

# USING ASSESSMENT DATA TO INVESTIGATE LIBRARY INSTRUCTION FOR FIRST YEAR STUDENTS

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## ABSTRACT

Seeking ways to develop information literacy skills among first year college students, librarians at our institution developed a pilot program to measure the effects of a multiple library instruction session module on students' research skills in the first semester. The pilot program incorporates a substantial assessment model consisting of a pretest, posttest, and a citation analysis of final papers. Results demonstrate that students who had multiple library instruction sessions during the first semester report higher levels of confidence and greater use of library resources than students who had only a single instruction session.

## INTRODUCTION

Almost all first year students at our institution filter through the library during their first semester. Most students visit formally during a one-shot bibliographic instruction session connected to their First Term Seminar (FTS) courses; these instruction sessions typically introduce students to information sources and provide an overview of library services. Recent revisions to the FTS program prompted

librarians to reconsider how we interact with the program. As the program began to emphasize critical thinking skills to a greater degree, librarians wanted to help students apply critical thinking skills to the world of information. We sought to investigate whether teaching multiple instruction sessions to individual FTS sections increases some components of information literacy skills in first year students, specifically their use of library resources, research practices and confidence in conducting research.

Our initiatives were not taken lightly. Lack of time is a perennial issue for our instruction program; in a single 50-minute library session, it is difficult to orient first year students to library resources, much less promote information literacy skills. Additional instruction sessions place a strain on the heavy workload for both librarians and classroom faculty in terms of time. Despite these barriers, the librarians committed to exploring the following question: do additional instruction sessions have a measurable, positive impact on some of the information literacy skills of first year students? In order to answer this question, we developed a pilot program aimed at collecting assessment data to help us determine the direction of our instruction efforts for first year students.

#### LITERATURE REVIEW

A review of the literature reveals several studies that use locally developed assessment plans to study the information literacy skills of first year students. Helmke and Matthies (2004) demonstrate the usefulness of establishing a baseline of student research skills as they enter college through administering a pretest. Although they recognize that the questionnaire they administer is not methodologically rigorous, results helped inform development of an introductory library tutorial. Riddle and Hartman (2000) describe an assessment program analyzing first year library instruction efforts and measuring student learning. Methods include dividing the students into control and experimental groups as well as developing and testing a survey instrument. Ursin, Lindsay and Johnson (2004) use a citation analysis rubric to assess the impact of the library instruction program on the work of first year students to determine whether or not students utilize sources from librarian-authored resource guides. Samson and Granath (2004) present a sophisticated assessment model that includes pretest and posttest instruments, a citation analysis, grade comparisons, and an online instruction module. Results provide insight into the effectiveness of various pedagogical approaches used in an English Composition library component.

In addition to mapping possible assessment plans, the literature underlines a growing number of studies investigating the impact of multiple instruction sessions on the information literacy skills of college students, both in the first year and beyond. The question is an important one for libraries to consider, as Boff and Johnson (2002) report from a national survey that almost half (48%) of academic libraries devote only one hour to library components for first year students. Hearn (2005) assesses a 10-session information literacy model integrated into a first year English class. The assessment method includes a citation analysis of student work to determine the quality of sources, and finds that students use more high quality sources after taking the library component. Gandhi (2004) explores the impact of a five-session library instruction component for community college students; results from the pretest, posttest, and teaching evaluation survey indicate that students in the five-session group demonstrate higher levels of learning than students who experience the traditional one-shot session. Zoellner, Sampson, and Hines (2008) investigate student learning outcomes resulting from a research component embedded into a public speaking course. Data from the pretest and posttest data confirm an increase in confidence related to research among students. Gilbert and Gilbert (2010) assess the impact of a 12-week library lab component on the information literacy skills of mid-level Political Science majors. Results from the pretest, posttest and a citation analysis of final papers indicate information literacy skills increase significantly compared to students who did not take the lab component.

