

Information Literacy Beyond Librarians: A Data/Methods Triangulation Approach to Investigating Disciplinary IL Teaching Practices

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Résumé de l'article

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Methods – In collaboration with the institutional research office, a data and methods triangulation approach was used. A survey of disciplinary faculty was administered and disciplinary faculty focus groups were also conducted. Student outcomes and annual assessment reports, documents that describe teaching and assessment methods for courses across the university, were analyzed. Voyant, a text-mining tool, was also used to determine key phrases and terms related to IL in these documents.

Results – Results revealed that disciplinary faculty highly value skills and understandings affiliated with IL competency. Faculty provide the majority of IL learning opportunities independent of librarians, although these learning opportunities are generally provided through implicit, rather than explicit, methods. Pedagogical methods that may enable explicit practices, such as the use of standards and competencies, are infrequently used.

Conclusion – Evidence and findings from this study are being used to inform several initiatives to work with disciplinary faculty for IL instruction, including new services, resources, and instruction models to support IL development in students.

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Research Article

Information Literacy Beyond Librarians: A Data/Methods Triangulation Approach to Investigating Disciplinary IL Teaching Practices

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Abstract

Objective – While library literature contains many studies examining faculty perceptions of the value of librarian-led information literacy (IL) instruction, there is little evidence regarding IL instruction practices of disciplinary faculty independent of librarians. In a climate of uncertain budgets, increasing student enrollment, and increased conversation around the need for IL, media, and digital literacy skills, this study aimed to investigate a little-researched area of the IL instruction, learning, and development milieu.

Methods – In collaboration with the institutional research office, a data and methods triangulation approach was used. A survey of disciplinary faculty was administered and disciplinary faculty focus groups were also conducted. Student outcomes and annual assessment reports, documents that describe teaching and assessment methods for courses across the university, were analyzed. Voyant, a text-mining tool, was also used to determine key phrases and terms related to IL in these documents.

Results – Results revealed that disciplinary faculty highly value skills and understandings affiliated with IL competency. Faculty provide the majority of IL learning opportunities independent of librarians, although these learning opportunities are generally provided through implicit, rather than explicit, methods. Pedagogical methods that may enable explicit practices, such as the use of standards and competencies, are infrequently used.

Conclusion – Evidence and findings from this study are being used to inform several initiatives to work with disciplinary faculty for IL instruction, including new services, resources, and instruction models to support IL development in students.

Introduction

The California State University (CSU) is a large public university, serving students seeking a professional, applied, comprehensive education (CSU, n.d.). As a member of the CSU system, California State University, Fresno (Fresno State) fulfills this function for the Fresno region of the Central Valley of California, serving four counties in the heart of the state. Fresno State is a large campus of 25,000 students and 3,000 employees, with degrees offered in the arts and humanities, agricultural sciences, business, engineering, health and human services, social sciences, and sciences. Fresno State also offers 43 Masters degrees and three doctoral degrees (CSU, 2016).

As a member of the Western Association of Schools and Colleges Senior College and Universities Section (WSCUC), Fresno State is evaluated for accreditation on five core competencies: critical thinking, quantitative reasoning, written communication, oral communication, and information literacy (IL) (WSCUC, 2016). As part of the assessment work related to accreditation, the IL Assessment committee has administered the Standardized Assessment of Information Literacy Skills (SAILS) test to incoming freshmen (fall) and graduating seniors (spring) every year for several years. The results have consistently demonstrated that Fresno State incoming students score far below average in IL skills, and have not yet developed proficiency in research

and information skills essential to their academic and professional success.

The teaching and learning librarians at Henry Madden Library (Madden Library) primarily provide IL instruction through the traditional one-shot, in sessions lasting approximately 30-90 minutes. In the context of SAILS scores, as well as other IL assessments, Madden Library librarians have often discussed the effectiveness of the one-shot to provide students with foundational IL skills, as well as the more advanced skills necessary for their undergraduate and graduate degrees.

