

**Assessing the Connection Between Information Literacy Instruction
and Undergraduate Student Success:
An Annotated Bibliography**

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Introduction and Scope

The following bibliography represents a collection of sources that illustrate how information literacy instruction can impact student success. For the purposes of this bibliography student success will be defined primarily within the scope of academic achievement in the form of course grades or overall GPA, as well as retention rates. Findings for the majority of articles included are based on empirical research and include both qualitative and quantitative measures in the form of focus groups, surveys, skills testing, and citation assessment. All research for these articles was conducted by librarians working with undergraduate students enrolled in both two and four-year institutions. Research was conducted using students attending campus based and distance education programs within the United States, the one exception being a study conducted at Hong Kong Baptist University. Currency of articles held particular importance in assembling this collection due to the nature of rapidly changing resources; therefore all articles included here were published between 2001 and 2014.

Description

Information literacy skills establish the foundation for students to achieve academic success in college. But what exactly does information literacy mean and how does it really help students? According to the American Library Association (2006), “information literacy is the set of skills needed to find, retrieve, analyze, and use information.” Although this definition sounds complex, information literacy is often something that people, even those in academia take for granted. The truth is that, “the prevalence of Internet search engines and the common misconception among students that “anything can be found with a Google search,” provide daunting challenges to instruction librarians” (Daugherty, 2011, p. 319). Google is

unquestionably one of the most popular tools available for information gathering, but in reality it cannot be relied upon to retrieve quality results. While students entering college may be accustomed to employing Google as their primary tool for research, continuing to do so will place them below the mean amongst their cohorts in a wide array of skills based competencies. The good news is that information literacy instruction can change all that by “help[ing] students develop information seeking skills that will enable them to be successful both in their academic programs and their professional lives...” (Fain, 2011, p. 109).

Summary of Findings

Ask any librarian and they will tell you that information literacy skills are essential to student success in college. However, “it is no longer enough to say that library instruction improves student learning; librarians must be able to demonstrate that students are actually learning the skills and knowledge” (Fain, 2011, p. 109). Assessment of information literacy in higher-education has historically taken the form of pre/post-testing of one-shot information instruction sessions. But what can assessment of a 50-75 minute class with a student to librarian ratio of 30:1 really tell us about the impact of information literacy instruction on student success? To address this challenge, libraries began developing a more robust curriculum of information literacy, including web based tutorials, workshops, and credit based information literacy courses. These courses opened up a broader range of opportunities to demonstrate student success and to inform librarians about gaps or deficiencies in instruction (Fain, 2011).

Evidence of a connection between information literacy instruction and student success has traditionally been difficult to assess. Many studies have focused on mastery of a particular skill such as citation building (Wang, 2006 & Mery 2012), while others look at overall skills but

limit assessment to short-term retention (Soria, 2013). The focus of most of the articles in this bibliography is on long term retention of skills demonstrated in terms of course grades and cumulative GPA. Assessment span ranges from one to twelve years and is primarily a quantitative measure of GPA for students who completed a library instruction course in comparison with students who had not. One particular article demonstrated a “mixed-methods” approach by assessing GPA in the above manner in addition to reviewing feedback from graduating students who had attended information literacy instruction (Bowles-Terry, 2012). Such qualitative data is vital when it comes to informing librarians about the practical application of skills students require.

As is the case with many academic programs, information literacy is a constantly evolving skill. The introduction of web based resources has created new avenues for instruction and assessment of student competencies. The proliferation of online resources has spurred new and often better methods for undergraduate library training such as online tutorials, and credit based distance education courses. The purpose of these online instructional methods is twofold as they are not only beneficial for teaching information literacy skills, but they help students develop student aptitude for future distance education courses (O’Hanlon, 2001). Results of a recent study conducted at the University of Arizona (Mery, Newby & Peng, 2012) indicate that students participating in an online information literacy course consistently outperformed their peers in outcomes based competencies. Does that mean there’s no longer any need for in person instruction? While there’s certainly evidence that online instruction is successful for many students, it’s also true that “one model does not fit all needs” (Moore, Brewster, Dorrah & Moreau, 2002).

As is evidenced by this bibliography, assessment of information literacy instruction over the last decade has produced a multitude of studies proving its contribution to higher grades, higher overall GPA's and consequently better retention rates for colleges and universities. An increase in the push for assessment will only continue to grow as budgets tighten and the need to demonstrate the role of libraries in student achievement becomes even more critical with a reliance on performance-based funding. "While no study can ever prove that the reason a specific student graduated was because they took a certain class or attended a certain workshop, by gathering together an increasing number of suggestive correlative studies, libraries can begin to establish their place in each student's success" (Cook, 2014).

Bibliography

Entry 1:

Bowles-Terry, M. (2012). Library instruction and academic success: A mixed-methods assessment of a library instruction program. *Evidence Based Library & Information Practice*, 7(1), 82-95.

Abstract: "Objectives -- This study examines the connection between student academic success and information literacy instruction. Locally, it allowed librarians to ascertain the institution's saturation rate for information literacy instruction and identify academic programs not utilizing library instruction services. In a broader application, it provides an argument for a tiered program of information literacy instruction and offers student perspectives on improving a library instruction program. Methods -- Focus groups with 15 graduating seniors, all of whom had attended at least one library instruction session, discussed student experiences and preferences regarding library instruction. An analysis of 4,489 academic transcripts of graduating seniors identified differences in grade point average (GPA) between students with different levels of library instruction. Results -- Students value library instruction for orientation purposes as beginning students, and specialized, discipline-specific library instruction in upper-level courses. There is a statistically significant difference in GPA between graduating seniors who had library instruction in upper-level courses (defined in this study as post-freshman-level) and those who did not. Conclusions -- Library instruction seems to make the most difference to student success when it is repeated at different levels in the university curriculum, especially when it is offered in

upper-level courses. Instruction librarians should differentiate between lower-division and upper-division learning objectives for students in order to create a more cohesive and non-repetitive information literacy curriculum.”

