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First-Year Writing Teachers, Perceptions of Students' Information Literacy Competencies, and a Call for a Collaborative Approach

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ABSTRACT

Despite the shared work of teaching research and writing, research librarians and compositionists (writing teachers) have not engaged regularly in dialogue about how they might collaborate in this endeavor. This project surveyed English teachers at three institutions, a private liberal arts college, a public liberal arts college, and a land grant university, concerning their perceptions of their students' information literacy skills, as well as about the variety of strategies they used to introduce and reinforce information literacy competency in their classrooms. These strategies ranged from assigning a research project with little classroom or library support, to using up to ten different research-related activities to build the research competencies to complete a project. The authors found that teachers who employed a variety of strategies for teaching information literacy competency were significantly more satisfied with their students' abilities to successfully complete researched projects. This paper reports on the results of this study begins a conversation about how these results might shape collaborations between librarians and first-year writing programs.

INTRODUCTION

The connections between the work done by compositionists (writing teachers) and by academic librarians have been noted and documented by researchers in both fields (Elmborg, 2003; Fister, 1995; Rohan, 2002). Both fields encourage undergraduates to educate themselves through reading, critical thinking, and the effective and ethical use of information; these skills are taught so that they may be integrated into strategies for living, not just strategies for school success. A good deal of anecdotal evidence suggests that librarians and compositionists share a number of closely aligned challenges. For example, many students actually fear libraries and have anxiety surrounding projects and assignments that require library research (McAndrew, 1986; Onwuegbuzi, Jiao, & Bostic, 2004). Similarly, many students have a negative perception of their early writing experiences, and therefore exhibit an “I can’t write” attitude. Compositionists have studied the effects of this negative attitude—often called *writing anxiety* or *writing apprehension*—on students’ ability to successfully complete writing tasks in the first-year classroom (McCarthy, Meier, & Rinderer, 1985; McLeod, 1987), in graduate dissertation writing (Bloom, 1985), and in the workplace (Aldrich, 1982).

Students exhibiting writing apprehension may even select future courses based solely on bypassing professors whose courses require significant writing—the very work that could improve their writing and build confidence. In the same way, students who initially have frustrating experiences in libraries often respond by relying solely on uncritical Internet searches. This strategy makes research manageable (though not effective) and avoids interaction with librarians—the people who could most help students master research skills.

At the other end of this spectrum are students who come to the university with a more confident sense of themselves. These undergraduates assume that they already know how to write well enough, and dislike being

required to take a first-year writing class. Not surprisingly, many students also claim similar library expertise, and regularly resist even the occasional opportunity for library instruction.¹

A final similarity is that both compositionists and librarians have long endured comments, and even accusations, from colleagues outside their disciplines about students’ inability to write well or employ resources beyond poor-quality Internet sources in their often poorly documented papers. Yet despite these and other clear connections between their disciplines, writing teachers and librarians have only occasionally worked in partnership to teach the closely connected activities of research and writing. Perhaps because of this, the processes of research and writing have not been consistently taught together, as English teachers often assign research and teach writing, expecting librarians to teach complex research skills without a specific research context, typically in one class session or at the reference desk—if at all.

The relationship between academic librarians and compositionists, one in which they work separately toward often shared goals, is best illustrated by two 2001 conferences. The Association of College and Research Libraries (ACRL) held *Crossing the Divide*, its 10th annual convention, in Denver, Colorado, while the National Council of Teachers of English (NCTE) held its 52nd annual Conference on College Composition and Communication (CCCC), *Composing Community*, the same March weekend—also in downtown Denver. In spite of the conference titles promoting “composing community” and “crossing the divide,” there was little evidence of community-building between these two groups, which had closely allied goals: enhancing student learning and crossing borders to develop new communities. A cursory glance through the proceedings from both conferences indicates that planners from neither professional organization recognized opportunities for a potentially important collaboration, as no session could be identified at either conference that actually crossed the divide into the other’s

disciplinary community or invited any of the nationally recognized speakers to address the groups collectively (National Council of Teachers of English, 2001; Thompson, 2001).

Five years later, the 2006 CCCC conference in Chicago included three sessions concerning library/composition collaboration; however, the fact that these three are among over 500 sessions suggests that discussions of information literacy and collaborations between librarians and compositions are not presently at the forefront of disciplinary conversations in composition. This project is not the first to call for such a conversation, but it is among the first to ask composition teachers about their perceptions of information literacy (IL) skills, the importance of these skills, and what the teachers do to introduce or reinforce these skills in their own classrooms. The authors hope to suggest that although compositionists may not have been introduced to the language of IL, they value IL competency, attempt to teach IL (though in admittedly naïve ways), and are natural allies for librarians who look for varied ways to support IL competency standards on their campuses. This study offers quantitative data about how composition teachers teach research, interact with academic librarians, and perceive their students' information literacy skills and classroom engagement, and how those things are connected. Ultimately, these data will be used to encourage both compositionists and academic librarians to negotiate their shared responsibilities in teaching students how to undertake research in a world in which they can easily be overwhelmed by information.

Although the term *information literacy* is abundantly discussed in library science journals and is becoming an important component of general education curricula and first-year experience programs, it is only beginning to be discussed by compositionists, despite their historical association with teaching IL competencies. Barbara Fister, an early advocate for collaboration between writing teachers and librarians, noted the unusual relationship of these disciplinary "cousins" in a paper presentation at the Association of College and

Research Libraries' Sixth National Conference (1992). She observed a peculiarity in that "two fields that spend so much time and effort on improving student research spend so little time comparing notes" (p. 154). Fister articulated the notion that for students, "research and research writing are intertwined activities" (p. 156), and she advocated infusing the curriculum with basic academic and lifelong learning skills and making the values, assumptions, and methods of scholarship accessible to students.

