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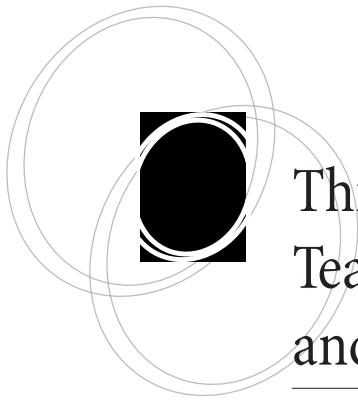
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Lorna Dawes

abstract: This study investigates faculty perceptions of teaching information literacy. Using 24 semi-structured interviews, a phenomenographic approach identified four qualitative ways in which faculty experienced teaching information literacy (IL). This paper analyzes the challenging information literacy concepts that faculty identify—known to many librarians as *threshold concepts*—and their relationship to the Association of College and Research Libraries (ACRL) “Framework for Information Literacy for Higher Education.” The study highlights the transdisciplinary nature of IL instruction and indicates that, although unaware of the ACRL Framework, faculty already teach at least three concepts from that document. This finding suggests new opportunities for collaborations between librarians and faculty.

Introduction

While the Internet and social media have improved access to information, teaching students how to manage and evaluate information has become increasingly complicated. Library organizations and governing bodies have responded with drastic revisions of their standards and have embraced a more integrative information literacy (IL) pedagogy. The Society of College, National and University Libraries (SCONUL), an organization of academic and national libraries in the United Kingdom and Ireland, revised its standards to accommodate the teaching of information literacy through different lenses.¹ In the United States, the Association of Colleges and Research Libraries (ACRL) replaced its skills-based “Information Literacy Competency Standards for Higher Education” with a conceptual approach to IL founded on the theory of threshold concepts. A threshold concept, according to the British educators Jan Meyer and Ray Land, is a disruptive, challenging concept that is difficult to understand and without which it is impossible to proceed to further knowledge.² Attempts to grasp these

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concepts can thrust learners into a “liminal state”—that is, an intermediate or transitional condition in which they struggle with the new concept. To compensate, students may engage in “mimicry” or lack of authenticity until they finally reach a new understanding.³ ACRL developed the “Framework for Information Literacy for Higher Education” (hereafter cited as the Framework) through the identification of threshold concepts that relate to IL.⁴ If these concepts are taught in the classroom, students may then gain a new understanding of information use and become more aware of the complexities involved in finding and evaluating the information they need in their academic and social lives.

The Framework identifies four key IL concepts, also called *frames* and *dispositions*, that focus on transforming student’s behaviors and attitudes toward more effective information use. ACRL developed the document in response to the rapid changes in information formats and the resulting need for new approaches to navigating the digital information environment.⁵ The Framework acknowledges the student’s dual role as a consumer and a knowledge creator, and it advocates for the understanding of broad information concepts to engender in students a more critical approach to IL teaching and learning. Since the introduction of the Framework, librarians have used it to develop and revise their IL instruction and to further integrate the teaching of IL as a part of the disciplinary teaching in the classroom.

Many librarians use the Framework to explore critical pedagogies that embrace a more democratized classroom. Katelyn Angell and Eamon Tewell employ this approach to teach students how to evaluate sources and question authority,⁶ and Lua Gregory and Shana Higgins apply it to address issues of social justice and student agency.⁷ Dorothy Mays uses all six frames to focus on creative thinking and the critical analysis of the research problems that students encounter throughout a capstone community engagement project, as they learn how to access and use sources other than periodicals.⁸ The Framework’s application to music is evident in Erin Conor’s use of the frame “Scholarship as Conversation” to help music students identify references to key texts and disciplinary debates in their sources.⁹ Using the literature review as a window into the scholarly conversation, the frame helped students “see themselves as meaningful contributors to an ongoing debate” and resulted in more meaningful research questions and projects.¹⁰ Allison Hosier’s application of the concept of “Scholarship as Conversation” confirms its relevance in teaching students how to view a bibliography as more than a list of sources. Hosier focused her teaching on the “rhetorical aspects of research,” requiring students not only to understand and analyze the content of the information but also to explain the role the information plays in the larger scholarly conversation.¹¹ This analysis inevitably helps them to understand the “uncertain information ecosystem” in which they must participate.¹²