Annotation: This mixed-method assessment undertaken by Bowles-Terry uses both focus groups and transcript analysis to answer questions regarding information literacy instruction at the University of Wyoming Libraries. Specifically in question is the connection between library instruction and academic success, and whether a tiered approach to teaching information literacy is beneficial to student GPA upon graduation. Qualitative assessment began in the spring of 2011 when the author conducted two focus group sessions with seniors about to graduate. They were asked scripted questions and their answers were grouped into six different categories. After graduation took place, the author undertook a quantitative assessment of 4,489 student transcripts, comparing specific coursework, major, sex and GPA. This data was then evaluated alongside records of library instruction sessions that had been given to determine which students attended instruction sessions during their college career and which did not. Students were then separated into groups based on if, when and how often they had received library instruction. The results of focus group analysis indicate that students appreciate the opportunity to receive library instruction upon entering college as well as later when they undertake coursework requiring more scholarly research. The transcript analysis indicated two things, first that there was a statistically significant difference between students who received library instruction later in their college career as opposed to those who never attended an instruction session and second, there was no significant difference between students who only attended freshman level library instruction and students who never attended an instruction session. Because of the mixed-method approach in combining both qualitative and quantitative data a much broader assessment was obtained in determining a relationship between factors. For example, the focus group results that

indicated the value of library instruction in upper level coursework was corroborated by the transcript analysis indicating increased GPA for students who receive instruction in said courses. Also in question was the idea of offering a tiered approach to instruction for upper and lower division coursework. Focus group results indicate frustration from students who had to sit through the same instruction session they had as freshman rather than something more tailored to their upper level courses. There were limitations to the study such as small focus groups, incomplete records, and the realization that all factors contributing to high GPA cannot be taken into account for this one study. It did however help inform the library about what students' value from instruction and when it is the most beneficial to them.

Authority: *Evidence Based Library & Information Practice* is a peer-reviewed, scholarly journal published by the University of Alberta and is freely available online through the Open Journal Systems website. The author Melissa Bowles-Terry, a librarian at the University of Wyoming has published in several scholarly journals and presented research at information literacy conferences. The results of this assessment are based on both original research and analysis of academic transcripts. The original research was conducted in 2011, reflecting current trends in the field.

Database: From the Hagerty Library website I selected the Library Literature & Information Science Full-Text database from EBSCO. After reading the abstract I decided it would be a good choice for my topic and selected the "Get It" link to the left of the citation. This took me to a content page where I was then able to access the full-text of the article through a link to the Directory of Open Access Journals.

Method of Search: Controlled vocabulary and field searching

Search String: su.Exact("information literacy") AND su.Exact("academic achievement") and AB(gpa)

Entry 2

Cook, J.M., (in press). A library credit course and student success rates: A longitudinal study.

College & Research Libraries.

Abstract: “The University of West Georgia’s Ingram Library has offered a fifteen-week two-hour credit course since 1998. In a longitudinal study covering twelve years, the library analyzed the progression and graduation rates of over fifteen thousand students. Students who took the class during their undergraduate career were found to graduate at much higher rates than students who never took the class. The library examined students’ high school GPAs and aptitude test scores but were unable to account for the increase through any difference in pre-collegiate achievement.”

Annotation: In her introduction, Jean Marie Cook explains that the purpose of her study is to address the question posed by the Association of College and Research Libraries (ACRL) in their 2010 report on the value of academic libraries which asks, “How does the library contribute to student retention and success?” Although the University of West Georgia already offered a credit course in information literacy (LIBR 1101), it had never undertaken the task of measuring the impact it might have on student success. In 1998 when the university mandated learning priorities that mirrored information literacy skills, Cook seized the opportunity to expand the LIBR 1101 course into a two-credit semester long transferable course, offered both in person and online. As changes in priorities were being implemented campus wide Cook determined there was a need to demonstrate quantitatively the library’s impact on student success, so she decided to undertake a longitudinal study of students who had completed the LIBR 1101 course between 1999 and 2007. Using aggregate data provided by college on graduating students, Cook separated them into two groups, those who had completed LIBR 1101 either in person or online,

and those who had not. Her analysis focused on two specific questions, did students who had taken LIBR 1101 have higher graduation rates and did they have higher GPA's upon graduation? Cook's analysis indicated that in fact graduation rates were higher for students who had taken the LIBR 1101 course when compared to those who had not, however it also indicated that those same students were graduating with a lower GPA than their counterparts who did not take the course. From these results the author hypothesizes that the library course may be helping students who generally perform at a lower level overall graduate when they may not have otherwise. Cook cautions that this study is "observational" only and points out that students were not randomly selected, nor was the data collected from the school representative of the total population of students in terms of demographics. However, despite these limitations the study is significant in proving that LIBR 1101 students graduated at higher rates than others simply because of both the longitude (8 years) and scale (15,000+ students) of measurement.

Authority: Jean Marie Cook has been an Instruction Librarian at the University of West Georgia since 2007. She teaches a for-credit introductory library course entitled, *Academic Research and the Library*, both in person and online. According to her CV, available on the University Library webpage, she has published numerous articles on library instruction methods in peer-reviewed journals as well as presenting her research at national conferences. In publication since 1939, *Ulrich's International Periodicals Directory* indicates that *College and Research Libraries* is a peer-reviewed, scholarly journal published by the Association of College and Research Libraries, a division of the American Library Association.

