Journal of Information Literacy

ISSN 1750-5968

Volume 5 Issue 1

June 2011

Article

Bury, S. 2011. Faculty attitudes, perceptions and experiences of information literacy: a study across multiple disciplines at York University, Canada.
***Journal of information literacy*, 5(1), pp 45-64**
http://ojs.lboro.ac.uk/ojs/index.php/JIL/article/view/PRA-V5-I1-2011-1

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Faculty attitudes, perceptions and experiences of information literacy: a study across multiple disciplines at York University, Canada.

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Abstract

This Canadian-based survey research study investigates the information literacy (IL) instruction practices, attitudes and perceptions of university faculty at York University. Findings are based on results from an online survey distributed to all full-time faculty (1,451 in total) with a response rate of 15.2%. The value of this paper lies first in its contribution to a field of enquiry where a research deficit has been identified especially in terms of survey-based studies that have been conducted in the last five years and qualitative research studies, in general. In other words few studies in the library literature investigate faculty perceptions and experiences of IL. Second, it contributes to IL research and practice by both synthesising and corroborating some of the findings of earlier studies of a similar nature and establishes that many faculty attitudes and practices regarding IL instruction have remained relatively constant over time. They show evidence of a strong and enduring faculty belief in the value of solid student IL proficiencies; concerns that these competencies fall below desired standards; the view that IL instruction is beneficial; and evidence of disconnections between expressed beliefs and actual IL practice. Third, this study builds on what is already known by uncovering disciplinary differences in faculty opinions and practices in the domain of IL instruction and by providing insights on how perceptions and rankings of different types of IL competencies among faculty are evolving and changing in an increasingly web-based information universe.

Keywords

information literacy; faculty; academic libraries; higher education; survey research; information literacy assessment.

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1. Introduction

The library literature shows strong consensus on the centrality of faculty-librarian collaboration in fostering the information literacy (IL) agenda in higher education. This literature hails from: the United States (Iannuzzi, 1998; Rader, 2004; Raspa and Ward, 2000; Tyron et al, 2010); Australia (Bruce, 2001; Doskatsch, 2003); the United Kingdom (Bent and Stockdale, 2009; Webber et al, 2005; SCONUL, 1999) and beyond. It is also endorsed in national guidelines broadly recognised and adopted among academic libraries: e.g., in the United States the ACRL's Guidelines for Instruction Programs in Academic Libraries state that IL strategies and techniques "should be carried out collaboratively with faculty in order to increase overall student engagement" (Association of College and Research Libraries, 2003).

Despite this widely-held perception of the importance of faculty-librarian collaboration in teaching IL competencies, an overwhelming amount of published material about IL is written by librarians for librarians and contained predominantly in library literature, not higher education journals (Weetman DaCosta, 2010). Much of what is known about faculty knowledge and experience of IL has been gleaned from second-hand accounts of faculty behaviour by librarians and more rigorous research is necessary (McGuiness, 2006).

This may seem surprising, given the nature of the competencies embraced by the concept of IL. As Gullikson (2006) points out, the ACRL publication *Objectives for Information Literacy Instruction: A Model Statement for Academic Librarians* (Association of College and Research Libraries, 2001) highlights the fact that, of the 87 outcomes outlined in the ACRL's *Information Literacy Competency Standards for Higher Education* (Association of College and Research Libraries, 2001), the vast majority (53) are identified as being most appropriately taught by faculty alone, while far fewer are identified as being best taught by faculty and librarians in collaboration (25), or by librarians only (9).

Why then do faculty, apart from LIS scholars (many of whom are cited in this article), not write more and engage more fully in teaching IL competencies to students? Hardesty (1995) recommends that it is necessary to examine faculty culture, where there is an emphasis on research and content and de-emphasis on teaching and process. This has meant faculty pay less attention to teaching vis-à-vis research and this extends to teaching students proficiencies with research either independently or in partnership with librarians. He argues that studies of faculty culture have found that lack of time and resistance to change are likely in explaining a low level of faculty involvement in planning and championing IL education. Christiansen et al (2004) report that when it comes to the teaching role, faculty show a strong preference to work in isolation, with the result that librarians are not typically recognised as collaborators. Badke (2008) highlights another factor at work here when he states that faculty cannot easily put themselves in the shoes of the undergraduate student researcher as they have functioned as expert researchers for so many years. As such, they do not always appreciate the need for IL instruction.

Other studies (Divay et al, 1987; Ducas and Michaud-Oystryk, 2004; Oberg et al, 1989) report an under-appreciation (or lack of awareness) by faculty of librarian contributions in the domain of teaching, and show that librarians' primary role is perceived as a service provider, facilitating access to resources and collections. By contrast, Fielden and Foster's study (2010) conducted at San Francisco State University, indicates how gaps in perceptions of status and roles may be bridged where librarians enjoy the same professional status as teaching faculty and must fulfill similar requirements to attain tenure and promotion. However, the granting of faculty status to librarians does not always have this effect. Two of the studies cited above (Divay et al, 1987; Ducas and Michaud-Oystryk, 2004), conducted at the University of Manitoba at different points in time, share survey results which show that, despite the fact that librarians have faculty status, teaching faculty consistently place much higher weight on librarians' roles with respect to information services, information technology and collections than they do on their teaching role. Given and Julien (2003), in a review of postings to the BI-L and IL-L mailing lists over seven years, point to misconceptions of IL roles on both sides, but argue that librarians' predominantly negative characterisation of faculty behaviour in the area of IL is less than constructive.

Yet recognition of the centrality of IL in curricula in higher education is growing, quite often fostered by accreditation standards (Saunders, 2008). Implementation most typically involves a high level of faculty-librarian collaboration to attain IL-related learning outcomes defined within revised curricula. With a growing emphasis on student-centered pedagogy in higher education, IL can form a critical link when it comes to developing students capable of lifelong learning, independent thinking, problem-solving, and critical thinking (Bundy, 2004). While progress has been made and the current higher education climate offers strong potential for the growth of IL education at university level, there is still a considerable amount to be achieved, and the lack of scholarship about faculty perceptions and experiences of IL needs to be addressed (McGuiness, 2006).

2. Research study rationale and goals

The aforementioned lack of research studies on faculty views and experiences of IL formed one major rationale for conducting this survey research with faculty at York University. Some important studies exploring this area in depth have been conducted including the survey research of Cannon (1994), Gonzales (2001), Gullikson (2006), Leckie and Fullerton (1999), Singh (2005), Thomas (1994), Weetman Da Costa (formerly Weetman) (2010, 2005), but, with the exception of the recent work by Weetman-DaCosta (2010), no major studies which examine faculty views and experiences of IL have been conducted and subsequently reported in the literature in the last five years. There are also relatively few qualitative interview research studies, though the work by Morisson (2007), McGuinness (2006), Manuel et al (2005) and Webber et al (2007, 2005) should be noted.