In exploring ways to innovate in developing higher-order IL skills, the opportunity to partner with the institutional research office, the Office of Institutional Effectiveness (OIE), in their inaugural OIE Faculty Fellows program was presented. Designed to familiarize faculty with institutional research services and resources, this program provided faculty researchers a stipend to explore questions relevant to university interests, including accreditation. The library researcher chose to explore the pedagogical practices of disciplinary faculty related to IL, focusing specifically on how disciplinary faculty teach IL to their students. In choosing to examine IL instruction and learning outside the context of library teaching and learning work, the goal of this study is to gain an understanding of how to partner with disciplinary faculty to develop IL skills in students.

Literature Review

Many studies have examined IL within the university ecosystem. These include efforts to integrate IL into the curriculum, both at the institutional and departmental levels; examining collaborative IL instruction between librarians and disciplinary faculty; and, to a smaller degree, the role of disciplinary faculty in teaching IL independent of the library or their librarian colleagues. Much of this literature is written by and for librarians (Bury, 2016; DaCosta, 2010), and as such, the independent teaching of IL by disciplinary faculty has not been fully explored.

Beyond the Library: IL Across the Institution

Examining IL in the context of wider implementation has been motivated by several factors. Amongst these is the desire to increase the impact of IL instruction beyond the one-shot (Smith, 2006, the inclusion of IL within university accreditation standards (which necessarily broadens the responsibility for IL teaching and assessment) (Owusu-Ansah, 2004; Thompson, 2002), and to examine or emphasize unique aspects of IL teaching within the disciplines (Brems, 1994; Detlor, Julien, Willson, Serenko, & Lavalley, 2011; Emmons et al., 2009; Gonzales, McMillen, & Fabbi, 2009; Lwoga, 2013; Mounce, 2010). Exploring IL outcomes, conceptualizations, and practices beyond librarian instructional design can inform methods for successful implementation of IL beyond library curriculums and services (Mackey & Jacobson, 2005).

A necessary component of this work is collaboration between disciplinary faculty and librarians. The literature around these collaborations is extensive (there is in fact a journal dedicated to documenting and communicating this work, *Collaborative Librarianship*). These studies generally consist of reporting on collaborative projects, or, exploring the theory and approach to the collaborative process itself, as in Gardner and White-Farnham

(2013). Mounce (2010), in their review of librarian/disciplinary faculty collaborations from 2000-2009, provides an in-depth look at the nature of some of these reported collaborations.

The work described above, however, generally centers on the librarian/library perspective. One reason for this is that IL research remains largely within the domain of librarianship (Bruce, Somerville, Stoodley, & Partridge, 2014). The development of IL as a concept and as a literacy has also generated from within the library and information sciences (Leaning, 2017). The result is that disciplinary faculty are less aware of methods to integrate IL effectively into their teaching practice (Bury, 2016).

While the above-mentioned studies on collaboration have examined some methods to increase the capacity of IL teaching for non-librarian instructors, again, the literacy expertise lies with the librarians. This is demonstrated through “teach-the-teacher” approaches, when librarians use this expertise to provide their disciplinary colleagues with the skills to integrate IL into their own practice (Bury & Sheese, 2016; Everett, 2010; Smith, 2006; Veach, 2009).

Faculty Perspectives on IL

Beyond methods to integrate IL more broadly into the institution, there has also been an examination of disciplinary faculty and their perspectives on or valuing of IL concepts and competencies. This is central to this study, which seeks to extend knowledge not just of what faculty think of IL, but how they “do” IL, integrating it into their teaching work. An additional component of faculty perspectives on IL is their perspective on the responsibility for teaching IL—do they view that responsibility as theirs, belonging to the librarian, or elsewhere?

Recent studies on disciplinary faculty perceptions of IL generally measure perceptions in three areas: 1) Perceptions of the library, librarians, and library IL instruction; 2) General

perceptions of IL skills and concepts and their value to postsecondary students, and 3) Perceptions of students' IL skills.