Database: This was another article I was able to locate as a result of the bibliography in William Badke's article *Infolit and GPA*, published in the trade journal *Online Searcher*. The title seemed

like it would be appropriate to my topic so I began a search for it through Summon, the Hagerty Library catalog. Despite performing advanced searches using author, title and publication, I was unable to locate the article. I'm assuming the reason is because it is a pre-print article, meaning it has yet to be published in print form. Next, I decided to go straight to the source and searched for the *College and Research Libraries* web page through Google. The home page has a direct link to "preprints" and from here I was able to locate the article. Luckily the journal is open access so I was able to get the full-text directly from the website.

Method of Search: Citation search from selected bibliography.

Search String: Original search string that located the Badke article from which I pulled this citation: SUBJECT.exact("Information literacy") AND SUBJECT.exact("Academic achievement") AND GPA

Entry 3

Daugherty, A.L. & Russo, M.F. (2011, July). An assessment of the lasting effects of a stand-alone information literacy course: The students' perspective. *The Journal of Academic Librarianship*, 37(4), 319-326. doi.org/10.1016/j.acalib.2011.04.006

Abstract: "The authors wished to measure the degree to which a library information literacy course establishes a foundation for life-long learning. A web-based survey was administered to 2147 currently-matriculating Louisiana State University students who had taken the one-credit information literacy course, Library and Information Science (LIS) 1001 (Research Methods and Materials). Though the response rate was relatively low, the survey revealed clear evidence that students continue to use the materials and skills taught in the course throughout their college careers for both course work and personal research."

Annotation: As part of the curriculum at Louisiana State University (LSU), students have the opportunity to enroll in LIS 1001: Research Methods and Materials, a one-credit information

literacy class. While many opportunities arise in this course for proficiency assessment of curriculum, the authors were not interested in measuring the immediate result of information literacy instruction through the use of pre versus post-session testing. Rather they wanted to gauge the longevity of learning as the result of completion of a credit based library skills course. Specifically they wanted to know if students were retaining and applying information literacy skills in their coursework and/or for personal research needs. To begin the survey participants were collected via the registrar's office who supplied email address for 2,147 LSU students that had completed the LIS 1001 course within the three years prior to the survey. Participants were emailed during the Fall of 2009 with a request to take part in a 28 question survey by following a link to Zoomerang, a web-based tool for gathering and analyzing data. Hoping for the maximum level of participation, multiple reminders were sent out to student over a three week period encouraging them to log into the survey. In the end only 15% (326) of the surveys were returned, well below the 95% response rate the authors had hoped achieve. Students who did take part in the survey respond to questions regarding demographics, followed by use of information literacy skills both for class work and outside school. Questions were both qualitative and quantitative in nature, being both closed and open-ended. A substantial amount of students (76%) responded that they were able to utilize the skills they had learned in LIS 1001 for academic purposes following completion of the course, with the majority (53%) indicating databases as their primary tool. While only 32% reported using learned information literacy skills for reasons outside the classroom, a majority of students (62%) responded in a positive way to the skills learned in the class and to their value in the completion of coursework. The overall results of the survey indicate that LIS 1001 does have an impact on long-term information literacy skills. However, since these skills are self-reported there is no way for the authors to tell the level of

competence with which they are utilized. Future assessment of course grades and overall GPA in relation to completion of LIS 1001 could prove useful as well.

Authority: *The Journal of Academic Librarianship* is a peer-reviewed, scholarly journal, published by Elsevier, a leading publisher of academic titles. The authors, Alice Daugherty and Michael Russo are both librarians at Louisiana State University. Daugherty, an Assessment Librarian, is widely published in both academic journals and books, and has presented at multiple national library conferences. Russo, the Instruction Coordinator at LSU works directly with students teaching information literacy as well as assisting with reference questions.

Database: While retrieving the full-text PDF version of an article from Science Direct, a window popped up on the screen that said “recommended articles.” It listed three different citations for articles similar in scope to the one I was printing. After reading the titles, I selected one in order to check out the abstract. I decided it seemed relevant so I printed it out and after reading the article I felt like it was a good choice to include in my list of annotations.

Method of Search: Browsing journal website

Search String: N/A

Entry 4

Fain, M. (2011, March). Assessing information literacy skills development in first year students:

A multi-year study. *The Journal of Academic Librarianship*, 37(2), 109-119.

Abstract: “Assessment data from 5 years of a pretest/posttest with first-year students was analyzed using McNemar's test. The results show that revisiting previous assessment data can identify significant changes in information literacy skill development.”

Annotation: Using pre/post-test as a means for evaluating the impact of library instruction is widespread in academic libraries. However, the majority of assessment doesn't go beyond one year, limiting insight into the bigger picture of a student's grasp of library proficiency. The librarians at Coastal Carolina University decided to perform a more extensive assessment of their existing pre/post-test format by looking at student scores over a five year period to determine patterns in student improvement. Analysis was conducted on first-year students enrolled in English 101 or University 110 (a first-year experience course) during the Fall 2002, 2003, 2004, 2006, and 2007 semesters. Pre-test's were given to students during the first two weeks of the course and post-tests during the last four weeks of a 16 week semester. In between the tests, students were required to attend a minimum of one library instruction session lasting 50-75 minutes that was tailored to the specific research assignment and learning outcome for the course. Students enrolled in the University 110 course were also required to complete a library skills tutorial prior to attending a library instruction session. The library skills test asked students questions referring to information covered during instruction sessions, which was consistent with the required competencies for information literacy created by the ACRL. From year to year, test questions were modified based on resource development or if it was deemed that overall, students were having difficulty understanding the intent of the question. The McNemar's test was then used to evaluate the percentage of change on answers from pre to post-test for each individual question in order to establish patterns throughout the five year period. By and large, student performance from pre-test to post-test over the five year span demonstrated positive results, indicating that library instruction sessions are consistently successful in educating students on library services and information literacy concepts. There were some instances where no significant improvement was shown between pre and post-test responses, however various

changes in policies or resource availability is seen as the primary explanation for this occurrence. Overall long range assessment was significant as a means for recognizing patterns and identifying points of weakness in instruction. It also allows for the expansion of instructional interventions for incoming students that can help develop positive information searching habits at the outset of their college careers.

