Instructional Preferences of First-Year College Students with Below-Proficient Information Literacy Skills: A Focus Group Study

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The Attaining Information Literacy Project has focused on identifying first-year college students with below-proficient information literacy skills, gaining an understanding of those students' self-views and perceptions of information literacy, gaining an understanding of their instructional experiences and preferences, and developing an intervention that will address their instructional needs. Focus groups were conducted with students with below-proficient skills to determine their instructional preferences. The findings from the focus groups indicate that students place a high value on personal relevance in the knowledge and skills they are learning, and they prefer a combination of demonstration and hands-on activities, interaction with the instructor and other students, and the availability of supplemental instructional materials in the form of handouts. In addition, they feel that incentives to participate in instruction are crucial and that a number of communication strategies are needed to advertise effectively the availability of instructional sessions.

Instruction librarians face many challenges in developing and delivering effective information literacy instruction for college students. One of the biggest challenges is how to motivate students so that they are receptive to learning new skills. In the case of the standalone workshop, students often fail to see the relevance of the instruction to their academic work or their personal lives, and the resulting lack of interest and low motivation create obstacles to learning.[1] In the case of the instructional session integrated within a content course, students still may be hampered by low motivation as is often the case when people are responding to imposed queries.[2] A particularly difficult challenge to overcome is the student who comes to college with below-proficient information literacy skills. As research has shown, students with below-proficient skills tend to greatly overestimate their abilities[3] and thus to believe that they are "above average" and do not need information literacy instruction.

The Attaining Information Literacy Project has sought to address these chal-

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lenges. This three-year, IMLS-funded project[4] has focused on identifying first-year college students with below-proficient information literacy skills, gaining an understanding of those students' self-views and perceptions of information literacy, gaining an understanding of their instructional experiences and preferences, and developing an intervention that will address their instructional needs. Semi-structured interviews were conducted with students with below-proficient information literacy skills to gain an understanding of their perceptions of and experiences with information literacy in both imposed and self-generated information-seeking tasks. The findings from the interviews indicated that students tend not to think of information literacy as a discrete set of skills, yet they describe their own skills in finding, evaluating, and using information as being above average. Moreover, they prefer the Internet and people as resources, but they place little emphasis on information quality.[5] The data gathered in the interviews provided valuable context about students' perceptions of and experiences with information literacy and information seeking. Focus groups were then conducted with a different set of students with below-proficient skills to gather data about their experiences with and perceptions of information literacy in imposed and self-generated information-seeking tasks and to compare that with the data gathered in the interviews. The primary purpose of the focus groups, however, was to determine students' instructional preferences. This paper reports the findings from the focus groups conducted with students who demonstrated below-proficient skills on an objective, standardized test of information literacy[6] and discusses implications for designing instruction for such students as well as directions for future research.

First-year community college students were chosen for this study for a variety of reasons. Community colleges have seen steady increases in enrollment in recent years; among the more than 1,100 community colleges in the United States, there has been an increase in enrollment of approximately 15 percent from 2008 through 2010 alone.[7] Community college students comprise nearly half of the undergraduate students in the United States,[8] and approximately 40 percent of these students will transfer to four-year colleges.[9] The instructional needs and preferences of these students regarding information literacy, therefore, are of great interest to instruction librarians at both community colleges and four-year institutions. In addition, community college students present special challenges. Most community colleges have open admissions policies, intended to provide broad access to higher education. As a result, community college students demonstrate a wide variance in terms of their previous academic preparation. About half of these students are "first time in college" students, and approximately 40 percent enroll in remedial courses.[10]

Review of Select Literature

The American Library Association's Presidential Committee on Information Literacy in its 1989 report defined the information-literate individual as someone who "must be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information."[11] In response to the Committee's call for action, the Association of College and Research Libraries developed the Information Literacy Competency Standards for Higher Education, further refining the definition and delineating specific skill areas. According to this definition, someone who is information literate is able to:

- Determine the extent of information needed;
- Access the needed information effectively and efficiently;
- Evaluate information and its sources critically;
- Incorporate selected information into one's knowledge base;
- Use information effectively to accomplish a specific purpose; and

- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.[12]

For instruction librarians, ensuring that students meet these standards is no easily achieved feat, for research indicates that many students enter college without these skills and many do not gain these skills during their college experience. Project Information Literacy, for example, found that college students report difficulty in conducting research and especially in finding materials.[13] In a subsequent study, they found that college students describe themselves as competent at finding and evaluating information but reported difficulties in determining what kind of information is needed and how much.[14]

Studies using more objective measures of information literacy skills suggest that students may not be as competent as they report. The Educational Testing Service, for example, found that, of 3,000 college students and 800 high school students, only 13 percent demonstrated proficiency in information literacy on the ICT (Information and Communication Technology) Literacy Assessment.[15] In a study of 51 first-year students at a research university, 45 percent scored as below proficient on the Information Literacy Test (ILT), a standardized, computer-based test involving four of the five ACRL Standards.[16] In a similar study of 578 first-year students at two community colleges, 88 percent scored as below proficient on the ILT.[17] Some students clearly recognize deficiencies in their information literacy preparation. A survey of 900 college students, for example, found that 40 percent of them indicated they had "some gaps" in their research skills.[18] Other research, however, has shown that students with below-proficient information literacy skills levels tend to greatly overestimate their information literacy skill levels and are unable to recalibrate their self-views even after taking an information literacy test.[19] Such students, because they do not recognize their deficiencies, are unlikely to seek help to improve their skills, nor are they able to recognize expertise in others.[20] In other words, these students are the least likely among college students to approach a librarian for help in finding, evaluating, and using information. Moreover, if forced into instruction, these students probably will have little motivation to learn skills they believe they already possess.