A small body of research corroborates the need for developing a dialogue between compositionists and librarians. Most recently, in their 2006 CCCC presentation, "Are we Crossing the Line?: A Survey of Library/Writing Program Collaboration," Shirley Ricker and Isabel Kaplan (2006) analyzed 336 surveys and found that fully 53% of small, mid-size, and large schools report no formal collaboration between librarians and teachers of writing. According to this study, only 24% collaborate with one another to create instructional tools, 19% plan instructional sessions together, and only 16% team-teach even a single session. Although Ricker and Kaplan's research suggests that few students receive IL instruction developed by their composition teacher working with a faculty librarian (or vice versa), such instruction can be successful. For example, in collaboration with first-year writing and speaking faculty at her institution, Molly R. Flaspohler (2003) triangulated assessment techniques to demonstrate improvement in student performance in nine course sections as a result of intentionally articulating and implementing a ladder approach to information literacy integration (pp. 129–140). Flaspohler's work suggests that collaboration between librarians and compositionists leads to assignment structures that improve both research strategies and the quality of student writing.

Although faculty across disciplines seem to share a concern about student IL, the rapid expansion of information and specialized research tools leaves many faculty unable to do more than complain. Rolf Norgaard (2004), a

writing specialist who sees collaboration between compositionists and librarians as one way to develop authentic and integrated writing and research tasks for students, suggests that librarians become familiar with the “theoretical foundations and pedagogical frameworks that inform rhetoric and composition” (2004a, p. 125). He asks compositionists to reconnect research and writing: “We can ill afford to have writing ignore the larger world of information that students must learn how to access, evaluate, and integrate into their own communicative acts. We can ill afford, in short, to divorce writing from what has been written” (2004b, p. 226). Although Norgaard recognizes that challenges continue to affect the potential for discourse between compositionists and academic librarians, he suggests that the need for this conversation has increased considerably, due in part to dramatic technological advances that have changed academic research libraries forever.

Despite the existence of sanctioned standards for IL (ACRL, 2000) and regularized outcomes for first-year writing courses (Yancy, 2001), the literature confirms that there are few collaborative strategies for teaching these very important skills as necessarily linked in a single process, and little clear direction. Among universities that did recognize the importance of collaboration between librarians and compositionists, Oregon State took the lead, although much of the research on their innovative program is being published in library science journals, and is therefore not yet integrated into the conversation of composition studies (Davidson et al., 2002; McMillen & Hill, 2004; McMillen, Miyagishima, & Maughan, 2002). These authors argue for embedding IL in the first-year writing course as a way of avoiding teaching rote, rhetorical, and decontextualized research assignments that merely dictate limitations to students (such as number and type of sources, page length, etc.) rather than arise from active inquiry into genuine questions.

Although compositionists and librarians agree that researched writing plays an important role

in an undergraduate’s educational experience, the literature reflecting the actual research process, or effective methods of integrating research into the writing process, are limited in composition journals. These journals publish an abundance of literature on teaching the research paper, but the research process has been neglected as a separate and subordinate activity. Although composition as a field has not adopted the term *information literacy*, being able to undertake a research process—designing research questions; finding, evaluating, and using resources; citing resources accurately and honestly; and synthesizing information—is what the ACRL means by the term in their *Standards* (Watts, 2005). The focus of articles in composition journals suggests that compositionists expect research to inform student writing, but they don’t necessarily teach research processes, and not always through the carefully crafted, laddered assignments that librarians such as Fister (1995) suggest are more likely to ensure student success (p. 44).

METHODS OF INVESTIGATION

Although there have been studies measuring the extent to which students demonstrate various IL competencies (Barclay & Barclay, 1994; Burton & Chadwick, 2000; DeMars, Cameron, & Erwin, 2003; Kollmeier & Staudt, 1987; Mittermeyer, 2005), and on the pedagogical effectiveness of specific library instruction strategies (Gandhi, 2004; Haycock, 2006; Heil, 2005; Nutefall, 2004), there is little research in either discipline asking teachers to report their own classroom techniques for introducing research skills based upon their assessments of their students’ needs. Further, while some work within the field of library science has considered the perceptions instructors across disciplines hold of their students’ IL competencies, the authors found no examples of studies directly linking faculty evaluations of students’ information literacy to their own classroom teaching practices, and there were no examples of such research in composition studies. However, knowing that compositionists are concerned about their students’ IL skills and are attempting (however naïvely) to improve those

skills, academic librarians should realize that compositionists are potential allies in developing IL competencies on college campuses.

Annamarie B. Singh's 2005 article, "A Report on Faculty Perceptions of Students' Information Literacy Competencies in Journalism and Mass Communications Programs: The ACEJMC Survey," studies journalism and mass communication professors' evaluations of their students' IL skills. This study is especially appropriate to this article, as Singh's questions address a range of IL skills that are directly linked to ACRL's *Standards*. Although Singh's study provides good data about teachers' evaluation of student skills, she does not ask the faculty how they, in turn, teach research or information literacy. Her study only asks whether the teachers assign research (pp. 296–297). Because a process approach in composition studies was developed, at least in part, to negate the practice of assigning—but not teaching—writing, it is useful to attempt to understand the ways in which teachers of writing have attempted to move beyond simply assigning research to teaching it. Moreover, because the authors did not know the extent to which the teachers in the survey sample would be aware of IL competencies and the ACRL standards, they hoped that embedding the actual standards in the survey would make study participants aware of this document and its connection to their work. Because of this connection, extending Singh's research model proved an excellent way to explore the four questions framing the study:

- Are first-year writing teachers, because of their historic relationship to, and implication in, teaching research, more critical (and therefore perhaps more aware) of students' information literacy than the communications teachers in Singh's study?
- Is there a relationship between the strategies a teacher uses to teach IL and that teacher's evaluation of his or her students' skills?
- Although a variety of studies suggest that certain individual library instruction practices (e.g., library tours, scavenger hunts, one-shot

library sessions, etc.) are pedagogically ineffective in improving IL, might multiple practices work better?