Authority: The *Journal of Academic Librarianship* is a valuable resource for information professionals working in higher education. *Ulrich's International Periodicals Directory* lists it as a scholarly, peer-reviewed journal offering original research conducted by professionals worldwide. Margaret Fain is head of public services for Kimbel Library at Coastal Carolina University. The school website indicates that her primary focus lies in information literacy, plagiarism, copyright, and critical thinking, with expertise in Victorian literature and Jane Austen.

Database: While reading the conclusion of the article *Performance-Based Assessment in an Online Course: Comparing Different Types of Information Literacy Instruction*, (Mery, 2012) I came across a reference for an article that seemed interesting. It referred to a long term study that assessed instructional methods which was on target with what I was looking to use in my bibliography. To locate the article I used the Web of Science database to perform a cited reference search. I typed in the author and the year of publication which produced two article results, one of which was my title.

Method of Search: Citation.

Search String: N/A

Entry 5

Mery, Y. & Newby, J. & Peng, K. (2012, July). Performance-based assessment in an online course: Comparing different types of information literacy instruction. *portal: Libraries and the Academy* 12(3), 283-298. Retrieved from

Abstract: “This study investigates whether the type of instruction (a single face-to-face librarian-led instruction, instructor-led instruction, or an online IL course - the Online Research Lab) has an impact on student information literacy gains in a Freshman English Composition program. A performance-based assessment was carried out by analyzing bibliographies in a required controversy paper. Descriptive, correlation, and regression analysis showed that the type of instruction did impact the quality of the bibliographies. Students in the online IL course had higher quality bibliographies than those students who received a one-session face-to-face instruction.”

Annotation: In 2009, librarians at the University of Arizona set out to determine if an online course in information literacy could have a similar, if not greater impact on student competency than the traditional face-to-face instruction. To accomplish this they conducted an assessment of student performance in creating bibliographic citations based on exposure to a specific methods of instruction. The three styles of information literacy instruction were, instructor led in the classroom following training by a librarian, librarian led in face-to-face mode during a fifty-minute session, and online instruction via enrollment in a ten-week credit course called Online Research Lab (ORL). The criteria developed to assess the citations included the variety, type, and currency of resources used, as well as the total number and level of completion for each citation. The primary question asked by the eight instruction librarians reviewing the citations was, did the method of instruction affect the student’s performance in the specified criteria? The results indicated that students enrolled in the ORL outperformed their peers in every aspect of measurement. They produced higher numbers of more complete citations, and the currency,

variety and reliability of sources they produced were superior to students receiving either type of face-to-face instruction. Despite these seemingly optimistic results in favor of online instruction, it's important to note that citation assessment only measures one facet of student fluency in information literacy. Since analysis of student work in this study did not include reading the entire work submitted, evaluators have no way of knowing if the sources selected were relevant to the chosen topic or if the student used them correctly. For this reason, the authors suggest further studies that incorporate varied methods of assessment including multiple choice tests that can reveal specific areas of deficiency in student learning.

Authority: Both Yvonne Mery, and Jill Newby are librarians at the University of Arizona. Mery, as Instructional Services Librarian works to create tutorials that assist students in the use of library resources and services. Newby, an Associate Librarian also teaches information literacy. Ke Peng an Assistant Professor of Chinese at Western Kentucky University holds a Ph.D. in Second Language Acquisition. All three of these authors have collaborated before on academic articles about information literacy. The publication *portal: Libraries and the Academy* is listed in *Ulrich's International Periodicals Index* as a scholarly, peer-reviewed journal that focuses on issues surrounding academic libraries.

Database: During one of my searches in ProQuest, I came across an article that sounded perfect. Unfortunately they didn't offer the full-text article so I printed out the citation and began to search for it on the Hagerty Library website through Library Literature & Information Science database, which in turn redirected me to the Project Muse website to access the full-text. While I was accessing the article through Project Muse I noticed it allowed me to perform searches within a particular journal. I decided to try out the search statement, "information literacy and

student success.” This brought up 92 articles to browse through. The title and abstract for this one sounded like a good fit so I selected the PDF link to download the article.

Method of Search: Keyword - Project Muse website under the journal *portal: Libraries and the Academy*.

Search String: information literacy and student success

Entry 6

Moore, D., Brewster, S., Dorroh, C., Moreau, M. (2002). Information competency instruction in a two-year college: One size does not fit all. *Reference Services Review*, 30(4), 300-306.
doi: 10.1108/00907320210451286

Abstract: “This paper discusses the information competency (information literacy) program at the Glendale Community College (California) Library, and the findings of a longitudinal study which indicate that information competency instruction has significant impact on student success (defined as retention and grades). The Glendale Community College Library's information competency program consists of on-demand instruction sessions, a series of standardized workshops repeated weekly, two transferable credit courses (one of which is being experimentally paired with English composition), and infusion of discipline-related research skills into major courses. Quantitative data from the research study are included, as are anecdotal data regarding the paired Library-English courses and the infusion into the nursing curriculum.”