The adoption of this survey research at York University in March/April 2007 was especially timely and pertinent given the identification of IL instruction as a top strategic priority at the libraries as outlined in the *Information Literacy Manifesto 2005-2010* (York University Libraries, 2005), the policy document guiding IL planning. Of particular significance is the core objective under assessment goals to conduct "research to obtain information about faculty's instructional needs/expectations and their opinions/experiences of the value/success of library instruction initiatives" (York University Libraries, 2005).

Building knowledge of faculty needs and expectations seemed especially important in the context of a large and growing IL program. Some 24,000 students were reached through IL classes taught at York in 2008/09. This represents about 50% of the FTE (approximately 50,000 students), and an increase of over 100% since 2000/01, when some 11,000 participants were reached, and a trebling of students reached since 1996/97 when some 8,000 students were taught. While the majority of this instruction is provided in response to individual faculty requests for information literacy sessions as part of courses they are teaching, achieving more strategic integration of IL within core programs initiated by instructional librarians is also a top priority. At the time of writing this article, information literacy instruction has become formally embedded within seven undergraduate programmes at York. This has been achieved either by offering IL instruction in a tiered, sequential and progressive fashion through required courses in a degree programme (e.g. Business and Psychology) or through the creation of stand-alone courses with a strong focus on IL within undergraduate programs (e.g. Law and Society.Biology).

The primary research questions investigated and reported on in this study are as follows. Note that the survey shared with faculty had an introductory section which provided respondents with ACRL's definition of information literacy (Association of College and Research Libraries, 2000), i.e. the survey questions assumed faculty had some knowledge of the definition of information literacy, either based on reading this definition provided for them, and/or on prior experience/knowledge:

- What are faculty impressions of students' IL competencies?
- What is the nature of faculty perceptions regarding the value of IL instruction for students both in general terms and in terms of fostering specific IL abilities?
- How do faculty define appropriate roles when teaching IL competencies, i.e., should it be undertaken collaboratively by librarians and faculty, taught just by faculty, or just by librarians?
- To what extent do faculty arrange for IL instruction to form part of the courses they teach and who does the teaching?
- What are faculty views about the impact of IL instruction?
- What do faculty regard as optimal formats and methods of delivery for IL instruction, e.g., should it be optional or mandatory, take place during class or outside class, be offered using a single or multiple modes of delivery?
- What significant similarities or differences emerge when examining broad disciplinary differences in faculty expectations and experiences of IL. The three broad areas of the

professional schools (business and law), science and engineering and social sciences and humanities are examined.

- To what extent does this research study corroborate, extend, or contradict findings of earlier similar studies?

These questions are explored and reported on using a two-pronged approach. The first approach consisted of highlighting the main themes from an extensive literature review, which was conducted both prior to and after the author's own study (most recently in autumn 2010). These findings are woven throughout the fabric of the entire article. The second approach involved primary research, i.e. the author designed and implemented an online survey and analysed findings gathered in order to explore key research questions outlined above.

3. Methodology

A web-based survey using Zoomerang software was compiled with careful attention to the aforementioned research questions that formed the focus of this study. The survey applied skip logic with the result that respondents answered between 26 and 36 questions depending on responses selected by them. The survey was distributed in late March 2007 by e-mail to all full-time faculty (n=1,451) at York and comprised a mix of closed-ended and open-ended questions. The quantitative data was coded and analysed using SPSS. Frequency distributions and cross-tabulations were generated and results were tested for statistical significance using Pearson chi-square testing, analysis of variance and F-tests and t-tests as appropriate. The textual comments were analysed through a set of representative codes where the comments were hand-coded to identify thematic patterns.

Two reminders were e-mailed to faculty before the final closing date, giving faculty a window of just over one month to respond. A total of 221 usable survey responses were received. This constituted a total return of 15.2%. In a majority of cases, the response rate reflects the size of each faculty, i.e. the larger the faculty, the greater the number of responses (see Table 1). The return was somewhat lower than was expected, although former studies in the library literature of this nature do demonstrate only somewhat higher rates of return (Gonzales, 2001; Gullikson, 2006; Weetman Da Costa, 2010; Singh, 2005) therefore making the return rate in this study significant within the scope of the research.

Table 1: Characteristics of York Faculty Population vis-à-vis survey respondents

Faculty Name	Total Full-Time Faculty at York (2006-07)	Overall Survey Response (Conducted Mar. 07)
Arts	443 (34.3%)	80 (36.2%)
Atkinson: School of Liberal & Professional Studies	169 (13.8%)	30 (13.6%)
Education	44 (3.2%)	11 (5%)
Environmental Studies	40 (2.8%)	5 (2.3%)
Fine Arts	114 (8.3%)	23 (10.4%)
Glendon Campus (bilingual branch campus)	85 (6.3%)	8 (3.6%)
Health	151 (11.4%)	26 (11.8%)
Osgoode Law School	52 (3.7%)	9 (4.1%)
Schulich School of Business	82 (5.8%)	22 (10%)
Science & Engineering	146 (10.6%)	25 (11.3%)

Source: York University Factbook 2006-2007 (*Available online at: http://www.yorku.ca/factbook/default.asp*)

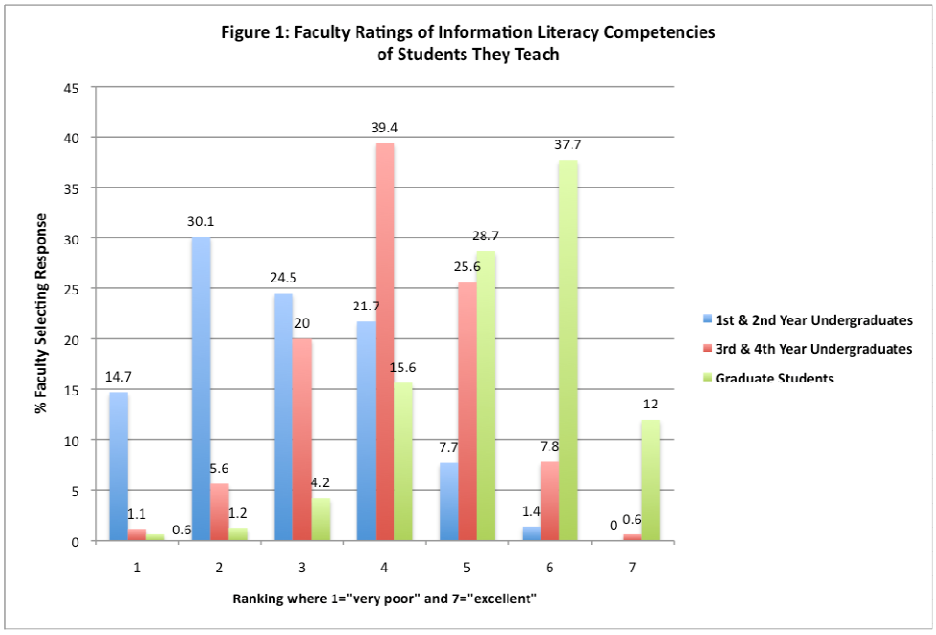
Response rates were insufficient to generate meaningful statistical analysis at the level of each Faculty. As a result it was necessary to group responses into three broad subject areas:. sciences and engineering (n=48), which includes faculty responding to the survey from the Faculty of Science and Engineering and the Faculty of Health; social sciences and humanities (n=130),