Librarian instructors not only have successfully incorporated the Framework into individual lessons¹³ but also have used it to impact library instruction assessment programs and other course curricula.¹⁴ Brittney Johnson and I. Moriah McCracken discuss how the threshold concepts of writing studies intersect with the ACRL frames, revealing a shared pedagogy that opens the door for more collaborative teaching opportunities involving librarians and the composition and rhetoric faculty.¹⁵

Since its adoption in 2016, the Framework remains the most recent emendation of the standards developed by ACRL.¹⁶ This paper maps faculty conceptions of teaching



information use to the Framework to see how its ideas translate to disciplinary teaching in the classroom. This paper uses data from a previously published article by Lorna Dawes titled “Faculty Perceptions of Teaching Information Literacy to First-Year Students.”¹⁷ Whereas the earlier paper discusses faculty conceptions of teaching information literacy, it does not examine faculty’s relationship to other IL conceptions. Indeed, one recommendation arising from that paper was that, using the data collected, faculty conceptions be examined in light of the Framework. The two papers are related only in that they originate from the same research study data. This paper attempts to see how the Framework applies to first-year curriculum by answering the following questions: What do faculty identify as the most important IL concepts, known in the library literature as IL *threshold concepts*? Are the IL threshold concepts identified by faculty similar to those outlined in the Framework, and have faculty identified any other IL threshold concepts that may not be currently addressed in the Framework?

Faculty Conceptions of Information Literacy

Faculty relationships with libraries and librarians are complicated and influenced by a variety of factors, including their discipline;¹⁸ their personal philosophy and experiences with information;¹⁹ the overall “faculty culture” within departments;²⁰ and faculty perceptions of information literacy. Studies indicate that faculty understand the importance of library IL instruction

and that they value sessions conducted by library professionals although they may not always take advantage of these services. Jacqui Weetman Dacosta, in an examination of faculty perceptions of information literacy, found that though faculty did not

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actively teach IL skills, and though they seldom requested IL sessions or initiated collaboration with their librarians, they still acknowledged the importance of those skills.²¹ Christina Nilsen surveyed postsecondary teaching faculty in Canada to examine faculty perceptions of library-led IL sessions and found similar attitudes.²² Canadian faculty rated IL skills as important, but nearly half the faculty stated that they did not regularly request library IL sessions for their students. Laura Saunders and Eleonora Dubicki, in a closer examination of faculty conceptions of IL, found many tangible examples of IL instruction and learning in the teaching practices of their faculty.²³ Their observations confirmed that many teaching faculty do perceive information literacy as integral to their courses and accordingly incorporate IL into their learning outcomes.²⁴

Many researchers have attempted to investigate teaching faculty’s perceptions of information literacy by examining the teachers’ understanding of library terminology or standards,²⁵ faculty attitudes toward information literacy definitions and the relationship of teaching faculty with the library faculty and services,²⁶ or faculty connections with campus-wide IL programming.²⁷ Few researchers, if any, have directly investigated faculty’s conception of information use or of teaching information use.

