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2008

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A Faculty-Librarian Collaboration for Developing Information Literacy Skills among Preservice Teachers

By Deborah M. Floyd, Gloria Colvin, and Yasar Bodur

Preservice teachers enrolled in the first portion of an undergraduate education program at the Florida State University were assigned to develop case studies based on their experience working in local elementary schools. The case studies were to include research from the scholarly literature of the field using a rubric developed by the instructor for evaluating sources. After inadequate results were recorded from the initial semester's projects, the course instructor paired with a liaison librarian to provide a workshop to improve the use of scholarly resources in the following semester's class. This article reports on a citation analysis of student bibliographies from the two classes, finding that the number of scholarly resources cited increased significantly when the librarian's presentation accompanied the use of the instructor's rubric. The results affirm earlier research that a combination of library instruction and clear faculty-established guidelines and requirements for the use of scholarly resources results in increased quality of student research.

Information education aims at enhancing the information literacy skills of its participants. The American Library Association defines an information literate person as one who is able to locate, evaluate and use information to address a given problem or issue.¹ As a growing body of both reliable and unreliable information is available to students with the developments in information technology, educating information literate students is now a vital role of universities.

Information education in academic institutions, at its best, is a collaborative effort between librarians and faculty. Teaching students about information resources is demonstrably more effective when correlated with an assignment, and assignments that require use of scholarly resources are more likely to produce quality papers and projects. Research indicates that an assignment with well-defined, reasonable requirements for using information resources, combined with guidance in identifying and using those

resources, should effectively lead to higher quality student projects that are based on scholarly literature and research.²

When attempting to assess the efficacy of library instruction, the focus should be on the end result of bolstering student learning by enabling students to identify and use information resources that will be useful in coursework and for life beyond college. In order to continue to improve teaching and learning, wrote Lara Ursin and co-authors, “Librarians have joined the teaching faculty in exploring methods of assessment. These endeavors have led many librarians to improve teaching and learning in library instruction programs, to become more involved in the university curriculum, and to take a greater role in identifying and measuring student learning at all levels.”³

Literature Review

One of the challenges faced by librarians is finding appropriate means to assess the effectiveness of their instruction. Karen Hovde points out that unlike other researchers in the social sciences, “The library profession lacks standardized test instruments and the associated body of accrued statistical data for comparative analysis.”⁴

Based on her research, Hovde concludes, “Examination of student research paper bibliographies provides a flexible, non-invasive, time-efficient assessment forum in which one can quantify actual student behavior...involving library products and resources.”⁵ Citation analysis of student research papers has been used in a number of studies to document the types of resources students use in their research and to draw conclusions about students’ information-seeking behavior.

In a series of articles documenting a longitudinal study that examined student bibliographies from papers written in an undergraduate economics class at Cornell

University, Philip Davis notes the overall decline in the use of scholarly resources.⁶

When the instructor sets strict, enforceable guidelines for acceptable citations, however, the number of scholarly citations increases. Further, when guidelines are established, there is an increase in the accuracy and stability of web sites that are cited.⁷

Andrew Robinson and Karen Schlegl examined student bibliographies to test the efficacy of library instruction in relation to the quality of citations and student grades. They concluded that the benefit of instruction alone is limited, but when combined with instructor-initiated penalties tied to the use of scholarly sources, the effect is significant.⁸

Context

The College of Education at Florida State University offers a four-semester program of study for juniors and seniors majoring in elementary education. In the first semester of study, diversity is emphasized. The field-experience course taught during the first semester of this program requires each university student to be paired with a child attending an English for Speakers of Other Languages (ESOL) program. The purpose of this class is to introduce preservice teachers to the culture of the school and focus on the application of strategies and methods for teaching, observing, and learning about the child as an individual. The field-experience class meets for one hour weekly on campus. In addition, the students spend six hours a week for seven weeks, plus one full week in their assigned field placement. During the field placement each preservice teacher “shadows” his/her ESOL child, and is also responsible for working with small groups of children and, on occasion, the entire class.