Annotation: With the expansion of online resource availability at Glendale Community College (GCC), librarians recognized a need for a broadening of library instruction sessions beyond the “one-shot” or “on-demand” model to include both credit based library courses and workshops. In 1998 two for credit courses in information competency were developed, Library 191: Information Competency (1 unit) and Library 101: Intermediate Information Competency (2 unit). Initial studies report that on the basis of GPA a correlation could not be found between the co-requisite courses, however the study did report higher levels of performance for ESL students

who attended the library workshops versus those who did not. Nonetheless, because enrollment was low in these elective courses, assessment of student learning could not be considered significant. In 1999 a three-year Fund for Student Success (FSS) grant enabled the librarians to implement a series of workshops taught repeatedly throughout the semester, expanding the instruction of key information competency skills such as, catalog searching, research strategies, citation competency, and understanding journal and newspaper resources. In 2001, a two-year grant from the Fund for Instructional Improvement (FII) allowed the librarians to pair the existing credit based library courses with English and nursing courses as either co-requisites or “infused” sessions. Due to course drop rates during the semester, quantitative data from the English/library course pairings were not statistically significant. Despite this, qualitative feedback from both the English instructor and enrolled students suggest a positive impact. The “infused” instruction provided to entry-level nursing classes were comprised of three, thirty-minute information competency sessions throughout the semester. They focused on curriculum specific skills such as how to locate library resources, including journal articles, books, and websites relating to nursing. Pre and post-course assessments provided positive feedback from students. The qualitative data garnered from these studies form the basis for a recommendation to expand to the co-requisite and “infused” information literacy models as well as the development of more formal assessment strategies.

Authority: The authors of this article are all faculty members at Glendale Community College representing three different disciplines, Library Science, Nursing, and English. They conducted a longitudinal study between 1999 and 2001 reporting the results of two grant funded information competency models, subsequently published in *Reference Services Review*, a scholarly, peer-reviewed journal.

Database: After finding the article *The Lasting Impact of a Library Credit Course* by Wang (cited below) in ProQuest I decided to use the “cited by” link to find articles that may be similar in nature. The link produced nine articles that had cited Wang and I found one I thought would be perfect, unfortunately it was a dissertation. Rather than giving up on the source I decided to follow the references used in the dissertation and came up with this article which I was able to locate through ProQuest.

Method of Search: Citation search

Search String: N/A

Entry 7

O'Hanlon, N. (2001). Development, delivery, and outcomes of a distance course for new college students. *Library Trends*, 50(1), 8-27.

Abstract: “Describes a distance education online information literacy course developed at Ohio State University libraries that used interactive tutorials, Web-based tests, and practice-oriented worksheets. Discusses course management software; measures of success, including performance on assignments, final grades, and student attitudes; communication challenges; student self-regulation; and the value of flexible assignment schedules.”

Annotation: One of the fastest growing trends in higher education is distance learning. At the time this article was published (2001) more than 1,661,100 students attending colleges and universities across the U.S. were enrolled in online classes. Tied to this is the need to address information literacy standards, in particular computer literacy for undergraduate students. This article addresses both of these concerns as they relate to the instruction of students at Ohio State University (OSU). Five specific competencies were outlined by the faculty at OSU as a means of measurement for information literacy which cover both computing and research skills. They

included, using a web browser, as well as the library database and print collections to locate information, being able to choose the appropriate tool(s) for research and understanding how to evaluate sources, and knowing what's available and how to access significant information for your own field of study. In order to address these competencies, the library at OSU developed a one-unit, distance education course called Internet Tools and Research Techniques. The course was offered as a 4-week, online, one credit class over a period of three quarters during the 1999-2000 academic year. A total of 494 students enrolled and 90% of those students received a passing grade upon completion each quarter. Graded assignments consisted of worksheets, online tutorials and quizzes, and a "capstone exercise" requiring written essay responses to demonstrate proficiency in the information literacy competencies outlined by OSU. Both the assignment and final grades in conjunction with course evaluations completed by students at the end of the quarter provided the basis for assessment. Overall students averaged scores in the range of 56% to 77% in homework assignments over the three quarters, and grades for the "capstone exercise" were similar, ranging from 71% to 75%. Passing grades reflect basic competency in core information literacy skills including, web searching, using library resources such as the catalog and subscription databases, and research and evaluation strategies. Optional course evaluations are given upon class completion that asks students specific questions regarding course content, organization, and delivery. While evaluation response rate was initially low (31%), it increased by 23% over the assessment period providing a broader scope of student perspective. Overall the majority of students agreed that the class provided them with the necessary information literacy skills needed to perform well in subsequent coursework. While 90% of students agreed that the course met its goal of developing "the skills needed to use the Internet effectively" (p. 21). The information obtained in this assessment indicates that through

online classes the library is providing students with the instruction needed to develop information literacy competencies outlined by OSU. Because of this success and based on positive feedback on student evaluations regarding skills development, OSU Library decided to increase the number of classes offered and hire a new instructor to help expand enrollment.

Authority: Nancy O’Hanlon is the User Education Librarian for Internet Instruction at the Ohio State University Libraries. She has written numerous articles for various academic journals focusing on the development and assessment in library instruction. *Library Trends* is a scholarly, peer-reviewed journal published quarterly by Johns Hopkins University Press, focusing on the latest trends in library science.

Database: Using ProQuest Academic I searched for article about information literacy instruction in colleges with a student perspective. I used the “look up terms” option to find subject headings that relate to student opinion and came up with the term “student attitudes.” My search string produced 7 results and I chose this article after reading the abstract. Luckily the full-text was available and I didn’t need to go to an outside source access the article.

