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Faculty perceptions of students' information literacy skills competencies

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Abstract

This research study investigates academic faculty perceptions of information literacy at eight New Jersey higher educational institutions. The study examines the value and importance faculty place on information literacy (IL), the infusion of IL into curricular learning outcomes and an assessment of the competency levels students achieve in mastering IL skills. This study adds to the research in the field as a multi-institutional study conducted at both two-year and four-year institutions, investigating full-time and part-time faculty perspectives. Findings are based on results from an online survey, with a total of 353 usable responses. Overall, faculty familiarity with IL concepts was high; faculty are overwhelmingly supportive of IL and are incorporating these skills into learning outcomes for their courses; and there are strong expectations of students' achieving IL skills by graduation, but faculty perceptions are that students fall short of mastering those skills by the end of their programmes.

Keywords

information literacy; faculty; academic staff; academic libraries; higher education; survey research; information literacy assessment; USA

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1. Introduction

The inspiration for this research study emerged from work on Information Literacy Progression Standards during 2009-2010, conducted by a task force of eight New Jersey academic librarians, including the author. The objective of the task force was to create a framework to promote, progress, and embed IL into the academic curriculum, with the specific goal of identifying IL standards that two-year community colleges could use to measure student competencies and facilitate the transition to four-year colleges (DaCosta and Dubicki 2010). The current study was initiated to measure the success that librarians at eight New Jersey institutions have had in familiarising faculty with IL standards, discover how faculty have incorporated these IL skills into their learning outcomes and assess student competencies in achieving IL.

This research study examines the following questions:

- Are faculty members familiar with IL? What terminology do they use for IL skills?
- How important are these skills for conducting college-level research? How do faculty rate students' competency with IL skills? Should students master IL skills by graduation? Do they?
- How do students acquire these skills? How can faculty and librarians collaborate to improve students' IL skills?

2. Literature review

In a study conducted by the Educause Center for Analysis and Research (ECAR), 80.7% of students rated themselves as expert or very skilled in searching the internet effectively and efficiently, although students rated themselves slightly lower in their ability to evaluate the credibility of online information and their understanding of related ethical and legal issues (ECAR 2010). A 2011 ECAR study found that while 88% of students use their institution's library website, only 27% do not believe their skills meet their needs for searching the library site effectively. A Credo Student survey also revealed that 'students feel reasonably capable of doing the research necessary for assignments' (McKiel 2013, p. 1). These studies indicate that students seem confident in their research skills, but do faculty concur with students' assessment of their skills? Are students developing IL skills that enable them to complete research assignments effectively and efficiently?

The majority of the library literature assessing college students' IL skills is on pre- and/or post-library instructional session assessment. But assessment of instruction does not typically measure competency levels of all five Association of College and Research Libraries (ACRL) IL skills (ACRL 2000). As the evaluators of student research assignments, faculty should have a more comprehensive picture of IL skills, as compared to instructional session assessment. However, fewer studies have been conducted on faculty assessments of students' IL competencies.

A review of the literature on faculty views of IL reveals inconsistencies among faculty regarding how and by whom IL should be addressed (Cannon 1994; Hardesty 1995; Leckie and Fullerton 1999; Badke 2008), but also shows that academic faculty overwhelmingly believe that IL is important for their students (Gonzales 2001; Singh 2005; Weetman 2005; Gullikson 2006; DaCosta 2010; Bury 2011; Saunders 2012). 'It appears that the goals of the IL professional and the subject faculty member are at least somewhat in sync' regarding the need to improve students' skills (Badke 2008, p. 47). However, the focus of faculty is primarily on the subject matter, while librarians' expertise lies in the process of conducting research (Badke 2008). Hardesty (1995) suggests that faculty culture places more of an emphasis on research and content and less on teaching and process, which can hinder collaboration with librarians regarding IL education.

Leckie and Fullerton (1999, p. 27) found that science and engineering faculty 'perceive that more self-directed learning is useful, for both themselves and their students, suggesting that more how-to guides, electronic help screens for various resources, and print and online pathfinders are desirable'. In her study of sociology and civil engineering faculty, McGuinness (2006) exposed faculty members' belief that IL is dependent on personal interest and individual motivation, and improves according to the 'law of exposure' as students repeatedly encounter situations requiring their IL skills. Saunders (2012) suggests that there can be an ad-hoc approach to IL by faculty, depending on whether a course requires a research paper.

Although faculty believe that IL skills are very important, many do not utilise library instruction sessions to improve those skills. Singh (2005) found that journalism and mass communication faculty require students to conduct research for their courses, are aware that their students are not as information literate as they could be and understand that library instruction improves research skills, and yet faculty do not consistently integrate instruction into their courses. Research conducted by Weetman (2005) in the UK revealed that there was a high level of enthusiasm amongst faculty for IL, but that few academic staff teach or assess information skills or even develop them through student-centered learning. In a subsequent study she confirmed these findings with supportive data from United States (US) faculty that 'there is an apparent

gap between the IL skills that faculty want their students to have and those that they actively support and develop' (DaCosta 2010, p. 218). Bury (2011, p.53) found 'that the large majority of faculty believe that IL education should be undertaken collaboratively by faculty and librarians'. While IL skills were considered important, Gullikson (2006, p.591) discovered that 'there was not a lot of agreement on the academic level at which IL outcomes are expected by faculty'.

In order to remedy these inconsistencies in delivering IL instruction to students, librarians need to take a proactive approach in meeting with faculty and managers to determine collectively how to successfully infuse IL into the curriculum. All US two-year and four-year institutions of higher education undergo a process of accreditation using a set of standards developed by peers to assure and improve the quality of education. Reviews of regional accreditation standards (Gratch-Lindauer 2002; Thompson 2002; Saunders 2007) and programmatic accreditation processes by Bradley (2013) suggest that alignment of IL instruction programmes to student learning outcomes required by accreditation organisations can be drivers for institutional focus on IL.

The primary goal is for librarians to work in concert with faculty in order to graduate information literate students who can effectively utilise IL skills in the workplace, as well as to make informed decisions in their personal lives. As stated by DaCosta (2010, p. 218), 'osmosis does not work for the development of IL, but neither does it work for effective collaboration between librarians and faculty.' The ERIAL (Ethnographic Research in Illinois Academic Libraries) Project offers unique perspectives from faculty interviewed during the two-year study of the student research process, on how research skills can be taught and supported by librarians. The interviews revealed that some faculty view teaching as within their domain and seek assistance from librarians to augment their own research instruction, others schedule one-shot instructional sessions and still another segment embed librarians into their courses with multiple visits to the class to establish a better rapport (Armstrong 2012).

A number of learning theories have been utilised by librarians delivering IL instruction, including: behaviourism, cognitivism and constructivism. In a behavioural approach, instruction is teacher-centered – information is presented by the instructor – and students acquire skills through drills and practice and then demonstrate their understanding of the material through assessment. By comparison, cognitive learning, based on the work of Piaget (1954), is a process of relating new information to previous knowledge the individual has collected. Vygotsky (1978) builds on this theory by advancing social constructivism, a student-centered approach where environment comes into play and individuals learn not only from their own experiences, but also learn from the experiences of others.

Technology has also had a significant impact on IL education, with Web 2.0 tools (e.g. wikis, blogs, podcasts, RSS, Twitter, Facebook, YouTube, Flickr and social bookmarking) being used to retrieve and produce information. 'Given that Web 2.0 tools support the constructivist ideas upon which the ACRL standards are at least partially based, it should be possible to find ways that the tools can be used to promote the various outcomes' (Bobish 2011, p. 56). Kraemer, Lombardo and Lepkowski (2007), Luo (2010) and Farkas (2011) discuss new applications of technology that can help students navigate the ever-changing information environment. However, some caution needs to be taken when introducing Web 2.0 tools since not all students possess the necessary skills to use them. In addition, a recent ECAR (2013) study found that although students agree that technology can help them achieve academic outcomes, they are sensitive to the boundaries that technology plays in their personal and academic lives.