- Though it is especially challenging to isolate IL as a single variable in the classroom setting, might a relationship exist between the perception faculty members have of student IL and their perception of student engagement?

In order to investigate these questions, the authors contacted Singh, and asked her permission to extend her research by redesigning her survey, directing it to English teachers, and asking them not only about their students' IL skills, but also about the kinds of activities and assignments they use to teach and evaluate IL.

SURVEY INSTRUMENT

Using Singh's work as a model, the authors developed a survey instrument measuring 70 items, primarily using a modified Likert scale. There were many benefits to using Singh's survey; it had been thoroughly tested on over 400 users and had been rated adequate to high for internal consistency in responses (p. 296). Singh suggested that the greatest threat to validity in her study was that her survey questions did not allow faculty to clarify the level of undergraduate student about whom they were responding (p. 296). The authors attempted to correct that problem by designating a level for each response: first-year student, senior undergraduate major, or graduate student.²

As in Singh's survey, most items asked participants to provide impressions of the frequency with which their students displayed a variety of skills, attitudes, and behaviors related to IL by responding, on a 1–5 scale, with 5 the highest: always, usually, sometimes, rarely, never, and N/A; to rate those skills with a scale of excellent, strong, adequate, poor, absent, or N/A; or to describe the proportion of students exhibiting those skills: all, most, some, few, none, or N/A. Although the survey was designed to build upon Singh's, the relationship between the teachers' evaluations of their students' IL skills and whether and/or how those

teachers were attempting to teach IL was of particular interest. To gain an understanding of this relationship, the authors asked teachers to list the activities that they used to teach information literacy in the classroom. This was done by describing a range of assignments and activities and asking teachers to choose from 11 possible responses (lettered A–L) or to provide an open response, for a total of 12 options. Teachers could choose all 12 options, but were not asked to rank them.

The survey asked several additional questions that did not employ a Likert scale: one question about subject librarians, and two questions concerning library instruction. The survey also included one open-ended question that asked participants to list any information-seeking skills they believed a student being prepared to do work at the university should have. Four questions required answers for demographic information. The survey was developed to be delivered online, so that participants could tick responses in drop-down boxes and return their responses instantly.

PARTICIPANTS

All of the 105 English teachers at three area colleges and universities were invited to take the survey.³ The three institutions have different scopes, missions, and numbers of teaching faculty: They include a doctorate-granting, public land grant institution (51 faculty); a master's-granting, comprehensive, public institution (35 faculty); and a four-year, private, religious, liberal arts college (19 faculty).

The 105 invited teachers ranged from first-year teaching assistants to part-time faculty (temporary instructors) to full-time, benefited, non-tenure-track lecturers to tenured and tenure-track faculty. Of the 105 invited, 51 took surveys; of that number, there were 49 usable surveys. This represents an overall return rate of just under 47%. While the return rate was much higher for the public land-grant institution (60.78%), the return rate for all institutions was adequate (comprehensive public, 37.14%, and liberal arts private, 26.31%), and in all cases

exceeded the 22.3% overall return rate for Singh's original survey (p. 296).

DATA

Library and Library Instruction

Of the respondents, 69% claimed that assignments requiring library research were a regular part of their first-year writing courses, and 67% claimed that their students' understanding of the library increased after meeting with a librarian in the one-time library classes that 55% of them scheduled. Despite this success, only 20% claimed that librarians were always an integral part of planning those courses and assignments, and only two (4%) actually collaborated with librarians to plan activities or assignments. Of the respondents, 36% did not know whether or not there was a subject librarian with whom they might collaborate. Although the respondents seemed to find it important to assign research projects and papers, and although they believed that library instruction helped their students, few used the resources and instruction offered by librarians, and a large number did not know whether there was a specialized subject librarian to support them and their students.

English Teachers Teaching Information Literacy Skills

In order to understand the relationship between how first-year writing teachers teach IL and how they report the effectiveness of their students' skills, teachers were asked about the kinds of assignments and activities they use to introduce IL/research skills to their students. They were provided with the following list of activities and asked to check any activity they used:

1. Requiring a researched paper or project (100%)
2. Using a ladder assignment approach; breaking students' research into smaller, manageable tasks that build upon one another (73%)
3. Designing in-class activities/ assignments concerning searching for resources (77%)
4. Spending class time explaining/

- practicing appropriate documentation style (93%)
- 5. Touring the library with my students (51%)
- 6. Showing individual students how to use, access, or cite one or more specific library research tools (71%)
- 7. Discussing with students suitable criteria for source evaluation (e.g., authority, currency, purpose, etc.) (95%)
- 8. Requiring students to complete one or more online tutorials concerning library research (16%)
- 9. Asking library staff to provide an instructional session(s) for students (55%)
- 10. Allowing a librarian to contribute to the development and/or grading of some portion of a research assignment (4%)
- 11. None of the above (0)
- 12. Other (please describe): (8%)

paper or project, in the sample, 42% of respondents employed more than six different strategies to support the research skills needed for that research project (Table 1), and only two people (4% of the sample) assigned research papers with no additional apparatus for supporting that assignment.