Method of Search: Controlled vocabulary, field, and keyword searching.

Search String: su.Exact("student attitudes") AND su.Exact("information literacy") and (success or achievement) and AB("college" or "university")

Entry 8

Scales, B. J., & Elizabeth, B. L. (2005, October). Qualitative assessment of student attitudes toward information literacy. *portal : Libraries and the Academy*, 5(4), 513-526.

Abstract: “Many distance degree students at Washington State University enroll in General Education 300, a one-credit information literacy course taught online by librarians that exposes students to activities and materials that support the ACRL information literacy standards. In a final assignment, students write about the origins, applicability, and future use of information literacy and their newly minted skills in this area. We used ATLAS/ti, <http://www.atlasti.de/>, to analyze the text of these assignments and explore student attitudes toward information literacy. The majority of students articulated a broad view of information literacy not tied to a specific course project or to the library as a place.”

Annotation: The librarians at Washington State University (WSU) offer students a one-credit course called Gen Ed 300: Accessing Information for Research, which teaches information literacy and research skills. It can be taken either in person or online, is largely self-directed, and focuses on research and resource evaluation, and the ethics surrounding the use of information. The aim of this class is for students to develop information literacy skills that go beyond the length of the course itself, developing critical thinking abilities that will carry over throughout their lives. The focus of this article is in assessing student attitudes toward the term “information literacy.” To accomplish this, instructors asked students who were enrolled in the online section of Gen Ed 300 a series of written response questions to be completed for their final assignment. Questions included asking students how they would define information literacy, how it relates to research, and how it may be of use to them in the future. The librarians then documented and analyzed the responses using ATLAS/ti, an online qualitative analysis software program that codes and categorizes text in a manner allowing for the identification of relationships among responses. In total the authors received 76 student responses over three semesters in the 2003-2004 academic year. Once the responses were labeled by the ATLAS/ti software based on instructor defined criteria they were analyzed and placed into six naturally developing categories, abstract oriented, early life-oriented, library-oriented, need-oriented, project-oriented, and question-oriented. Findings indicate that student’s attitudes regarding information literacy are

broad, and that the majority tend to think of it in terms of “life-long learning” as opposed to task specific. The numbers indicate that 71% of students surveyed felt that information literacy was a skill they would continue to use and develop throughout their life, whereas 29% felt the information literacy skills they had acquired were sufficient, and they had no need or desire to learn more. The results also raised some questions and provided insight to librarians teaching information literacy. With the wide array of skills to be taught to students and limited time and opportunities to do so, shifting the focus away from the technical aspects of things like perfect citations and towards information evaluation may be in the better interest of students.

Authority: B. Jane Scales and Elizabeth Blakesley Lindsay are both librarians at the University of Washington as well as being collaborators on other articles pertaining to libraries, assessment and student attitudes. The publication *portal: Libraries and the Academy* is a highly regarded peer-reviewed journal listed in *Ulrich's International Periodicals Directory* as being geared toward academic librarianship with a strong emphasis on new technologies such as distance learning and digital copyright. Published by Johns Hopkins University Press, *portal: Libraries and the Academy* was recognized in 2001 by the Council of Editors of Learned Journals as a runner up in the best new journal category.

Database: Using the ProQuest Academic search interface I selected the ProQuest Library Science and LISA databases. Performing an advanced search in command line mode I selected “look up terms” followed by “look up subject” and chose “student attitudes” and “information literacy.” I then added a field search using the code AB to search the abstract for college* or university* which would include the terms college, colleges, university, and university's or

universities. This search only produced three results but after reading the abstract I felt like this article was appropriate to my topic.

Method of Search: Controlled vocabulary, field search, and truncation.

Search String: su.Exact("student attitudes") AND su.Exact("information literacy") and AB("college*" or "university*")

Entry 9

Soria, K.M., Fransen, J., & Nackerud, S. (2013, April). Library use and undergraduate student outcomes: New evidence for students' retention and academic success. *portal: Libraries and the Academy*, 13(2), 147-164.

Abstract: "Academic libraries, like other university departments, are being asked to demonstrate their value to the institution. This study discusses the impact library usage has on the retention and academic success of first-time, first-year undergraduate students at a large, public research university. Usage statistics were gathered at the University of Minnesota during the Fall 2011 semester for thirteen library access points. Analysis of the data suggests first-time, first-year undergraduate students who use the library have a higher GPA for their first semester and higher retention from fall to spring than non-library users."

Annotation: This study conducted at the University of Minnesota during the Fall 2011 semester looks at first-time, first-year students to assess if there is a relationship between student success and library usage. The literature review suggests that while research already exists to demonstrate how increased library use has a positive effect on student achievement and retention; those studies generally fall short due to limited sample size data, inability to collect data due to privacy policies or inadequate examination of library resource use. For this study data was split into two distinct groups, one coming from students using library resources such as databases, books, ILL's, the library website and the library computer mall. Data from the second

group came from users who attended library workshops, received classroom instruction, used online research web tutorials, met with peer researchers, or asked for reference assistance. The results suggest that in general students who use the library or participate in library activities have higher GPAs and higher retention rates. Since each type of library activity was measured individually the authors were able to identify the data most highly associated with GPA and retention as being accessing online databases and journals, using library workstations, enrolling in the Intro to Library Research Part 2 workshop and checking out books. While the data does suggest a positive correlation between academic achievement, retention, and library use the authors do advise that perhaps qualitative research methods should be used in future studies, attributing some of the study's limitations to the use of strictly quantitative methods.