The most recent discussions in learning theory are being driven by technology and its ability to transform learning in a digital age, especially online learning and distance education. In

response to today's highly networked society, George Siemens and Stephen Downes put forward a new learning theory, connectivism. 'At its heart, connectivism is the thesis that knowledge is distributed across a network of connections, and therefore that learning consists of the ability to construct and traverse those networks' (Downes 2007). McLouglin and Lee (2008), also propose a new learning paradigm, Pedagogy 2.0, focusing on personalisation, participation and productivity of information, connecting learners with multiple social worlds. The incorporation of new digital tools as a point of access to information, as well as a method of disseminating student-created information, further enhances the learning experience.

While this research study takes the traditional approach to IL as a set of information skills (ACRL Standards) that can be measured, it should be noted that alternative approaches to IL education are being presented in recent library literature, focusing on learner interactions with information (Maybee 2006; Bruce, Edwards and Lupton 2007; Whitworth 2007; Walton and Hepworth 2010; Lloyd 2012). Instead of focusing on IL skills, the new models engage learners in a participatory and collaborative way. Educators act as facilitators, allowing students to explore independently and with a wider community as both consumers and producers of information. In July 2013, ACRL announced that a Task Force has been created to rewrite the current IL standards, in part recognising these emerging new models of IL, as well as the development of new literacies and the need for a continuum of literacy from kindergarten to age 16 (Bell 2013).

3. Methodology

The intent of this study was to review the perceptions of faculty regarding IL. The results of the study provide an assessment of the importance and value faculty place on ACRL Information Literacy Standards (ACRL 2000), their infusion into the curriculum, as well as an assessment of the competency level of students in achieving these skills. The study also investigates faculty's understanding of how students develop research skills.

In order to support faculty in answering questions on IL skills, survey respondents were provided with the ACRL definition of IL as a set of abilities requiring individuals to 'recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information' (ACRL 2000, p. 2). Respondents were also able to review definitions of the five ACRL Standards for Information Literacy: 1) identifies and addresses information need; 2) access information effectively and efficiently; 3) evaluates and thinks critically about information; 4) uses information effectively for a specific purpose; and 5) uses information ethically and legally (ACRL 2000, pp. 8-14).

Survey respondents were asked a series of questions regarding their familiarity with the standards and skills that are important in conducting college level research. One of the objectives of the research was to provide a multi-institutional view of IL; thus the author, who was the primary researcher for the project, recruited library participants from among two-year and four-year institutions located in New Jersey who had actively discussed the IL standards with faculty at their institutions. Participating four-year institutions included: Georgian Court University, Monmouth University, Rider University and The College of Saint Elizabeth. The two-year colleges participating included: Atlantic Cape Community College, Mercer County Community College, Ocean Community College and Raritan Valley Community College. See Appendix A for a profile of the participating institutions. A research project application for gathering survey data from human subjects was submitted and approved by the Institutional Review Boards (IRB) at each of the eight institutions.

3.1 Survey instrument

The instrument for this quantitative survey was created on LimeSurvey, a secure service that allows respondents to complete an online questionnaire and facilitates compilation of the results. The survey included 11 topic questions and 6 demographic questions. See Appendix B for a copy of the survey. A combination of yes/no, multiple-choice, ratings and open-ended questions were employed in the survey. The ratings questions were based on a four-point scale, with an additional option of 'don't know'. Survey responses were calculated for each question using Microsoft Excel, looking at breakdowns of results by all respondents, four-year institutions and two-year institutions. Additional cross-tabulation of data was conducted to determine whether there were differences in responses amongst demographic subgroups.

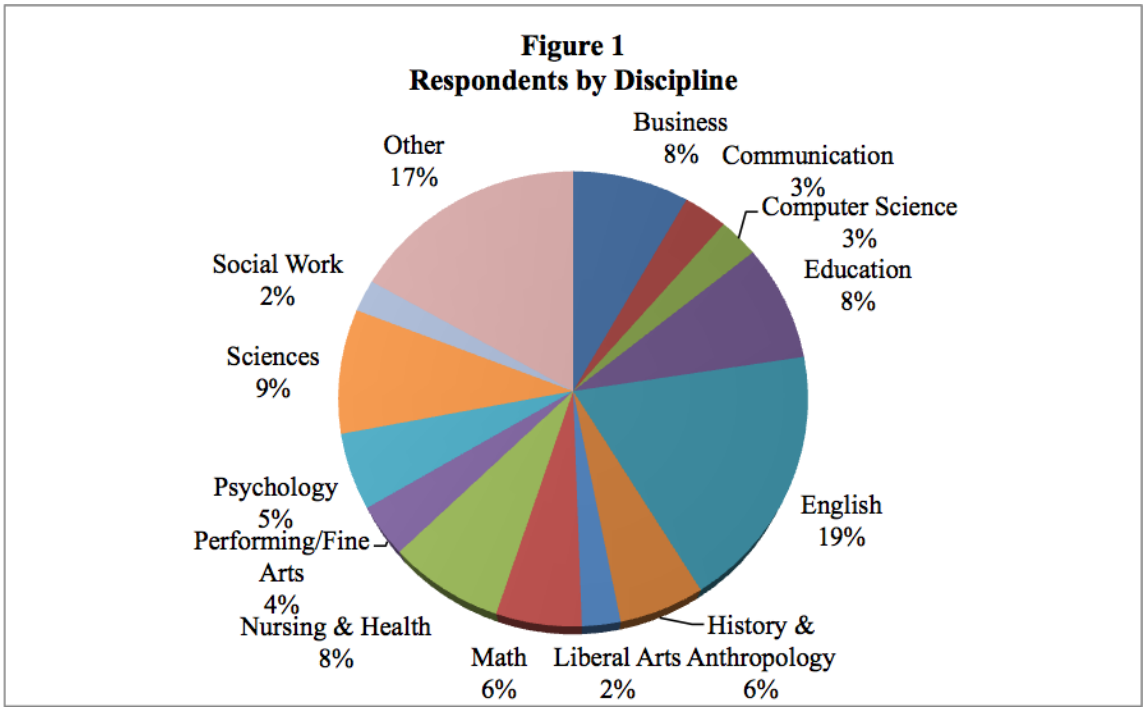
The survey link was emailed by the author (primary investigator) to library directors and librarians who served as liaisons at each of the eight institutions that had agreed to participate in the study. The liaisons then sent an email message with a direct link for the survey to all full-time and part-time faculty members at their institutions, inviting them to participate in the study. Data was collected at each institution over a one-month period during the autumn 2011, spring 2012 or autumn 2012 semesters. Reminders were sent to the faculty during the final week of the survey. In total, the survey was emailed to 3,736 faculty members at the eight participating institutions. A total of 353 useable surveys were collected, ranging from a low of 30 to a high of 69 respondents per institution. The complexity of conducting a multi-institutional study and coordinating with other faculty surveys being fielded on campuses contributed to a fairly low response rate of 9.45%. A response rate of 20–30% for an online survey would have been desirable, similar to response rates achieved in previous studies (Leckie and Fullerton 1999; Gonzales 2001; Singh 2005; Gullikson 2006; DaCosta 2010). Since the response rate for the survey is fairly low, care needs to be taken in extending the results to the greater population. Another consideration when reviewing the results of this study could be the potential differences between responders and non-responders. Given that only 7% of respondents were unfamiliar with IL, the responders are more likely to participate in IL instruction at their institutions and have a positive perception of IL. This study adds a new dimension to earlier research by considering two-year institutions as well as the differences between full-time and part-time faculty perceptions on IL.

3.2 Respondents

An almost equal number of two-year and four-year institution faculty responses were collected. A higher percentage of survey respondents were female (66%), as compared to male (34%). As anticipated, a higher percentage of two-year respondents were part-time faculty, while four-year institutions had more full-time faculty respondents reflecting the overall composition of faculty at these institutions. The majority of respondents had more than ten years of teaching experience. While English faculty had the highest representation among respondents, there was a sampling of responses across a wide breadth of disciplines. Table 1 and Figure 1 provide demographic profiles of the survey respondents.