The Course Assignment

In Fall 2004, the instructor of this field-experience class designed an assignment requiring the preservice teachers to identify real classroom problems in elementary schools and to then use professional literature to research the problems.

The instructor employed case writing and case study methodology as the vehicle for this assignment. Both the professional literature and her own experience with students entering the profession indicated that many preservice teachers find the theories and concepts they learn in university courses too abstract to help address specific problems they encounter in real classrooms.⁹ Multiple studies reported positive outcomes of using the case study method and case writing exercises, ranging from promoting critical reflection to helping student teachers think like expert teachers.¹⁰ The preservice teachers would be immersed in a real classroom setting where they could define problems, identify alternatives, choose a course of action and a plan for implementation, and consider the possible consequences of a given action.

By constructing cases based on experiential education, the preservice teachers attempted to make professional decisions based on direct observation, interaction and practice with the children and school personnel, and the school contexts in which they interacted. Preservice teachers were not told what their topic should or would be about. They were told to observe and interact within their assigned placements and write about what they questioned, what nagged at them, what did not quite seem to be resolved in their minds at the end of their clinical experience, or what just consumed them with interest.

The assignment read as follows in the syllabus.

Write and share a case study. You are to create your own case study following the examples used in class. These will be the basis for small group discussions

the next to the last class meeting. Your case study may follow the format of the case studies we've discussed in class, or be creative (write it as a journal entry or news report, etc.)! However you select to tell your story, it should contain these three features:

1. Detailed description of the event or problem.
2. Key issues or questions for discussion.
3. Suggested Readings. (An annotated bibliography with at least five references related to your case.) As you are identifying your "problem" and developing your case, discuss your ideas with your supervising teacher. He/she can be a collaborator in this process! Keep a record of these interactions within the context of your learning log.

Periodically during the on-campus meeting times, the preservice teachers were asked to present their ideas concerning potential topics for their case studies. Some topics outlined by the students were problematic in that the perceived classroom difficulty involved the supervising teacher (such as improper use of the English language). This made it even more important to access the professional body of knowledge. The preservice teachers were allowed to construct their cases as open-ended, with no solution given, or closed-ended, where a solution is given or the problem rectified.

To guide the preservice teachers in their selection of professional literature, the instructor provided a rubric to gauge appropriateness. In this rubric, the timeliness, credibility, and relevance of the resources were emphasized. (Figure 1)

Data Sources

The 95 preservice teachers who participated in this study reflect the common preservice teacher profile of the United States, mostly white and middle-class females. There were only three males and four non-white students.

The instructor established the following criteria to analyze the cases:

Type of the case –open/closed

Content of the case

Appropriate selection of professional literature

Overall quality of the case

The professional literature would be considered “appropriate” if it fit the rubric in the categories of timeliness, content match, peer reviewed, and credentials of the author(s). The students needed to use a minimum of five references, incorporating a variety from the following categories: Internet sources, journals, books or interviews. The overall quality was determined by the appropriateness and number of the references used and the richness of description and contextual information included in the case that would facilitate the case reader’s identification and understanding of the problem or problems discussed.

Although the preservice teachers’ placement with ESOL children seemed to influence the choice of problems about which to write, a wide variety of problems or topics were identified. The topics of the first semester cases were classified under four categories: child-related issues, teacher-related issues, effectiveness or lack of effectiveness of a program, and general issues.

A majority of the preservice teachers chose generally appropriate references and had the required number of five varied references. In many cases additional references were used. Those students who used inappropriate references cited popular works rather than professional journals.

