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Preparing Tomorrow's Decision Makers: Learning Environments and Outcomes of Information Literacy Instruction in Business Schools

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This study examined information literacy instruction in Canadian business schools, conducted to identify successful outcomes, as well as opportunities to increase the scope and magnitude of instructional outcomes. Three business schools and their supporting libraries participated in the study, which included analysis of policy documents and interviews with students, librarians, teaching faculty, and administrators. In addition, the SAILS test was administered to business students at all 3 institutions. Critical factors in the learning environments at each school were analyzed, and instructional outcomes were identified. One striking finding was the lack of coherence between the perspectives of students about their

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information literacy skills and learning, and the perspectives of the librarians and faculty members who teach them.

KEYWORDS information literacy, business education, learning outcomes

INTRODUCTION

Information literacy (IL) skills are critical for successful engagement in 21st century Western societies. The ability to access information effectively and efficiently for academic purposes, for daily life (e.g., to address health questions or to access government services online), and in the workplace (e.g., to support decision making) is well understood. In some contexts, including business environments, there is particular recognition of the value of this skill set. Over the past decade, there has been growing appreciation that IL skills are critical to business decision making and to the bottom line, that is, to business success. Kanter (2003) argued that in the current business environment, "information has become the leading business asset" (p. 23). Even earlier, in a speech to the 1999 graduating class at the University of Toronto, Anthony Comper, then President of the Bank of Montreal, stated that:

> Whatever else you bring to the 21st century workplace, however great your technical skills and however attractive your attitude and however deep your commitment to excellence, *the bottom line is that to be successful, you need to acquire a high level of information literacy*. What we need in the knowledge industries are people who know how to absorb and analyze and integrate and create and effectively convey information—and who know how to use information to bring real value to everything they undertake. (Association of College and Research Libraries, 2003, Advocates From The Business World section, para. 4; emphasis added)

Developing these skills is increasingly recognized as integral to business students' university education. The literature of business librarianship also reflects this view (Cooney & Hiris, 2003; Hawes, 1994). However, a survey of nearly 400 libraries of colleges and universities accredited by the Association to Advance Collegiate Schools of Business (AACSB) found that IL instruction and librarian–faculty collaboration in business schools still has significant potential for improvement. Interesting, only one third of the survey participants reported incorporating the Association of College and Research Libraries' (ACRL) Information Literacy Competency Standards for Higher Education into their instruction (Cooney, 2005).

Evaluation in Business Schools

The de facto standard for business schools is accreditation with the AACSB International (see www.aacsb.edu). Accreditation status is important for the viability, reputation, and success of business schools. In recent years, a significant movement within business schools to incorporate clearly articulated and appropriate learning outcome measurements has spread, as a way to demonstrate achievement of learning goals. Because of the increasing recognition that IL skills are a crucial learning goal for business students, there is some urgency for collaboration with librarians to teach this skill set to business students. In addition, there is a strong thrust in business schools to develop standardized measures in consultation with librarians, so that students' IL learning outcomes can be demonstrated, to satisfy AACSB accreditation requirements.

Evaluating Information Literacy Instruction

Generally, evaluation of IL instruction in Canada and the United States has considerable potential for improvement (Ackerson & Young, 1994; Adams, 1993; Julien, 1998, 2000, 2006; Julien & Boon, 2002; Julien & Leckie, 1997; Totten, 1990). In both countries, instructional work is not a funding priority for library administrations, articulating formal instructional objectives is not generally done, and evaluation of instruction is largely informal and formative (Julien, 1998, 2000, 2006; Julien & Boon, 2002; Julien & Leckie, 1997; LaGuardia, 1996; Shonrock, 1996). Where summative evaluations have been done, results suggest that undergraduates' grades and program completion rates improve as a result of IL instruction (Greer, Weston, & Alm, 1991; Hardesty, Lovrich, & Mannon, 1982; Selegan, Thomas, & Richman, 1983). Research also indicates that instruction increases students' ability to search effectively and to select relevant information sources (Emmons & Martin, 2002). It appears that library services are being modified as a result of systematic assessment (Seamans, 2002). However, confirmation and expansion of these outcomes would be useful. One Canadian study of instructional outcomes in academic libraries found that students reported increased confidence, improved searching skills, and changed attitudes toward libraries (Julien & Boon, 2004). Another study done at San Jose State University demonstrated a 16% decrease in the use of nonlibrary websites after library instruction, and students reported greater confidence and self-efficacy (Roldan & Wu, 2004).