This first consideration is interesting in that it emphasizes the central nature of libraries and librarians in research around IL. The tension between librarians and disciplinary faculty, and the sense of librarians as "minor faculty" (or without faculty status at all), has proven to be an obstacle for some librarians in their IL work (Gardner & White-Farnham, 2013; Julien & Given, 2002; Nilsen, 2012). It is necessary, therefore, to understand how disciplinary faculty perceive librarians in order to be successful in outreach and collaborations.

An element of the perceptions of disciplinary faculty of librarians is their role in the responsibility for IL instruction. Several studies have found varying perspectives on this role. Within the context of accreditation, Thompson (2002) discusses the role that both librarians and disciplinary faculty have in teaching IL. Several studies have found that disciplinary faculty agree, with some caveats: Nilsen (2012) found that faculty believe in a shared responsibility, but with a larger role for librarians. Saunders (2012) also found that faculty believe in a shared responsibility, but with a larger role for disciplinary faculty. Bury's (2011) findings indicated that faculty believe that both librarians and faculty should have a shared role, but that ultimately, faculty do the work of IL instruction themselves. Weiner (2014) also found that faculty do the work of IL instruction, in a study of 299 faculty at Purdue University. These findings confirm that faculty, either with or without librarians, view themselves as having a role in IL instruction.

Multiple studies have found that faculty highly value IL skills and competencies for their students (Bury, 2011, 2016; DaCosta, 2010; Lwoga, 2013; Nilsen, 2012; Saunders, 2012; Weetman, 2005). DaCosta (2010) evaluated several key IL skills, and found disciplinary faculty wished students had developed all of the

listed skills by the time they graduate: no skill scored below 80% of responding faculty. Bury (2016) discovered that faculty strongly desire their students to have the ability to develop a topic, as well as evaluate and synthesize found information. However, multiple studies have also found that disciplinary faculty perceive their students to be weak in IL understandings (Leckie & Fullerton, 1999; Lwoga, 2013; Nilsen, 2012; Saunders, 2012).

If disciplinary faculty view IL as their responsibility, and value IL as a skill necessary for students to learn, how then, do faculty do the work of IL teaching? There have been limited studies of IL pedagogy outside of librarianship, the gap which this study aims to address. In the few studies found, IL teaching is often tacit, and assumed to be learned through "osmosis" (Gardner & White-Farnham, 2013; Lwoga, 2013; Weetman, 2005). Leckie and Fullerton (1999) examined engineering and science faculties' IL practices, and found only half incorporated some aspect of IL all the time. The most consistent practice was assignments designed to develop critical thinking (Leckie & Fullerton, 1999); Bury (2016) also found that faculty highly value pedagogy that develops critical thinking, and higher-order cognitive skills. The integrated nature of IL, critical thinking, and other academic literacies was also found to be central to faculty's teaching practices, and they view these literacies as intricately connected to disciplinary knowledge (Bury & Sheese, 2016).

The previous emphasis on librarianship as the lens through which faculty IL teaching practices are viewed, and the evidence that faculty view IL as valuable and necessary for their students, provides the framework for a deeper look at faculty IL pedagogy, independent of librarians.

Aims

To enable deeper IL learning for Fresno State students, an investigation of faculty IL teaching practices was conducted. Through an

understanding of these practices, it is hoped that librarians will be able to better work with their disciplinary faculty to create and develop further a rich IL teaching culture across campus. To interrogate the existing IL teaching culture, the following questions guided the study:

1. What IL teaching practices are departmental faculty currently implementing?
2. What IL standards, resources, and concepts are departmental faculty currently using to inform their IL teaching practice?
3. What IL skills and concepts are valued within a particular discipline, as an academic literacy and/or as a professional skill?

Methods

To investigate these questions, a data and methods triangulation approach was used. A survey of disciplinary faculty was administered, and disciplinary faculty focus groups were conducted as a follow-up. In addition, student outcomes and annual assessment reports, documents that describe teaching and assessment methods for courses across the university, were analyzed. Voyant, a text-mining tool, was used to determine key phrases and terms related to IL in these documents. This method was selected to account for the complexity of capturing teaching practices, and to be able to capture data through multiple facets.