Designing effective instruction involves incorporating a number of pedagogical strategies. Chickering and Gamson identify seven principles of good practice in developing and delivering instruction to undergraduate students. These principles include (1) interaction between instructor and students, (2) collaboration among students, (3) active learning, (4) feedback from the instructor, (5) time on task, (6) high expectations, and (7) complementary teaching strategies designed for multiple learning preferences.[21] Gagne et al. identify nine events of learning, which include gaining the students' attention, orienting them to the learning context (objectives and connection to prior learning), delivering content, facilitating practice, and providing feedback and assessment.[22] Burgstahler advocates the use of the principles of Universal Design of Instruction (UDI) in developing instruction that is accessible to all students. Among these principles are ensuring a comfortable class climate, fostering interaction between the students and the instructor, using multiple methods to deliver content, offering multiple means of access for information resources and technology, and providing regular feedback from the instructor along with regular assessment of student progress.[23]

One of the crucial elements in designing and delivering effective instruction is motivation. Keller developed the ARCS Model of Motivational Design as a way of systematically incorporating motivation into instructional development.[24] Based on expectancy-value theory, the ARCS Model specifies four conceptual categories that should be part of all instruction: (1)

gaining and holding *Attention*, (2) demonstrating *Relevance*, (3) instilling *Confidence*, and (4) providing a sense of *Satisfaction*. Drawing on the work of Keller, Small has argued for the importance of using such a framework to design information literacy instruction,[25] and Small and Arnone have developed the Motivation Overlay for Information Skills Instruction as a way of accomplishing just that.[26] Similarly, Crow, drawing on the work of Deci and Ryan, has posited Self-Determination Theory (SDT) as a way of designing information literacy instruction that appeals to certain psychological principles related to intrinsic motivation.[27] These three principles are *autonomy*, one's desire to undertake a task; *perceived competence*, the belief that one is able to accomplish a task; and *relatedness*, one's need to feel connected to the social world in which one is situated. Beile and Boote, in two studies, report that students' self-efficacy (that is, their belief in their ability to perform successfully) and their library skills were increased through library skills instruction.[28] And Bruce discusses the importance of the personal relevance frame for informed learning. According to this frame, "[i]nformation literacy is learned in context"; "[v]aluable information is information that is useful to the learner"; and "[l]earning is about finding personal relevance and meaning."[29] Motivation to learn a new skill or acquire new knowledge, then, strongly depends on the learner's perceived relevance of the skill or knowledge to her/his personal circumstances.

Yet it is not clear that simply building motivation into instruction is enough for all students. The Dunning-Kruger Effect, identified through research conducted in the field of psychology, suggests that people with low skills in a given knowledge domain are unlikely to recognize that their skills are deficient, are unlikely to benefit from feedback received from an objective test of their skills, and are unlikely to recognize expertise in others.[30] The Dunning-Kruger Effect has been shown to pertain in the domain of information literacy skills, such that students with below-proficient information literacy skills report being "better than average" in their skill levels.[31] In designing information literacy instruction for these students, motivational models, such as ARCS, may be ineffective. It is difficult to gain and sustain the attention of, demonstrate relevance to, and provide satisfaction for students who believe they already possess the skills in question. Moreover, instilling confidence in students' ability ironically may work against them in that it does nothing to help them recalibrate their inflated self-estimates of their abilities.[32]

What many of the motivational models fail to emphasize is the importance of systematically investigating students' prior experiences with and perceptions of instruction. An approach that would facilitate such an investigation is offered by phenomenography, a research methodology developed in the field of education in the 1970s. Phenomenography is interested in a subject's experiences with and perceptions of a particular phenomenon, with the focus being on the *relationship* between the subject and the phenomenon.[33] In the area of information literacy research, Bruce has made use of this methodological approach in her investigation of college administrators' conceptions and perceptions of information literacy,[34] as have Gross and Latham in their research with first-year college students' perceptions of information literacy in both imposed and self-generated information-seeking contexts[35] and Maybee in his research with undergraduate students' perceptions of information use.[36] Most pertinent to the current study are Gross and Latham's previous studies in which they found, through interviews with below-proficient students, that these students tend to think of information seeking as a product rather than a process, demonstrate a preference for people and the Internet as sources for information, see self-generated information tasks as more interesting and more open than imposed information tasks, describe their own skill levels as "above

average," and report that what they have learned about information seeking is largely self-taught.[37] These findings suggest that instruction librarians face special challenges in providing effective information literacy instruction to students with such conceptions of information literacy and perceptions of their own skill levels.

Research Questions

This study sought to address the gap in knowledge about the instructional experiences and preferences of first-year college students with below-proficient information literacy skills. As such, focus groups were conducted with first-year community college students with below-proficient information literacy skills to gain an understanding of their experiences with, perceptions of, and preferences related to instruction. Specifically, the investigators posed the following research questions:

1. What are students' conceptions of IL for self-generated information seeking?
2. What are students' conceptions of IL for imposed information seeking?
3. Do students' conceptions of the skills necessary to be a competent information seeker vary for self-generated and imposed information seeking?
4. What are students' instructional preferences?
5. What do students say would motivate them to attend an IL instructional session?
6. What do students say are the best ways for the library to advertise the availability of IL instructional sessions?

Method

First-year students at two community colleges were recruited via classroom solicitations to take the Information Literacy Test (ILT), a standardized test of information literacy developed at James Madison University and used by many other colleges and universities in the United States and abroad. The Information Literacy Test is a web-based, multiple-choice test that assesses students' abilities in four of the five ACRL information literacy competency standards. The standard that is not assessed is number four, the ability to use information.[38] Students who achieve a score of 90 percent or higher are considered to have "advanced" information literacy skills; those who score between 65 and 89 percent are considered to have "proficient" skills; and those who score below 65 percent are considered to have below-proficient skills.[39] From those who scored in the below-proficient range on the ILT, students were recruited to participate in six focus groups—three at each of the two community colleges. Focus groups were chosen because they encourage social interaction and allow for the efficient collection of rich data with high face validity.[40] Moreover, the interaction that occurs among participants in focus groups often leads to insights that would not occur in individual interviews.[41] The use of focus groups is a well-documented method of data collection in the library and information science field.[42]

Each focus group lasted approximately 90 minutes, food and drink were provided, and each student was paid $30 for participation. A facilitator led each focus group, while an assistant took notes on a large flip pad. The sheets of notes were posted so that participants could see them throughout the session. Each session was audio recorded. During the session, participants were asked to describe their information-seeking process when looking for information for personal use (self-generated information seeking) and to describe their process when looking for information for a school assignment (imposed information seeking). They were then asked to discuss whether the skills needed for each kind of task were the same or different, and what name, or term, they would give to these skills. They were then asked to describe instructional experiences that they found particularly effec-

tive, to discuss their preferences related to modes of instruction, to comment on what would motivate students to attend an instructional session on information skills, and to describe the best ways to advertise such instructional opportunities. The focus group questions are provided in the appendix.