Some Canadian university libraries have participated in Project SAILS (Standardized Assessment of Information Literacy Skills; https://www.projectsails.org). This test was developed and is operated by Kent State University Libraries and Media Services because of the increasing importance of IL instruction to academic libraries, and because of greater emphasis on assessment and accountability in libraries generally (O'Connor, Radcliff, &

Gedeon, 2002). Thus, Project SAILS represents a significant effort to produce a credible, validated test to assess IL instruction at a programmatic level (Lym, Grossman, Yannotta, & Talih, 2011).

RESEARCH QUESTIONS

Because to date there were no data on the relative success of IL instruction in Canadian business schools, the current study was undertaken to explore how business schools can cooperate with campus libraries to best develop this skill set. The specific research questions addressed were the following:

1. What is the interplay between factors of the learning environment and information literacy program components on business student learning outcomes?
2. What are the business school information literacy learning outcomes from the perspectives of students, librarians and teaching faculty?
3. What are the salient elements of the learning environment which affect business student information literacy learning outcomes?

THEORETICAL FRAMEWORKS

An assessment framework specific to IL has been proposed (Lindauer, Arp, & Woodard, 2004). This framework is consistent with more general educational assessment theory. Educational assessment theory highlights the importance of evaluating outcomes (summative) with the goal of instructional improvement (formative). Boyer and Ewell (1988) and Sims (1992) suggested areas for analysis of learning outcomes that include:

- Cognitive (gains in knowledge)
- Psychological (changes in attitudes or values)
- Behavioral (changes in actions)

According to Lindauer et al. (2004), the "three arenas" of IL assessment should include the learning environment (curriculum, cocurricular learning opportunities, independent learning opportunities), IL program components (courses, workshops, reference desk encounters, instructional learning opportunities by appointment, independent learning opportunities), and student learning outcomes (performance measures on tests, course-embedded assignments, program portfolios, course grades, self-assessment, surveys of attitudes about the learning environment). Although student learning outcomes are the focus of the current study, data also were collected to contextualize those outcomes within the learning environment and IL program components specific to the contexts under study. Lindauer et al. outlined a

number of program components that should be the focus of any analysis. We used this framework as a starting point for our analysis of IL instruction in the schools examined. Those components include:

- Student learning outcomes
- Performance measures on tests and assignments
- Course grades
- Learning environment
- The curriculum
- Cocurricular learning opportunities
- Independent learning opportunities
- Information literacy program components
- Courses, workshops, reference desk encounters, and online educational instruction

Lindauer et al. (2004) also provided the framework for the learning environment variables examined that include:

- Perceived need for information literacy instruction
- Curriculum
- Learning environment (resources, attitudes)
- Interaction environment
- Relationships between librarians and students
- Interactions
- Suggestions for improvement
- Promotion of information literacy instruction
- Librarians' skills
- Organizational culture
- Overall learning environment
- Teaching environment

According to Patton (1997), two of the three primary uses of evaluation findings are to improve programs and to generate knowledge (e.g., about what works). These uses of evaluation findings are core goals of the current study.

METHOD

The study incorporated in-depth data gathering at three Canadian business schools. At each institution, ethics approval regarding use of human subjects was obtained by the appropriate university ethics board, and the team conducted interviews with business school librarians, university library administrators, course instructors, and undergraduate business students.