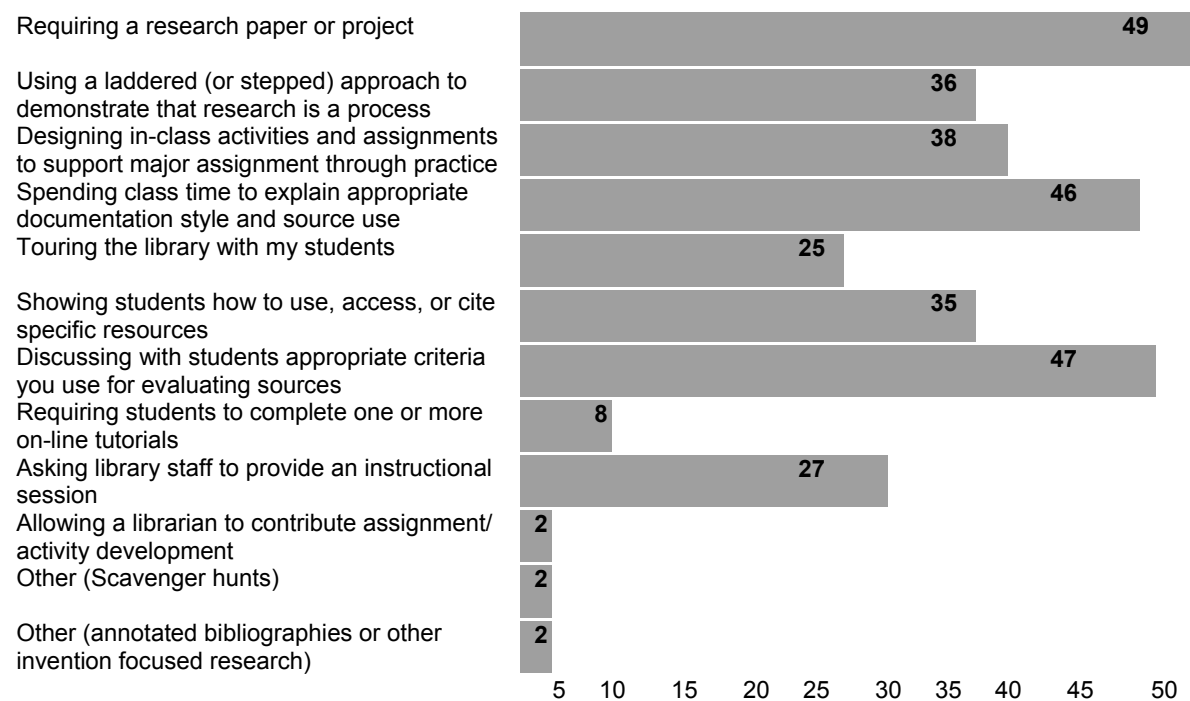
Because the authors hoped to understand the relationship between what a teacher teaches and how that teacher evaluates students' IL skills, these data were reported in one additional way: the variety of ways each respondent taught information literacy skills. All respondents employed between 1 and 10 strategies (of a possible 12 or more) to introduce and reinforce information literacy skills. Table 2 shows how many respondents used each number of strategies (from 1 to 12 possible).

Of 12 possibilities, the mode for this question is 5, with 10 respondents saying that they use five different activities and assignments to teach information literacy. The mean is 6.4. Teachers who employed more than six strategies (more

Although the only strategy employed by 100% of the respondents was to assign a research

TABLE 1 — NUMBER RESPONDING TO EACH CATEGORY OF QUESTION 5

Question 5: I teach my students information literacy skills in the following ways:



than average) to teach IL skills were compared to those who employed fewer. There was a clear relationship: The teachers who used a wider variety of strategies to teach information literacy skills rated their students' skills higher in every skill category (see Tables 3, 3.1).

ENGLISH TEACHERS EVALUATE THEIR FIRST-YEAR STUDENTS' INFORMATION LITERACY

Appendix A provides the data for every question concerning teacher evaluation of first-year students' information literacy skills, attitudes, and behaviors. All standard deviations were between .54 and .92, suggesting some agreement among teachers about how to interpret the questions and evaluate their students. Most teachers thought that between "few" and "some" of their first-year students had mastered most of the information literacy skills included in this survey. This is not surprising, given that most students are not introduced to these skills before college (Dunn, 2002; Mittermeyer, 2005).

One additional calculation separated those teachers who evaluated most of their students as

information-literate from those who evaluated few of their students as information-literate. Those who reported that most of their students were information-literate also reported that their students were more actively engaged in the discourse of their classes than those who claimed that few of their students were information-literate (3.14 to 2.62); the mean for the question overall was 2.89 (Table 4).

DISCUSSION

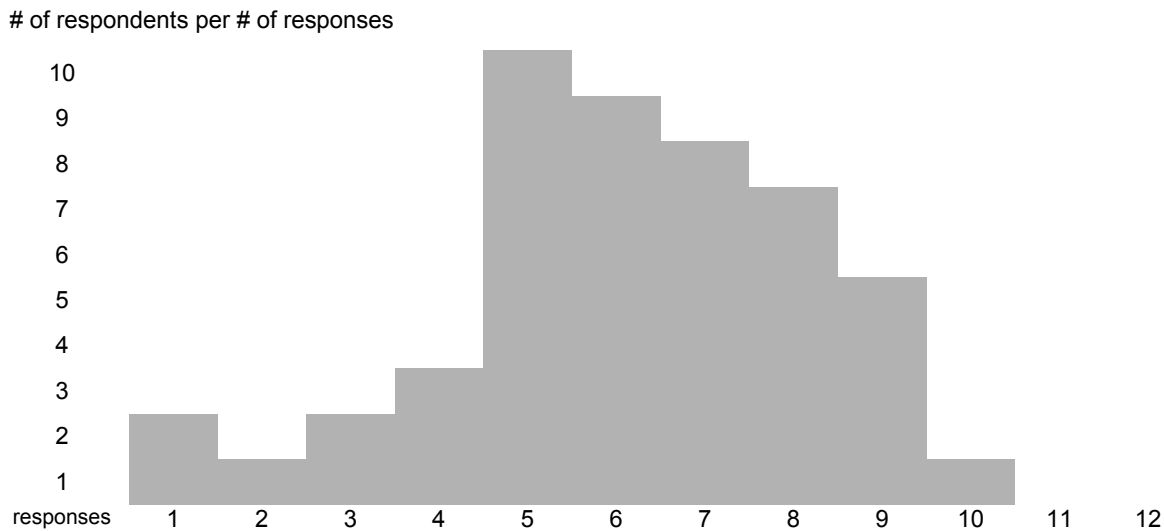
The research began with four questions. Reframed slightly, those questions serve as a place to begin discussing the data.