The notes from the flip pad sheets were transcribed into typewritten form for analysis. In addition, the audio recordings were transcribed. Working from the transcripts, the researchers coded each focus group session, identifying common themes as well as taking note of the variety and range of responses. The coding was cross-checked against the notes from the flip pad sheets. The constant comparative method was used for coding, by which data were compared to generate categories and to define the properties of each category, and data were compared to the emerging categories. All data were coded, and categories were generated until they became "theoretically saturated": that is, no additional categories emerged from the data analysis.[43]

Findings

Demographics

Sixty-five students with below-proficient scores on the ILT were recruited to participate in the six focus groups. Of these, 37 (56.9%) were female and 28 (43.1%) were male. The students were fairly equally distributed across the two community colleges, with 30 students (46.2%) participating from one college and 35 students (53.8%) from the other. A wide variety of majors was represented among these students, with the most prevalent being business (18.5%), nursing and allied health (13.8%), STEM (10.8%), social science (9.2%), and general studies (9.2%). Other majors represented included communication, criminal justice, education, fine arts, performing arts, film, and physical education. Several students (4.6%) reported their major as "undecided."

RQ 1: IL in Self-generated Information-Seeking Tasks

Students were asked what they did when they needed to find information to make personal decisions, such as making a purchase or planning a trip, and what skills were needed to do that successfully. Students mentioned a variety of sources that they might consult, but the two most prevalent were people and the Internet, including Wikipedia. Other possible sources identified were stores (in the case of making a purchase), advertisements, television, magazines, newspapers, and past experience (that is, their own previous experience). Specific people who were mentioned as possible sources included parents (often "mom"), family, friends, experts, salespeople, and technicians. In relation to planning a trip or gathering information about a product, one student said, "I would probably just go to the Internet or brainstorm with friends," while another reported, "I would use the Internet to compare to see what brands offer what at what price." One student said, "I [would] explore my options and then ask my mama what I should do." As for why they would consult people, students cited several reasons based on their relationship with the people: convenience, a comfortable and familiar relationship, and shared interest. Other reasons were related more to characteristics possessed by the people related specifically to the information need at hand. Students valued certain people for their knowledge, experience, and/or opinions. One student, for example, stated that s/he "would go to the store that they sell [the product] at and ask them what they think about it." Another said that in planning a trip s/he would "go by hearsay and people, the comments that people made if they have gone there or done that."

In terms of the skills students saw as necessary for being successful information seekers with self-generated queries, a number of skills were mentioned, which can be grouped into four basic categories. Some of these skills are what librarians might consider standard traits of an

information-literate individual (though the students themselves did not use that term). For example, students discussed the importance of understanding the information need, the ability to match the question or need to the right sources, computer skills, research skills, search skills, and specifically database search skills. One student, for example, noted that "[f]irst thing you do is figure out what you need or want." Another said that it was important to be "a good scavenger hunter."

Evaluation as a discrete skill was mentioned in relation to evaluating a product, such as a computer. Other skills might be described as social skills: the term "social skills" was used along with communication and the ability to ask questions. One student stated that "you just got to have a lot of people skills, be willing to ask questions when you go in the store." Another set of skills involved various cognitive characteristics, such as thinking skills, and the ability to make sense of a situation. Other skills in this category included math skills, organization skills, and planning skills. Finally, yet another set of skills that were identified might best be described as life management skills. These were self-discipline, time management, and money management (again, in relation to making a purchase). One student said, "I don't think there really [are] many skills other than common sense."

Students also discussed the basis on which they would evaluate information that they found in self-generated information-seeking tasks. In terms of evaluating sources, students mentioned the importance of being able to recognize bias in a source, the need for currency, and the importance of reliability. They also emphasized the importance of consulting multiple sources to compare and (possibly) confirm the information found. The students mentioned other criteria related to the relevance of the content of particular sources in helping them make decisions about a pending purchase. For example, they indicated that they valued sources that presented opinions, ratings, and reviews, as well as pros and cons and industry standards. According to one student, for instance, "[W]hen you are buying a car stereo or computer you figure out like pros and cons of each thing and then maybe…look at some reviews of different products and stuff like that from different websites and see what other people think." Other criteria that were discussed related more to the characteristics of the product itself—things such as affordability, brand, product features, and personal preference. One student commented that s/he would "just do what my mom always taught me to do…you just look for the cheapest thing you could find."

RQ 2: IL in Imposed Information-Seeking Tasks

Students were asked what they did when they needed to find information to fulfill a class assignment. Again, students mentioned a variety of sources, especially the Internet and people. One student said that s/he "would go to the Internet, get an opinion, and search it, and I would plan out how I'd want the paper or assignment to be worded." In addition, students reported that they used a number of different reference sources, such as style guides, encyclopedias, and dictionaries, as well as newspapers, magazines, and library databases. One student, for instance, commented that "the database from our library has been very, very helpful, being able to make sure [the source] is reputable and that it is based on research and has been proven." The library itself was mentioned as a source as was the bookstore. Other sources were more course related—for example, sample papers and class notes. And field, or original, research that they themselves conducted was noted by some students as a source of information.