#### ASSESSING THE FTS PILOT PROGRAM

Gustavus Adolphus College is a private liberal arts college located in the Midwest, enrolling 2,600 undergraduates. Nearly all students in the entering class take a First Term Seminar (FTS) in their first semester; each FTS is capped at 16 students. FTS sections are taught by faculty representing a range of disciplines and each FTS is organized around a unique topic chosen by the instructor. In addition to covering course

content, FTS courses introduce students to writing, oral presentation, and critical thinking at a college level; the program also places a heavy emphasis on advising first year students. The college typically offers around 40 FTS courses each fall.

The library has traditionally offered one-shot sessions for most FTS courses since the program's inception in 1993. We developed our pilot program to investigate how expanding the number of sessions affects the information literacy skills of first year students. In the fall of 2007, librarians recruited nine FTS sections: five sections comprised the experimental group and four sections made up the control group. The five experimental sections each met with a librarian two or three times, while the control group sections met once with a librarian in a traditional one-shot session. Library and research content did not diverge sharply between the groups; in the experimental group, however, librarians had more time to explore various information resources and skills with students and, in one case, to make individual appointments with students to discuss their research.

Librarians administered a pretest and posttest to all students in the pilot program and collected final papers from student volunteers in both the experimental and control groups; all data, including final papers, were gathered anonymously. Students in the nine participating FTS sections took the pretest at the very beginning of their first instruction session and a posttest at the end of the semester. The pretest was administered to all participating sections by the sixth week of the semester, while the posttest was given during the 14th (final) week of the semester. Final papers were gathered, with the assistance of course instructors, at the end of the semester. Students were given the option to opt out of any part of the study at any time.

Although the study was not designed to test specific aspects of the Association of College and Research Libraries' (ACRL) "Information Literacy Competency Standards for Higher

Education" (2000), the study reflects the spirit of the standards by inquiring into our students' ability to "locate, evaluate, and use effectively the needed information" (p. 2). Our main interest centered on how our students used the library and how they viewed their own abilities to conduct research; an investigation into students' actual research practices and decisions fell outside the limits of the study. Therefore, we developed pretest and posttest questions around two broad categories: student research patterns and student confidence levels. Librarians jointly developed question wordings and determined the order of questions, beginning with students' high school library use patterns. We utilized a 5-point Likert scale for all responses. (Copies of the pretest and posttest are included in Appendix A.)

We also conducted a citation analysis of students' final research papers. We developed a rubric based on ones used in other recent studies (Knight-Davis & Sung, 2008; Mill, 2008) and assigned a unique code to various types of information sources: books, websites, newspapers, scholarly articles, magazine articles, and government documents. Information sources were also coded in terms of whether or not they were available through our library. Although it was sometimes impossible to determine if a student had utilized the library's copy, this analysis helps us determine to what extent students use our library's resources and tracks the variety of sources used. The study was not designed to control for information literacy skills the students might have learned outside of the library. As noted above, the study does not directly measure student research skills. While the pretest and posttest focus primarily on student perceptions of their own research skills and reported usage patterns, the citation analysis does shed light on student research skills by analyzing quality of source selection. The study also does not control for the variety of topics students are researching or the discipline in which they are working, both of which have an impact on the number and kinds of sources used. Additionally, the study does not test the impact of particular kinds of library instruction sessions. Individual librarians

retained the autonomy to create whatever kinds of session(s) that best fit the needs of each FTS; this approach recognizes the ethos in our library that a predetermined, one-size-fits-all approach to FTS library instruction does not account for the range of subject content (and thus discipline-specific research tools and approaches) inherent in the FTS program.

We hypothesize that students in the experimental group will report higher confidence levels and stronger library use patterns than students in the control group. We also expect that the experimental group will use library resources to a greater extent.