including the Faculty of Arts, the Faculty of Fine Arts, the Faculty of Education, the Faculty of Environmental Studies, and all faculty in social sciences and humanities disciplines both in Atkinson's Faculty of Professional and Liberal Studies and at Glendon College (a bilingual branch campus); and finally, faculty in the core professional schools (n=39): the Schulich School of Business, Atkinson's School of Administrative Studies, and the Osgoode Law School. However, four faculty members fell into more than one of these faculty groupings and as a result these respondents are not included when findings are discussed at the level of broad subject area.

4. Faculty perceptions of students' IL competencies

This study of York faculty provides evidence of concern about students' IL competencies, especially among lower-level undergraduates. Responses to a survey question (see Figure 1) asking faculty to rank the IL abilities of students at three different levels: 1st and 2nd year undergraduates; 3rd and 4th year undergraduates; and graduate level, illustrate that faculty perceive a gradual increase in IL competencies as students progress through the system. For example, this data shows that at 1st and 2nd year undergraduate level, students' skills are ranked as weak: on a scale of 1 (very poor) to 7 (excellent), the mean ranking is 2.8 and the median score is 3. At 3rd and 4th year undergraduate level, competencies are ranked as mediocre, as illustrated by the average ranking somewhat above the mid-point (4.1) on a scale of 1 to 7, with median score of 4. However, in the case of graduate students, a higher level of confidence in student abilities is expected by faculty, with a mean score of 5.3 and a median score of 5.

Figure1: Faculty ratings of Information Literacy Competenceies of their students



F-tests were applied and uncovered statistically significant differences in mean rankings between faculty in the three broad disciplinary areas at 1st and 2nd year undergraduate level ($F=4.27$, $df=2$, $p<.05$). This also applies at the 3rd and 4th year undergraduate level ($F= 3.69$, $df=2$, $p<.05$) , but not at graduate level ($F= 0.29$, $df=2$, $p=0.75$). In the professional schools (business and law), the mean and median scores at 1st and 2nd year undergraduate level, and at 3rd and 4th year undergraduate level, are considerably higher than rankings by faculty in the other two areas. The average ranking given by business and law faculty to the IL competency levels of 1st and 2nd year undergraduates is 3.61 (median=4), compared with 2.74 in science and engineering disciplines (median=2), and 2.72 in social sciences and humanities disciplines (median=3). At 3rd and 4th year undergraduate levels, a similar, though less stark, trend is observed, with the professional

schools reporting an average ranking of 4.59 (median=5) compared with 4.21 in science and engineering (median =4), and 3.96 (median=4) in social sciences and humanities.

Seventy-eight textual responses were received to the question about whether faculty believe that students' make sufficient use of the library for course assignments. Significantly, the vast majority of these comments (n=66) evidence faculty concern about their students' information literacy abilities as shown by a number of key themes that emerged from the analysis of these comments:

The IL competencies of students, including their ability to find, use and evaluate information, is weaker than faculty would expect. In particular, faculty typically highlighted students' lack of familiarity with the library overall and their lack of ability to navigate and use library information resources especially online information sources (66 comments):

> I teach research courses and use library assignments in other courses and am always disappointed, but not surprised, about the students' lack of familiarity with the library and how to use it. This is not restricted to the actual library but they are not as familiar as they think with the online services. The students think that they know how to use the library, but they overestimate their abilities.
>
> Many don't understand how to use the library.
>
> Despite many attempts to get students to use the library, it is astounding how they do not realise the value of in-person or online research.

Students rely too much on the free Web for information, a behaviour pattern that is compounded by students' overreliance on Google. It is challenging to get students to move beyond this (31 comments):

> My students seem reliant on the internet. If something isn't available on-line, they seem to think it doesn't exist.
>
> Students have to be pushed to use anything but Google.
>
> I think students tend to rely on the internet rather than the library or even e-resources from the library.

The main specific competency which faculty identify for development when asked about students they teach, is the ability to evaluate information sources. This is in keeping with the results of Weetman Da Costa's (2010) survey results at British and American higher education institutions, where this competency was perceived to be the least developed, based on faculty responses to her surveys. Specific examples of stumbling blocks for students in this study included the inability to distinguish between library and non-library resources, scholarly and popular sources and to determine the credibility of information sources, especially on the free Web (9 comments):

> I wish they would be smarter about it [using the library]; many of them rely on Wikipedia as a source, or have difficulty distinguishing a peer-reviewed publication from a respected university press from a popular or non academic work.
>
> Many of them don't understand the difference between what is available in the library (books and journals, etc.) and what is available on the web. By 'on the web', they lump together journal articles, Wikipedia entries, and individuals' websites.
>
> While my students use the York library, they could be using it much more effectively if they were more versed in search techniques and knowing what credible sources are.

When asked to rate IL competency abilities of students at different levels, seventeen comments were made about 1st and 2nd year undergraduate students, 23 comments were made about 3rd and 4th year undergraduate students and 19 comments were made about graduate level students. Levels of concern are strongest for 1st and 2nd year undergraduate students: all comments were either negative or indicated faculty were unable to judge students' IL abilities or did not expect students to demonstrate IL skills required by the courses they delivered. Four of the faculty indicated that high school training may be a factor in poor IL abilities at this level. A third of faculty who commented on the IL competencies of 3rd and 4th year undergraduate students expressed concerns about research skills generally. A fairly common comment expressed by one third of faculty illustrated that there is quite a degree of variability in the skills demonstrated by the students at this level. Only three faculty were unreservedly positive about student skills at this level.

At graduate level about a third of respondents indicated that, although better than undergraduates, the research skills of graduate students are not what they should be. Among the skills areas for development alluded to by these faculty were: journal research; the ability to effectively formulate research strategy and research questions; problems with distinguishing the difference between peer-reviewed and popular periodicals; and difficulty consistently applying the rules of a given citation style. Nine faculty commented that there is a great variability in student competencies at graduate level, although only three faculty express strong confidence in the research skills of graduate level students.