Fall 2004 Results

An analysis of the preservice teachers’ work in the Fall 2004, section of the class revealed that, overall, there was a good understanding of the mechanics of identifying and presenting real classroom problems. Many students, however, struggled with the task of choosing appropriate journal articles to consider and incorporate into their case

studies. Especially disappointing was the lack of weight placed on use of peer-reviewed journals in the students' work. The instructor hypothesized that either there had not been enough emphasis placed on the use of peer-reviewed journals in the initial assignment or that the preservice teachers did not know how to determine if a journal were peer-reviewed or not.

Based on these results, the instructor for this course altered the course materials for the Spring 2005 course session. The set of criteria that had been developed to analyze the Fall 2004 cases was inserted into the syllabus for the course along with the original rubric to guide the students in selecting from the professional literature. (Figure 2) In addition, the reference librarian serving as a liaison to the College of Education was asked to conduct a workshop with the new students during the Spring 2005 semester. The librarian developed a tool to analyze the literature used by both the Fall 2004 and the Spring 2005 students. The focus now shifted to whether a "reference" workshop would bring about an increase in the number of quality professional references chosen for use in the case writing exercise.

Library Session

Due to the size of the class, the library session was held in the students' regular classroom, rather than in a lab or classroom setting that allowed for hands-on searching. The goals for the session were for students to be able to identify the major databases for use in education research and to be able to use them efficiently; to distinguish between peer-reviewed articles and other resources; to know how to locate articles, books, and other appropriate resources, and to be able to identify ways in which they could get assistance with their research.

The librarian distinguished between the types of materials available through the library's online catalog, databases, and the Internet. Searches demonstrated in the library's online catalog illustrated techniques used to look for books and journal titles in the library's collection. The librarian demonstrated the ERIC and Education Full Text databases, beginning with the use of the thesaurus and the construction of search strategies using Boolean search techniques. Access to ERIC was through CSA and to Education Full Text through WilsonWeb, both of which provide a means to distinguish between peer-reviewed articles and other articles or resources. The need to use scholarly resources for this project was emphasized, along with a discussion of the difference between peer-reviewed articles, other magazine or journal articles, and information found on web sites. Local implementation of SFX technology was identified as a tool to help locate the full text in electronic or print format.

Data Analysis

Student papers from the Spring semester class appeared to be of a higher quality and to have made better use of peer-reviewed sources than those written in the Fall semester, based on the instructor's observations. To compare the results of the two classes empirically, citations from the student bibliographies were examined and analyzed. Although many of the students cited interviews with teachers in their bibliographies, for the purposes of this study the interviews were omitted from the data since they did not reflect use of print or electronic published sources.

A template was constructed in which sources were classified first by type, and, secondly, as to whether they were print or electronic in format. (Tables 1-2) Scholarly resources were grouped together and separated from non-scholarly resources in the

template. Peer-reviewed journal articles, books, dissertations, and government reports were considered to be scholarly resources, as were papers presented at scholarly conferences and research reports, which were listed in an “Other” category. Articles from magazines, newsletters, newspapers, and web sites were considered to be non-scholarly resources. A category of “Other” was used for non-scholarly resources, such as opinion pieces, brochures, fact sheets, etc. that did not fall into the standard categories.

Forty-six papers from the Fall semester and 49 from the Spring semester were examined. Subtracting the citations for interviews, there were a total of 222 citations in the Fall bibliographies and 249 in those from the Spring, for a combined total of 471 citations. Bibliographies were photocopied, separated from the student papers to protect confidentiality, and numbered. Citations from each bibliography were checked and entered in the template. Journal titles were checked in *Ulrich's International Periodicals Directory* to verify their status as peer-reviewed, scholarly, or non-scholarly publications. When the type of item wasn't clear from the citation, the citation was checked in ERIC to verify the type of material (research report, opinion piece, etc.). A citation was considered to be print if there were no indication that it was electronic.

Each URL was checked to determine the nature of the material on the web site. In some cases, items listed in the bibliography as web sites were actually journal articles or government publications that qualified as scholarly resources and were classified as such. The domains of web sites used were also noted. In order to assess the significance of mean difference between and within Fall 2004 and Spring 2005 groups in terms of using scholarly and non-scholarly resources in their cases, nonparametric statistical procedures were employed.