**ASSESSMENT RESULTS**

**Pretest**

The pretest establishes a baseline measure of entering students’ experiences with information sources and skills, providing library and classroom faculty with a glimpse at the variety of research skills and perceptions students bring to college (see Table 1).<sup>1</sup>

Table 1 indicates that a substantial percentage of entering students have little experience using libraries; nearly two in five did not use their

high school media center and over one third (34.6%) strongly disagree, with another third (35.4%) disagreeing, that they used their public library on a regular basis.<sup>2</sup> Nonetheless, a large majority of entering students (88.5%) have some experience writing research papers, and an even larger percentage (93.1%) report they were taught the importance of citations in high school.<sup>3</sup> Although most students come to college familiar with the reasons for doing citations, anecdotal evidence from library and classroom faculty suggests students express confusion and anxiety over how to properly document sources. Moreover, over three-fourths of respondents (74.8%) say they often start a research project by doing a Google search. This pattern is not unusual; the 2005 OCLC “Perceptions of Libraries and Information Resources” found that most college students start their research at an online search engine (p. 1-17). This comes as no surprise when only one-third of entering students (32.3%) possess some familiarity with online article databases, and over half (53.1%) are not at all familiar with these important resources, indicating a knowledge gap that can be filled by the library.

The pretest also measures students’ confidence in their own research abilities (see Table 2).

TABLE 1—PREVIOUS USE OF INFORMATION SOURCES, FTS PRETEST – ALL STUDENTS

	<b>Strongly Agree (%)</b>	<b>Agree (%)</b>	<b>Not Sure (%)</b>	<b>Disagree (%)</b>	<b>Strongly Disagree (%)</b>
I used my high school media center/library often	6.1	48.9	5.3	35.9	3.8
I used my public library often in high school	2.3	19.2	8.5	35.4	34.6
In high school, I wrote several papers that required me to use outside sources, such as books, articles, and websites	36.6	51.9	6.1	4.6	0.8
My high school teachers explained why it is important to cite sources in a paper	41.2	51.9	4.6	1.5	0.8
When I begin a research project, I often start with Google or another search engine	22.1	52.7	9.2	14.5	1.5
I am familiar with online article databases (like EBSCOhost’s Academic Search Premier)	7.7	24.6	14.6	35.4	17.7

Note: n=130

This measure is especially useful as a comparison to posttest results, helping us determine how confidence levels in research abilities change over the course of the semester.

Table 2 indicates that over half of all students (52.6%) are confident in their ability to develop a thesis or argument for a paper and over two-thirds (67.9%) believe they can locate appropriate sources. In general, respondents are more likely to agree than strongly agree with these statements, indicating potential for growth in these skills. However, these levels of overall confidence dissipate on the more specific questions about source usage. Almost 60% of students<sup>4</sup> are confused by citations, and about half report having a hard time discerning the reliability of website information and knowing how to incorporate sources into their papers.

### Posttest

The majority of questions on the posttest mirror pretest questions, allowing us to measure changes over the first semester.<sup>5</sup> In general, we found many positive changes from the pretest to the posttest, including a drop in the number of students responding “not sure” to nearly all questions and an increase in the number of students exhibiting confidence in their research

abilities. Table 3 compares differences between the control and experimental students.

The biggest and most statistically significant finding is the rate at which students in the experimental group meet with a librarian at the reference desk. Students in the experimental group, who had more contact with a librarian throughout the semester in formal instruction settings, are more likely to meet with a librarian at the reference desk (62.2%) than students in the control group (51.6%). Results should be taken with a grain of salt, however, since the study did not control for requirements from instructors, some of whom could have assigned students to meet with a librarian outside of class. Being in the experimental group has little impact on how often students use the library to do research, however, as students in both groups do so at fairly similar rates. In two other cases the control group is more likely to use certain library resources than the experimental group: three-fourths of the control group (74.2%) often start their research at the library’s homepage, compared to 58.7% of the experimental group. Furthermore, almost the entire control group (95.2%) uses online databases, compared to 85.4% of students in the experimental group; this is a statistically significant difference.