Christine Bruce's *Seven Faces of Information Literacy* and a study of English faculty by Stuart Boon, Bill Johnston, and Sheila Webber describe some of the conceptions of information literacy held by teaching faculty.²⁸ Both studies found similar conceptions relating to accessing textual information; using information technology to retrieve information; and becoming confident learners and thinkers. Bruce's findings, however, identify a more critical dimension of IL that challenges the learner's information behaviors and encourages deeper learning. In 2013, Eleonora Dubicki found that faculty spoke of information literacy as synonymous with critical thinking and research and infused these skills into their disciplinary teaching and the learning outcomes of their courses.²⁹ This critical engagement with information is similar to that identified by Jonathan Cope and Jesús Sanabria, who found that faculty conceive information literacy to be the critical thinking, reflection, and synthesis that they routinely teach as a part of their disciplinary content.³⁰ These researchers identified a "textual theme," in which faculty encourage students to interrogate the text to create their own meaning and interpretations. Sophie Bury, examining faculty conceptions of the value and meaning of information literacy, notes that, in addition to defining IL in terms of the ability to find and evaluate information, faculty emphasize a more inquisitive, analytical approach to evaluating information.³¹ Like faculty in Cope and Sanabria's study, they teach students to use information effectively while teaching them the content.³² Heather Perry's study in 2017 also found this to be true: faculty placed less emphasis on how students located and accessed information, explaining that they were most concerned with the students' ability to differentiate between primary and secondary sources.³³ To these faculty members, IL was seen as the ability to question the literature, critique the research, and identify relevant primary sources. These studies all reflect a conception of IL that is connected to a more subjective research and critical thinking process, rather than to a specific skill set that teaches students how to search for and assess information.

Background to the Framework: Threshold Concepts

In 2016, ACRL adopted the "Framework for Information Literacy for Higher Education" and moved away from the previous narrow and prescriptive "Information Literacy Competency Standards for Higher Education"³⁴ to an approach "based on a cluster of

Through the introduction of the Framework, ACRL has attempted to move toward a more flexible and integrative approach to teaching information literacy that accommodates a variety of interpretations and applications.

interconnected core concepts."³⁵ The Framework was outlined in six frames: (1) "Authority Is Constructed and Contextual"; (2) "Information Creation as a Process"; (3) "Information Has Value"; (4) "Research as Inquiry"; (5) "Scholarship as Conversation"; and (6)

"Searching as Strategic Exploration." These frames embodied IL concepts that are more adaptable to the new digital information culture and environments that lead students to connect with many different information formats and modes of delivery.³⁶ In addition to

identifying six frames, the Framework also introduced a focus on metacognition—that is, awareness and understanding of one’s own thought processes. It addressed the affective and behavioral aspects of information literacy through “knowledge practices” and “dispositions.” Through the introduction of the Framework, ACRL has attempted to move toward a more flexible and integrative approach to teaching information literacy that accommodates a variety of interpretations and applications. ACRL has rescinded the Standards and acknowledges that the Standards and Framework are different tools and serve different purposes. The Standards outlined what tasks the student was expected to master to become an “information literate individual.”³⁷ The Framework, in contrast, concentrates on how learners behave in diverse information environments and seeks to help them become more aware as they gather and make sense of information.

Amy Hofer, Lori Townsend, and Korey Brunetti began, in 2011, to connect information literacy with threshold concepts and published three important papers that provided the impetus for the ACRL Framework.³⁸ The six concepts in the Framework were refined over two years through multiple discussions with librarians and teaching faculty, and went through many revisions and iterations. Nevertheless, Patrick Morgan finds the origin of the concepts problematic and refers to these studies as “collective navel-gazing.”³⁹ Morgan contends that the use of librarians throughout the research process, first as survey respondents and then in the coding and analysis of the results, may have unduly influenced the findings. He suggests that the six concepts identified by Townsend and set out in the Framework may not be an accurate interpretation of the IL threshold concepts that need to be addressed, implying that other IL threshold concepts exist. Hofer, Townsend, and Brunetti later acknowledged this suggestion.⁴⁰ Virginia Tucker, Judith Weedman, Christine Bruce, and Sylvia Edwards reiterate the idea when they identify four more specific threshold concepts that relate to searching strategies. They provide evidence that the list of six IL concepts in the Framework is not exhaustive but merely an identification of the most fundamental IL threshold concepts now.⁴¹