Authority: According to *Ulrich's International Periodicals Directory*, *portal: Libraries and the Academy* is a scholarly, peer-reviewed journal published by Johns Hopkins University Press. The article's authors all work for the University of Minnesota, Soria in the Office of Institutional Research, Fransen as Engineering Librarian at Walter Library, and Nackerud as Technology Lead for the eLearning Support Initiative. The article utilizes empirical data that reflects current library resources and trends.

Database: Using the ProQuest Academic interface, I searched ProQuest Library Science and LISA and found this citation in the ProQuest Library Science database. After reading the abstract I decided it might be a good article for my topic but I needed the full-text, so I went to the Hagerty Library home page and searched the catalog using the "Articles & More" link, advanced search screen. I typed in the name of the publication, volume and issue number, all listed in the original citation I had from my initial search. There were 15 articles available for that issue and

mine was the 4th listing. From there I was directed to log into the Drexel link for Project Muse where I gained access the full-text.

Method of Search: Controlled vocabulary and keyword searching.

Search String: Su.Exact("academic libraries") AND (success or achievement) AND (correlation)

Entry 10

Vance, J.M., Kirk, R., & Gardner, J. G. (2012). Measuring the impact of library instruction on freshman success and persistence: A quantitative analysis. *Communications in Information Literacy*, 6(1), 49-58.

Abstract: "This study examines the relationship between formal library instruction and undergraduate student performance and persistence in higher education. Researchers analyzed two years of academic and demographic data collected from first-time freshmen at Middle Tennessee State University in an attempt to quantify the effect of librarian-led one-shot classroom instruction on students' grade point averages and their likelihood of returning to school for the sophomore year."

Annotation: In order to determine whether or not "one-shot" library instruction sessions were having a significant impact on student success and retention, three librarians at Middle Tennessee State University's James E. Walker Library undertook a quantitative analysis of both student demographic data and library instruction records. Demographic information gathered from 3,330 students during the fall 2008 and spring 2009 semesters included age, race and gender, courses taken, grades obtained, and high school GPA and test scores. This data was combined with records of library instruction sessions given to specific classes and it was determined that "approximately 1,700 first-year students were enrolled in classes that attended library instruction in that academic year" (Vance et.al. p.54). While analysis of data shows that

student retention is strongly correlated to GPA, it failed to prove that library instruction was a factor. However, when looking at the impact of library instruction on overall GPA the authors did find statistical significance between the two. Analysis indicates that students receiving library instruction will average a GPA that is 0.09 higher than those who have not attended library instruction. The author's acknowledge inconsistency in the results of their study in that the correlation between library instruction and GPA should correspond to student retention, if student retention is in fact informed by GPA. Acknowledged factors that may influence this include the omission of attendance reporting for library instruction sessions and data being limited to exposure to introductory library instruction rather than different models of instruction.

Authority: The author's of this article are all librarians at Middle Tennessee State University, with Jason Vance specifically being the Information Literacy Librarian. All of the author's have not only published other works, but have presented their work at national library conferences. The publication itself, *Communications in Information Literacy* is a peer-reviewed, open access journal geared toward research in information literacy practice and theory. *Ulrich's International Periodicals Directory* also indicates that this title is a valuable resource for instruction librarians.

Database: I first located this article through a bibliography of resources in a trade journal article by William Badke entitled *Infolit and GPA* published in *Online Searcher*. It seemed like it might be a viable resource so I began a citation search in Web of Science to locate the article but was unable to find anything either via author or cited reference searches. I decided to go to ProQuest and use the "Look Up Citation" option. Since I knew the exact title I simply typed it into the title field and voila! My article popped up in full-text as the only result.

Method of Search: Citation search.

Search String: N/A

Entry 11

Wang, R. (2006, January). The lasting impact of a library credit course. *portal: Libraries and the Academy*, 6(1), 79-92.

Abstract: “This study found that there were statistically significant differences in citation use and grades between students who took a library credit course and students who did not. The results of independent samples t-tests indicated that the student group that took a library credit course cited more scholarly resources, produced fewer incomplete citations, and received higher grades for its papers and courses. The data included 836 citations produced by 120 student papers and the students' grades for their papers and courses in the fall of 2004. Additionally, the survey results revealed that the students' acquisition of bibliographic research and citation skills was directly attributable to the library credit course, whereas their counterparts tended to rely on informal sources. The evidence supports the lasting impact of a library credit course on student learning.”

Annotation: This article presents the results of a study conducted at Central Michigan University in 2004 to find out if 8-week for credit library courses have a significant impact on the quality of student work and the grades associated with that work. While the literature review refers to previous studies that measured the correlation between student achievement and library credit courses, the majority of data was between 20 to 40 years old and relied primarily upon pre/post test statistics for measurement which many find inconclusive as it reflects what is cited as “short-term recall” rather than “long-term retention.” The study tracked two sample groups of 60 students each who were enrolled in the same classes. The first group had taken the library skills course between 1999 and 2004, and the second group had not taken the course. The variables used included total citation counts, number of scholarly sources cited, and number of incomplete citations in each student's papers over the course of the semester, as well as the student's individual paper and overall course grades. The results of the study indicate that

students who had taken the library skills course performed significantly higher in use of scholarly citations, complete citations, grades on individual papers and overall class grades. The only variable that did not indicate a significant difference between the two sample groups was the total number of citations produced. However, this may be attributed to the fact that four out of ten professors whose classes were used as a part of this study already require a minimum number of citations for student's papers. In conjunction with the quantitative measures used, a short survey was given to each student asking about their perceptions regarding bibliographic research and citation skills. This survey indicated that about half of the students who took the library course felt they had learned citation skills as a result and nearly all of those students felt they learned research skills there as well. While this study seems to prove the theory that for credit library skills courses have a positive impact on student achievement, the author indicates the need for a broader study utilizing larger sample groups and focusing on long-term outcomes in the future.