TABLE 2—REPORTED CONFIDENCE LEVELS, FTS PRETEST – ALL STUDENTS

	Strongly Agree (%)	Agree (%)	Not Sure (%)	Disagree (%)	Strongly Disagree (%)
I know I can locate a variety of appropriate sources (books, articles, websites) for a research project	16.8	51.1	25.2	6.1	0.8
I am very confident in my ability to develop a thesis/argument for my paper	7.6	45.0	27.5	19.1	0.8
Citations are confusing to me – I’m not sure how to properly cite a source in my paper	7.6	27.5	25.2	32.8	6.9
When looking at a website, I have a difficult time deciding if it contains enough reliable information to use in a paper	4.6	23.1	25.4	41.5	5.4
I have a hard time knowing how to incorporate ideas and concepts from books, articles, or websites in my papers	0.8	22.1	26.0	46.6	4.6

Note: n=130

TABLE 3—USE OF INFORMATION SOURCES, FTS POSTTEST, EXPERIMENTAL VERSUS CONTROL GROUP STUDENTS (PERCENTAGES)

	<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>	<b>P</b>
I met with a reference librarian at the reference desk at least once this semester	C: 21.0 E: 23.0	C: 30.6 E: 39.2	C: 0.0 E: 0.0	C: 27.4 E: 35.1	C: 21.0 E: 2.7	.009**
In addition to class visits to the library, I frequently used the library to do research	C: 6.5 E: 10.8	C: 54.8 E: 56.8	C: 8.1 E: 9.5	C: 25.8 E: 18.9	C: 4.8 E: 4.1	.810
This semester I have used online article databases available in the library (like Academic Search Premier or JSTOR)	C: 46.8 E: 22.7	C: 48.4 E: 62.7	C: 0.0 E: 5.3	C: 3.2 E: 8.0	C: 1.6 E: 1.3	.019*
When I begin a research project, I often start at the library's homepage	C: 29.0 E: 14.7	C: 45.2 E: 44.0	C: 6.5 E: 6.7	C: 19.4 E: 30.7	C: 0.0 E: 4.0	.112

Note: C = control group respondents, E = experimental group respondents. Control group n = 62; experimental group n = 75. *p* = statistical significance of chi square value for cross tabulation of each

TABLE 4—REPORTED CONFIDENCE LEVELS, FTS POSTTEST, EXPERIMENTAL VERSUS CONTROL GROUP STUDENTS (PERCENTAGES)

	<b>Strongly Agree</b>	<b>Agree</b>	<b>Not Sure</b>	<b>Disagree</b>	<b>Strongly Disagree</b>	<b>P</b>
I am confident in my abilities to use the library to find books, articles, and other sources	C: 17.7 E: 17.3	C: 51.6 E: 64.0	C: 21.0 E: 14.7	C: 9.7 E: 4.0	C: 0.0 E: 0.0	.344
I know I can locate a variety of appropriate sources (books, articles, websites) for a research project	C: 22.6 E: 25.3	C: 59.7 E: 65.3	C: 9.7 E: 9.3	C: 6.5 E: 0.0	C: 1.6 E: 0.0	.176
Citations are confusing to me – I'm not sure how to properly cite a source in my paper	C: 1.6 E: 1.3	C: 19.4 E: 17.3	C: 17.7 E: 12.0	C: 46.8 E: 54.7	C: 14.5 E: 14.7	.866
I am very confident in my ability to develop a thesis/argument for my paper	C: 17.7 E: 16.2	C: 50.0 E: 55.4	C: 27.4 E: 18.9	C: 3.2 E: 9.5	C: 1.6 E: 0.0	.345
When looking at a website, I have a difficult time deciding if it contains enough reliable information to use in a paper	C: 4.8 E: 4.0	C: 12.9 E: 14.7	C: 19.4 E: 17.3	C: 51.6 E: 61.3	C: 11.3 E: 2.7	.329
I have a hard time knowing how to incorporate ideas and concepts from books, articles, or websites in my papers	C: 4.8 E: 0.0	C: 9.7 E: 17.3	C: 12.9 E: 6.7	C: 59.7 E: 69.3	C: 12.9 E: 6.7	.080*

Note: C = control group respondents, E = experimental group respondents. Control group n = 62; experimental group n = 75. *p* = statistical significance of chi square value for cross tabulation of each question with control and experimental groups; \* = chi square value is statistically significant at .1 level, \*\* = statistically significant at .01 level.