These findings are corroborated by other studies. Cannon (1994), Gonzales (2001) and Singh (2005) establish that faculty perceive considerable scope for improvement in IL competencies among undergraduate students, with evidence (Cannon 1994; Gonzales 2001) that skills are especially poor at lower level undergraduate level (1st and 2nd year students). In contrast, both Singh (2005) and Cannon (1994) found that faculty ratings of graduate student library research skill levels establish a higher degree of satisfaction by faculty with student abilities, with a recognition that some advancement in this skill level is still necessary.

5. Faculty perceptions of the value of IL instruction

5.1 IL viewed as an overall set of competencies

This research and preceding studies, quantitative and qualitative alike, (Amstutz and Whitson, 1997; Cannon, 1994; Leckie and Fullerton, 1999; Morrison, 2007; Webber et al, 2005; Weetman DaCosta, 2010; Wu and Kendall, 2005) establish that faculty believe strongly in the importance of information literacy instruction. As Badke (2008, p.47) points out in an article focusing on information literacy and faculty, it appears that librarian and faculty goals are in sync in that "[both] believe that students do inadequate research, and both want to do something about it."

York faculty were provided with ACRL's definition of information literacy (Association of College and Research Libraries, 2000) upfront at the beginning of the survey before being asked to answer questions about their perceptions of the value of IL instruction for students. When asked if they thought students in their disciplines could benefit from receiving instruction designed to enhance IL competencies, an overwhelming 93.6% responded yes. Only 2.3% said no, and 4.1% were unsure. These findings were consistent across broad disciplinary areas: social sciences and humanities faculty (96.9% support); professional schools (89.7% support); and sciences and engineering (87.0% support).

5.2 IL broken down by constituent competencies

The ranking of constituent IL competencies by faculty also formed a focus of this research (see Table 2) The ACRL'*s Information Literacy Standards for Higher Education* (Association of College and Research Libraries, 2000) were used to define the twelve broad sets of competencies listed at this point in the survey, and faculty were asked to indicate a ranking of student ability from 1 (not important at all) to 7 (extremely important). Without exception, all of these competencies are viewed as extremely important, as none of them received a mean ranking below six. In nine out of twelve cases both median and mode scores are reported as seven.

Table 2: Faculty Rankings of Individual Information Literacy Competencies

Competency	Faculty Rankings 1-7, where 1 = Not Important At All and 7 = Extremely Important	
Capable of defining a research topic effectively	Mean	6.35
	Median	7
	Mode	7
	Standard Deviation	0.95
Identify information appropriate to a given research topic	Mean	6
	Median	6
	Mode	7
	Standard Deviation	0.72
Understand how information is communicated in primary discipline they are studying	Mean	6.37
	Median	7
	Mode	7
	Standard Deviation	0.88
Understand the differences between scholarly and popular information sources	Mean	6.58
	Median	7
	Mode	7
	Standard Deviation	0.82
Able to distinguish between primary and secondary sources of information	Mean	6.45
	Median	7
	Mode	7
	Standard Deviation	0.92
Able to identify appropriate search tools (e.g. databases, online research tools) to find needed information	Mean	6.21
	Median	6
	Mode	7
	Standard Deviation	0.95
Capable of formulating effective search strategies when looking for needed information within online research tools	Mean	6.21
	Median	6
	Mode	7
	Standard Deviation	0.95
Understand how to critically evaluate library information sources found	Mean	6.51
	Median	6
	Mode	7
	Standard Deviation	0.77
Understand how to critically evaluate information found on the free web	Mean	6.64
	Median	7
	Mode	7
	Standard Deviation	0.78
Able to effectively synthesise information gathered from different sources	Mean	6.49
	Median	7
	Mode	7
	Standard Deviation	0.77
Understand issues relating to academic integrity	Mean	6.6
	Median	7
	Mode	7
	Standard Deviation	0.89
Capable of citing information sources correctly	Mean	6.27
	Median	7
	Mode	7
	Standard Deviation	1.02

Similarly Gullikson (2006) reported that most of the outcomes (61 of 87) defined in ACRL's Information Literacy Standards for Higher Education were ranked quite high in importance by faculty surveyed (rating of 3.25 or higher out of 4). In addition, Weetman Da Costa (2010), who surveyed U.K. and U.S. faculty about the importance of each of the seven competencies defined in

the “Seven Pillars of Wisdom” model developed by SCONUL’s Information Skills Task Force (1999), reports that a large majority of faculty state each skill is essential by the end of the course (over 90% in each instance, save one skill area at DeMontfort University, and 85% or more, in all but one case, at The College of New Jersey).

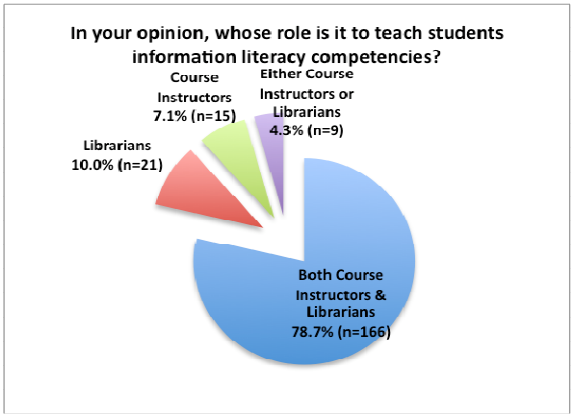
It is useful to establish how York faculty rankings of students’ IL abilities relate to ACRL’s Information Literacy Competency Standards for Higher Education (2000). While rankings of individual competencies do not vary much, the highest-ranked competencies (rankings above 6.5) include evaluating information and its sources critically (falls within standard three) and academic integrity and proper citing of resources (falls within standard five). On the other hand, the lowest-ranked competencies in this survey are more commonly associated with standard one (relevant competency: identifying information appropriate to a given research topic) or standard two (relevant competencies: ability to identify appropriate search tools to find needed information, and capable of formulating effective search strategies when looking for needed information with online search tools).

Similarly, Gullikson (2006) found faculty rankings indicate student ability to understand what constitutes plagiarism (standard five) and being able to evaluate information (standard three) among the outcomes of highest average importance (in addition to competencies in summarising and synthesising information which falls in standard four). She found that when looking at the thirty highest-rated outcomes, only two outcomes from standard two are there – 2.5d (records pertinent citation information for future reference) and 2.2a (develops a research plan appropriate to the investigative method).