Survey

The survey consisted of six sections:

- 1) Demographic information.
- 2) A list of IL skills, concepts, and understandings, and if and how instructors include these in their teaching practice, on their syllabus, and who teaches the concept—departmental faculty, a librarian, or both.
- 3) The same list of IL skills, concepts, and understandings, and how important these skills are to their students as students, and, how important these skills are to their students post-graduation.
- 4) Key IL resources, including global resources, such as *The Framework for Information Literacy in Higher Education* (known as the *Framework*) (Association of College and Research Libraries, 2016), and local resources, such as library tutorials and research guides.
- 5) And an open-ended comment box, where instructors could share any additional IL-related thoughts.

The survey was sent electronically to a representative sample of disciplinary faculty of all ranks, including non-tenure track adjunct faculty. A total of 602 faculty received the survey, and 122 responses were received. Incomplete responses were removed, for an $n=91$ (15% response rate). Survey participant responses are outlined in Table 1.

Focus Groups

Two separate focus groups were conducted, for a total of 9 faculty participants (7 tenure-track, 2 adjunct) Participants self-selected from survey respondents. Lasting an hour each, participants were asked seven questions in a semi-structured interview format.

Faculty IL Practices Focus Group: Questions

1. How would you describe or define information literacy?
2. Do you see a distinction between information literacy and other concepts such as digital literacy, media literacy, or critical thinking? Do you see areas of overlap?
3. In your teaching work, what information literacy practices are you currently engaging in?
4. What do you feel is your role in teaching information literacy?
5. What role does information literacy play in your discipline?
6. Do you see a distinction between general information literacy, and the information

Table 1
Demographics of Disciplinary Faculty Survey Respondents by Percentage

Characteristic	Percentage
Gender	
Female	62
Male	36
Prefer not to State	2
Age	
19 years of age or younger	2
20-30 years of age	6
31-40 years of age	36
41- 50 years of age	20
51-60 years of age	23
61- 70 years of age	11
Prefer not to state	2
Years Teaching at the College Level	
First year	6
2-4 years	25
5-7 years	23
8-10 years	8
11-15 years	23
16 years or more	23
Rank	
Temporary/Lecturer: Part-time	24
Temporary/Lecturer: Full-time	13
Assistant	36
Associate	16
Full	11
College	
Arts & Humanities	18
Health & Human Services	19
Science & Math	13
Social Sciences	12
Business	8
Agricultural Sciences & Technology	11
Education	13
Engineering	5

culture and practices of your discipline? What role do different partners (K-12, Gen Ed courses, W courses, etc.) play in developing these skills?

7. What resources do you need in order to incorporate or further develop instruction and assessment of information literacy into your teaching practice?

Responses were recorded and transcribed, and then independently coded by the researcher and a graduate research assistant who was also present during the focus groups. Results were then analyzed and discussed together.

Assessment Reports

At Fresno State, assessment coordinators work with the faculty in their departments to gather data on specific learning outcomes assessed on a schedule that has been reported to the university assessment coordinator. The results of these assessment activities are then stored on the Fresno State website. These assessment reports were used as a third data source. For this study, the most recent three years of assessment reports (15/16, 16/17, and 17/18) were used, because departments only assess a select number of outcomes a year, and so a broader sample was needed to capture any recent IL teaching and assessment work (i.e., if IL wasn't assessed in 15/16, it may have been in 16/17). A total of 172 reports (1731 pages) were analyzed.

The reports were initially analyzed using Voyant Tools. The 172 reports were uploaded to Voyant as a master PDF. Using "Document Trends," a feature of Voyant Tools, a list of terms and phrases generated from the survey and focus groups were used to target relevant areas from within the larger corpus. The terms used were creat*; source*; citation|cite*; search*; information literacy; synthe*; database*; library; plagiar*; database; evaluate information~5; article peer~5. The '*' was used to capture all forms of a term (e.g., plagiar* to return plagiarism, plagiarize, etc.). The '|' was used to count terms as a single count (e.g., citation|cite

as a single term). The '~' was used to capture "near" results, where terms occurred within a certain number of words of each other. These results were then set to capture the nearest 50 words on either side of these terms, exported to Excel by term/phrase, and qualitatively assessed. Results were also used to follow up directly in the assessment report text, if phrase results indicated deeper results would be found through further reading.