Posttest results also provide an understanding of student research confidence levels at the end of the first semester. Table 4 examines differences in confidence levels between the experimental and control groups.

In general, Table 4 indicates that students in the experimental group exhibit higher levels of confidence than students in the control group. They are more confident in their abilities to use the library to find sources (81.3% of the experimental group agrees compared to 69.3% of the control group) and in their ability to locate a variety of appropriate sources (90.6% of the experimental group agrees compared to 82.3% of the control group). Confidence levels related to more specific research-oriented tasks reveal fewer differences. The experimental group (30.6%) is slightly less likely than the

control group (38.7%)<sup>6</sup> to agree that citations are confusing; this is a decided drop from the pretest findings where over half reported being confused by citations. The experimental group (71.6%) is slightly more likely than the control group (67.7%) to report that they are confident in their abilities to develop a thesis/argument for a paper. Both groups disagree at a similar rate that they have difficulty determining the reliability of websites (62.9% in the control group and 64.0% in the experimental group). Finally, members of the control group (14.5%) are slightly less likely than those in the experimental group (17.3%) to agree that they have a hard time incorporating sources into papers; these percentages also represent a modest improvement over pretest confidence levels.

TABLE 5—SOURCE USAGE, FTS POSTTEST, EXPERIMENTAL VERSUS CONTROL GROUP STUDENTS (MEANS UNLESS OTHERWISE STATED)

	Control	Experimental	P
Total number of sources used	11.8	7.3	.000**
Total number of library-owned sources used	5.1	4.4	.125
Library sources as percent of total sources used	49.3	66.0	.009**
Internet sources as percent of total sources used	24.1	22.6	.786
Books used	1.9	3.2	.001**
Library books as percent of total books used	38.7	84.3	.000**
Scholarly articles used	1.9	0.8	.001**
Library scholarly journal articles as percent of total scholarly journal articles used	89.8	90.0	.976
Nonscholarly periodical articles used	1.6	0.8	.025*
Library nonscholarly periodical articles as percent of total nonscholarly periodical articles used	79.6	91.7	.234
Newspaper articles used	1.1	0.1	.000**
Library newspaper articles as percent of total newspaper articles used	80.4	100.0	.374
Government documents used	1.5	0.2	.000**
Library-owned government documents as percent of total government documents used	20.9	42.9	.221

Note: Control group n=33; experimental group n=46. *p*=statistical significance of difference of means one-tailed *t*-test. \*=chi square value is statistically significant at .1 level, \*\*=statistically significant at .01 level.

## CITATION ANALYSIS

The citation analysis of students' final papers provides insights into the kinds of sources used as well as student use of library resources. Although the study does not control for the variety of research topics utilized or disciplinary trends toward specific types of information sources, which might account for some differences, all final papers required a scholarly assessment of the paper topic.

Although students in the experimental group use fewer resources on average than those in the control group (7.3 compared to 11.8), students in the experimental group are also significantly more likely than students in the control group to use library resources as a percentage of total sources used. The pattern holds true for most categories of information sources. Students in the experimental group are much more likely to use books and overwhelmingly more likely to use library books. Although students in both groups access scholarly articles available through the library at almost the exact same rate, students in the experimental group are far more likely to access nonscholarly articles, newspapers and government documents through the library. Students in the control group were much more likely to access scholarly articles, validating the Table 3 findings that control group students were more likely to use online databases. Again, while specific topics may account for differences in sources used, we see a pattern emerging that students who had more library instruction sessions are more likely to use library resources, perhaps indicating greater depth of understanding of the resources on hand at the library.