6. The faculty role in IL education: What faculty think

As shown in Figure 2, a very large majority of York faculty (78.7%) believe that IL education should be undertaken collaboratively by faculty and librarians. 10.0% are in favour of librarians taking sole responsibility for this, while 7.1% believe it should be course instructors, and 4.3% say it could be either faculty or librarians.

Figure 2: Whose role is it to teach information literacy competencies?



While this study shows firm support for a collaborative model, there are divergent findings in the literature as to whether faculty think they should play a role in teaching IL competencies. A number of studies show that, in implementing IL education, faculty do not see a huge role for themselves. Thomas (1994) found evidence in her 1990 survey of faculty at California State University, Long Beach that a substantial number believed that students learn library skills on their own (41.1% of tenured faculty and 37.9% of probationary faculty). However, when cross-tabulating professor rank with the question about how students learn library research, the results show that this proportion drops with each rank, e.g. 40% of those who are full professors have this belief, while this applies

to only 33.1% with lecturer status. She states that this may be a sign that the necessity for library use instruction may be appreciated more by lower-ranking professors than those who have taught for longer periods of time. McGuinness (2006) found that overwhelmingly the sociology and civil engineering faculty she interviewed did not see the need for a formal instructional framework for IL education, and believed that students would learn through personal interest, exposure to information and the research process (i.e. learning by doing), working with peers, individual motivation and innate ability.

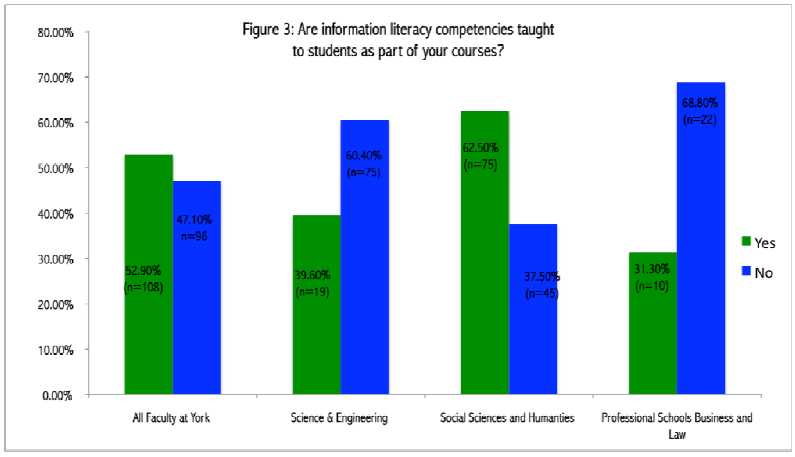
Other studies, in contrast, indicate substantial levels of faculty support for a collaborative approach to IL instruction, though not to the same degree as this study. Cannon (1994) found that 50% of respondents stated that faculty and librarians should offer IL instruction collaboratively, 43% said it should be taught by librarians only, 5% say it should be taught by faculty, and 2% chose the other category in the survey, used as a catch-all for any answers not listed among the prompted responses. Leckie and Fullerton (1999) found that, among the science and engineering faculty they surveyed, 46% believed instruction should be provided collaboratively, while 39% said they'd like to see librarians assume primary responsibility. Gonzales (2001) found that this varied depending on whether faculty had experience of instruction given by a librarian or not. 63.2% of faculty who had requested instruction by a librarian and 48% of those who had not thought this should involve a partnership between librarians and faculty.

7. The faculty role in IL education: What faculty do

7.1 Faculty engagement in IL instruction: Level of participation

Results from this study (see Figure 3) reveal a stark contrast between York faculty's beliefs about the importance of IL instruction for students and the actual situation. 52.9% of faculty engage in IL instruction overall, with 47.1% of respondents stating that they do not incorporate IL instruction at all. It does not seem that lack of awareness of IL instruction is a big factor in explaining faculty's non-adoption of IL instruction at York because the survey findings show that 84.3% of respondents are aware that IL instruction is available, albeit 57.4% do state that they think a better job could be done in terms of how the library approaches the promotion of IL instruction.

Figure 3: Are information literacy competencies taught as part of your courses?



This study does not stand alone as Manuel et al (2005, p. 141), in a review of the literature, concluded that "various studies report that 55 to 85 percent of faculty do not use librarian-provided instruction". Similarly, the recently-published study by Weetman Da Costa (2010) establishes that a big gap exists between the perceived importance of IL instruction and its adoption on the ground. She finds that the rate of incorporation of IL teaching and assessment by faculty ranges on average from 53% to 56% in the surveys conducted.

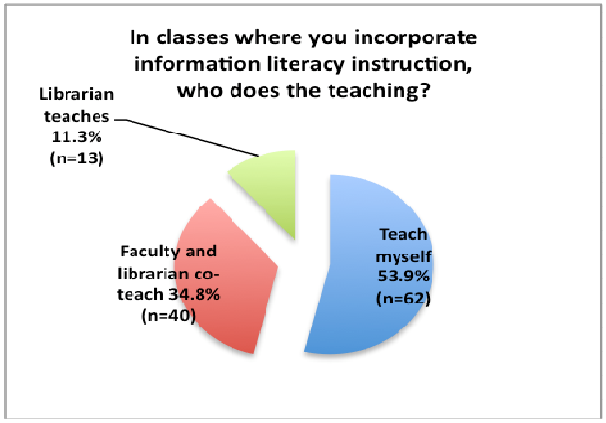
Using chi-square testing, a statistically significant difference (c2 = 0.18, df=1, p<.01) between responses for male and females was found in this study. A substantial majority of female respondents (68.1%) indicate that they incorporate IL instruction within their classroom, and only 31.9% say they do not. These statistics are almost reversed for male faculty, with a majority (61.8%) stating that they do not incorporate IL instruction in their classrooms, and 38.4% stating they do. It is worth noting that Thomas (1994), in her 1990 survey of faculty, found that female faculty were 2.5 times more likely than male faculty to introduce librarian-led instruction to their classroom than male faculty.

The professional schools, which include business and law, show the lowest inclination to introduce IL instruction in their courses (31.3% of faculty), while 39.6% of science and engineering faculty respondents are incorporating this instruction in their classroom (see Figure 3). In social sciences and humanities, adoption of IL instruction (62.5% of faculty) is higher. However, these differences are statistically insignificant (c2 =0.24, df=2, p=0.89).

7.2 Who does the teaching?

Figure 4 illustrates that 53.9%, a small majority of those who incorporate IL instruction, responded that they deliver this themselves. Of the other responses provided, this study found that a smaller percentage of faculty (34.8%) collaborate with a librarian to teach IL, while 11.3% ask a librarian to do the teaching independently.

Figure 4: Who does the teaching?