Participants were recruited via posters, snowball sampling, classroom advertising, and by direct request (e.g., by e-mail or phone). Overall, 79 interviews were conducted at the three schools, including 7 librarians, 4 administrators, 16 course instructors (teaching faculty), and 52 students; all participants provided informed consent. Students were asked about their IL instruction experiences, and the outcomes they perceived from that instruction. Librarians were asked about their instructional work with business students, teaching faculty were asked about their students' IL skills, and administrators were asked about the place of IL instruction within the institution. The same interview questions were used at each research site (see the appendix). All interviews were transcribed and analyzed qualitatively by multiple coders, to ensure reliability of interpretations. Codes were developed emergently and iteratively (Lincoln & Guba, 1985). We also analyzed strategy- and policy-related documents and administered a standardized IL testing instrument (SAILS) to measure student IL competency. The SAILS test is based on the five ACRL Information Literacy Standards (Association of College and Research Libraries, 2010) and tests students on their knowledge in those content areas.

The three schools included in the study vary significantly: they are located in different geographical regions, vary in student enrolment, utilize different IL program components, and emphasize IL instruction to different extent. In addition, these schools have different AACSB accreditation histories.

School A has been accredited by the AACSB since 2006. It is a medium-sized research intensive university offering a range of academic and professional programs. Close collaboration between the business librarians and course instructors has led to the incorporation of IL instruction in several undergraduate courses. A range of delivery methods is evident: face-to-face group consultation, class presentations, lab tutorials, and reference desk services. An online IL tutorial has been developed by business librarians, with the aid of internal university funding. Recently, a senior library administrator was hired to manage and coordinate instruction on campus. At School A, SAILS testing was administered to the entire cohort of first- and second-year students, in 2007 and 2008.

School B was first accredited by AACSB in 1968. It is in a large research-intensive university offering a wide range of academic and professional programs. The business library had not used SAILS prior to this research study. As a result of collaborative effort between a faculty instructor and the library, mandatory IL instruction has been incorporated into a required undergraduate course. Additional instruction is informally delivered through consultations, reference interactions, and web-based course-specific research guides created by the librarians, which are part of a web-based learning management system used by business course instructors.

School C is currently pursuing AACSB accreditation. This school is in a small university offering a limited range of programs, catering mainly to

undergraduates. The School offers two required undergraduate courses with IL program components, including tutorials, information problem-solving activities, and research papers. Prior to the current study, SAILS had not been administered at School C.

RESULTS—LEARNING ENVIRONMENTS

Perceived Need for IL

The interviews revealed that many students (especially seniors) feel that IL skills will not be relevant within the workplace and that these skills are only needed to complete their assignments and coursework. Indeed, no students mentioned that these skills would be useful in the future for work. In contrast, the librarians and library administrators recognized that these skills would be important for students when they start their careers.

Curriculum

Librarians from all three schools are aware of and claim to be using the ACRL IL standards. In addition, standards also inform the development of instructional sessions. All three schools require intensive research components within coursework. Two schools offer an introductory IL instruction session led by librarians within a mandatory first-year course. Although librarians provide in-class mandatory IL sessions, many feel that IL could be better integrated into the program. Marketing courses were most often mentioned as the stream of business that requires the strongest IL skills, whereas finance and accounting courses require the least research and development of IL skills. For librarians at each school, the ideal instructional delivery mechanism is a combination of face-to-face and online delivery, with preference for small groups and active participation. Evaluation varies among the schools. At School A, SAILS is being used to evaluate instructional outcomes, and librarians and teaching faculty are beginning to look at gaps in student understanding and to modify programs to better meet students' needs. At Schools B and C, assessment is more informally done through observation and talking to the teaching faculty to determine if students are submitting better quality assignments. At all three schools, the librarians interviewed noted that IL instructional sessions and skills are very difficult to evaluate. None of the schools uses benchmarking to evaluate the success of their instructional programs. All of the librarians interviewed believe that IL instruction needs to be better incorporated into the business curriculum, such as through a mandatory IL business course where students can learn research basics and source evaluation.

