of the following items can be useful for finding information. Choose the letter that represents what you can likely expect to find in the resource listed.

4. Reference Book

- A. A short article about a person, place, or event
- B. A long scholarly research article
- C. Both A and B

5. Google

- A. Non-academic websites
- B. Academic websites
- C. Both A and B

6. Journal

- A. Advertisements and photographs
- B. Articles with references
- C. Both A and B

7. Electronic Resources

- A. A newspaper article
- B. A scholarly journal article
- C. Both A and B

8. Which of the following would you use to look for *books* on the topic “use of steroids in sports?”

- A. Electronic Resources (databases)
- B. Journal Finder
- C. BraveCat (online catalog)
- D. Brave Web

9. The following call number can be found where in the Library: *Ref HA 202.U5 2006*

- A. UNCP General Collection
- B. UNCP Reserves
- C. UNCP Reference
- D. UNCP Periodicals

10. You are researching the impacts of white collar crime on society. Which of the following is more likely to be an authoritative source of information?

- A. <http://www.fbi.gov/whitecollarcrime.htm>
- B. http://en.wikipedia.org/wiki/White-collar_crime
- C. <http://embezzlement.blogspot.com/>
- D. <http://www.whitecollarcrimemy.com/index.html>

11. You are conducting research on non-Christian religions. You did a search on *Buddhism* in a database and retrieved 22 hits. Which of the following revised searches will retrieve *more* than 22 hits?

- A. Buddhism AND Hinduism
- B. Buddhism OR Hinduism

12. Which of the following searches in an article database should be used to find information on the topic “how does acid rain impact the environment?”

- A. acid rain OR environment
- B. acid rain NOT environment
- C. acid rain AND environment
- D. acid rain
- E. environment

13. A scholarly journal is most likely to include:

- A. Advertisements
- B. Color photographs
- C. Technical terminology
- D. Articles written by reporters

14. Electronic databases are often organized according to their academic subject. True or false?

- A. True
- B. False

15. You are writing a paper on the causes of homelessness. Which of the following resources is more likely to provide quality, academic information?

- A. Wikipedia
- B. Time Magazine
- C. The Washington Post
- D. Journal of Sociology and Social Welfare

16. Before you actually begin to look for your resources, it's best to:

- A. Search the Internet
- B. Change topics
- C. Create a set of keywords
- D. Create your bibliography

17. One major difference between a full-text article that is available in HTML format and one that is available in PDF format is:

- A. PDF articles are harder to email
- B. HTML articles usually do not contain page numbers
- C. PDF articles are just plain text
- D. HTML articles require special software to print out the article

18. By using the 'relevancy' drop-down menu in an electronic database you are:

- A. Starting a new search
- B. Sorting the articles by date
- C. Weeding out articles that are not full-text
- D. Sorting the articles by importance

19. Which of the following domains would be most appropriate for finding reliable information?

- A. .edu
- B. .com
- C. .net
- D. None of the above

20. Which of the following is a citation for a periodical article?

- A. Alcock, R. (1997). "Consumption and sustainable development". *Science* 276 (5319): 1632-1633.
- B. Engel, J. Ronald and Joan Gibb Engel, *Ethics of Environment and Development: Global Challenge and International Response* (Tucson: University of Arizona Press, 1990)

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