Results

The percentage of scholarly items cited in the bibliographies of students in the Spring course was higher than the percentage cited in the Fall course. In the Fall, 58% of the citations were scholarly; in the Spring that number increased to 71%. The number of web sites cited decreased from 31% in the Fall to 20% in the Spring. (Figure 3) Most dramatic was the increase in the percentage of peer-reviewed journals used. In the Fall, only 13% of the references cited came from peer-reviewed journals, while in the Spring 43% of the total references came from peer-reviewed journals. (Figure 4) At the same time, the number of books cited decreased from 32% in the fall to 14% in the spring.

Wilcoxon signed ranks tests indicated that there was no significant difference between the use of scholarly and non-scholarly literature in the Fall 2005 ($p=.90$) while there was a significant difference in the Spring 2005 ($p<.01$). Mann-Whitney U tests indicated that the Spring 2005 students' use of scholarly literature was significantly higher than fall 2004 ($p=.006$).

In terms of format, the number of electronic sources used in the Spring semester increased. In the Fall, 47% of the items cited were print sources and 53% were electronic. Citations in the Spring semester divided into 40% print sources and 60% electronic. This change is most likely a result of the library session since there was an emphasis on using electronic databases and locating materials available in electronic format.

The percentage of web sites cited decreased from 31% in the Fall to 20% in the Spring semester. There were no clear patterns in the differences in domains cited in the two semesters, although higher percentages of those cited in the fall came from .edu and

.gov domains. There were fewer citations from .com sites in the Fall than there were in the Spring. In the Fall semester, .org domains were cited more than any other domain, and in the Spring there were an equal number of citations from .org and .com domains.

The assignment was graded on a check, check plus, or check minus basis rather than by letter grades. Records of grades for the students in both semesters were not available, so it was not possible to determine whether there was a correlation between the use of scholarly resources and a student's grade on the assignment.

Conclusions

The increase in the percentage of scholarly materials used, and particularly the increase in the percentage of peer-reviewed journals used by the students who attended the library session, indicate that library instruction had a positive impact on the quality of student bibliographies. The instructor's emphasis on using peer-reviewed journals and other scholarly resources, coupled with the rubric students used to evaluate sources, fostered a productive environment for the library presentation and strengthened its impact.

Observations from the citation analysis also suggest topics that should be addressed in future library sessions. In the process of examining the bibliographies, it was noted that many of the items, particularly those that were electronic, were not cited properly using APA format. In many cases, critical information was missing from the citation, in others, information was mistakenly substituted for the journal title or authoring agency, and in others, the type of material was not identified correctly. This has clear implications for future instruction sessions where elements of a citation, proper APA format, and identification of types of materials need to be discussed.

The apparent confusion about the types of materials being used and the inaccuracy of bibliographic citation format also need to be addressed. In addition, more emphasis needs to be placed on evaluating web sites to encourage the use of more reputable sites.

While the bibliographies did improve in quality, there is still room for more improvement. To increase the impact that the library session has on students, working with small groups on their selected topics rather than one session for the entire class may be more effective. Assigning penalties for failure to use scholarly resources would likely have an impact on the number used.

The results of this study affirm the conclusions reached by Davis in his analyses of student bibliographies at Cornell and others regarding the importance of collaboration between librarians and faculty in working to improve the scholarly quality of student papers and projects. The combination of library instruction with clear faculty-established guidelines and requirements for the use of scholarly resources results in increased quality of student research. Further, it exposed students to research and evaluative skills that they can continue to use in other courses and in situations they may encounter in their professional lives. Although the design of this study does not allow us to conclude that teaching about information resources is more effective when correlated with a course assignment, we can certainly speculate so based on our findings.