Resources for Instruction

There is no specific budget for IL instruction at Schools B and C. School A recently hired a learning librarian to support its instructional programming. In addition, librarians at Schools A and B mentioned computer labs and development of online tutorials as critical resources. Librarians at all three institutions recognize that IL instruction is becoming increasingly important. They stress the significance of developing relationships with teaching faculty and recognize that instruction should to be tied to need. All librarians interviewed indicated that developing and teaching IL is rewarding and challenging. Interestingly, student awareness of instructional opportunities varied greatly among the schools. At School A, most students were aware of IL instruction, at School B all students were aware of instructional opportunities, but at School C, most students did not know about these opportunities. Also at School C library administrators indicated that business faculty were unaware of IL instructional opportunities, although faculty said they were.

Interaction Environment

Faculty/library interaction also differed among the schools. At Schools A and B, librarians emphasized the importance of liaison work with the faculty and reaching out to them, whereas the librarian at School C waits for business faculty to contact the library regarding instruction. Indeed, at School A, the library cannot keep up with demand from the faculty. However, there is apparently less interest by faculty at School C to interact, although several faculty members provide their own rudimentary IL instruction to students. Faculty members' perceptions of librarians varied; some faculty members mentioned that they value the expertise of librarians and interact with them on a regular basis. Especially at School C, however, faculty suggested they have little contact with librarians.

Relationship Between Librarians and Students

Only one student noted that the librarians are not helpful or knowledgeable. At the same time, nine students said that librarians have been knowledgeable, courteous, and helpful. Six of these came from School B, attesting to the emphasis that School B's librarians put on cultivating relationships; indeed, one librarian at School B specifically mentioned that this relationship was important to develop. Additionally, one administrator at School A mentioned that this was an important relationship to encourage. Librarians at School A make an effort to develop relationships with students and faculty. Their focus is on promoting interaction with students through e-mails, posters, and website advertisements. These librarians also see liaison work with faculty

as an important part of their jobs. At School B, relationships among faculty, librarians, and students also appear productive and positive. Librarians cultivate personal relationships with professors from an early stage through face-to-face interaction to ensure that they have their support. As these librarians noted, with faculty support it is easier to develop relationships with students. Librarians at School C, according to their interviews, focus less on developing relationships with faculty and students but believe that these relationships need improvement.

Suggestions for Change

Many students felt that their instructional sessions were rushed and too short. In addition, many students would have liked to have had instructional sessions earlier in their academic career. Senior students (i.e., those in their third or higher years of study) at all three schools were more likely than junior students to suggest improvements. At School C, librarians and library administrators suggested that the relationship between teaching faculty and librarians required improvement.

Promotion of Information Literacy Instruction

At School A, six students become aware of instructional sessions through e-mails from the library. Five students at School B reported hearing promotion for IL instruction through their professor or librarians talking to their classes. At School C, three students mentioned e-mail and two mentioned pamphlets, as the promotional efforts they remembered. Students' perceptions of promotion are tied closely to approaches taken by librarians. At School A librarians mentioned updating the website and traditional print publications, at School B, librarians focused on building relationships, and at School C, one faculty member mentioned emails.

Librarians' Skills

At all institutions, new librarians are asked about their instructional skills when they are hired and sometimes are expected to demonstrate an instructional session during the interview process. As is the case generally in Canadian academic libraries, staff turnover is very low (Auster, 2004). Thus, when the more senior librarians were hired there was not the same emphasis on the importance of instructional skills. Therefore, School A has made a major effort to develop staff skills, and its new teaching librarian is developing IL training sessions for staff. Librarians at the other two institutions mentioned conferences, job shadowing, and workshops as sources of their professional development.

Organizational Culture

At School A, there is a major emphasis on improving teaching as evidenced by the hiring of a teaching librarian, the expressed wish of one librarian to develop a blended style of librarianship, and emphasis on the use of tools like SAILS. At School B, the culture is shaped by the emphasis on cultivating personal relationships with the business faculty and the students. At School C, the librarians are trying to understand why the library is becoming decreasingly important and more distant for the business students and faculty.