Research Question One

Are first-year writing teachers, because of their historic relationship to, and implication in, teaching research, more critical of first-year students' IL skills than the communications teachers in Singh's study?

The answer seems to be yes. On 13 of the 15 questions that the survey shared with Singh's, the writing teachers in this study rated their students' information literacy skills lower by .4 -.8 than the teachers in Singh's study. It is also

TABLE 2 — OCCURRENCE OF RESPONSES FOR QUESTION 5



This table shows the number of strategies each respondent says he or she uses to introduce information literacy skills in first-year writing courses. Note that only one person employed 10 different strategies, and that 10 people employed five different strategies (the mode). The mean for this question is 6.4.

TABLE 3 — RESPONSES TO QUESTIONS BASED ON RESPONDENTS WHO EMPLOY MORE THAN SIX AND SIX OR FEWER STRATEGIES FOR TEACHING INFORMATION LITERACY SKILLS

Question	Total mean For question	Mean of respondents claiming more than six approaches to teaching (#5)	Mean of respondents claiming fewer than six approaches to teaching (#5)
Question #9: Given the information literacy standards defined before question #5, I would say that my first-year students are information literate. 2=Few; 3=Some	2.70	2.90	2.44
Question #12: I would categorize the research skills of my first year students as: 1=Poor; 2=Adequate	2.42	2.52	2.2
Question #15 : My first-year students are able to conceptualize and formulate good research questions.2=Some; 3=Most	2.73	2.85	2.64
Question #42: My first-year students understand that research is a non-linear process and approach it as such. 2=Some; 3=Most	2.57	2.67	2.2
Question #48: My first-year students know how to find high-quality information using traditional print library resources. 2=Some; 3=Most	2.59	2.57	2.39
Question #51: My first-year students know how to evaluate and select high quality information from library subscription databases.2=Some; 3=Most	2.65	2.76	2.50
Question #54: My first-year students know how to evaluate and select high quality information from the Internet. 2=Some; 3=Most	2.63	3.00	2.54
Question #60: My first-year students consistently cite materials using an appropriate citation style. 2=Some; 3=Most	2.89	3.13	2.25

This table suggests that the more strategies a teacher uses in class for teaching information literacy, the more effective that teacher rates his or her students' information literacy skills. Teachers who use more than six different activities to teach information literacy skills rated their students' skills higher in every area.

TABLE 3.1 — TEACHER'S PERCEPTION OF STUDENT'S INFORMATION LITERACY IN RELATION TO THE NUMBER OF WAYS IN WHICH THE TEACHER TEACHES INFORMATION LITERACY SKILLS (QUESTION 5)

Question #	#9	#12	#15	#42	#48	#51	#54	#60
Total	124	64	123	113	114	122	121	133
Mean	2.70	1.42	2.73	2.57	2.59	2.65	2.63	2.89
STD	.73	.54	.85	.73	.76	.79	.57	.88
Mean (teachers using more than six strategies to teach IL skills)	2.90	1.52	2.85	2.67	2.57	2.76	3.0	3.13
Mean (teachers using six or fewer strategies to teach IL skills)	2.44	1.2	2.64	2.2	2.39	2.50	2.54	2.25

This table provides the same information as above, but offers the total and standard deviation for each question.

important to note that although Singh’s sample size for undergraduate teachers was close to 10 times larger than the sample size in this study, her standard deviations are consistently higher, suggesting that there was less variance in the answers of this study’s respondents. This might suggest there are stronger regional or institutional differences among the student populations about whom the respondents in Singh’s study are reporting, or even differences among the respondents themselves, that account for a wide numerical variety of answers. However, it seems equally likely that because this survey asked teachers whose job it has traditionally been to teach research skills (or at least evaluate them), and who have significant training in teaching and evaluating research skills, the respondents would have both the practice and training to accurately evaluate their students’ skills, and, at some level, share common disciplinary values concerning research. This would account for both the lower means and the lower standard deviations than in Singh’s study.

What is most interesting is that these data were collected from three ostensibly different writing programs, serving slightly different student populations. The low variance among the answers for every question suggests a disciplinary similarity in evaluating student research skills that was not shared by the communications teachers in Singh’s survey. Moreover, this lack of variance and the overall more critical stance that the writing teachers

take to their students’ skills are especially important to remember in analyzing the next question.

Research Question 2

Why might it be that writing teachers who use more (and more varied) strategies to teach information literacy find their first-year students’ skills more adequate?