In terms of which people they used as sources, students mentioned various family members (mothers, fathers, siblings, cousins, and, in the case of older, nontraditional students, their own chil-

dren). Friends and roommates were also identified as sources. Some of the people consulted were school or even course specific: instructors, tutors, librarians, and classmates. As for why they consulted certain people, students discussed various characteristics that can be grouped into three broad areas, which are not, of course, mutually exclusive. Some were consulted for their expertise, identified as knowledge, experience, and opinions. One student explained that "if you know someone who has a particularly large amount of knowledge about that subject, you can talk to them." Some were consulted because they offered particular kinds of help, such as the ability to interpret an assignment or provide feedback (on the students' work or ideas). And some were consulted because they offered a comfortable level of familiarity—specifically, convenience of access, a close relationship, and/or compatibility.

When asked what skills students need to be successful in seeking information to fulfill class assignments, students noted a number of skills that can be divided into four basic categories. Cognitive skills included reading, comprehension, writing, and problem solving. Information literacy skills included Internet, library, research, and computer skills. As one student said, "Actually, most times we use the Internet and it requires computer skills." Other information literacy skills included understanding the topic and formulating appropriate questions, brainstorming, the ability to evaluate sources, note taking, and knowing how to cite sources and avoid plagiarism. One student emphasized that it was important to "[k]now exactly what you're looking for and like, if you're writing a paper or something, know your subject." Life management skills were mentioned as well, and included organization and planning skills, determination and perseverance, patience, time management, motivation, the ability to develop interest in a topic or project, and the ability to engage in reflection. One student commented, "Yeah, I mean if I had to write a paper, I hope it would be something I liked, I was interested in." Finally, social skills and communication skills were also mentioned as important traits to have. As one student explained, you have to "[u]se communication skills when you're asking someone about something; you want to make sure you say the right things and get what you want."

As far as evaluating sources was concerned, students focused on the importance of credibility and currency and stressed avoiding sources like Wikipedia and Internet sources that were "dot coms." One student noted that s/he would check out books in the library "because I don't trust everything that's on the Internet." In addition, students reported that they judged sources on the amount of content offered and stated that they looked for multiple viewpoints and felt that it was important to have multiple sources. For example, one student noted that "if you are doing comparing, contrasting, you need to know both sides, like details on both sides."

RQ 3: Comparison of IL Skills in Self-generated vs. Imposed Information-seeking Tasks

Students generally agreed that the skills required to be successful information seekers were both similar and different in self-generated versus imposed tasks. Similar skills included cognitive skills, specifically comprehension, problem-solving skills, decision-making skills, the ability to engage in original thought, and common sense. Traditional information literacy skills that applied in both information-seeking contexts included understanding the topic or question, research skills, computer skills, similar sources, and the ability to evaluate sources. For example, one student said, "So what's in common is you have to use a computer, but the way they're different is because there is different things on the computer you have to do for the assignment." Another agreed, stating that the two tasks

involved "[m]ostly the same skills due to the fact that computers are the number one place to find information." And yet another student noted that both tasks, whether one is conducting research for an assignment or investigating a product to purchase, involve "[u]sing problem-solving skills because you are making sure they are either credible sources or that they are a good type of brand." Students also identified a number of life management skills as being common to both kinds of information seeking: planning, organization, time management, attention to detail, patience, determination, discipline, perseverance, and being goal oriented. The only specific social skill mentioned was communication. One student summed it up like this: "I think [both kinds of tasks are] the same…in certain skills, but the way you use the skills for each thing is different."

The differences that were identified related less to actual skills and more to the affective dimensions of the two different information-seeking contexts. Imposed tasks were done for someone else, had deadlines, were constrained, and were compulsory. As such, they were considered to be work, static, boring, and more serious. Self-generated tasks, by contrast, were done for oneself, had a more flexible timeline, were more open, and were voluntary. As such, they were considered to be pleasurable, dynamic, and fun. One student said, "One [type of task] is working; one is pleasure." Another noted, "One is for yourself and the other one is for your teacher." One student commented, "You're probably just a little bit more enthusiastic about like researching going on a cruise or like something you're going to buy for yourself," while another noted, "People don't like writing papers." These sentiments were echoed in other comments, such as "Yeah…you don't really invest yourself this much in an assignment." Yet another put it this way: "[O]ne is something that I want to do and the other is something I have to do."

The differences in skills that were mentioned included the assertion that imposed tasks require comprehension skills whereas self-generated tasks require common sense. The different tasks were seen as having different goals and therefore requiring different planning processes, different sources, and different use of sources and resulted in different products (papers, for instance, versus decisions). One student felt that it would be "odd to go to your friends and ask about [a school assignment]," but another reported, "I know sometimes when I am writing a paper, I'll call my mom or I'll call my coach, and I get really good insight because everyone has different opinions." Some students also saw a difference in the types of sources they might consult for the different tasks. As one student said, "For one you use a website like Google, a search engine; for the other use a database." Overall, imposed tasks were seen as being more constrained, while self-generated tasks were seen as being more open. One student stated, "[W]hen it's for school you have guidelines and things you have to follow like you have to follow a path or whatever and the other one you can kind of go wherever you want and choose whatever you want."

When asked what this set of skills should be called, students suggested a wide variety of terms, most of which focused on a narrow rather than a broad set of skills. For example, some of the terms suggested included "planning," "decision making," "computer skills," "communication skills," "analysis," "research," and "problem solving." When asked whether they were familiar with the term "information literacy," they said that they had not heard the term prior to taking the Information Literacy Test.

RQ 4: Instructional Preferences

Students were asked to recall courses in which they felt they had learned a lot and to consider the teaching techniques and materials used in those courses. Not surprisingly, teacher characteristics figured prominently in students' responses. These characteristics related to the teacher's atti-

tude toward students, attitude toward the material, and overall personality. Students expressed a preference for teachers who care about their students, are able to relate to students, respect students' opinions, and are helpful. One student explained, "I think I learn better if the teachers, professors, like show that they care about their students and stuff because I've had teachers that don't care and it just makes me not want to be there and not want to learn." Another student mentioned admiring a certain math teacher because "she gives everyone a chance to ask questions and… she breaks it down and goes slow with everyone and she always picks back up if someone needs help with something." In addition, some students reported a preference for easy teachers, while others said that they preferred strict teachers because with a strict teacher "you're gonna learn a lot because you will be scared to play in that class." They also indicated that they appreciate teachers who are passionate and enthusiastic and demonstrate a positive attitude about the material. One student, for example, recalled a favorite history teacher who "was really into it. We could tell that he liked the subject and [the class] was more interesting." Another remembered a particularly effective psychology teacher: "He just taught with such enthusiasm and he made me interested in psychology. He made me want to do good in that class." In terms of overall personality, students stated that they enjoy teachers who are outgoing, have a sense of humor, and are "sassy" and "cool." One student noted that such traits rub off on the students themselves: "Yeah. I love that [attitude]; it gave you like energy and some oomph."