## DISCUSSION

The assessment model and findings provide us with a snapshot of students at the beginning and end of their first semester. The pretest reveals that first year students come to college with a range of research and library experiences. Although most students report having some experience writing research papers in high school, experiences vary with using specific

research resources, like electronic databases. Our library clearly has a role to play in orienting students to library resources and how to conduct research at a college level. The posttest demonstrates that students do improve in terms of their perceived research skills and confidence levels over the first semester.

We return to our central research question: do multiple instruction sessions have additional value in developing information literacy skills? Results support the study's hypothesis: in general, students in the experimental group exhibit a small but positive increase in some of their information literacy skills. These students demonstrate greater improvements in confidence levels and some aspects of their research patterns than students in the control group. By far the biggest difference is that students in the experimental group are much more likely to meet with a reference librarian. They are also more likely to be more confident in their ability to use the library and to locate a variety of sources than the control group. Clearly, there are some positive effects to having more instruction sessions. Results are not fully clear cut, however; almost all other comparisons between the groups on the posttest show little difference between the control and experimental groups. Both groups report similar patterns of library use and, in the case of beginning research at the library's homepage and using our databases, the control group outperforms the experimental group.

A number of factors might contribute to these patterns. Primarily, the study does not control for what students are actually researching. Students' topics – and any requirements placed on them by their instructor as far as the number and type of sources required – impact their research behavior. Nor does the study control for the kinds of information literacy skills students might have learned in any of their other courses during the first semester. The citation analysis, however, shows that students in the experimental group are much more likely than students in the control group to use library resources in their papers.

These findings indicate that offering multiple library instruction sessions to FTS sections contributes to higher levels of student confidence and greater use of specific library resources, such as the reference librarian. The assessment data influence our decision to further develop a multiple instruction session option for FTS instructors. We have advanced this initiative in several ways, beginning by sharing results with several interested parties. The FTS Program Director expressed encouragement over the results, as did several of the course instructors who were involved in the initial pilot program. We then incorporated initial findings from the program into the library portion of the week-long training required for all new FTS instructors. Finally, as we prepare for upcoming semesters, we are already suggesting this model when meeting with individual FTS instructors and have begun to develop multiple instruction sessions with interested faculty.

The library can only do so much, however. In order for students to develop sophisticated information literacy skills, we must partner with the classroom. We know informally from experience that instructors have a great deal of influence over student research behavior, since students are accountable to instructors in terms of their work. When instructors commit precious course time to library sessions, they send a message to their students that the library is important, that librarians have a unique role in developing research skills, and that rigorous research is respected and valued in their courses. The assessment data from our pilot program, while inconclusive in some aspects, is invaluable in providing concrete evidence of student information literacy skills that develop as a result of the collaboration between librarians and course instructors.

## CONCLUSION AND NEXT STEPS

The pilot program has helped us learn more about first year students, their research patterns and their confidence levels in their own skills. Results partially support the hypothesis that multiple instruction sessions have a positive, measurable impact on the information literacy

skills of students. We learned that students who had multiple instruction sessions as part of a single course express greater levels of confidence in their own research skills and tend to use library resources to a greater degree. While the study does not overwhelmingly indicate a huge jump in information literacy skills as a direct result of multiple instruction sessions, findings from the pilot program indicate that there are benefits (and certainly no harm) in teaching multiple instruction sessions for a single class. Furthermore, the data have helped to convince instructors of the potential value of multiple sessions.

The study also points to the need for a more sophisticated assessment model, one that includes a larger sample size, more data gathered from classroom faculty (such as the ways they teach information literacy skills) and one that also takes into account the kind of research assignments students are conducting, including the number and types of sources required. This enhanced assessment model might also include measures of students' actual research skills in addition to understanding their perceptions of their skills. Additional research might also focus on the relationship between specific types of assignments or course instructor requirements for research on decisions that students make while conducting research.