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NOTES

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Figure 1
Rubric for Selecting References for the Case Study

	Timeliness (time written valid for the problem)	Content matches the identified problem	Updated website	Producer of the website (.edu or .gov appropriate as sources)	Layout useable (viable links)
On-line source					

	Timeliness (time written valid for the problem)	Content matches the identified problem	Peer reviewed (reviewed by individuals in the field)	Credentials of author(s) (known and respected in the field)
Journal				

	Timeliness (time written valid for the problem)	Content matches the identified problem	Credentials of author (known and respected in the field)
Book			

	Individual's area of expertise matches the identified problem	Credentials of individual (known and respected in the field)	Individual current in the field of study
Interview			

Figure 2**Case Studies Grading Rubric**

	Excellent	Average	Poor
<i>Originality</i>			
Relevance			
Development of the Case			
Appropriate Selection of Professional Literature			
Integration of Literature/Field Notes			

Instructor's Comments:

Table 1
Types of Resources Cited in Fall 2004 Papers

Scholarly			
Type/Format	Print	Electronic	Total
Book	69	2	71
Journal	19	9	28
Dissertation	4	0	4
Gov't. Documents	0	4	4
Other	3	19	22
Total	95	34	129

Non-Scholarly			
Type/Format	Print	Electronic	Total
Newsletter	2	4	6
Magazine	7	6	13
Newspaper	1	4	5
Web	69	0	69
Other	0	0	0
Total	79	14	93

Table 2
Types of Resources Cited in Spring 2005 Papers

Scholarly			
Type/Format	Print	Electronic	Total
Book	30	6	36
Journal	55	52	107
Dissertation	0	2	2
Gov't. Documents	0	3	3
Other	10	19	29
Total	95	82	177
Non-Scholarly			
Type/Format	Print	Electronic	Total
Newsletter	0	4	4
Magazine	4	8	12
Newspaper	1	3	4
Web	51	0	51
Other	1	0	1
Total	57	15	72

Figure 3
Comparison of Uses of Scholarly and Non-Scholarly Resources
in Fall and Spring Semesters

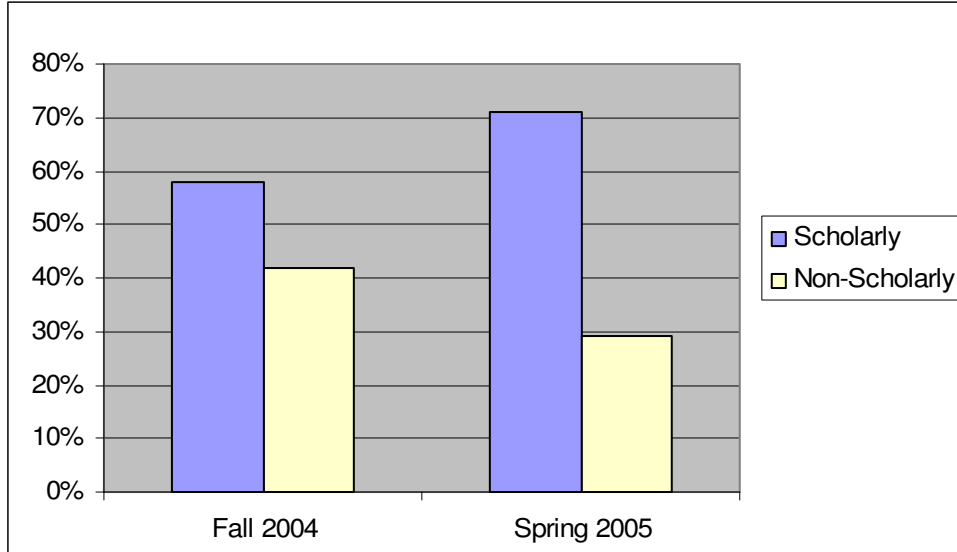


Figure 4
Comparison of the Use of Peer-Reviewed Journals
In Fall and Spring Semesters