Students also identified a number of teaching techniques they considered effective in fostering learning and in making a class "fun." Some were related more to the delivery of course content, and included such things as demonstrations, the use of real-life, relevant examples, the incorporation of stories into lectures, and the stimulation of thought. One student expressed preference for a teacher who "will give you an example but then…help you do it and critique it…then give you a chance to do it yourself." According to students, effective teachers also make use of supplemental materials and activities such as games, visual aids, videos, handouts, and field trips. Students liked having a choice in terms of assignments and/or topics. One student praised a teacher who "gave us opportunities to do whatever we wanted to learn, like we could tell him what we want to do, like if we wanted to read a certain book, he would let us read that book." Other techniques were more focused on student interaction. Students stated that they liked the opportunity to get personal attention from the teacher, specifically to get feedback from the teacher, and they appreciated the opportunity to ask questions and engage in open discussions. They also liked the opportunity to make presentations in class, work with other students in small groups, and participate in peer tutoring sessions. One student noted, "I always remember information that I actually stood up and presented to the class as opposed to information that I just turned in; for some reason presenting it seemed to stick in my mind." Another described the effectiveness of peer editing groups in an English class: "… to get your grade you do not rely only on yourself but on your cohort groups.…I think that actually helps because in the real world you have to deal with all different types of people." Students valued the opportunity to gain hands-on practice with the knowledge and skills being taught. Some students mentioned computer use in class, laboratory work, work study experiences, and job shadowing as especially useful. One student recalled a high school class in which "each one of us had our own computer, so we could use whatever we wanted from the computer, which really helped a lot."

By the same token, students had strong feelings about teaching techniques that they have found ineffective. Such techniques include lectures that offer no

interaction, are boring and/or confusing, involve the teacher just reading from notes, are presented in a monotone voice, and show low teacher involvement in the material. While generally not liking the straight lecture format, students were also unimpressed with courses where questions were allowed to dominate the class. They also did not like courses where no supplemental materials were provided, nor did they like courses where the focus was on rote memorization. Interestingly, most of these students expressed a strong dislike for online courses. Instead, they preferred face-to-face classes that were small and offered opportunities for personal tutorials. One student, an exception, stated that s/he did not mind online classes because "I feel like society has turned to computers anyway, so you should get used to communicating back and forth online." But more typical reactions were: "I like hands-on; I think online classes are the stupidest things ever made"; "I don't like online instruction because I don't pay attention, because I…want to be on Facebook, and I do other things"; "I mean online classes are a joke, and I hate my [online] math lab with a passion"; and "when you have an online class you're thinking I technically don't really have to do this, because this is just online." Students said that they preferred small face-to-face classes for a variety of reasons: "because I think you can ask more questions"; "I can talk to the teacher, you know your surrounding classmates, so if you have a question you can ask them"; and "I think [peer] tutorials help a lot, like working with someone in the class that you can level with and [they] can help you, and you can help them."

In terms of their own learning techniques, students mentioned a variety of practices and preferences. A number of them discussed the importance of having interest in the topic. They also described various methods they use to learn new material: participating in discussions, taking notes, making note cards or flash cards, creating and playing games, reading out loud, drawing pictures, and using color coding. Several students described themselves as being "tactile," "hands-on," and "visual" learners.

RQ 5: Motivations to Attend IL Instruction

Students were asked what would motivate them to attend an information literacy instructional session. They mentioned incentives as a very important issue and identified a number of possible incentives. Students said they would be likely to attend such a session if it were required, or if it offered course credit, extra credit, an opportunity to improve their grades, or food. One student expressed the importance of requiring attendance: "Well, I know me, personally when my professor says, 'Oh, it's optional, you don't have to come in, you don't have to do it,' it's like what's the point in doing it? I'd rather you not tell me it's optional." But another expressed the opposite viewpoint: "Because you have the choice, it makes you want to go, because, man, I have a choice to go and I can make plenty of points. That's a good choice." For some students, it was a matter of the perceived benefit they would gain from attending such an instructional session. One student, for example, said, "What would make me want to go if it was like a class that was kind of like what I was already taking and it would just help me out more; then I would go if I had like really bad grades [and] I needed to bring them up." Another stated, "No one wants to do anything unless you personally benefit from it." Students said that they would also be motivated to attend if they felt they needed the skills, if they had a personal interest in the topic, or if they had a friend in the class. One student mentioned the importance of the class being appealing: "If I don't like the class at first, I am not going to show up even if it does give me extra credit." Students also discussed the importance of scheduling, stating that they would be interested if the sessions were short and available at a variety of times and in a convenient location. Other important factors mentioned

were the perceived usefulness of the class, the teacher's reputation, and the effectiveness of the instructional strategies. One student, for example, noted that "[i]t helps maybe to get the class up and move around and get into groups and talk and share their thoughts and stuff like that." Another said, "I would want to go to class if we had projects planned or there was a really hands-on class like full of activities." Students said they would not be likely to attend an information literacy instructional session if they felt they already had the skills and/or they felt the class had no personal relevance to them.