It is clear that the overall learning environment differs significantly among the three participating schools. At School A, IL instruction is at the forefront of the library and the services it offers, there is an emphasis on improving teaching through the hiring of the new teaching librarian, there is development of in-house staff professional development related to instruction, and the library faces significant demand by business faculty for instructional sessions. At School B, there is an emphasis on building personal relationships with faculty and students, and librarians identify faculty as allies in teaching students about business IL. At School C, it remains unclear as to what type of environment is being created. Librarians and administration seem uncertain about the perceptions of business faculty regarding the library and students' IL needs, and there are fewer business students in the library.

Teaching Environment

At all three institutions, faculty perceive students to have insufficient IL skills. At School A, a faculty member mentioned students know how to search using Google but do not know how to use the library resources. At School B, one professor noted personal disappointment with students' IL skills even after a training session with the librarian. It seems that there are insufficient staff numbers to adequately provide necessary IL instruction. Librarians at all three institutions report a consistent teaching philosophy, noting that instructional sessions should be practical and relevant to student assignments, sessions should be available in a wide range of formats to attract the attention of people with different learning styles, and sessions should incorporate active learning and cater to student interests. Librarians also believe that it is crucial to develop a relationship with students and to offer these sessions to students early in their academic careers.

Overall, the teaching environments also vary among the participating schools. The data suggest that at School A, an innovative and renewed environment is developing. This library is more advanced in improving and developing the work environment. It is becoming increasingly concerned with IL instruction and seems to be working the hardest to revamp current practices. At School B, there is a supportive environment founded in personal relationships and face-to-face contact. This library's strategy is to

develop relationships with the business faculty by targeting new faculty to encourage IL instructional sessions. From there, librarians are able to develop relationships with students. At School C, the teaching environment appears less progressive. According to the librarians interviewed, the library is losing business students and is unsure of what they need or where they are getting their IL instruction. In addition, there is a greater disconnect between the library and the business faculty, and the learning environment is unclear.

In summary, there is clearly a range of investment in IL instruction in terms of effective practices in relationship building and resource investment (e.g., dedicated staff, staff development). There appears to be room for improvement in integrating IL instruction into business education, and in a focus on outcomes. There are opportunities to improve planning and assessment, to convince students that IL skills will benefit them for life, and to develop high skill levels among students.

RESULTS—LEARNING OUTCOMES

SAILS Data

A total of 468 (in 2007) and 949 (in 2008) students completed the SAILS test at School A (over two administrations), 66 students completed the test at School B, and 72 students completed the test at School C. The differences in student numbers arose because of the different ways in which the test could be administered at each institution. Students at School A took the test as part of a course, whereas students at the other two schools had to take it outside of class time. Statistically different scores were obtained on only two standards: business students at School A performed significantly better than students at Schools B and C on "using finding tool features," and students at School B performed significantly better than students at School A on "understands many economic, legal and social issues." The best test results for students at School A were obtained on items testing "using finding tool features," "evaluating sources," and "documenting sources." Students at School B performed best at "evaluating sources," "documenting sources," and "understanding economic, legal and social issues." At School C, students performed best at "evaluating sources," "developing a research strategy," and "documenting sources." Thus, all students performed relatively well at "evaluating sources." This finding contradicts the statements made by librarians and teaching faculty that students lack this skill; however, the results reveal that students are not concerned about developing their evaluation skills. Students performed worst at "understanding economic, legal and social issues" at School A, at "retrieving sources" at School B, and at "searching" at School C.