While it does not seem an earthshaking insight to suggest that teachers who do more in their own classrooms to teach IL skills evaluate their students’ skills as significantly stronger, there has been little research in the past that undertakes this kind of comparison. An exception is Mary Pull’s qualitative master’s thesis, *Snippets and Snapshots: Focusing on Writing in the Disciplines at NDSU*, which argued that “those [instructors] who view writing as a transparent, generalizable skill that should be mastered in freshman composition courses speak far more negatively about student writing than those who view writing as a complex activity requiring sophisticated cognitive abilities” (p. 71). In Pull’s research, the teachers who did the most to teach writing as a complex, rhetorical act were more pleased with the work that their students produced. Similarly, this research presented in this article found that teachers who employed more than the average of 6.4 different strategies to teach IL found more of their students more information-literate (2.9 to 2.44); categorized their research skills as more satisfactory (2.52 to 2.2); and

TABLE 4 — THE RELATIONSHIP BETWEEN INFORMATION LITERACY AND STUDENT ENGAGEMENT

	#63
Total	132
Mean	2.87
STD	.75
Mean for “most” on #9	3.14
Mean for “few” on #9	2.62

Teachers who report that most of their students are information-literate (#9) also report that students are more actively engaged in class (#63) than those who report that few of their students are information-literate.

found them more able to conceptualize and form research questions (2.85 to 2.64), more able to understand the research process (2.67 to 2.2), and better able to use print (2.57 to 2.39), database (2.76 to 2.50) and Internet resources (3.0 to 2.54). Moreover, those teachers evaluated their students as far more able to consistently cite sources than did teachers who used fewer than seven strategies to teach information literacy skills (3.13 to 2.25) (Table 3, 3.1). Pull's work suggests that teachers who did the most to teach these skills in their classes understood two important things: (a) Students do not learn the skills in one time and place, but acquire these skills through repeated practice with specific contexts; and (b) research strategies are not perfectly transparent or transferable.

The authors' initial response to this research question was to consider the possibility that the teachers who do the most to teach information literacy care more about IL skills, and may assess their success as teachers in terms of their own positive performance, thereby leading them to give students' skills a higher rating than teachers who value and teach other skill sets. Although this possibility cannot be wholly discounted, the comparison of this study's data to Singh's suggests that this initial response probably does not account for the differences in the evaluations by teachers who employ more than the average number of teaching strategies to the task of teaching information literacy and those who employ fewer than the average number of strategies. The evidence for this assertion can be found in the relatively small variance among the respondents' answers, as illustrated by the low standard deviations across the whole sample. This suggests that the data points are generally closer in agreement than they are in Singh's sample, which reported high internal consistency and moderate to high external validity. Because the low variance is combined with generally lower means—a consistently more critical stance toward students' skills than the communications faculty in Singh's study demonstrated—the authors believe that the teachers are not inflating their evaluations. In fact, the evaluations inhabit a

narrow range that seems to be consistent across programs and varied student bodies, but differs in relationship to this variable (a variety of teaching strategies).

An important next step in this research would be to determine if particular combinations of teaching strategies were more significant than others in shaping teachers' evaluations of student skills. Because of the survey design and data collection, there is no way to go back and separate teaching strategies as individual variables. However, more varied strategies might be likely to reach different students, and seven should not be considered some kind of magic number; it was just the number that was above the average in *this* sample. It is equally possible that having the teacher reinforce these skills through varied repetition convinces students that such skills are important enough to take seriously, and that not doing so will affect performance in the course.

Finally, it is possible that the teachers who do more to teach information literacy skills have strong research skills themselves, are more comfortable sharing these skills with students, and have well-developed strategies for teaching these skills and assessing student learning. Although the study did not provide direct evidence to support this possibility, teachers who had been teaching first-year writing for more than five years were more likely to employ more than six strategies for teaching information literacy skills than teachers who had been teaching first-year writing five or fewer years (63% to 36%). Such evidence would certainly support the notion that increasing professional development opportunities for teachers of first-year writing—opportunities that would include familiarizing them with library instruction and IL skills—could help teachers develop a wider variety of strategies for teaching these skills. Although there are several interpretations of why this is so, results suggest that teachers who do more to teach information literacy skills report that more of their students possess those skills.

Research Questions 3 and 4

In order to understand why the varied repetition that comes from employing a variety of strategies to teach information literacy skills might be effective, the study's two final questions were:

- While a variety of studies suggest that certain individual library instruction practices are pedagogically ineffective (e.g., library tours, scavenger hunts, one-shot library sessions, etc.), why do faculty who provide more research instruction opportunities report that more of their students possess information literacy skills than those of faculty who provide fewer library/research instruction opportunities?
- Despite the challenge of isolating information literacy as a single variable in the classroom setting, might a relationship exist between the perception faculty members have of their students' information literacy skills and their perception of student engagement?

Although it represents only a fraction of contemporary learning research, the following brief introduction provides an interesting backdrop for interpreting why the authors believe a variety of strategies are important. Experts who study learning and brain development no longer question the importance of experience as a stabilizing factor for neural connections found in the brains of mature adults. "Whether or not a synaptic sequence stabilizes is determined by the frequency with which that path is used. Even potentially useful neural pathways will, then, degenerate if not used" (Leamson, 1999, p. 13; National Research Council, 1999, pp. 102–115). According to the National Research Council (1999), first-year students, even those who are eager and who show promise, simply do not have the same "abilities to remember, reason and solve problems" as those who have been immersed in disciplinary specialties for years (pp. 19–38). While Robert Leamson (1999) notes "there is little danger in overestimating the

intellectual potential of our students," he also believes there is a "serious danger in overestimating the condition of their brains. . . . Even with the best of intentions students cannot produce in one pass the hard-wired circuitry that makes a concept familiar" (pp. 15–16). Such observations are echoed by Pull, who concluded that instructors who utilized a variety of techniques that emphasized a process approach to writing were far more satisfied with student work than those who merely assigned papers and collected finished products (p. 72). Instructors who stressed recursive activities such as critiques of model papers, rough-draft conferences, and student revision felt that their students' quality of work was much improved over that of teachers who did not use such process-focused, ladder techniques.