RQ 6: Advertising IL Instructional Sessions

Students were also asked about the best ways for the library to communicate information to them about the availability of information literacy instruction. Students offered a variety of options, which can be grouped into three main categories. Announcements made within the context of particular courses were felt to be especially effective. Several means were identified, including announcements made in class, information included on the course syllabus, and postings on the course website. Other print-based advertisements mentioned were handouts or flyers, posters, and (free) T-shirts. Several electronic media outlets were identified as possibilities: radio advertisements, e-mails, text messages, phone calls, school websites, and television spots. One student noted, "I drive a lot so I always like listening to the radio, and I especially like an advertisement about students at [my college]; I mean, I think, I go to school here, so I want to know what's going on." Another, however, explained, "There really isn't any way to reach me. The way I find out about stuff like this is like friends and family, I guess word of mouth." When asked to discuss what within advertisements would catch their attention, students focused on a number of elements related to effective graphic design, such as bold letters, images, colors, and legible, concise messages. Others mentioned using music in the advertising and emphasizing the offer of incentives such as free food or extra credit. Creating an "information literacy mascot" was mentioned as one possibility, as was holding a contest among students to design the best poster to advertise information literacy instruction. Students also felt that the use of attention-getting words would be important and effective. Some possibilities included "urgent," "free," "mandatory," "important," "good news," and "please read." Several suggested the use of meaningful motivational messages based on the intended outcomes of the session: "Stop failing your classes now"; "Get better grades"; and "Write a better paper." Finally, it was suggested that prominently featuring incentives in the advertising was crucial. These incentives included money (students who participated in this research project were paid), food, extra credit, free passes, and prizes. The key to successful communication for many of these students is, as one student stated, "[i]f it looks cool, if it's flashy," to which another student added, "[i]f it relates to like the majority of the age group in the school."

Discussion

Self-generated vs. Imposed Information-seeking Experiences

Students were asked about their information-seeking experiences in both self-generated and imposed tasks for the purpose of (a) orienting them to the topic of information skills and (b) eliciting responses that could then be compared to the findings from the interviews, which focused on students' perceptions of and experiences with information literacy. As found in the interviews,[44] students tend to prefer the Internet and people as sources of information, both in self-generated and imposed tasks. With self-generated information seeking, students typically said that they turned to search engines, known websites, and people with whom they were comfortable, such as parents, other family members, and friends. They sometimes also consulted "experts," for

example, people who sell a particular product who are familiar with the features and the like. Comfort level, trust, and convenience are key considerations in the people whom students choose as sources in self-generated information-seeking tasks. With imposed tasks, such as school assignments, students are more likely to go to instructors or tutors or classmates—in other words, people they perceive as having some level of expertise in the topic and some familiarity with the parameters of the assignment. Interestingly, the students did not mention librarians as people they typically turned to when they had personal or school-related information needs. In terms of nonpeople sources, students still prefer the Internet for imposed tasks, but they also mention using "library sources," such as databases, books, and periodicals. It is not clear, however, whether these additional sources are used because of the type or quality of the information they offer or because they are required or strongly preferred by instructors.

In terms of the skills needed to be successful information seekers, students see the skill sets as similar for both self-generated and imposed information-seeking tasks. They tend to place a great deal of emphasis on search skills—finding the information needed—regardless of the task, and they see computer skills as closely related to, and in some cases as synonymous with, effective search skills. Students also recognize that cognitive skills are important too, particularly the ability to think critically about the topic or information need at hand. Social skills, especially communication skills, are needed in terms of being able to interact successfully with other people as potential sources, ask them questions, and understand and respond to their feedback. Students recognize that management skills are crucial in being able to manage one's time and organize the information found in searches. These students are able to discuss the variety of skills needed to be considered a successful information seeker. However, it is not clear that students think of these skills as a discrete or coherent set of skills, nor is it clear that they think possessing these skills is anything special. Students are not familiar with the term "information literacy," which raises the question of whether the term is being used by librarians and teachers/faculty in K–12 schools and in institutions of higher education. The wide variety of terms students offered as a way of describing information skills indicates that their conceptions of these skills vary widely as well. It is possible that the lack of a term that resonates with students is hampering their ability to conceptualize information literacy as a skill set.

Students report that they do engage in evaluation of sources in both self-generated and imposed information tasks. This finding is somewhat different from what was learned in the interviews, in which students indicated that information quality was not a major concern—or, if it was, it was largely a consideration imposed by the instructor.[45] In the focus groups, with both kinds of tasks, students state that they look for relevance, currency, and reliability in evaluating sources found. In addition, with imposed tasks, they feel that they should avoid Wikipedia and "dot com" Internet sources. Though not explicitly stated, it seems quite likely that this concern is a mandate given by instructors rather than students' personal preferences. Also, with imposed tasks, students mention the desirability of having multiple sources and multiple viewpoints represented in those sources. Again, it seems likely that this directive comes from instructors. A common assignment, for example, is to write a paper on a particular issue, presenting the pros and cons of that issue.

Generally speaking, in comparing self-generated and imposed information-seeking tasks, students see the skill sets as similar but the affective dimensions as different. Imposed tasks are seen as more constrained (by instructor expectations) and self-generated as more open. Interestingly, while there is wider range of

possible sources students could consult in self-generated information seeking, they, in fact, tend to rely primarily on people and freely available web resources (such as sites found through Google, or known sites like Wikipedia and YouTube); rarely do they consult databases, books, or periodicals for self-generated tasks.

Quality of sources is considered to be a more important issue in imposed tasks, largely because the instructor dictates that source quality should be evaluated. Self-generated tasks, not surprisingly, are considered to be both more fun and more interesting, and there is greater motivation to do the research and find useful sources. With imposed tasks, there tends to be less interest and less built-in motivation; students complete them because they have to, not because they especially want to. These findings are very much in agreement with the findings from the interviews in regard to students' perceptions and motivations associated with the two kinds of information-seeking tasks.[46] These findings also underscore the importance of the personal relevance frame for students, who indicate that they are more motivated by and more interested in information that is useful and learning that is meaningful to them personally.[47]