Interview Data

There was agreement by students interviewed at all three schools that IL instruction results in a reduction in effort (increased efficiency) to find information. Students appreciated the increased convenience resulting when the information they seek is easier to find, and they're able to save time. Time saved is apparently especially salient for database selection and facility with database interfaces. Students also indicated that they receive better grades as a result of instruction, especially when their course assignments require the use of information resources available through the library. In addition, the students spoke about their increased understanding of the range of information available via library-supplied databases, and they became more aware that information provided by the library is higher quality, relevant, and authoritative. Interestingly, students tended not to recognize that the IL instruction they experienced would be applicable in their daily lives. Their expectations of application of IL skills in their workplaces depended, in students' views, on whether or not they would have access to familiar information resources, and on the specific nature of the jobs they will hold. Thus, students' expectations of the transferability of their IL skills to contexts outside of the workplace, or of their ability to use new information sources, were limited. A small number of students reported no behavioral changes following IL instruction (i.e., no change in their skills or abilities). These students, however, were those who clearly preferred familiar and convenient sources such as Google and Wikipedia, because these provide "good enough" information. These students also reportedly disliked library-provided database interfaces, finding these to be unnecessarily complex; unsurprisingly, these students also reported negative experiences with their IL instruction, or with using library resources. However, the majority of students at all three schools indicated that they wanted to learn more about the library and the resources it provides.

Some students also noted that the instruction they experienced increased their information-finding skills, such as specific searching techniques, search planning strategies, and evaluation skills. Indeed, search skills were identified by students at all the schools as their weakest IL skill, and the skill that students wanted to improve most. The reasons for this included the hope that their searching times could be reduced, and their search results could become more precise and relevant.

Consistent with the findings from the SAILS testing, students rarely mentioned concerns with assessing information credibility or quality. Only one student mentioned that it was often difficult to determine if a source was credible. This finding contrasts with results from the interviews with faculty members, many of whom expressed concern over the students' abilities to evaluate information quality.

Faculty, librarians, and library administrators at all three schools commented on the relatively solid computer and technology skills among the undergraduate business students. These respondents believe that because of this background, their students tend to turn to Internet search engines, such as Google, for academic purposes. However, these respondents did indicate that students' IL skills apparently improve over time, with instruction and opportunities to practice. Overall, however, there is a gap between students' perceptions and those of faculty and librarians, who believe that students generally lack IL skills. Students were generally confident in their IL skills.

Students' reported increased confidence in their search skills as a result of IL instruction. They noted that this confidence increases as they are able to practice their skills. This confidence also spurs students to visit the library more often, which allows them to increase their reliance on library resources (reducing use of less credible information sources). Additionally, the increased confidence following instruction also leads students to ask for librarians' help, because librarians are viewed as having some expertise, and as being approachable and prepared to give assistance. Increased student engagement following instruction was also reported by the librarians who indicated that instruction seems to lead to more sophisticated questions from students. Librarians also observed that students used library resources earlier in the process of research for assignments. Especially, students rely more on library resources and less on openly available resources when assignments are a worth a large percentage of the course final grade. Interestingly, students report continued reliance on Google and Wikipedia for information in other contexts of their lives, so the effect of mandating use of authoritative library resources appears to be temporary, and limited to the academic context. Thus, IL instruction that teaches students appropriate use of information sources such as Google and Wikipedia may be important in engaging students in instruction, and helping them to use these resources judiciously. Indeed, some senior students reported that they ended up reverting back to using Google and other Internet search engines to find information for their assignments in lieu of library resources. Of course, it is possible that they use Google Scholar, therefore accessing more credible academic publications, many of which are freely available online. Thus, instructional strategies may need to be reconsidered. There is, in fact, some evidence that an effective strategy in encouraging longer term use of library resources may be to focus on adoption of more sophisticated information searching and use by important or influential persons, who can model these behaviors (Venkatesh & Morris, 2000). How this technique could be implemented in IL instruction remains unclear. Those students who rely on Google Scholar would benefit more from IL instruction focusing on source evaluation. It is possible that Google Scholar should be covered during IL sessions because it may be easier to modify students' behavior (i.e., teach them how to use

Google Scholar productively, correctly, and critically) rather than change their behaviors entirely.