Results

Results of the survey, focus groups, and assessment report analyses are reported in this section. Results from each individual section are reported first, followed by a triangulation analysis of major themes and discoveries based on the combination of results.

Survey Results

Results of the survey are reported below. Survey sections 2 and 3 (IL skills, concepts, and understandings and inclusion in teaching practice, on syllabi, and teaching responsibility; as well as the same list and academic and professional value) are reported in Table 2. Survey sections 4 and 5 (awareness and use of IL teaching resources) are reported in Table 3.

Focus Group Results

Major themes discovered through analyses of focus groups transcripts include IL skills, understandings, and beliefs; disciplinary differences in IL and related pedagogical practices; and IL practices. IL skills, understandings, and beliefs includes the IL attributes disciplinary faculty include within their teaching practice. Disciplinary differences in IL addresses areas where faculty identified how IL differs within disciplines, and how it impacts IL teaching and learning. IL practices refers to specific methods, approaches, or learning theories faculty use within their IL teaching practice. These major themes, with sub-themes, are reported below in Table 4.

Table 2

IL Skills, Concepts, and Understandings in Teaching Practice, by Percentage, as well as Academic Professional Value, on a Point Value of 1-4

IL Skill, Understanding, or Concept	Inclusion in Teaching Practice				Inclusion as a Syllabus Outcome			Teaching Responsibility		Academic/ Professional Value	
	Not relevant	Introduced/developed but not explicitly taught	Already utilized/understood by my students	Explicitly taught and assessed in my courses	Yes	No	I teach this skill/concept	A librarian teaches this skill/concept	Both a librarian and I teach this skill/concept	Academic value	Professional value
	Percent									Average value	
Selecting a topic with appropriate scope and according to available information	11	13	36	40	34	66	80	4	16	3.05	3.50
Using search strategies, including keyword searching and advanced search features/search construction	12	27	36	25	18	82	53	19	28	3.11	3.56
Knowing key databases, government websites, or other sources of information for the course/discipline	21	13	43	23	23	77	51	17	32	2.74	3.11
Using a range of appropriate sources according to the topic and or/discipline	5	18	44	34	44	56	74	6	19	3.16	3.39
Evaluating information	5	19	48	29	58	42	85	4	11	3.26	3.78
Determining if a source is a peer-reviewed, scholarly article	25	9	34	32	25	75	62	2	36	2.68	3.22
Reading a scholarly article (including the parts of a scholarly article)	18	11	35	36	42	58	83	4	13	3.00	3.35
Using information ethically (appropriate citing, avoiding plagiarism, etc.)	2	24	31	43	51	49	85	4	11	3.63	3.82

Protecting and valuing personal information (including issues of privacy, copyright and intellectual property, and ethically sharing and disseminating information)	17	21	39	23	31	69	88	3	9	3.37	3.65
Synthesizing existing information resources to create a new information product (e.g., a literature review, a research paper, a class presentation, etc.)	10	12	38	40	59	41	92	0	8	3.05	3.29
Utilizing different information creation formats such as audio, visual, and text, as well as use different platforms for information sharing including papers, presentations, social media, websites, or other information tools	14	19	41	25	33	67	89	3	8	2.89	3.00
Understanding and participating in the information culture of the discipline or profession (i.e., how information is created, shared, and valued)	21	15	40	23	35	65	97	0	3	2.90	3.25
Understanding the political, cultural, and economic aspects of information creation, access, and dissemination	37	12	36	14	23	77	100	0	0	2.74	2.88
Reflecting on personal research and information creation habits and making changes based on those reflections	27	20	31	22	29	71	97	3	0	2.95	3.06