Instructional Preferences

Students were asked to recall a class in which they felt engaged and felt that they learned a lot, and then to describe the characteristics of that class and/or instructor. The purpose of the question was to determine what instructional strategies students found most effective. It is clear from their responses that students prefer a combination of strategies, particularly demonstration and the opportunity for practice—as one student said, "Show me, and then let me do it." This suggests that information literacy instructional sessions should be held in computer classrooms where computers are available to both the instructor and students. While a classroom with a single computer and LCD projector would facilitate demonstration, it would not allow for hands-on practice. Students also expressed a strong preference for a high degree of interaction—with the instructor and with other students. They felt that they learned most effectively when they had the opportunity to ask questions in a comfortable environment and when they received constructive feedback on their work. In addition, many of them stated that they enjoyed working with other students and indicated that they often learned from other students' questions and comments. This desire for a high level of interactivity suggests that instructional sessions be kept relatively small. While in theory the size of such sessions would be restricted only by the number of available computers, in practice it seems that an optimal size would be 16–20. This class size would allow the instructor to interact with all of the students, respond to questions, and provide ongoing feedback. It would also allow for students to work collaboratively and to learn from one another's experiences, questions, and comments. If such a small class size is not possible, it would be advantageous for the instructor to have an assistant who could walk around the room and provide feedback to students as they worked on search activities. Finally, students also expressed a desire for handouts, something that might seem a bit old-fashioned in today's digital learning environments. But it should be recognized that many students like to have something tangible that they can take away with them to help them recall specific techniques and information learned in the session. While it is true that handouts can be placed on websites, it is also clear that many students prefer to have these supplemental materials "pushed" to them rather than having to remember where the materials are and access and print them on their own. Overall, the fact that students expressed strong preferences for multiple instructional strategies—including demonstration, practice, interaction, collaboration, and feedback—confirms findings from the work of Chickering and Gamson, Gagne et al., and Burgstahler.[48]

It is not surprising to hear that students value entertaining, engaging, enthusiastic instructors who demonstrate concern for students. Those characteristics have been the hallmarks of effective teaching for a long time and in many different contexts, and these findings confirm Small, Dodge, and Jiang's finding that students view their instructor as the single most important motivational factor in their learning.[49] People generally like to listen to and interact with interesting, passionate people. It is perhaps also not surprising that students appreciate instructors who use personal examples and work hard to make the material relevant to their students' personal lives. This finding too supports Bruce's notion of the personal relevance frame as playing a key role in motivating students to learn.[50] What is somewhat surprising is the general aversion most students express to online learning. In the age of the Internet with all the talk of "Millenials"[51] and "Digital Natives,"[52] it is tempting to assume that all young people are computer savvy and prefer being online to interacting face to face, but this is an oversimplified view. For one thing, not all college students are spending vast amounts of time online. Those who live in rural areas, for instance, with Internet access issues may only use computers when they are on campus. But even for those who do use computers frequently, they seem to make a distinction between what they like to do online—such as participating in social media—and things they do not like to do online—taking a class or even just completing a tutorial. While some students in the current study said that they like, and even prefer, online learning, many more said explicitly that they do not. Online learning is considered impersonal, one-way, and unable to inspire much motivation. This is an important finding for librarians, instructors, and administrators who may be making faulty assumptions about the preferences and behaviors of the students they serve. By the same token, the findings of this study may indicate that the participants had been exposed to a very limited kind of online instruction—perhaps online tutorials that provided no opportunities for practice, interaction, collaboration, or feedback.

Motivation and Communication

Incentives are crucial motivators for students, and it seems that students will be most likely to attend an information literacy instructional session if it is required and/or if it offers college credit. The question of whether required attendance would be an effective motivator for everyone, though, remains an open one. While some students clearly need the incentive of mandatory participation, others feel that having the option to attend is actually a greater motivator in that it facilitates self-efficacy by empowering them to make the decision themselves. The opportunity to improve their grades, by earning extra credit and/or by enhancing the skills needed to be successful in their courses, is also a powerful incentive, again suggesting that extrinsic motivation is a key factor in getting students to participate in information literacy instruction. Motivation is also influenced by the reputation of the class and the instructor. A class that is convenient, in terms of times offered and location, and that is known to be helpful and interesting, but relatively short, is seen as desirable. Likewise, an instructor known for being entertaining, lively, and genuinely concerned about student success can be a significant factor in students' being motivated to attend an instructional session. These findings suggest that perhaps the most effective strategy to motivate students to attend information literacy instruction is the "stick and carrot" approach, making the session a requirement but also ensuring that it is engaging and useful.

Class and instructor reputation are conveyed largely via word of mouth, and indeed this is one of the strategies students frequently mentioned as an effective way of communicating/advertising information about instructional sessions. An equally effective means of communication is for

instructors and tutors to provide information about instructional sessions, via class announcements, statements on course syllabi, postings on course websites, and other such means. Beyond recommendations—either from other students or from instructors and tutors—students do not agree on a single effective means of communicating with them. While some prefer text messages, others state that they would delete any messages from people or entities that they do not know. By the same token, while some students feel that e-mail from the library or college is an effective way of contacting them, others report rarely using e-mail or ignoring messages that appear to be mass mailings. Again, the notion that all young people are constantly online or "plugged in" needs to be reconsidered; simply because they themselves may frequently engage in texting with friends and family members does not mean that they wish to receive texts (or e-mails or tweets) from people and organizations they do not know. Perhaps because of the highly visual nature of our culture, students do pay attention to eye-catching advertisements. (Several students in the study described themselves as "visual learners.") Colorful, attractively designed visuals, with attention-getting words and a clear identification of incentives, are felt to provide an effective means for advertising instruction. As with instruction itself, some students feel that an interactive dimension—for example, an information literacy poster contest or an information literacy mascot—is highly desirable with advertising too. Overall, the fact that there is no single best way to communicate or advertise information literacy instructional sessions suggests that a variety of outlets should be used. Clearly, the key is to engage students through effective communication and advertising and through the content and pedagogy of the instructional session itself.