Psychological outcomes (changes in attitudes or values) were largely encouraging. Positive psychological effects were reported by 18 students, and very few reported no psychological effects from instruction. In addition, we found some evidence suggesting that females value the benefit of saving time more than other benefits of IL instruction (e.g., better grades, less effort). It is possible that female students conduct more comprehensive, in-depth information searches, whereas male students invest less time in their search process and are more selective (Hupfer & Detlor, 2006). Therefore, females would benefit more from time savings as a result of their improved information-searching skills.

There were some differences in student comments depending on their seniority. Senior students reported more often that IL instruction helped them reduce their information-seeking efforts, acquire better research skills, improve search skills, achieve various positive psychological outcomes, and develop greater appreciation for the value of library databases. Senior students were also more likely to mention higher grades as a result of IL instruction. These findings suggest that as students experience more instruction, they have more opportunities to apply their newly acquired skills. As a result, the positive outcomes of IL and students' recognition of the value of IL instruction increase gradually over time.

CONCLUSIONS

Despite the high expectations for learning outcomes that most librarians and library administrators have for their instructional efforts, these may not be completely fulfilled. Students' comments suggest that although there are many positive outcomes from the instruction they receive, there is still a gap between students' perceptions of their learning, and librarians' goals. It appears that the IL instruction experienced by the students in the current study is at least partially effective in teaching information searching in library resources. However, broader search strategies tend not to be taught, in favor of relatively straightforward skills or assignment-specific tips (such as specific keywords). Students believe their skills to be stronger than do librarians and faculty members, and students do not acknowledge their learning at the level expected by librarians and teaching faculty. When course assignments mandate the use of library information sources, student skills are developed. However, these developments may be temporary, as students tend not to transfer those skills outside of the academic context and may even abandon those skills in favor of more convenient Internet resources for their assignments in the long run.

Overall, positive learning outcomes from IL instruction are identified by most students, but their notions of which IL skills require further development differ from those of librarians and professors. Students would most like to improve their search skills, but the teaching faculty think that students need to focus on developing their information evaluation skills. This finding may result from the fact that teaching faculty are unable to observe students' information-searching experiences and have only the evidence from information sources used in students' assignments or projects. Teaching faculty were also concerned that students' generally high information technology competencies result in a heavy reliance on the Internet, rather than on more authoritative library resources.

NEXT STEPS

The qualitative data obtained in the current study were used to develop a quantitative theoretical model which was being tested through an online student survey. Those results will be available in the near future. Meanwhile, the results of the current study make it apparent that there is significant room for improvements to the learning environments explored, to improve student learning outcomes. Although significant and positive outcomes of IL instruction are apparent, increased focus on developing sophisticated searching skills, and on the transferability of those skills to information searching outside of the academic context, may be merited. In addition, School A may serve as a model for investment in instructional work: dedicated staff, commitment to collaboration with faculty members and to assessment of learning outcomes, and investment in staff development are all important elements that contribute to the relative success of its instructional programs. At a time when increasing investment is especially challenging, this recommendation may be difficult to implement, but in light of the relevance of information skills to tomorrow's decision makers, these investments are critical.

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APPENDIX: "INTERVIEW SCRIPTS"

Interview Script for Students

1. Are you aware of any opportunities offered by library staff to learn business research skills available?
   a. If yes, when and how did you hear about it?
   b. Can you tell me about that?
   c. Have you participated in any consultations, web/blackboard based course guides, web-based subject guides, or class sessions?
2. Have you participated in any opportunities to learn business research skills [define] (e.g., in school, or at university, or through any particular courses)? [if not, go to question 4]
3. If so, can you describe that learning opportunity?
   a. Was this learning mandatory (e.g., part of a required course) or optional? If optional, what was your primary motivation for engaging in this learning?
   b. What do you see as the benefits or outcomes of that learning (e.g., psychological, behavioral, cognitive)?
   c. Did you save time, get better grades, have better understanding of types of business information sources available (e.g., industry studies, corporate reports, market research reports), other benefits?
   d. What was especially helpful about that learning (e.g., specific topic elements, timing, instructional method, pedagogic techniques)?
   e. In what respects might that learning have been more helpful?