Table 1: Respondent demographics

	All respondents	4-year Institutions	2-year Institutions
Total respondents	353	173 (49.29%)	180 (50.99%)
Gender			
Female	232 (66.48%)	115 (66.47%)	117 (65.00%)
Male	117 (33.52%)	54 (31.21%)	63 (35.00%)
Faculty status			
Full time	189 (35.5%)	112 (64.74%)	77 (48.78%)
Part-time adjunct	159 (45.04%)	56 (32.37%)	103 (57.22%)
Other	5 (1.42%)	5 (2.89%)	0 (0.0%)
Level courses taught			
Developmental	64 (18.13%)	14 (8.09%)	50 (27.78%)
First-year	238 (67.42%)	88 (50.87%)	150 (83.33%)
Second-year	205 (58.07%)	87 (50.29%)	118 (65.56%)
Third-year	116 (32.86%)	109 (63.01%)	7 (3.89%)
Fourth-year	108 (30.59%)	102 (58.96%)	6 (3.33%)
Graduate	79 (22.38%)	78 (45.05%)	0 (0.0%)
Doctoral	6 (1.70%)	6 (3.47%)	0 (0.0%)
Years of teaching experience			
Less than 3 years	29 (8.22%)	12 (6.94%)	17 (9.44%)
3-5 years	58 (16.43%)	23 (13.29%)	35 (19.44%)
6-9 years	64 (18.13%)	29 (16.76%)	35 (19.44%)
More than 10 years	202 (57.22%)	109 (63.01%)	93 (51.67%)



4. Results and discussion

4.1 Terminology

In order to develop a successful IL programme on campus, it is essential for librarians to collaborate closely with teaching faculty. An important factor is utilising vocabulary that is understood by faculty rather than using library jargon when considering potential services and activities. Saunders (2012, p. 230) found that 'some discussions on IL might be forestalled due to misunderstandings or lack of knowledge about the term itself.'

Only 7% of survey respondents were unfamiliar with IL. While most librarians use the terminology 'information literacy', faculty respondents were queried in this survey to reveal the terms they use to describe the skills associated with the ACRL IL standards. 'Research skills' was the most commonly mentioned (57%). Alternative terminology used by faculty includes: information technology, computer literacy, critical thinking, literature review, library research and bibliographic instruction.

4.2 Importance of IL skills in completing college research

Survey respondents were asked to rate the importance of student competency in each of the five ACRL IL skills on a four point scale ranging from 'very important' to 'not important at all', with an additional option for 'don't know'. Overall, survey respondents rated the IL standards as essential to completing college research, with all standards achieving ratings of at least 85% in the top, 'very important' category. In fact, 99% of the responses were either 'very' or 'somewhat' important. Only a couple of respondents rated the skills as 'not too' or 'not at all' important. These ratings align with previous studies. Weetman (2005) found overwhelming support (97%) for IL among De Montfort University (DMU) academic faculty in the UK, as did Saunders (2012) in a multi-institutional US study. Similarly, Bury (2011) found almost unanimous support for developing IL skills at York University in Canada.

The standard receiving the highest importance rating from faculty in this study was 'evaluates and thinks critically about information'. Ratings for each skill were slightly higher at four-year institutions, but the rank order of the five skills were identical to those prioritised by two-year institutional faculty:

1. Evaluates and thinks critically about information
2. Uses information ethically and legally
3. Identifies and addresses information need
4. Accesses information effectively and efficiently
5. Uses information effectively and efficiently

These rankings of importance are consistent with earlier studies done by Gullikson (2006) and Bury (2011) that identified evaluation and plagiarism as skills that faculty were most concerned with.

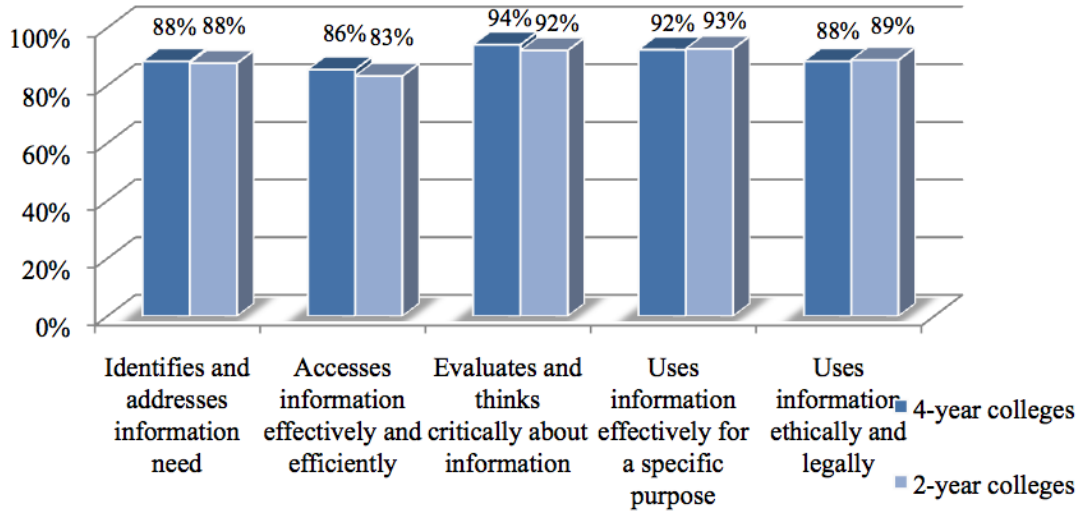
4.3 IL as learning outcome

The survey probed faculty on whether or not they include IL skills in the learning outcomes defined for their courses. Responses indicate that faculty do incorporate learning outcomes equivalent to the ACRL standards into their courses, particularly 'evaluating and thinking critically about information' and 'using information effectively'. However, faculty seem slightly less concerned about how students access information for inclusion in research assignments,

perhaps expecting that students will be independently successful in gathering appropriate information.

Figure 2 summarises affirmative (yes) responses for inclusion of IL skills in learning outcomes for courses. Looking at the data, there are only slight differences between responses of faculty at four-year and two-year institutions regarding inclusion of skills in curricular learning outcomes.

Figure 2
Faculty addressing ACRL standards in their course learning outcomes (percentage)



After analysing the current survey's data, a conclusion can be made that faculty reported incorporating IL skills into learning outcomes for their courses at a higher level than reported in previous studies. Cannon (1994) revealed that the most common types of instruction methods used by faculty were assignments to build critical thinking and information gathering skills. Leckie and Fullerton (1999) found that 30–50% of faculty were addressing various aspects of IL at least some or all the time, with disciplinary differences in research requirements. Critical thinking skills were discussed most often, as well as the research process. Singh (2006) reported that 33.3% of faculty require library research for every class they teach, and 25% require research for most of their classes at the undergraduate level. At the graduate level, 59% require research for every class, and 10% for most classes. DaCosta (2010) found that only 53% of architecture faculty and 56% percent of art and design faculty respectively were teaching IL skills to DMU students. DaCosta also found that 63% of faculty taught IL skills at The College of New Jersey (TCNJ). At York, 52.9% of faculty engage in IL education, with 53.9% delivering it themselves (Bury 2011). More in line with the results of this study, Saunders (2012) found that 78% of faculty address IL concepts in their teaching.

There may be several explanations for the higher incidence of IL as learning outcomes in the current study. One reason may be the high level of familiarity with IL amongst survey results, with only 7% of respondents unfamiliar with IL. This may be a result of the increased level of discussion about IL within higher education, especially since accreditation standards requirements have resulted in stronger emphasis being put on incorporating IL into the curriculum. All institutions of higher education in New Jersey are accredited by the Middle

States Commission on Higher Education (MSCHE). The Commission's Standard 12 identifies skills for general education programs, including IL (MSCHE 2002). In 2003, MSCHE published *Developing Research and Communication Skills: Guidelines for Information Literacy in the Curriculum*, a document that offers institutions suggestions for incorporating IL into the curriculum in order to fulfill goals for student learning.