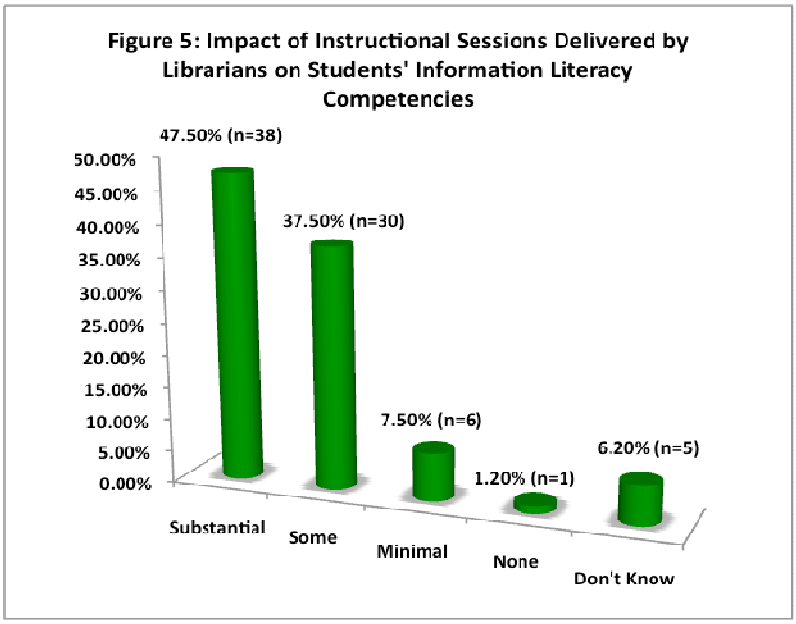


Similarly, other studies in the literature have uncovered a preference among a substantial number of faculty to teach IL independently. For example, Leckie and Fullerton (1999) found 30-50% of the science and engineering faculty they surveyed say they are teaching aspects of IL in their class, at least some of the time. Gonzales' (2001) survey establishes that out of the 60% of faculty who do not have a librarian come to their class, 28% said they prefer to teach these skills themselves. These findings are confirmed by McGuinness (2006) who, in a summary of the literature, states that IL instruction with input from library staff is less favoured by faculty than instruction which they do themselves.

8. Faculty's views of the impact of IL instruction

A vast majority of the York faculty who had organised IL sessions by librarians reported a substantial (47.5%) impact, or some impact (37.5%) on their students' IL competencies (see Figure 5). Only 7.5% of faculty said the impact was minimal, and just 1.2% said they had had no impact. 6.2% said they were unsure what impact the sessions had had.

Figure 5: Impact of instructional sessions delivered by librarians



How exactly did the benefits of this instruction manifest themselves? Among York faculty, the most common response (25 of the 38 comments received), when asked how students' improvement manifested itself, pointed to higher-quality assignments, research papers, or student results. Faculty comments, drawn from the survey results, give concrete examples of how student IL competencies improved after the instruction:

> Effective use of resources, better synthesis of ideas from the literature, stronger referencing, less student frustration, better student performance on scholarly papers.
>
> … the manner in which students were able to find relevant information, assess it and use it in their projects.
>
> …in the quality of their assignment and their engagement with the literature.

Higher student confidence and motivation around library research and heightened awareness of libraries and librarians' role in helping with the research process were also identified by York faculty as important impacts of IL instruction (10 comments) as these illustrative quotes demonstrate:

> [IL instruction] assists in breaking down barriers to library entry and learning. Helps that the students know a friendly face from the library…
>
> In the research courses the students followed up on the suggestions and direction presented. Others have followed up with the librarian at the library with appointments for consultation. It makes them less afraid to ask when they "know" someone.
>
> One of the main benefits to the in-library classes is physically getting them into the library -- many of my students seem to resist anything which takes much effort beyond Google.

Other perceived benefits of instruction by York faculty included students' improved ability to correctly cite resources consulted, greater competency in differentiating between scholarly

resources and popular or internet resources, and heightened ability to search for and synthesise information in the assignment research process.

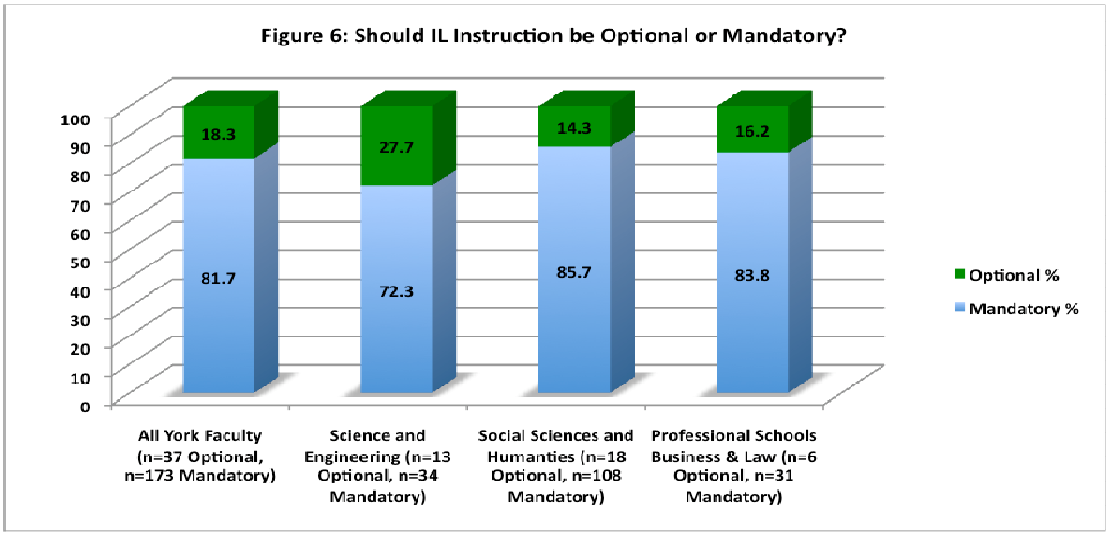
Results of other survey research demonstrate similarly high levels of faculty recognition of the positive impact of IL instruction. 89.5% recognised sessions as either very useful or somewhat useful in the Gonzales study (2001). Cannon (1994) found that 96% of social sciences and humanities faculty who had had library instruction, indicated that it had been useful, while Leckie and Fullerton (1999) found that 77% of science and engineering faculty who had organised library instruction found it useful. Better-quality assignments were identified by faculty as an important benefit of IL instruction in both the Cannon (1994) (86% of faculty) and Leckie and Fullerton (1999) (57% of faculty) studies. The interview research of Manuel et al (2005) established that some 70% of faculty saw better student research resulting from IL instruction, while one-third observed increased student confidence with libraries and research.