In addition to informing our work with first year students, the study has also helped to guide additional information literacy initiatives at our institution. We are also pursuing an initiative to develop a more intentional information literacy program across the entire campus. As we work with departments to identify information literacy goals for their majors and strategies for meeting those goals, we will also continue to work with the FTS program to determine specific student learning outcomes for information literacy skills in the first year and collaborate with individual FTS faculty members to identify a variety of methods for addressing those outcomes, including multiple instruction sessions, and implement effective assessment tools. We will also use this and other assessment data to advocate for more librarian positions to sustain

and expand these programs. Finally, during a recent planning process at our institution, student research emerged as a priority. Studies like ours can help inform the conversation by demonstrating empirically that developing research skills is something best done by the entire campus, and not just a function of the library. For the present, however, offering multiple instruction sessions will be one way in which the library can best help first year students develop information literacy skills that will help them succeed in college and beyond.

#### NOTES

1. Pretest results are presented for all first year students combined; cross tabulations revealed no significant difference between responses from students in the control group and experimental group.
2. The use of the word “often” for both questions proves difficult to interpret, since we cannot deduce how survey respondents interpreted the term. In retrospect, a more direct query (i.e. “I used my public library/high school media center at least once a week in high school.”) would have been useful. Results still indicate, however, that respondents did not utilize public libraries or high school media centers often in their own minds.
3. To streamline discussion of the data, I have chosen to combine “strongly agree” and “agree” responses as well as “strongly disagree” and “disagree” responses.
4. In this instance I combined responses in the “Not Sure” category with the “Agree” responses; if students are not sure if citations are confusing, we can safely assume they were not confident in their ability to cite sources.
5. Questions about previous use patterns on the pretest were replaced with questions about use patterns of our library during students’ first semester.
6. These percentages include students responding “not sure,” similar to the Table 2 discussion.

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## APPENDIX A

### FTS Pilot Program Pretest

(Questions measuring confidence are represented with *italics*; all other questions measure research practices)

Answer key for **all** questions: strongly agree, agree, not sure, disagree, strongly disagree

1. I used my high school media center/library often
2. I used my public library often in high school
3. In high school, I wrote several papers that required me to use outside sources, such as books, articles, and websites
4. *I know I can locate a variety of appropriate sources (books, articles, websites) for a research project*

5. *When looking at a website, I have a difficult time deciding if it contains enough reliable information to use in a paper*

6. *I am very confident in my ability to develop a thesis/argument for my paper*

7. *Citations are confusing to me – I'm not sure how to properly cite a source in my paper*

8. My high school teachers explained why it is important to cite sources in a paper

9. When I begin a research project, I often start with Google or another search engine

10. *I have a hard time knowing how to incorporate ideas and concepts from books, articles, or websites in my papers*

11. I am familiar with online article databases (like EBSCOhost's Academic Search Premier)

### FTS Pilot Program Posttest

(Questions measuring confidence are represented with *italics*; all other questions measure research practices)

Answer key for **all** questions: strongly agree, agree, not sure, disagree, strongly disagree

1. In addition to class visits to the library, I frequently used the library to do research
2. Professors in my other classes required me to use the library to complete a research project this semester
3. I met with a reference librarian at the reference desk at least once this semester
4. *I know I can locate a variety of appropriate sources (books, articles, websites) for a research project*
5. *When looking at a website, I have a difficult time deciding if it contains enough reliable information to use in a paper*
6. *I am very confident in my ability to develop a thesis/argument for my paper*

*7. Citations are confusing to me – I'm not sure how to properly cite a source in my paper*

*8. I am confident in my abilities to use the library to find books, articles, and other sources*

9. When I begin a research project, I often start at the library's homepage

*10. I have a hard time knowing how to incorporate ideas and concepts from books, articles, or websites in my papers*

11. This semester I have used online article databases available in the library (like Academic Search Premier or JSTOR)