Bette LaSere Erickson and Diane W. Strommer (2005) reiterated the importance of experience throughout their summary of contemporary learning research (pp. 241–256). According to these authors, the strategies most likely to produce "deep learning" among first-year students include the willingness and ability of their instructors to: "(1) help students discover an intrinsic motivation for learning, (2) provide guidance on how to approach the subject and become aware of how they learn, (3) build on students' prior experiences and knowledge (making sure that what they "know" is accurate), (4) connect abstractions to concrete activity, and (5) promote students' interaction with one another" (p. 248).

The authors' survey showed a strong connection between faculty who identified themselves as using more than six methods to teach information literacy (question 5) and their overall satisfaction with students' information literacy skills (question 9).⁴ This result seems to support the concepts behind Erickson and Strommer's second, third, and fourth strategies for deep learning. It seems that writing teachers who reported providing first-year students with more guidance in approaching library research were more likely to also report higher information literacy competency among their students. By utilizing more than one instruction

technique in a course, these faculty allowed their students to build on (or correct) prior library experiences, which improves student ability and increases faculty satisfaction. Finally, most of the activities listed in question 5 required hands-on application of concepts in order to complete a task.

Similarly, Kathleen Dunn's 2002 research found a relationship between student performance as a researcher and amount of library use. Just using the library more frequently improved students' skills. Even students with "naïve" search strategies improved their skills with a higher frequency of library use. In addition, Dunn found that students' "depth and breadth" of research skills improved after taking an online tutorial (pp. 26–35). Dunn's research suggests the possibility that certain combinations of activities (including familiarizing students with the library) accrue over time, even if there is little compelling evidence that specific strategies employed in isolation—like the library tour, the one-shot library training session, or the ever popular scavenger hunt—are successful.

A reader certainly could and should argue that the teachers' evaluations of student skills are not a demonstration of learning; that is, we cannot know from these data if teachers' reports of student skills actually equal better skills—and the authors don't make that claim. But these data do support what is already known about student learning: that varied activities help students of varied learning styles achieve success in the same classroom, and that repeated activities reinforce learning.

Interestingly, this study also noted that those faculty who evaluated most of their students as information-literate (question 9) reported higher levels of student engagement in class (question 63) than those who reported that few of their students were information-literate. A number of external variables contribute to the connection between faculty's perception of information literacy and student engagement; yet it seems intuitive that students who don't view research as overwhelming, unproductive drudgery might be more likely to approach a course requiring

research at least somewhat more enthusiastically. Finally, if information literacy skills do what both librarians and compositionists believe they will—help ready students for lifelong learning and their role in a participatory democracy—it is possible to believe that students who can find, evaluate, and use information ethically are likely to be engaged students who drive discourse in classrooms. Informed students, and students able to inform themselves, have something to say, not only in their classrooms, but in their communities.

FUTURE RESEARCH

This study leaves the door open for much future research. First, it will be important to collect more specific data—perhaps actual assignments and activities—that show what exactly it is that teachers of first-year writing teach when they teach IL and research skills. Second, it is important to understand what it means to students' writing to have them be better, more imaginative and informed researchers. While it seems likely that better research would produce better, more interesting writing, and that such writing would better enable learning, this may be shown through examples of the writing that students produce in classrooms that employ a variety of strategies for teaching IL skills. Finally, an important extension of this study would be to test the IL skills of students of teachers who evaluate more of their students as being information-literate to better understand whether teacher perceptions are, indeed, accurate.

CONCLUSIONS

This survey suggests that the first-year writing teachers in the sample certainly cared about information literacy, and 41 of 49 (83%) of them employed five or more discrete activities and assignments to introduce information literacy skills to their students. Moreover, they consistently suggested that few of their students had developed these skills previous to taking their class. It should not be difficult to convince compositionists that IL matters to them; their

responses demonstrate that it already does. Part of the purpose of this paper is to encourage library professionals—the instructional, reference, and subject librarians at academic institutions—that they have important allies at their institutions. Compositionists are already trying to teach IL competencies to their students. Despite that, many need professional development opportunities—particularly opportunities developed in collaboration with librarians—to better understand the scope of IL, how it differs from their notion of “library research,” and how the range of strategies that integrate research into a writing process might be effective.

In many ways, IL is already important to writing teachers, whether they are aware of the ACRL’s *Standards* or not. But writing teachers need to read across disciplines to be aware that the new information literacy, as theorized by librarian-researchers and their professional organizations, is not the old one-shot session of library training that attempted to teach research without the context of an authentic inquiry, or even an assignment. As Norgaard (2004) asserts, “Although it may be tempting to think of information literacy as ‘applied’ to the field of writing, we might all gain a lot by thinking of information literacy as ‘shaped’ by writing—writing theory, writing instruction, and the very writing process itself” (p. 125). Norgaard’s comment is informed by recent work in library science that hopes to reenvision the library in ways that most compositionists understand. For example, Fister (1995) writes, “If the library were reimagined as a socially constructed artifact of our culture, it could become a laboratory for learning the ways in which we engage in knowledge construction, instead of being seen as a peculiarly organized storehouse of ready-made and infinitely reusable knowledge” (p. 42). Such language resonates with most compositionists who envision writing as a socially constructed tool for constructing and communicating knowledge.

By attempting to teach IL without collaborating with colleagues across campus, compositionists neglect a field that has been conducting research

in teaching, assessing, and building interdisciplinary programs in information literacy for many years. Compositionists do not need to reinvent this discourse; only to reinterpret and apply it to the work of composition studies. And by neglecting compositionists as necessary and interested allies in the work of teaching IL competencies, librarians lose an important space for teaching that nearly all students must pass through. Moreover, teaching librarians need sites of authentic inquiry through which they might help students develop IL competencies, and one site through which these skills could be introduced early and integrated in the writing process is the first-year writing classroom.