9. Faculty preferences in terms of formats and modes of delivery for IL instruction

9.1 Should IL instruction be optional or required?

A large majority (81.7%) of York faculty responded that IL instruction should be required (see Figure 6). A chi square test (c 2=4.28, df=2, p=0.12) shows no statistically significant differences between broad subject areas. The percentage saying instruction should be required is highest for social sciences and humanities (85.7%), followed by 83.8% of faculty in the professional schools (business and law), and 72.3% for those in science and engineering.

Figure 6: Should IL instruction be optional or mandatory?



Analysis of faculty comments shows a good majority (15 out of 25) express unwavering support for a mandated approach. Six explained that they see instruction as important, at least, in some contexts. Only four faculty expressed reservations about this approach.

Low motivation among students and deficient IL abilities was a major reason for a strong belief in mandating IL instruction. Employers' expectations that students should be information literate formed another rationale for mandating IL. Where faculty commented on how this instruction might best be mandated, this type of comment is illustrative of the response given:

> "It needs to be integrated into the teaching of the course and practiced in the assignments."

There were five faculty who supported the approach of mandating IL instruction only where student competencies require it.

9.3 Faculty views on optimal IL delivery mechanisms

York faculty were asked for their views on the best way of providing IL instruction. The results may seem surprising in the light of faculty's answers regarding practice. Survey respondents incorporating IL instruction are doing this during the lectures (79.4%) or tutorial time (35.9%). A very small percentage (12.0%) are incorporating IL instruction outside scheduled class time. When faculty at large were asked whether IL instruction is best offered during class time or outside class time, only 45.0% indicated a preference for IL instruction delivered during class time while 39.2% state they believe that this instruction is best offered outside scheduled class time. Thomas (1994) and McGuinness (2006) found evidence of a strong belief in this NIMBY (not-in-my-back-yard) approach.

Many faculty (63) offered additional comments on pedagogical approaches to best foster IL competencies. Here are key themes which emerged from the comments analysis with illustrative quotes:

Integration during class time at some point in a program is desirable. In other words, while we know a good proportion of faculty are of the NIMBY persuasion, those who are incorporating IL are clearly keen to explain why integrating IL during class-time is important (33 comments):

> I try to introduce course-related sources of information in my class almost every week. This is very effective as it is related to the course….
>
> While it does use up valuable class time, this is the best way to ensure full participation and to secure continuity between course content and research skills.

A multi-method approach is optimal, involving two or more of the following approaches: offering instruction in-class, outside class time, or online. Reasons were given in some cases, e.g., the value of reinforcing concepts, the appropriateness of different methods at different levels, the need to cater to different learning styles, etc (31 comments):

> I think that integrating IL instruction within the context of the actual course work makes it immediately relevant to students but that they need to be able to access online tutorials to remind themselves of certain steps in researching a topic.
>
> Multi-method approach is ideal.... since students have different learning styles.

Assignments or task-specific objectives are best to ensure students are assessed upon and apply competencies learned to real research problems (seven comments):

> The issue is not when but how … it should take place in the context of real research questions rather than artificial examples. I think the library can help with this even though I checked 'during class time'.
>
> Has to be designed in relation to a specific project. In my experience, customised instruction geared towards only one task works better than a 1 or 2 hour-class presenting too many tools, because students tend to become overwhelmed and discouraged to use the tools presented.

Reservations about incorporating IL within course(s) due to lack of time and/or the need to build skills from the ground up (nine comments):

> I'm ambivalent about this. I don't mind doing a bit in class time, but not at the remedial level, which they seem to need... I also have a great deal of subject matter to teach...
>
> [should happen] before beginning university studies.

10. Conclusions

While the study of faculty conceptions and experiences of IL is a complex one, it is possible to draw some conclusions based on the findings generated by this research. This study corroborates findings of earlier studies illustrating that many faculty perceptions, practices and attitudes relating to IL instruction seem to have remained fairly constant over time. In addition, this and other studies find evidence of a gap between faculty beliefs about IL and their practices on the ground. The main findings of relevance are highlighted below:

- ·Strong faculty concern about students' IL abilities at undergraduate level, especially among lower-level undergraduates.
- ·Higher levels of faculty confidence about graduate students' IL competencies, though room for improvement is needed even at this level.
- ·Almost unanimous agreement about the importance of developing IL skills among students.
- ·The majority of respondents support collaboration between faculty and librarians in teaching IL.
- ·Out of those faculty who organise IL instruction for their students, approximately 50% choose to teach IL independently, while the remaining faculty opt to collaborate with librarians to teach IL.
- ·The rate of integration of IL instruction within courses is not high. This study found that 47% of faculty conduct no IL instruction, and other studies show similar results.
- ·Faculty who have organised IL instruction overwhelmingly indicate some benefit in terms of improving students' research skills.

This study builds on what is already known in a number of ways. It is one of relatively few studies conducted in the past five years, i.e. a time characterised by wide-scale proliferation and growth of free web-based information where findings offer insights regarding the extent and nature of faculty concerns about student use of freely-available web resources. The data provides much evidence of faculty concerns about students' overreliance on this information and their inability to discriminate between authoritative and non-authoritative sources when using it. This study builds on, and offers additional evidence of a result documented in, Gullikson's research (2006). Both studies show somewhat higher levels of importance attached to students' ability to evaluate information (associated with ACRL IL Competency standard three) and to develop an understanding of the concepts of academic integrity and proper citing of resources (associated with ACRL IL Competency standard five). In contrast, competencies embraced by ACRL IL Competency standard two(the ability to efficiently and effectively access information), are given relatively lower rankings by faculty.

This study adds to the field by providing new data about disciplinary differences in faculty perceptions, attitudes and practices around IL instruction by comparing and contrasting results for social sciences and humanities, science and engineering and the professional schools (business and law) respectively. A majority of other survey research studies (Gonzales, 2001; Gullikson, 2006; Singh, 2005; Thomas, 1994; Weetman, 2005) have tended to report on findings across faculty as a whole, or focus on particular subject areas (e.g. Cannon, 1994, examines social sciences and humanities, while Leckie and Fullerton, 1999, examine science and engineering), rather than comparing across broad disciplinary areas. Of particular interest are areas where large

differences are evidenced between these groups, e.g., rankings of undergraduate IL competencies within the professional schools (business and law) are higher than those for social sciences and humanities and science and engineering to a statistically significant degree. Social sciences and humanities faculty show greatest levels of concern about student IL abilities and much higher levels of IL instruction adoption than exists for science and engineering or the professional schools.