Table 3
 IL Learning Resource Awareness and Use, by Percentage

IL Resource or Service	Awareness			Use	
	Not aware of this resource	Somewhat familiar with this resource	Very familiar with this resource	I have used this resource in my teaching practice at Fresno State	I have not used this resource in my teaching practice at Fresno State
	Percent				
Information Literacy Competency Standards for Higher Education, Association of College and Research Libraries (ACRL)	65	34	1	8	92
Framework for Information Literacy for Higher Education, ACRL	68	28	4	5	95
Information Literacy VALUE Rubric, Association of American Colleges & Universities (AAC&U)	69	27	5	9	91
Research/Subject Guides, Madden Library	14	49	38	59	41
Library DIY, Madden Library	35	42	23	39	61
Information Literacy Modules in Blackboard, Madden Library	41	37	22	29	71
Assignment Research Calculator (ARC), Madden Library	74	20	6	9	91
Video Tutorials, Madden Library	26	58	16	39	61
Reducing Plagiarism on Campus Workshop, Ida M. Jones & Judith C. Scott	23	45	33	33	68

Midterm and Finals Write-In, Writing Center and Madden Library	37	44	20	27	73
Academic Success Workshops: Library Skills, Learning Center	30	46	25	32	68
Information Literacy Instruction/Librarian-Led Instruction Session, Madden Library	42	38	21	28	72
General Library Workshop (Refer students to workshop not designed specifically for my course)	36	48	16	24	76
Consultation with Librarian Subject Liaison- Assignment/Syllabus Design, Madden Library	26	44	30	35	65

Table 4
IL Teaching Practices Focus Groups Themes and Sub-themes

Theme	Sub-themes
IL Skills, Understandings, and Beliefs	Evaluating information Synthesizing information Ethical use of information Finding information General literacy (reading, writing) Tools (e.g., research tools) Using information like a scholar/professional Fluency across platforms and with alternative formats/multiple formats Social media/Web 2.0 technologies Navigating overabundance of information/overwhelming amounts of information Developing agency through information 21st Century Skills Critical thinking (critical reading)
Disciplinary Differences in IL	The role of peer-reviewed literature Authoritative knowledge
IL Practices	Document/artifact (besides a research/term paper) Oral presentation Collaboration with librarians Bloom's Taxonomy/scaffolding Implicit, integrated methods

Assessment Report Results

Assessment reports were initially analyzed using Voyant, and then qualitatively coded for IL teaching practice insights. IL-related terms and total counts are reported in Table 5. Note that these figures are for total mentions of these terms, and includes some noise discovered through the second phase of analysis (e.g., the term “database” generally referred to library resources, but a reference to a department contact information database was also included).

Table 5
Assessment Report IL-Related Terms and Total Count

Term	Count
creat*	440
source*	241
citation cite*	168
search*	93
information literacy	62
synthe*	45
database*	36
library	36
plagiar*	30
evaluate information~5	19
database	19
article peer~5	4

Activities related to creating or synthesizing information into a new product (creat*, synthe*) were strongly represented in the assessment reports. Information evaluation and the need for authoritative sources of information were also strongly represented. Concerns about ethical use of information, such as appropriate citation practices and avoidance of plagiarism, were also well-represented.

Overall Results

Combining these results reveals that disciplinary faculty highly value skills and understandings affiliated with IL competency,

and incorporate IL into their teaching practice. Disciplinary faculty consider IL necessary for self-empowerment and agency in the information age, and are concerned about their students’ ability to navigate a complex information environment. Faculty provide the majority of IL learning opportunities independent of librarians, and are infrequently using broadly-available IL teaching tools (such as national standards or rubrics) or locally-available IL teaching tools (such as library research guides). IL learning is generally provided through implicit, rather than explicit, methods. Pedagogical methods that may enable explicit practices, such as the use of standards and competencies, IL outcomes, and transparent lessons/assignments, are infrequently used.

Discussion

From these results, several possibilities emerge around faculty IL teaching practices.

Value of IL to Faculty

The high value Fresno State faculty place on IL and associated skills and understandings confirms earlier work in this area, as mentioned in the literature review section above. Faculty in particular value the higher order IL skills, and view them as necessary for their students’ success not just in the classroom, but post-graduation, as well—in fact, they value IL even higher post-graduation.