Ilene F. Rockman (2004) tells us that in order to learn the cognitively complex set of research abilities called information literacy, students need repeated opportunities to practice using these skills throughout their college careers. These skills, then, need to be introduced in the first year, and writing programs that reinforce them vertically through the curriculum need to be developed. Rockman writes:

Within the college or university environment, it is also important for students to be able to build upon the foundation of information literacy knowledge by successfully transferring this learning from course to course, understanding the critical and empowering role of information in a free and democratic society, and demonstrating ethical behavior and academic integrity as consumers, as well as producers, of information. (p. 2)

Information literacy is the set of skills that compositionists can teach in order to help students understand that invention and inquiry are mutually informing activities, and that the writing process does not begin where the research process ends. For their part, librarians need to extend to compositionist colleagues the rich and varied work presently taking place in the field of library science to develop strategies for embedding the research process into the

most sophisticated understanding of writing as a rhetorical process. As this study suggests, teachers of first-year writing at a variety of institution types and sizes are already doing this in a variety of ways, but often without meaningful input from collaborators in the library. Although the conversation is in its infancy in the field of composition, it is an important conversation to begin. Norgaard (2004) asserts that this interaction can only benefit both disciplines:

Both rhetoric and composition and library reference and instruction would become more robust if each would more fully understand and integrate the work of the other in its theoretical self-understanding and pedagogical practice. The stakes are too high not to welcome each other as genuine and natural intellectual partners in a common rhetorical enterprise. (p. 225)

The stakes are indeed high, as information literacy is required in the workforce and tied to accreditation. It is perhaps the most important as a skill for maintaining—or reclaiming—an informed democracy.

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formulating research questions (question 42); understanding the research process (question 48); finding and evaluating traditional print resources (question 48); finding and using information from library databases (question 51); evaluating and selecting Internet resources (question 54); and consistently citing materials (question 60).

NOTES

1. Although when tested on their actual skills with specific research tasks, a study of 3,003 incoming first-year students in Canada found that most students did not have the skills needed to undertake most intermediate research tasks (Mittermeyer, 223).
2. Although this paper primarily reports data concerning IL and first-year writing, data about upper-level and graduate students was also collected for future research.
3. This population excluded the six researchers.
4. In addition to the specific question on information literacy (question 9), there was also a strong positive relationship between question 5 (more than six teaching strategies) and those specific skills that make up information literacy: understanding research generally (question 12);

**APPENDIX A: FACULTY EVALUATION OF STUDENTS' INFORMATION LITERACY SKILLS
STUDENT RESEARCH SKILLS AND PRACTICES: FIRST YEAR (N=49)**

9. Given the information literacy standards defined before question #5, I would say that my first-year students are information literate.									
	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	48	0	8	19	21	0	Few	2.73	.74
12. I would categorize the research skills of my first-year students as:									
	Valid N	Excellent (5)	Strong (4)	Adequate (3)	Poor (2)	Absent (1)	Mode	Mean	STD
1 st Year	47	0	1	19	27	0	Poor	2.45	.54
15. My first-year students are able to conceptualize and formulate good research questions.									
	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	47	0	7	21	19	0	Some	2.74	.71
18. My first-year students display time management skills by meeting course requirements within deadlines.									
	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	47	0	30	13	4	0	Most	3.55	.65
21. My first-year students display sound critical thinking skills.									
	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	47	0	4	28	15	0	Some	2.77	.60
24. My first-year students apply analysis and original thought to existing information to create new information.									
	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	48	0	3	16	27	2	Few	2.42	.68
27. My first-year students are comfortable using computer technology for information gathering and data manipulation.									
	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	47	8	31	7	1	0	Most	3.98	.64
30. My first-year students understand how information is produced, organized and disseminated.									
	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	48	1	4	17	24	2	Few	2.54	.80
33. My first-year students understand how information is organized into disciplines and subject fields.									
	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	46	0	7	21	16	2	Some	2.70	.76

APPENDIX A CONTINUED

36. My first-year students understand how professionals working in their area of study use information.

	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	48	0	4	20	19	5	Some	2.48	.80

39. My first-year students confer with teachers in their field to identify information resources and processes used in the field.

	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	44	0	4	11	25	4	Few	2.33	.79

42. My first-year students understand that research is a non-linear process and approach it as such.

	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	46	0	3	23	17	3	Some	2.57	.72

45. My first-year students know that critical theories and research methodologies vary and apply the appropriate theory or method appropriate to the task.

	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	47	0	2	12	19	14	Few	2.04	.85

48. My first-year students know how to find high-quality information using traditional print library resources.

	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	46	0	6	19	19	2	?	2.59	.76

51. My first-year students know how to evaluate and select high quality information from library subscription databases.

	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	48	0	8	18	20	2	Few	2.67	.81

54. My first-year students know how to evaluate and select high quality information from the Internet.

	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	48	0	3	25	20	0	Some	2.65	.60

57. My first-year students can discriminate between scholarly and non-scholarly information resources.

	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	48	1	8	20	15	4	Some	2.73	.92

60. My first-year students consistently cite materials using an appropriate citation style.

	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	48	0	16	14	17	1	Few	2.94	.89

63. My first-year students are actively, intellectually engaged in class and their participation drives the discourse.

	Valid N	All (5)	Most (4)	Some (3)	Few (2)	None (1)	Mode	Mean	STD
1 st Year	48	0	10	23	14	1	Some	2.88	.76