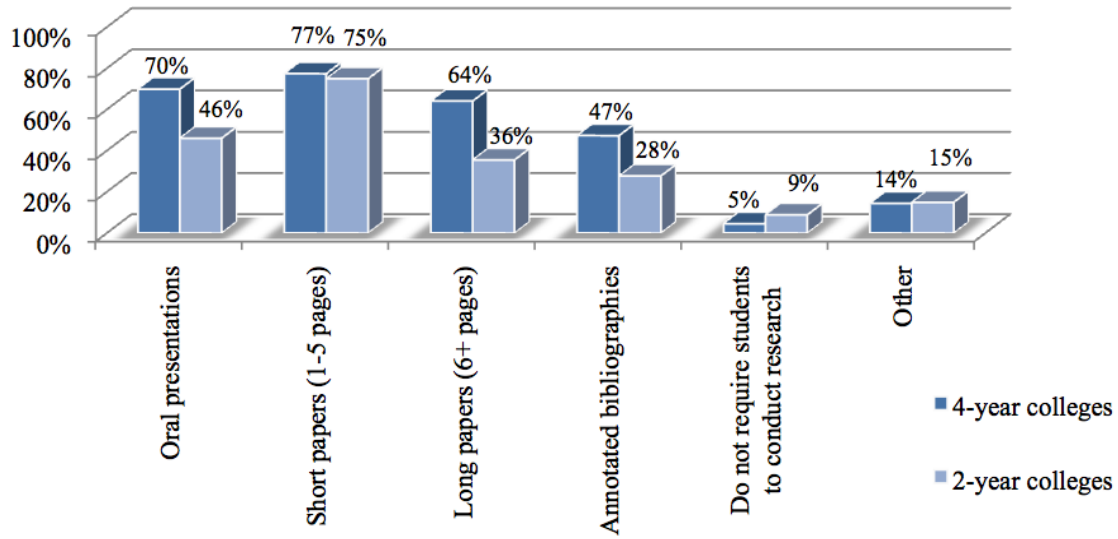
Terminology used by faculty and librarians may also be less of an obstacle than expected, as faculty are more knowledgeable in general about IL and are interpreting the five ACRL skills more closely to their discipline-specific needs. As described by Miller (2010), allowing faculty to articulate their own discipline-specific definitions of IL seems to have worked effectively for inclusion in learning outcomes, as well as assisting librarians in creating more valuable instructional sessions. To improve faculty understanding of the five skills, the survey instrument for this study included specific examples for each skill that respondents could view when answering each skill question – for example, 3) Evaluates and thinks critically about information (*e.g. selects main ideas from text, restates ideas in own words, evaluates information for relevance/topic/credibility/currency, recognises bias, determines if additional information is needed, draws conclusions based on information gathered).* The intention was to make it easier for faculty to compare the ACRL skills to those addressed in the curriculum.

4.4 Research assignments

Miller and Murillo (2012) postulate that the research components of assignments required by faculty play an important role in the student-librarian relationship. Some faculty may teach IL skills in their courses, others incorporate IL instruction into classes, while some refer students to seek assistance from librarians.

To gain insights into the research required of students, the survey probed faculty regarding the type of projects they assign with research components. As illustrated in Figure 3, responses indicate that short papers are the most frequent type of research project assigned by all faculty. Research for long papers is predominantly required by four-year faculty, and they were also more likely to expect research for oral presentations and annotated bibliographies.

Figure 3
Type of assignments requiring research (percentage)

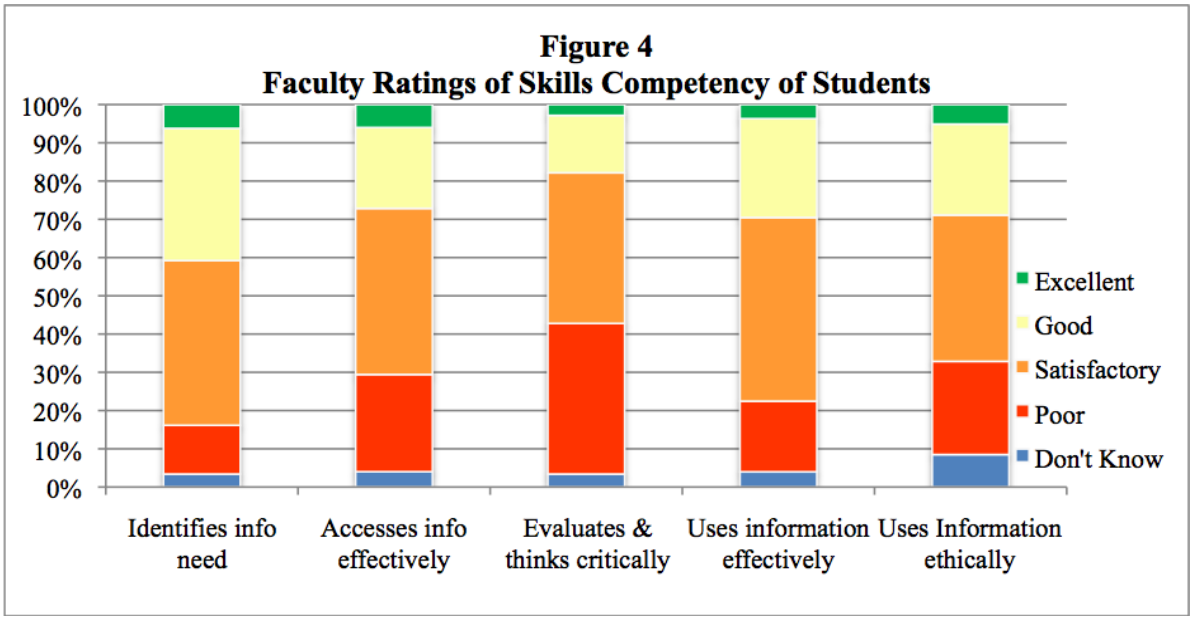


Further cross-analysis of responses by full-time and part-time faculty uncovers various differences in research requirements. Full-time faculty are more likely to require research for long papers (57% vs. 40%), oral presentations (71% vs. 51%) and annotated bibliographies (43% vs. 32%), compared to part-time faculty. Overall, only 7% of faculty do not have research components in their classes, and they are more likely to be part-time faculty. Significant differences were also noted in research requirements based on the gender of the faculty member. Female faculty were more likely to require research for each type of assignment, as compared to male faculty, the most significant being in long papers (57% vs. 39%) and annotated bibliographies (44% vs. 30%).

Other types of assignments mentioned by respondents that require research include: biographies, case studies, concept mapping, debates, evidence analysis, exams, group projects, field research, IRB applications, journal entries, lab reports, lesson plans, musical scores, persuasive speeches, research logs and research proposals.

4.5 IL skills competency

The survey asked faculty to rate their students' competency in each of the five ACRL skills on a four point scale ranging from 'excellent' to 'poor', with an additional option for 'don't know'. Overall, faculty rated student competency with IL skills most frequently in the 'satisfactory' or 'poor' categories. The survey data, illustrated in Figure 4, reveals that the strongest perceived skill that students possess is an ability to 'identify and address the information need', with 41% of faculty rating their competency level as 'excellent' or 'good'. This should be expected since faculty define the assignment for students and are available to help students develop their topics and research questions. Librarians are most likely to provide support for building skills in the area of 'accessing information effectively and efficiently', especially through instruction programmes. Nevertheless, only 27% of students are rated as excellent or good in their ability to access appropriate information. This result differs dramatically with students' self-assessment of their skills as measured in the ECAR (2010) and Credo (McKiel 2013) studies where students were confident in their abilities to gather information.



The weakest perceived competency of students is in the area of 'evaluating and critically assessing the information' they uncover. Fully 39% of faculty rated students' competency in this skill as poor. This is particularly problematic since this was the skill that was ranked the highest in importance by faculty members. DaCosta (2010) and Bury (2011) research studies also rated evaluation of information as the skill least developed by students. Clearly there is room for improvement in gathering information, but there is an even more critical need to build students' skills in evaluating the materials they collect. Although instructional sessions typically have a time constraint of 60–75 minutes, it is imperative that librarians dedicate time to discuss how students should evaluate the materials they are gathering in order to select the most appropriate information for inclusion in their research assignment.