As Bury (2016) and Bury & Sheese (2016) discuss, faculty are also questioning the ways in which other academic literacies interact with these higher-order IL skills, and how they impact disciplinary understandings. In the focus groups, digital literacy, media literacy, critical thinking, and print literacy were discussed as being integral to IL, overlapping with IL, and even confusing in the distinction between these literacies. In terms of teaching practice, faculty expressed concern about how to develop exercises that can develop these multiple literacies, when the lines between the two are

blurry: for example, being able to adeptly generate high quality and engaging content on social media (media and digital literacy), but needing more understanding about the social, political, and economic implications of the platform (IL).

Extremely important to IL and the teaching practices of faculty is working to develop the ability to synthesize information into new works. Several faculty referenced Bloom's Taxonomy (Anderson, Krathwohl, & Bloom, 2001) and the highest-level skill of creation: in the assessment reports, there were many assignments and exercises centered around the ability to work with existing literature to support new ideas and to be adept in creating new information products in multiple formats. In a study of faculty perceptions of IL, Bury (2016) discusses the potential for faculty engagement with the *Framework* (Association of College and Research Libraries [ACRL], 2016) as a pedagogical approach. This interest in creation, which is emphasized in the *Framework* (ACRL, 2016), may signal an area of alignment between disciplinary faculty and librarians' view of IL.

Faculty View IL Teaching as Their Responsibility

Faculty very strongly identified with the teaching of IL skills. In the survey and in the assessment reports, it became clear that faculty work with librarians to teach things like database demonstrations, citation style, and the basics of search, but all other IL skills are viewed as their teaching responsibility. This might be viewed as a challenge: how can librarians be involved with the faculty's work to develop higher order IL skills in students, if disciplinary faculty view this mainly as their domain?

Bury and Sheese (2016) draw on the work of Tamsin Haggis (2006) and an approach to academic literacies that rejects a deficit approach in order to embrace a systemic one, in which the whole of an institution works together to

develop student literacy through the core curriculum. This is an approach that has been used successfully for writing (Bury & Sheese, 2016). At Fresno State, "writing across the disciplines" learning is formalized at all levels of the institution, including lower-division, upper division, disciplinary, and graduate writing requirements for all majors. This could serve as a potential model for IL, where librarians serve as the pedagogical experts to help faculty develop methods for instruction in IL at multiple places within the curriculum.

The Implicit Nature of Faculty IL Teaching

Faculty reported rarely including IL outcomes in either their syllabi or their assignment descriptions. They were also surprisingly infrequent in assessment reports, where IL is a core competency to be assessed with regularity. In instances where IL was discussed, it was often listed as a singular outcome, i.e., "Students will demonstrate information literacy." In the focus groups, they often talked of IL learning as a process that occurs through osmosis, an underlying skill woven into writing or critical thinking assignments.

The tacit nature of expert practice is central to the threshold concepts behind the *Framework* (ACRL, 2016; Hofer, Townsend, & Brunetti, 2012). There is perhaps potential for librarians to work with disciplinary faculty to identify these tacit practices and concepts, and use the tools of IL to begin to name and identify these understandings in order to teach them to novice learners (Townsend, Hofer, Hanick, & Brunetti, 2016). In an institutional ethnography of IL instruction, LaFrance (2016) states, "Librarians and [first year writing] faculty alike may willingly embrace a key term [information literacy] to demonstrate their desire to serve students and a campus community but may do so in ways that diverge from the pedagogical currents of national statements and more recent research-driven findings about effective practice" (p. 119). Because IL research has been generally siloed within library/information

science research, these national standards and best practices may be exciting tools for professional development for disciplinary faculty. Concepts taught, or desired to be taught, by Fresno State faculty include evaluation, synthesis, and ethical use of information, all of which have rich pedagogical practice behind them within the library community. Carrying these practices beyond the library may yield impactful results in IL instruction outside the library.