Authority: According to *Ulrich's International Periodicals Directory*, *portal: Libraries and the Academy* is a scholarly, peer-reviewed journal published by Johns Hopkins University Press. The author, Rui Wang is a librarian at the University Libraries at Central Michigan University and has master's degrees in both Library and Information Science and Sociology.

Database: This article was found while performing a citation search (using the Cited By link in the abstract) through ProQuest Academic of Wong and Cmor's article *Measuring Association between Library Instruction and Graduation GPA*.

Method of Search: Citation search.

Search String: N/A

Entry 12

Wong, S. & Cmor, D. (2011, September). Measuring association between library instruction and graduation GPA. *College & Research Libraries*, 72(5), 464-473.

Abstract: “Academic libraries devote considerable human resources in delivering library instruction programs. This study attempts to determine if these instructional efforts have any measurable effect on student performance in terms of overall grades. Library workshop attendance and graduation GPA of over 8,000 students was analyzed at Hong Kong Baptist University. It was found that, if more than one or two library workshops were offered to students within the course of their program, there was a higher tendency of workshop attendance having a positive impact on final GPA. The results indicate that library instruction has a direct correlation with student performance, but only if a certain minimum amount of instruction is provided.”

Annotation: This article discusses the results of a study conducted at Hong Kong Baptist University to determine if a correlation exists between library instruction and GPA performance. The literature review indicates prior studies were equally divided in finding a positive association between academic achievement and library instruction, but as mentioned by the authors no sample size of note had been used suggesting the need for a much broader survey. So in 2010 the authors undertook a study comparing GPA data from students who had graduated between 2007 and 2009, with library workshop attendance records from the same period. A sample size of 8,701 students was used and data was divided based on both department and level of study creating 45 sample groups. Initial results indicated only 24.5% of the sample groups exhibited a positive correlation between library workshop attendance and GPA. However as the authors began to look at the data they discovered a pattern indicating a tendency toward increased GPA in relation to increased attendance at library workshops. In essence, suggesting that while GPA may not be affected by one library workshop, when a student attended four, five

or more workshops, “there was not only a positive association but...a “strong” association” (p. 470). The authors have identified certain limitations to the study including, statistical methods, differences in instructional factors and variations in workshop attendance requirements. In response to the survey results faculty librarians at Hong Kong Baptist University have begun to offer more workshops geared toward specific outcomes, tailoring instruction to particular areas of study with the hopes of reproducing the study in the future to determine if a stronger correlation can be found.

Authority: Looking in *Ulrich’s International Periodicals Directory* I was able to confirm that *College & Research Libraries* is a peer-reviewed journal, containing academic/scholarly articles. The authors, Wong and Cmor are both librarians at Hong Kong Baptist University and both continue to write articles about library related issues for academic journals, with a combined total of 8 articles since 2001. This particular article has been cited twice for use in scholarly, peer-reviewed journals since its publication in 2011.

Database: I searched ProQuest Library Science and LISA and found this citation in the ProQuest Library Science database. The abstract sounded exactly like what I was looking for but since there was only a citation I needed to find the full-text somewhere else. I went to the Hagerty Library web page and selected advanced search under the “Articles & More” link. I typed in the journal title, volume and issue number and hit search. Forty titles came up and my article was the 4th in the list. I clicked full text and then had the option of accessing the article through Directory of Open Access Journals (DOAJ) or through the Library Literature & Information Science database.

Method of Search: Controlled vocabulary and keyword searching

Search String: Su.Exact(“university libraries” or “college libraries”) AND (“academic achievement”)

Conclusion and Personal Statement

Constructing an annotated bibliography, while challenging has allowed me to use many of the skills I acquired throughout this quarter. The first hurdle was in learning how to create effective search strategies and implement them in various databases. It’s simply not enough to plug keywords into a search box and expect credible results. One of the most valuable lessons I learned all quarter is to be patient and take the time to review the documentation and help menu for each database before searching. This tells me about its appropriateness to my topic, as well as guiding me to the correct operators, thesaurus and subject terms for each database in order to produce the best results.

Learning about citation analysis was enormously helpful in many ways, but particularly as a time saver. Being able to identify the components of a citation to determine the articles overall relevance to my topic was extremely valuable. Where I once simply looked to the abstract to inform me about an article, I now concentrate on multiple clues available in a citation such as, currency, journal information, author affiliations, and subject indexing. All of these things are strong indications of whether or not the article will be of value to my research, and has the potential to direct me to further articles that me be equally or more beneficial to me.

Search sets and citation chasing are invaluable skills that I’ve gained during the process of completing this project. I had never been introduced to creating search sets before and found that having a record of my history and being able to combine them made for more powerful and accurate results. Citation chasing is something I had always done but I never knew it had a name,

nor did I know there was an entire database designed around the practice of doing so. Using Web of Science as well as options in other databases that link to article citations has resulted in expanded access to target results. Knowing this is a viable option has changed my search proficiency drastically.

Overall I believe that the process of creating an annotated bibliography was an exercise that has made me a better researcher. Researching, evaluating, and compiling a document demonstrating how information literacy and student success are linked, and subsequently measured is the culmination of the proficiencies I've learned throughout the quarter. These skills are the foundations of librarianship that will take me through the rest of my coursework and beyond, to a career teaching others these skills.

References

American Library Association. (2006, July 27). *Introduction to information literacy*. Retrieved from <http://www.ala.org/acrl/issues/infolit/overview/intro>