Table 2 provides details on students' competency ratings by two-year versus four-year institutional faculty. It might be anticipated that student competency ratings would be significantly lower at two-year colleges than at four-year colleges. Differences in ratings were evident at the upper and lower end of the ratings scale, with four-year faculty somewhat more likely to give students an excellent rating for skill competency levels in four of the five skills. Two-year faculty were more likely to rate student skills as poor for all five skills.

Table 2: Faculty ratings of students' skills

	Excellent	Good	Satisfactory	Poor	Don't know
Institutions					
Identifies and addresses information need					
Two-year	2.78%	33.89%	41.67%	15.56%	6.11%
Four-year	9.83%	35.26%	44.51%	9.83%	0.58%
Accesses information effectively and efficiently					
Two-year	6.11%	20.00%	41.11%	26.67%	6.11%
Four-year	21.97%	21.97%	46.82%	23.70%	0.58%
Evaluates and thinks critically about information					
Two-year	2.22%	5.00%	36.67%	41.11%	5.00%
Four-year	3.47%	15.03%	42.20%	37.57%	1.73%
Uses information effectively for a specific purpose					
Two-year	1.67%	23.89%	46.67%	21.67%	6.11%
Four-year	5.78%	27.75%	49.13%	15.03%	1.73%
Uses information ethically and legally					
Two-year	3.89%	21.11%	36.11%	29.44%	9.44%
Four-year	6.36%	26.59%	40.46%	19.08%	7.51%

While survey respondents were not asked to rate students' competencies by year of study, demographic data was cross-analysed by teaching levels. Overall, students' abilities improved by year of education. Faculty teaching developmental courses rated students the weakest, with 31 percent rated as poor in their skills. Faculty teaching first- and second-year classes rated students as satisfactory (46%), while third- and fourth-year students were rated as good or excellent (32%). IL ratings were highest at the graduate/doctoral level with 44% of respondents rating students in good or excellent categories.

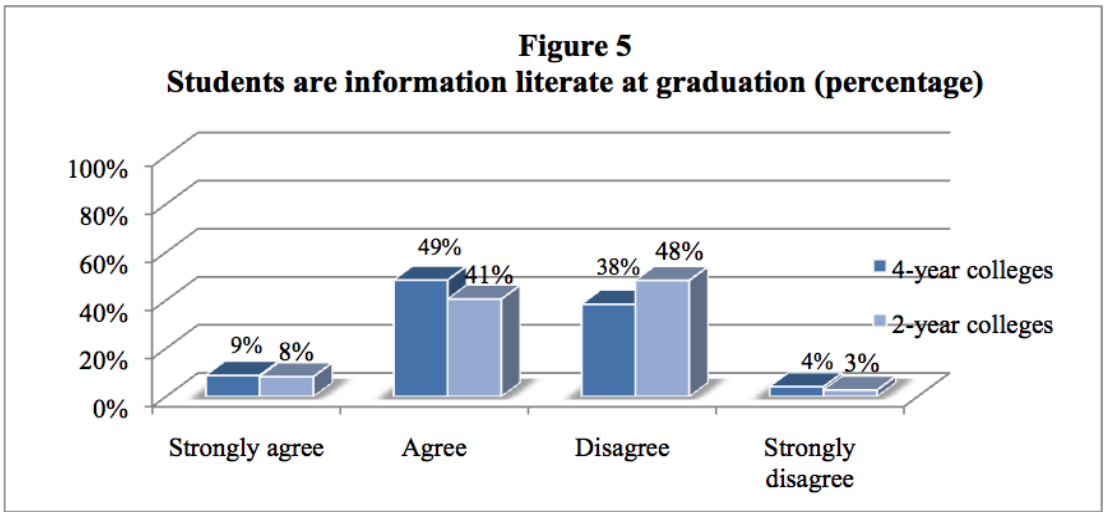
Earlier studies have shown similar results that students' IL skills increase by years of education. Cannon (1994) discovered that faculty rated students' ability to do research in the first- and second-year as poor, at the third- and fourth-year as satisfactory (52%) and good (48%) at the graduate level. 'This suggests that a majority of faculty feel their students do learn library

research skills over the years. However, given that at no level did students rate a majority response of “very good” it is obvious that there is room for improvement’ (p. 528). Leckie and Fullerton (1999) also differentiated abilities by course level. First- and second-year students’ abilities were rated as poor (29%) and 19% were satisfactory. Third- and fourth-year students were higher, with faculty rating abilities as satisfactory (35%) to good (26%). 17% were rated as poor. When Singh (2005) queried faculty on research skills competencies, 33.8% found students’ skills to be poor, 46.5% adequate and only 1.7% receiving an excellent rating. Graduate students had significantly better skills, with 32.9% adequate, 30.7% strong and 9.2% excellent. Saunders (2012) found that the majority of faculty rated students’ abilities as ‘somewhat strong’ in six of seven skill areas. Searching the web was the only skill where students were rated as strong. Gonzales (2001) also encountered a higher confidence of faculty when assessing students’ skills in retrieving information from the web, than retrieving information from library sources. ‘Although respondents indicate that students’ abilities improve with years of experience at the University, still professors’ overall confidence in their students’ abilities is alarmingly low’ (p. 197). According to faculty, among the primary factors contributing to lack of student skills were: lack of motivation, lack of experience with the library and lack of critical thinking (Gonzales 2001). Bury’s (2011) data also revealed that faculty rank students’ IL abilities increasingly higher during their course of study. First- and second-year undergraduates ranked as weak, third- and fourth-year students were mediocre and graduate students received the highest ratings. Disciplines were also found to be a factor in ratings of IL competencies.

4.6 IL at graduation

Survey respondents were asked to rate whether students should be information literate by the time they graduate on a four point scale ranging from ‘strongly agree’ to ‘strongly disagree’. Faculty were virtually unanimous (99%) in their opinion that students should be information literate, achieving all five skills, by graduation. The expectation at four-year institutions (86%) is only moderately higher than at a two-year institution (81%) at the ‘strongly agree’ level. Additional support at the ‘agree’ level is 13% at four-year institutions and 18% at two-year institutions. The responses to this question confirm the high ratings faculty gave in a prior survey question regarding the importance of each of the IL skills. These findings also corroborate earlier studies regarding the strong expectations that faculty demonstrate in having students achieve IL. DaCosta (2010) found that 93% of DMU, and 88–98% of TCNJ faculty believe that students should acquire IL skills by graduation.

Although faculty felt students *should be* information literate at graduation, responses were contrary in the survey question that asked respondents whether students actually *are* information literate at graduation. Using the same four-point scale of ‘strongly agree’ to ‘strongly disagree’, only slightly more than half (53%) of the faculty felt students were information literate at graduation as shown in Figure 5. Achievement of IL by students was assessed as higher amongst four-year institutions (58%) than among two-year institutions (49%). The fact that only half of two-year college graduates master IL is troubling as they enter the workforce, potentially lacking the skills required by employers. For those students moving on to four-year institutions, these low ratings suggest that additional IL training be offered to transfer students to enable them to successfully complete assignments at the third- and fourth-year levels.



Other studies have also revealed limited success in students' achieving IL by the time they graduate. Singh (2005, p. 302) found that only 3.8% of undergraduate students in journalism and mass communication programmes met all ACRL criteria for literacy, while 42.2% of faculty stated that some of their students met the criteria and 23.4% considered few of their students to be information literate. DaCosta (2010) established that 58% of architecture and 59% of art & design DMU faculty and 48% of TCNJ faculty felt students had acquired IL skills by the end of their programme.