Implications for Practice

Evidence and findings from this study are being used to inform several initiatives. Collaborations with the institutional research office, members of the Library Subcommittee of the Academic Senate, instruction librarians, and the Center for Faculty Excellence are resulting in the development of new services, resources, and instruction models to support IL competency in students. An IL breakout session has been offered for two years at the new faculty orientation, and the lesson plan from this session is being used to design a mobile professional development course that can be offered to departments, colleges, and other units.

Other methods to formalize and institutionalize IL are also being explored, including a credit-bearing IL course and inclusion of IL in the general education curriculum.

Limitations

While the design of this study attempted to address challenges related to self-reported data (survey and focus group results) through a triangulation approach also including assessment reports, limitations remain. Access to additional documents related to faculty teaching and learning would have been ideal. This includes the use of syllabi, but syllabi are not systematically collected at Fresno State. Observational data and data from students would also be useful, and may lessen social

desirability bias concerns for self-reporting of teaching practices (Kopcha & Sullivan, 2007), but privacy and academic freedom concerns limit access to these data sources.

While an aspect of this study focuses on the implicit IL teaching practices of faculty, it must be acknowledged that IL, writing, critical thinking, and many other literacies or academic competencies are sometimes difficult to delineate. For example, when reviewing assessment reports, the act of creating a “new” information product, such as a term paper or slide presentation, may be considered an information practice. However, the information skills necessary to successfully complete these assignments may also be treated as writing, oral communication, or visual literacy skills. While it is useful for librarians to view these assignments through an IL lens, disciplinary faculty may view these from a more holistic perspective, and use tools, services, and resources outside the IL domain to teach these skills. This may also limit what pedagogical practices faculty view as IL practices. Further research into this area may be particularly rich for librarians in understanding faculty IL practices.

This study was undertaken as institutional research, and as such, the results are limited to a small sample size at a single institution, limiting the generalizability of the findings. The tools used to conduct this survey are free to use, however, and it is hoped that further research at other institutions will lead towards additional findings that can inform librarians’ support of their disciplinary faculty’s IL teaching practices.

Conclusion

Investigating methods to increase librarians’ ability to support student development of higher order IL skills, the IL teaching practices of disciplinary faculty were investigated. Using a data/methods triangulation approach, a survey of faculty was administered; focus groups were held; and assessment reports were analyzed. The goal of this approach was to discover how

faculty are currently implementing IL into their teaching practice; what standards and other IL resources they are using to do so; and how they value IL for their students, both within the classroom and post-graduation. While many studies have investigated disciplinary faculty perceptions of IL, this study adds to a very small body of literature by situating these perceptions not in the value of *librarians* teaching IL, but through faculty's own perceptions of IL within *their* teaching work. This is particularly relevant to the goals of the *Framework*, which emphasizes collaboration and the transdisciplinary nature of IL (ACRL, 2016). To do this work, librarians must understand how the *Framework* and IL fits into the nature of their partner faculty's existing teaching practices. An even smaller body of literature has attempted this investigation within the *Framework* context (see Dawes, 2019 and Dubicki, 2019).

Results revealed that faculty value IL highly, particularly for students post-graduation, and that disciplinary faculty view IL as within their teaching domain. This confirms prior research into the value and teaching responsibility of IL (Bury, 2011; Saunders, 2012; Weiner, 2014). Additional findings extend this work by discovering that faculty may not be aware of or use IL standards or resources to help make IL skills and concepts explicit. In addition, while previous studies confirmed that faculty view IL instruction as their domain, this study provides new information into *how* disciplinary faculty do this work, through acceptance and application of existing IL resources, IL learning outcomes, and assessment activities of IL. As much of this work is revealed to be implicit, disciplinary faculty may be intrigued by the potential of threshold concepts within IL as well as their discipline, towards developing expertise in research and information use for their students.

These findings provide evidence for several ways forward for librarians at Fresno State to support disciplinary colleagues' IL teaching practices, including the creation of an IL-credit bearing course; workshops and other services

and resources to develop disciplinary faculty's tools for IL teaching; and working with disciplinary faculty to formalize IL teaching towards promoting student IL development.

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