10.1 Implications for practice

First, it is clear that librarians need to be flexible about models and approaches to IL instruction. Just as it was found in the Weetman Da Costa study (2010), this research establishes that a "one size fits all" approach will not work and that disciplinary differences imply different perceived needs and practices regarding IL instruction.

Second, it seems there is a strong case for investigating further the role that a faculty development model might play in advancing the IL agenda in higher education. York faculty indicated strong support for collaboration between faculty and librarians in IL education, yet in practice a relatively small number actually co-teach with librarians. While further investigation is required, this point may be explained in part by the fact that the librarians' perceptions of this collaborative role differ from faculty's perceptions. Faculty who have been found in studies to favour teaching IL independently in their classrooms may see librarians' collaborative role involving partnerships largely based outside the classroom walls, e.g. a "train the trainer" or consultant role for librarians vis-à-vis faculty. Other studies (Cannon, 1994; Ducas and Michaud-Oystryk, 2003; Gonzales, 2001; Leckie and Fullerton, 1999) provide evidence of strong support among faculty for such a faculty development model.

Third, in order to secure higher uptake rates of IL instruction among York faculty, there is a need for a stronger advocacy role. The study's findings do establish that lack of faculty awareness is not a big problem at York (84.3% are aware IL instruction is available). However, results do show that 57.4% of the faculty believe a better job could be done to promote IL at the university. Thus the issue does not seem to be one of lack of effort in informing faculty about IL instruction, but more of a need to change the way in which the library's efforts are being channeled so that messages become clearer and more focused. For example, faculty comments emphasised the role that subject librarians can play here through consistent, direct and interpersonal outreach strategies. The need for heightened advocacy efforts also form important conclusions in the studies by McGuinness (2006) and Weetman Da Costa (2010), where defining and selling an IL vision and communicating a core message to faculty in their own environment were highlighted as being critical strategies. In other words, demonstrating to faculty the pedagogical value of IL, while also showing them examples of successful models of curriculum-integrated IL, form critical elements in any successful advocacy efforts.

Since 2007, these survey findings at York have played an important role in informing and kick-starting a number of initiatives with positive results showing the power and value of engaging in information literacy needs assessment from an early point:

1. In 2008, the information literacy committee held a retreat for librarians. The committee's co-leads for advocacy and promotion shared with librarians a checklist and other tools and strategies designed to help them promote their instructional activities. This was in part a direct response to findings generated by this study, which showed faculty concern that liaison librarians should articulate the nature of IL services available more frequently and effectively.

2. One finding of this survey, confirmed by subsequent focus groups conducted by York librarians, was that information literacy competencies of graduate students need attention and should be addressed through enhancements to the library's instructional programming and outreach services. In 2008, the library responded to these findings by introducing more flexible scheduling of graduate student workshops to meet expressed needs, by developing a new series

of workshops in partnership with the Faculty of Graduate Studies focusing on information literacy and scholarly communication issues, and by launching an annual open house event designed to highlight the range of services the library offers to graduate students including IL-related programming. Student evaluations of these services have shown the changes have been positively received.

3. The survey results were shared at a meeting with the Director of the Centre for the Support of Teaching (CST) and the Associate Vice President (Academic) in 2008. Librarians emphasised that the results evidenced faculty concerns with students' IL abilities and their strong belief in the value of IL instruction. Sharing these results strengthened the university administration's recognition of the library role in contributing to curriculum planning. Subsequently, at campus events focusing on University Undergraduate Degree Level Expectations (UUDLEs) and curricular design, the library has been welcomed as a partner at the table. At such events, librarians have contributed to discussions concerning the articulation of learning outcomes in undergraduate degree programmes, including attention to information literacy.

4. The indicators of success, which have been defined in the new library information literacy plan at York University Libraries for the period 2010-2015, ensure that many key findings of this survey will continue to be addressed through future initiatives. This plan places strong emphasis on building and promoting an IL program with emphasis on strengthening the integration of IL instruction within curricula at York. The plan recognises the core role of faculty development in ensuring that faculty who want to teach IL skills independently are supported in doing so, while also recognising growth in faculty/librarian co-teaching of information literacy skills in curriculum-integrated contexts as a core goal.

10.2 Implications for research

While this research study provides answers to some questions, it also raises a number of questions and helps identify areas for future research. The author is currently engaged in a qualitative follow-up study designed to answer many of the questions that need further exploration. It is planned to share the results in a future publication when final findings from semi-structured interviews with York faculty across disciplinary areas have been fully compiled and analysed. On conclusion of the study documented here, it became clear that there were a number of important implications for research as explained below.

First, this study could clearly be usefully replicated at other institutions to test the generalisability of findings. Second, more research needs to be undertaken to gain a deeper understanding of the reasons why faculty choose not to adopt IL instruction in their classrooms, and why almost as many faculty see IL instruction being best provided outside the classroom as within. Leckie and Fullerton (1999, p.26), in preliminary findings of their research, establish that a faculty member's adoption or non-adoption of IL instruction can be explained by "the interplay among a number of complex variables that drive the educational process," such as programme type, class size, personal and/or programme-level pedagogical philosophies, personal IL levels, and views of librarians' roles and services. Similarly, other qualitative studies, e.g. McGuinness (2006) and Morrison (2007), cited in this paper, provide valuable insights about faculty's impressions and experiences of students' IL competencies. The McGuinness study (2006) also finds that IL instruction has not yet become a priority for academic faculty and shows strong evidence of a belief that students acquire IL skills gradually throughout their university education by means of existing learning opportunities available to them, e.g., completing course assignments, writing a fourth year dissertation, or participation in research methods courses. However, the total number of such qualitative studies is small, and more qualitative research is recommended to facilitate deeper knowledge and understanding of the complex range of factors at work influencing faculty attitudes, experiences and behaviours in the domain of IL instruction.

It is also important to engage in further research regarding the associations between IL attitudes and practices and disciplinary differences. This survey indicates a higher level of adoption of IL among social sciences and humanities faculty compared with other areas, but additional research is required to examine underlying reasons for this finding. Rates of adoption of IL instruction were found to be statistically significantly higher among female faculty at York compared with male faculty, but more research is necessary to more firmly establish reasons behind different behaviour patterns among different genders.

Third, this study only partially examined faculty's views on which instruction models are most effective. A review of the literature reveals that more current research (ideally of a qualitative nature) is needed to gain a deeper understanding of the complex range of factors which may influence faculty preferences, beliefs and practices in terms of IL pedagogies, methods of delivery, integrated versus nonintegrated approaches, and appropriate librarian and faculty roles both within and outwith the classroom.

Note

A pdf version of the survey used in this study is available on the author's web site at: http://www.yorku.ca/sbury/Faculty_ILSurvey_Bury.pdf (last accessed 2 May, 2011)

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