4.7 Additional skills essential in conducting college-level research

53% (187) of respondents answered the open-ended survey question probing for additional skills students need to conduct college-level research. In general, faculty comments suggested that students should have an orientation to the academic library and need a better introduction to the various components of IL and the research process, preferably as soon as they begin college classes. Furthermore, faculty felt that students need to be exposed to research on a regular basis in their assignments so that they continue to build their research skills through practice. The comments of one survey respondent capture several themes that are repeated numerous times by other respondents regarding information discernment, the process of literacy (reading, evaluation, writing), synthesis of information and affective factors such as comfort with literacy:

> *'Many students no longer read for pleasure so reading is hard for them. Basic comfort with literacy would help. Students also tend to accept all information as equally valid. Working to build critical thinking skills to realise that even slick, professional looking presentations can be biased and inaccurate would be a plus. The comfort level needed to read, internalise and then write ideas read in a source in their own words is often lacking. They want to quote because they don't trust themselves. Again, more practice is needed. Finally students often struggle with information synthesis. They tend to present ideas from different sources in linear fashion (ideas from paper a. ideas from paper b. etc,). More emphasis on synthetic writing / thinking would be helpful.'*

Faculty comments on skills required for performing research closely align with Carol Kuhlthau's approach of guided inquiry, where 'students are involved in every stage of the learning process, from selecting what to investigate, to formulating a focused perspective, to presenting their learning in the final product.' (Kulthau 2007, p. 5) First, students need to understand what is required in order to complete an assignment and select appropriate sources from which to

gather the information, such as books, articles, newspapers, reports or the internet. Next, they need the ability to search each type of material effectively, whether they use search engines effectively to find appropriate information, or how to use a book index to uncover materials. In addition, they need to comprehend the information they are reading, ranging from newspapers to scholarly articles or primary materials. The importance of reading comprehension was a common theme among survey responses.

> *'To become better research writers, college students need better reading skills. People who do most of their reading in the point-and-click environment tend to read ONLY for "main idea" and "bias," rather than reading for nuanced arguments.'*
>
> *'Reading and understanding the argument in the entire article rather than "cherry picking" for facts that support their view.'*
>
> *'Students need to know how to clearly define a subject or area of investigation, formulate a search strategy and analyse the data collected for value, relevancy and quality.'*
> *'I know that a thorough introduction to and effective use of databases is essential to understanding research. Google, the wild west of searching, cannot be the end of inquiry.'*

Faculty also expressed concern whether students adequately synthesise the information they have collected for their own purposes. Walton and Hepworth (2011) found that collaboration and iterative interaction with others via discussion boards encouraged reflection and led to deeper learning. Lloyd (2012) suggests a people-in-practice approach where the focus is on watching what people do to get information and how they do it is necessary in order to understand why IL happens.

> *'An ability to read and interpret information – many think copying from Wikipedia constitutes research. Also, an ability to synthesise information from different sources.'*
>
> *'Learning how to make comparisons as well as learning to develop and back up their opinions with balanced facts from credible sources.""*
>
> *'Students need to be able to objectively evaluate information presented by various sources. They must have the skills to determine if the information is factual or just someone's opinion.'*

Several faculty members mentioned that academic integrity needs to be discussed with students regarding referencing borrowed ideas and citing sources used in research, including specific format requirements, and how to integrate source materials into reports.

> *'In addition to evaluating and thinking critically about the information obtained, students must be able to summarise this information and present it in their own words. They must also know when citations are needed.'*

Another theme repeated throughout the comments is that IL needs to be incorporated into the entire curriculum in order to successfully build students' IL skills, thus endorsing the standards set by the MSCHE (2002) to fulfill goals for student learning. IL should be a shared responsibility of all faculty, not just those teaching composition and research courses. In the opinion of many faculty members, practice is the key to learning and developing IL skills. If these skills are used sporadically, students will not fully achieve high competency levels. On the other hand, if

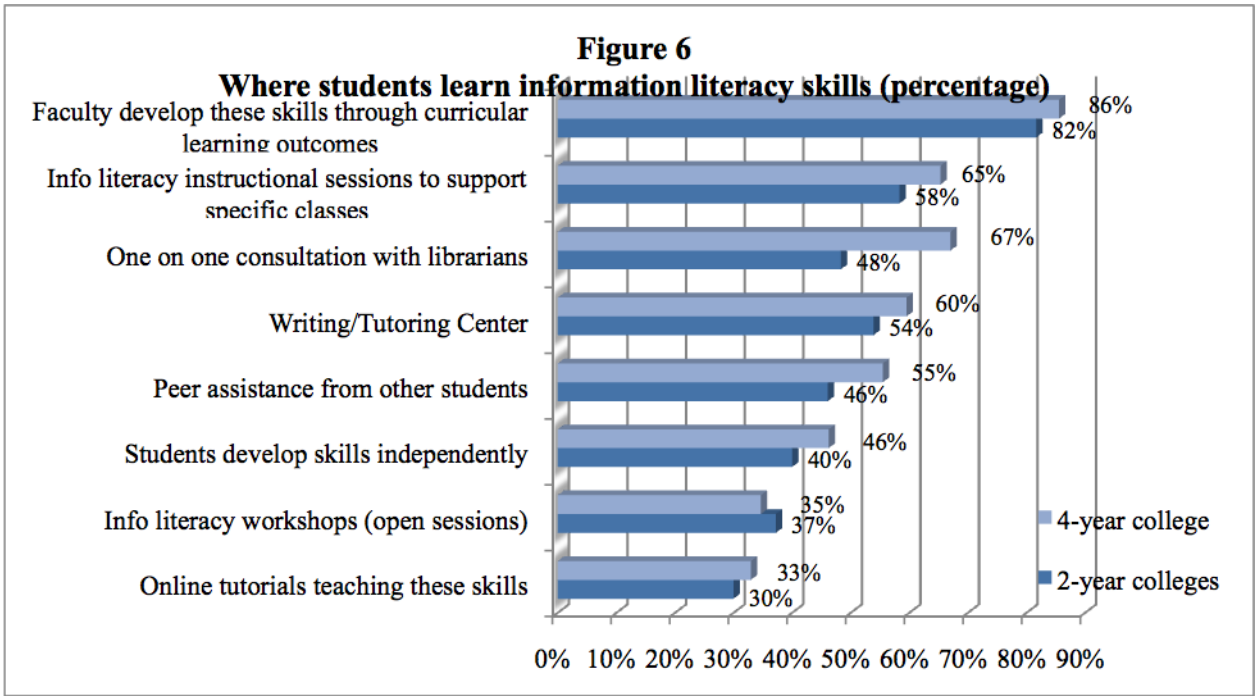
students start learning IL skills during their first year of study and the skills are reinforced regularly in subsequent classes, students will improve with practice.

> *'More-carefully designed assignments, beginning in freshman year, with key elements purposefully revisited in various ways throughout the college experience. All students should be supported repeatedly in doing an effective lit review or the equivalent, depending on the discipline. These are skills that need to be evolved; they cannot be "taught" in a given semester and then simply "applied" without further instruction, practice and feedback.'*

The recommendations of faculty demonstrate the growing complexity of IL, where learners need to collect and review information, critically evaluate material and produce information in a wide variety of media, all the while contending with changing dynamics in information retrieval and approaches to learning and technology. The result: individuals who are both consumers and producers of information in academic, work and personal environments.

4.8 Building research skills

The survey included a question on who contributes to building students' IL skills. As illustrated in Figure 6, faculty members perceive the learning outcomes defined for their courses as the primary way that students develop information skills. This result correlates closely with responses to the earlier survey question probing inclusion of IL skills as learning outcomes for courses, where all five of the IL skills received at least an 85% inclusion rate in learning outcomes. Faculty clearly perceive that they are teaching students IL skills within course content. Interestingly, library instruction, one-to-one consultations with librarians and writing/tutoring centre support are viewed as almost equally important in developing skills. Faculty estimate that roughly half of all students seek assistance from their peers. Roughly half of the faculty indicated that students seek assistance from their peers. Online tutorials and open workshops were cited by roughly one third of the respondents.



While this report presents aggregated results for participating institutions, this survey question had the most variation in responses by individual institutions. The responses of how students gain IL skills appear to reflect more closely on how faculty interact with other organisations on their campuses. As posited by Hardesty (1995), institutional culture may be a factor in how faculty view the library. Students' relationships with librarians are certainly affected by library-faculty relationships: 'for librarians, building relationships with professors is critical for building relationships with students. Students go to professors for help. Librarians can build relationships with faculty to ensure that faculty recommend that students seek librarians for help' (Miller and Murillo 2012, p. 67).