   f. Offer specific examples when you actually applied your business research skills in your schoolwork.
   g. In which courses that you already took were business research skills most useful?
   h. What skills do you still want to develop further?
4. Do you believe you can find and evaluate business information required to support business decisions? Are those skills going to help you in future? If yes, where and how can you possibly apply them?
5. If you have not received any training in business research skills, do you think that your business research skills are sufficient to allow you to do the academic research you need to do?
6. Can you think of a time when a lack of skills hindered your ability to access or use information for academic purposes?
7. Demographic questions
   a. Gender
   b. Age
   c. Program of study (HBCom, BCom, Engineering with Business Major, etc.)
   d. Status (part-time, full-time, international student [i.e., on a student visa], foreign exchange student)
   e. What year of study are you in?

Interview Script for Librarians

1. Do you currently or have you in the past provided information literacy (IL) skills training for Business students? [no, go to #5]
2. If so, how does the library promote this training to students?
3. Who initiates IL training? Is it part of the regular library procedures? Do faculties or professors request IL training for their students?
4. Can you describe the nature of that training?
5. Based on your personal opinion, what percentage of Business students do you think experience info literacy training on campus?
6. What aspects of IL training for Business students are especially useful (e.g., specific topic elements, timing, instructional method, pedagogic techniques)?
7. What do you see as the outcomes of training in information literacy skills for Business students (e.g., psychological, behavioral, cognitive outcomes)?
8. Are there ways in which IL training might be improved (e.g., improved outcomes) for this student group?
9. How do you go about developing information literacy training programs? Are there any official or commonly-accepted guidelines you use to

deliver such programs? Do you benchmark your programs with any other universities? Explain.
10. Comment on the overall level of IL of undergraduate students (if it is too low, what can be done to improve it?)

Interview Script for Library Administrators

1. Are you aware of information literacy [define] training for undergraduate Business students at this university? [yes to #2; no to #4]
2. If so, what can you tell me about the outcomes of that training (e.g., psychological, behavioral, cognitive outcomes)?
3. What aspects of that training are especially useful (e.g., specific topic elements, timing, instructional method, pedagogic techniques)?
4. If not, do you think such training would be useful for this group of students?
5. Do you support training in this skill set for these students? Why or why not?
6. What is the budget allocation for information literacy training?
7. Do you organize training for librarians to deliver information literacy instruction? If so, how? If not, why so?
8. When librarians are hired, what consideration is given (if any) in terms of their ability to deliver information literacy instruction? If so, how does this ability affect the hiring process?
9. How do you go about developing information literacy training programs? Are there any official or commonly-accepted guidelines you use to deliver such programs? Do you benchmark your programs with any other universities? Explain.

Interview Script for Teaching Faculty

You have been asked to participate in this interview because you have involved your students in information literacy [define] training for Business students at this university.

1. Can you tell me about the outcomes of that training (e.g., psychological, behavioral, cognitive outcomes)? Have students used better quality sources/supportive data for assignments?
2. What aspects of that training are especially useful (e.g., specific topic elements, timing, instructional method, pedagogic techniques)?
3. Do you support training in this skill set for these students? Why or why not?
4. What course(s) do you teach to Business students?

5. In the courses taught to Business students (repeat the questions below for each course taught):
   a. Is this course delivered to undergraduate or graduate Business students?
   b. In this course, are students required to use any IL skills? If yes, elaborate.
   c. Describe the IL skills the students entering your course already possess.
   d. Do you teach any IL skills in this course? If yes, elaborate. If yes, who initiated IL training in this course (i.e., was it part of course description or was it your own initiative)?
6. Based on your personal opinion, in what courses are students required to demonstrate IL skills?
7. Comment on the overall level of IL of undergraduate students (if it is too low, what can be done to improve it?)