Conclusions

The findings of the present study indicate that students with below-proficient information literacy skills prefer people and the Internet as sources in both self-generated and imposed information-seeking tasks. They consider the skills needed with both kinds of tasks to be similar, although it is not clear that they think of information skills as a discrete skill set or as anything special. Students are more motivated to complete self-generated tasks because they consider them to be more open and more interesting, while they see imposed tasks as more constrained and much less interesting. In terms of instruction, they prefer a combination of demonstration and hands-on practice, and they like to have opportunities for interaction both with the instructor and with other students. They recognize the importance of incentives in motivating them to attend information literacy instructional sessions, and they feel that a variety of communication strategies should be used in advertising such sessions. While the results of the current study are not generalizable, they may offer useful guidance for developing information literacy instruction and establishing additional research agendas.

Implications for Practice

The findings of this study provide a framework that librarians and instructors can use to develop and deliver information literacy instruction. In responding to the needs of students with below-proficient information literacy skills, it is important to design instruction that incorporates demonstration and hands-on practice. This suggests that instruction should be held in a computer lab with at least one computer available for every two students. Because students like to work together and learn from one another, it is desirable to allow students to work in pairs—or even threes. While this will facilitate interaction among students, it is also desirable to create an environment in which the instructor is able to interact with students and provide feedback on the various activities students are doing. This suggests that instructional sessions

should be kept relatively small, say, 16 to 20 students. However, the more important consideration is the student-to-instructor ratio so that effective feedback can be provided to students as they work on learning activities. Assistants (including student assistants) could be used as a way of achieving this level of student-instructor interaction in larger classes. Instruction developed for online delivery should incorporate these same elements of practice, interaction, collaboration, and feedback.

In terms of content, students are clearly more motivated with self-generated information-seeking tasks, so it might make sense to begin with topics related to students' personal information needs and incorporate activities that would allow students to increase their information literacy skills using a topic in which they already had a built-in interest. Such an approach would make use of Bruce's personal relevance frame and would also promote self-efficacy by allowing students to develop their own topics. Also, as the findings indicate, students prefer people and the Internet as information sources. Why not draw on students' familiarity with the Internet and begin by focusing on what they (think) they already know? Instruction could be developed to enhance students' existing Internet search and evaluation skills, even if they are rudimentary, and then build on those skills in future instructional sessions. Finally, supplemental materials in the form of handouts, etc., should be provided so that students can review what they have learned in the session and apply it to information seeking both in their personal lives and for school assignments.

Information literacy instruction may be offered as an optional, standalone workshop (or series of workshops), or it may be integrated into content courses in support of assignments, such as research papers; in some institutions, instruction is offered in both formats. In the case of optional workshops, simply making instruction available is not enough. Students need incentives to attend, and such incentives should be considered as instruction is being developed. Getting faculty/instructor buy-in is clearly important in that making information literacy instruction required was identified by the students in the current study as being one of the most effective incentives. Other possible incentives are college credit or extra credit within other classes. Advertising is also crucial in getting students to attend information literacy instruction. Again, faculty/instructor buy-in is important, as recommendations or announcements by instructors and tutors were identified by students in this study as effective ways of advertising instructional sessions. Aside from that, the findings of the present study suggest that it is necessary to use a variety of communication strategies in letting students know about the availability and value of information literacy instruction. In the case of information literacy instruction that is integrated into content courses, students presumably have the incentive to attend, given that attendance is probably required by the instructor. Nevertheless, physical presence does not ensure intellectual engagement. Again, in designing and delivering instruction, librarians should recognize that students are more likely to be motivated to learn if they understand the relevance of the content; have opportunities for practice, interaction, and collaboration; and receive helpful feedback.

Implications for Research

The current study focused on first-year community college students with below-proficient information literacy skill levels. Additional research is needed into whether instructional sessions developed using the feedback from these students would, in fact, effect positive change in students' information literacy skills. How can these strategies best be incorporated into instructional design? What measures are most useful in determining the efficacy of these strategies?[53] Are the same strategies effective in providing information literacy instruction to students with proficient skills who wish, or need, to enhance their skill levels?

Other populations are worthy of study as well. First-year students at four-year colleges and universities should be studied. In addition, it would be interesting to know whether upperclassmen have the same instructional preferences as the first-year students in the present study. Graduate students would be another useful population to investigate, as would high school and even middle school students. Additional research might focus on populations outside of school, such as parents of school-aged children or senior adults. It would be worth knowing whether instructional preferences vary according to age, educational level, past instructional experiences, or socioeconomic status.

The current study is one step toward gaining a greater understanding of the instructional needs of first-year college students with below-proficient information literacy skills. The feedback gathered from these students provides a framework for developing information literacy instruction aimed at addressing their needs by helping them to achieve the skills they need to be successful students and successful adults in the 21st century.

Appendix

Focus Group Questions

1. Let's talk about what students do when they need information to make personal decisions such as buying a computer or a car stereo or planning a trip for spring break.
   - What do students usually do? What skills do they need?
2. Now let's talk about what students do when they need information to fulfill course assignments. Such assignments usually involve writing a paper on a particular topic; comparing and contrasting opinions about something; solving a problem; or investigating a research question.
   - What do students usually do to fulfill such assignments? What skills do they need?
3. How are these skills the same? How are they different?
4. What overall term could we use to describe these skills?
5. Think back to a course in which you learned a lot. Describe what most helped you in learning the skills and knowledge in that class.
   - Think of materials such as books, handouts, computer tutorials.
   - Think of teaching techniques such as demonstrations, hands-on practice, lecture, individual tutorials.
6. When you learn something, do you prefer personal tutorials, small classes, online instruction, or some combination of these?
7. What would make students WANT to attend an instructional session to learn the information skills necessary to fulfill assignments? What would make students decide NOT to attend?
8. What is the best way for students to find out about these instructional sessions?
9. What would best catch the attention of students and motivate them to read information about these instructional sessions?

Notes

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50. Ibid.

51. Neil Howe and Bill Strauss, *Millenials Rising: The Next Generation* (New York: Vintage Books, 2000).

52. Marc Prensky, "Digital Natives, Digital Immigrants," (Marc Prensky, 2001), available online at www.marcprensky.com/writing/ [accessed 8 November 2011].

53. The Attaining Information Literacy Project is addressing some of these research questions. For more information, see Gross and Latham, *Attaining Information Literacy*.