Another variable in responses to this question may be faculty awareness of the type of instructional services offered (or perceived to be offered) by their individual libraries. Faculty awareness of library services is also fundamental to satisfactory utilisation of these services. Leckie and Fullerton (1999) and Cannon (1994) found many faculty were unaware of how librarians could assist them with instruction, but also that the inclusion of library interaction is dependent on faculty pedagogical practices. Both studies revealed strong faculty interest in self-directed learning of IL skills for students.

More recent studies have encountered stronger awareness of library instruction opportunities, and yet the number of faculty taking advantage of incorporating library instruction into their courses still has room for improvement. To make this happen, librarians need to find a balance between proactively promoting library services to faculty on a regular basis to increase awareness and identifying alternative methods (tutorials, online guides, tip sheets) to provide IL support when they do not have the staff to deliver instruction in person. The comfort level of faculty in supporting the development of IL skills varied significantly among DMU faculties, from a high in the 90% range, to a low of 29% among computing sciences and engineering faculty (Weetman 2005). Saunders' (2012) quantitative results revealed a mixed message, with no clear answer, on who should be responsible for teaching IL concepts – faculty, librarians or a collaboration of both. A majority (78.7%) of York faculty in Canada believe IL education should be a collaborative effort by faculty and librarians, and a majority incorporate instruction in lectures (79.4%) or tutorial time (35.9%) (Bury 2011).

Collaboration with writing/tutoring centres varies among institutions. For example, at the author's institution, all students are required to meet with writing tutors to review their major research assignment during their First Year Seminar course. Correspondingly, the level of skills building attributed to the writing/tutoring centre is rated significantly higher than at other institutions. Collaboration with the writing/tutoring centre would be advantageous for libraries in order to align research skills with writing and citation support, particularly if this is a required element of coursework.

While only 30% of faculty say their students learn IL through online tutorials, there were quite a few requests for tutorials among the open-ended comments in the final question of the survey on what additional methods could be used to increase IL. Similarly, other studies have identified faculty interest in online tutorials (Dewald 1999; Leckie and Fullerton 1999; Gonzales 2001; Kraemer, Lombardo and Lepkowski 2007). As revealed in the ECAR survey (2013), students are very interested in blended learning, combining face-to-face time with instructors with online materials accessible at their convenience.

4.9 Methods to improve student research skills

The final survey question queried faculty on any methods that can be used to increase IL skills and techniques librarians can utilise to support faculty with improving student research skills.

Not surprisingly, many of the faculty recommendations are firmly in line with the student-centered approach to learning commonly practiced by librarians in IL instruction. Vygotsky's (1978) theory of learning through group experiences is particularly relevant, as it allows individual learners to expand their expertise by interacting with others who add to the larger combined wealth of knowledge. By adding an online component, students' IL capabilities can be further broadened by discussing and critically evaluating the ideas brought forward by peers in an interactive scenario (Walton and Hepworth 2010; Bobish 2011). IL education also benefits from the incorporation of digital technologies and social networking tools which can personalise information, but also connect individuals to a much wider community including peers and experts (Luo 2010; Farkas 2012). More than 100 suggestions were made by survey respondents on methods to improve research skills and are grouped into categories and summarised below.

Techniques faculty can use in their courses:

- Reinforcement of skills through class discussions
- Model research by talking about personal experience with finding answers to questions, professional and otherwise
- Inclusion of research components in assignments
- Syllabi should define IL and include an early assignment in order to assess student research skill level
- Require ongoing tasks that require good research skills
- Utilise annotated bibliographies at the start of a research project to get students on track with type of materials for a project
- Bring students to the library to see resources and meet staff

Library programmes:

- Instruction for foundational classes and upper level skills building
- Elective credit-bearing IL course (one or three credit)
- Mandatory IL workshops for all incoming freshmen or transfer students
- Course-specific instruction tailored to research assignments
- Short in-class presentations on research skills
- Small group sessions for students having problems with research papers
- Workshops: search engines and Google Scholar, databases, IL skills-building

Tools to support skills-building:

- Development of sample assignments for faculty use
- Creation of online research guides (LibGuides)
- Development of a virtual IL instructional site, to include:
    - Modular tutorials demonstrating phases of research
    - Short video snips for topics/databases
    - Real time videos for remote locations
    - YouTube presentations
    - Webinars
- Online manual for faculty and students that provides key information on developing IL skills
- White papers on effective IL skills
- Electronic IL handout for faculty to post on the course management system

5. Conclusions

The findings of this study corroborate data from earlier studies regarding the high value that faculty place on IL, but also reinforce the gap between perceived and desired levels of

achievement (Singh 2005; Weetman 2005; Gullikson 2006; DaCosta 2010; Bury 2011; Saunders 2012).

This study adds to the research in the field as a multi-institutional study comparing perceptions of faculty on IL at both two-year and four-year institutions and investigating both full-time and part-time faculty perspectives. Overall, faculty familiarity with IL concepts was high. Faculty are overwhelmingly supportive of IL and are incorporating these skills into learning outcomes for their courses. There are strong expectations of students' achieving IL skills by graduation, but faculty perceptions are that students fall short of mastering those skills by the end of their programmes. Some differences were discovered in students' IL competency levels between two- and four-year institutions. Ratings for students at two-year institutions were lower in all five ACRL skill areas and slightly less than half of the students had mastered these skills by graduation. Another area that showed deviations in responses was the type of assignments that require research, with implications for librarians providing IL support at the two-year versus four-year institution. While all faculty assigned short papers with research components, four-year faculty had higher research expectations for long papers, oral presentations, and annotated bibliographies. Full-time faculty were also more focused on research than part-time faculty. Further research in this area would be beneficial to uncover the best approach librarians can take in supporting part-time faculty.

The participation of faculty from various academic departments in this survey is an encouraging sign that IL and the improvement of student research are valued by teaching faculty in a broad range of disciplines. Whether these skills are called IL skills by librarians, or more commonly called research skills by faculty, there is a clear indication that faculty feel that achievement of these skills is critical for graduating students.

As reported in this study, while faculty rated the importance of IL skills as very high, the perceptions of the competency level of students was deemed as insufficient. Overall, faculty felt that only 52% of students are graduating with IL skills. Faculty noted that they address IL in their courses and indicated that students learn research skills from other methods, such as library instruction and writing and tutoring centres. Yet, the combined efforts still do not yield the desired results. These IL skills are vital to conducting effective research in students' personal and professional lives when they leave the college campus. Therefore, librarians need to continue to make progress in collaborating with faculty and other organisations on campus to incorporate more reflective learning and discover more effective techniques of elevating IL competencies.

Key impact areas identified where student skills are deficient and librarians can make a difference:

- Partnerships with faculty to review current learning outcomes in the curriculum and to help define specific learning outcomes that faculty could incorporate into their courses to better teach and assess IL.
- Liaison partnerships with faculty to identify courses for their discipline which should incorporate library instruction, such as introductory courses covering fundamental research methods for the discipline, as well as advanced research techniques for upper level perspectives courses and senior seminars.
- Collaboration with faculty in structuring instruction sessions, in order to address the entire research process, including building critical thinking and evaluation skills during library instruction.
- Individual or small group instruction sessions for students who faculty identify as needing additional skills building in specific areas. The skill level of students is often diverse, particularly in first year classes.

- Workshops for faculty with demonstrations and tips on how to best utilise library resources. Keep faculty up-to-date on new resources and search interfaces, including Google and other search engines, so they in turn can inform their students.
- Closer library collaboration with writing and tutoring centres, which receive heavy referrals from developmental and first-year class instructors.
- Development of virtual IL website, where faculty can direct students to independently complete tutorials or view videos to build and reinforce IL skills covered in class.

The multi-institutional approach of this study has resulted in a larger data set, with results that have shown to be applicable to two-year and four-year institutions. The insights revealed from specific comments collected from respondents have generated an actionable list of library programmes and potential collaborations that can be implemented by librarians at both the participating institutions and by other academic libraries. Additional qualitative research can be used to further explore these findings.

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Appendix A: Profiles of participating institutions

Four-year Institutions	Two-year Institutions
Georgian Court University, Lakewood, NJ Type: 4-year, Private not-for-profit Degrees: One but less than two years certificate Bachelor's degree Post-baccalaureate certificate Master's degree Post-master's certificate Campus setting: Suburb Students: 2,555 (1,722 undergraduate) Faculty: 105 full-time 167 part-time	Atlantic Cape Community College, Mays Landing, NJ Type: 2-year, Public Degrees: Less than one year certificate One but less than two years certificate Associate's degree Campus setting: Rural Students: 7,592 (all undergraduates) Faculty: 105 full-time 339 part-time
Monmouth University, West Long Branch, NJ Type: 4-year, Private not-for-profit Degrees: Less than one year certificate Associate's degree Bachelor's degree Post-baccalaureate certificate Master's degree Post-master's certificate Doctor's degree – professional practice Campus setting: Suburb Students: 6,570 (4,702 undergraduate) Faculty: 259 full-time 312 part-time	Ocean County College, Toms River, NJ Type: 2-year, Public Degrees: Less than one year certificate One but less than two years \ certificate Associate's degree Campus setting: Suburb Students: 10,317 (all undergraduates) Faculty: 108 full-time 385 part-time
Rider University, Lawrenceville, NJ Type: 4-year, Private not-for-profit Degrees: Associate's degree Bachelor's degree Post-baccalaureate certificate Master's degree Post-master's certificate Campus setting: Suburb Students: 5,598 (4,616 undergraduate) Faculty: 239 full-time 329 part-time	Mercer County Community College, West Windsor, NJ Type: 2-year, Public Degrees: One but less than two years certificate Associate's degree Campus setting: Rural Students: 9,381 (all undergraduates) Faculty: 128 full-time 517 part-time

The College of Saint Elizabeth, Morristown, NJ	Raritan Valley Community College, Branchburg, NJ
Type: 4-year, Private not-for-profit Degrees: One but less than two years certificate Bachelor's degree Post-baccalaureate certificate Master's degree Doctor's degree – research/scholarship Campus setting: Suburb Students: 1,874 (1,181 undergraduate) Faculty: 72 full-time 150 part-time	Type: 2-year, Public Degrees: Less than one year certificate One but less than two years certificate Associate's degree Campus setting: Rural Students: 8,370 (all undergraduates) Faculty: 115 full-time 406 part-time

*College and university data taken from the National Center for Education Statistics, nces.ed.gov

Appendix B: Faculty Perceptions of IL Survey

Information literacy is a set of abilities requiring individuals to "recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information." (Association of College and Research Libraries)

The definitions of skills associated with Information Literacy are:

1. Identifies and addresses information need *(e.g. defines a topic, develops a thesis statement or research question)*
2. Accesses information effectively and efficiently *(e.g. identifies key words, creates a search strategy, finds information from various library sources, finds appropriate web sources, modifies search to broaden or narrow down topic, records citation information)*
3. Evaluates and thinks critically about information (*e.g. selects main ideas from text, restates ideas in own words, evaluates information for relevance/topic/credibility/currency, recognises bias, determines if additional information is needed, draws conclusions based on information gathered)*
4. Uses information effectively for a specific purpose *(e.g. summarises/synthesises information from a variety of sources, integrates quotations and paraphrasing, communicates information gathered effectively)*
5. Uses information ethically and legally *(e.g. understands plagiarism, selects and uses appropriate documentation style (MLA, APA))*

There are 17 questions in this survey. * Response required.

Information Literacy

1. Are you familiar with the concept of information literacy? *
Please choose all that apply:
- ○ I have never heard of information literacy
- ○ I have heard of information literacy
- ○ I have similar learning outcomes for my classes
- ○ I have attended an information literacy workshop
- ○ I work with librarians on building information literacy skills in my students
- ○ Other:

2. What other terms do you use instead of information literacy to describe skills students need to complete research?
Please write your answer here:

3. Rate the importance of the following skills in completing college research: *
Please choose the appropriate response for each item:

	Very important	Somewhat important	Not too important	Not at all important	Don't know
Identifies and addresses information need	○	○	○	○	○
Accesses information effectively and efficiently	○	○	○	○	○
Evaluates and thinks critically about information	○	○	○	○	○
Uses information effectively for a specific purpose	○	○	○	○	○
Uses information ethically and legally	○	○	○	○	○

4. Do you address these information literacy skills in the learning outcomes for courses you teach? *
Please choose the appropriate response for each item:

	Yes	No
Identifies and addresses information need	○	○
Accesses information effectively and efficiently	○	○
Evaluates and thinks critically about information	○	○
Uses information effectively for a specific purpose	○	○
Uses information ethically and legally	○	○

5. What type of assignments do you assign requiring research using print or online resources? *

Please choose all that apply:

- Oral presentations
- Short papers (1-5 pages)
- Long papers (6+ pages)
- Annotated bibliographies/literature reviews
- Do not require students to conduct research
- Other

6. Rate the competency level of students in the following skills: *

Please choose the appropriate response for each item:

	Excellent	Good	Satisfactory	Poor	Don't know
Identifies and addresses information need	○	○	○	○	○
Accesses information effectively and efficiently	○	○	○	○	○
Evaluates and thinks critically about information	○	○	○	○	○
Uses information effectively for a specific purpose	○	○	○	○	○
Uses information ethically and legally	○	○	○	○	○

7. Students <u>should be</u> information literate (achieve all five information literacy skills) by the time they graduate. *

Please choose only one of the following:

○ Strongly agree ○ Agree ○ Disagree ○ Strongly disagree

8. Students <u>are</u> information literate (achieve all five information literacy skills) when they graduate. *

Please choose only one of the following:

○ Strongly agree ○ Agree ○ Disagree ○ Strongly disagree

9. What additional skills do you think students need in order to conduct college-level research?

Please write your answer here:

10. Where do you think students learn information literacy skills?
Please choose all that apply:
- ○ Students develop these skills independently
- ○ Peer assistance from other students
- ○ Faculty develop these skills through curricular learning outcomes
- ○ Informational literacy instructional sessions to support specific classes
- ○ Online tutorials teaching these information literacy skills
- ○ Information literacy workshops (open to all students)
- ○ One-on-one consultation with librarians
- ○ Writing/tutoring centers
- ○ Other:

11. Please list any other methods that can increase information literacy skills and/or ways librarians can assist you with improving student research skills.
Please write your answer here:

Demographic Information

12. Please identify your institution. *
Please choose all that apply:
- ○ Two year college - A
- ○ Two year college - B
- ○ Four year college - C
- ○ Four year college - D

13. Gender. *
Please choose only one of the following:
- ○ Female ○ Male

14. Faculty status. *
Please choose only one of the following:
- ○ Full-time tenured/tenure track
- ○ Full-time non tenure track (instructor, lecturer, specialist)
- ○ Part-time/adjunct
- ○ Other

15. Please identify your discipline: *
Please choose only one of the following:
- ○ Agriculture/Environmental Studies
- ○ Business
- ○ Communication/Journalism
- ○ Computer Science/Software Engineering
- ○ Criminal Justice
- ○ Education
- ○ English
- ○ Foreign Languages
- ○ Sciences/Biology/Chemistry/Physics
- ○ Social Work
- ○ Theology
- ○ Math
- ○ Nursing/Health Sciences
- ○ Performing & Fine Arts
- ○ Philosophy
- ○ Political Science
- ○ Professional Counseling
- ○ Psychology
- ○ History & Anthropology
- ○ Liberal Arts
- ○ Other

16. What level classes do you teach? *
Please choose all that apply:
- ○ Developmental
- ○ First-year
- ○ Second-year
- ○ Third-year
- ○ Fourth-year
- ○ Graduate
- ○ Doctoral
- ○ Other

17. How many years have you taught college level courses?
Please choose all that apply:
○ Less than 3 years ○ 3-5 years ○ 6-9 years ○ More than 10 years