The Threshold Concept Metaphor

Proponents of the application of threshold concepts to the teaching of information literacy continue to formulate their own interpretations of the threshold metaphor that Meyer and Land articulate as a disturbing liminal stage of cognitive transition from a place of unfamiliarity to one of understanding.⁴² This transition over the threshold, according to Meyer and Land, is irreversible, troublesome, transformative, integrative, and sometimes bounded—that is, isolated—within a particular subject or discipline. Wendy Holliday explains in her discussion of the use of metaphoric language in the Framework that when the threshold is interpreted as a crossing from one place to another, this interpretation can inadvertently become transformed into a Standards-based approach to teaching and learning. Such an approach focuses on moving the learner from a place of ignorance to one of mastery—a “standard” place of understanding.⁴³ She further suggests that, if the threshold is seen as coming from a bounded place into the open, much like a liberation from a previous misunderstanding, such an interpretation enables the Framework to be used to create a new approach to IL instruction. This new approach is framed by certain concepts but is still contextual and socially contrived, so

that the end product is less measurable and identifiable than if it were a standard with a fixed, irreversible outcome. The Framework does in fact allude to this interpretation, referencing an "information ecosystem" to be navigated. The Framework then proceeds to outline the resulting practices, abilities, and dispositions to be viewed not as learning outcomes but as a process that moves students into new experiences and attitudes to information use, as varied as the information environments themselves.⁴⁴ Ian Beilin's more nuanced view sees this "threshold" as entering into the beginning of IL knowledge where learning begins as a critical analysis of the concept that has been mastered. He contends that, unless the Framework emphasizes collective action to impact social change, it continues to resemble the Standards in its emphasis on individual mastery of concepts, attitudes, and behaviors associated with a particular system and community. He refers to these as "habits of mind" that are necessary if one is to contribute to a community.⁴⁵ He sees the frame "Scholarship as Conversation" as complicit in teaching students how to conform and think within a discipline, without addressing how issues of power impact information access and dissemination.

Numerous studies have analyzed and applied individual frames to IL instruction. Conor uses two frames to teach music information literacy.⁴⁶ Kevin Seeber's study, together with the investigation by Angell and Tewell, highlights the Framework's ability to incorporate a more critical pedagogy and introduce metaliteracies that support the collaborative creation and exchange of information by recognizing the influence of society on the production, publication, and dissemination of information.⁴⁷ Julia Bauder and Catherine Rod provide numerous examples of IL instruction that implement a critical pedagogy.⁴⁸ Christine Pawley as early as 2003 talks about "citizen participation" that should occur when students engage as consumers and contributors in information environments.⁴⁹

The Framework is designed for IL instruction to be more adaptable to social and cultural behaviors and interpretations. Craig Gibson and Trudi Jacobson applaud the way the "Scholarship as Conversation" frame gives students opportunities to think about their environment and behavior as they experience new information and investigate and

contribute to the "dynamic flow of the exchange of ideas over time."⁵⁰ Here the threshold metaphor could be more accurately interpreted as struggling through a path to increased understanding. The understanding is not complete, but it is a product of cultural and social influences and open to various interpretations and applications that require a complex and critical analysis. The Framework is also commended for the way it encourages students to "think about sources rhetorically,"⁵¹ understand-

The Framework is designed for IL instruction to be more adaptable to social and cultural behaviors and interpretations.

ing that, as they create their own information, their choices in the creation will impact the way they use the information. In this way, for example, the frame "Scholarship as Conversation" invites students not only to participate in the conversation but also to be critical of other conversations. This increased awareness of the social and cultural factors that impact how information is dissipated and used in communities involves a critical IL pedagogy that, Nancy Foasberg says, gives students permission to explore



how information is valued and critiqued within a community.⁵² Nicole Pagowsky, in scrutinizing how the frame “Information Creation as a Process” addresses marginalized voices and their relationship to information production, demonstrates how easily the Framework can facilitate discussions that involve more complex questions. These questions, in turn, lead to deeper learning and information experiences that are transferable and more meaningful.⁵³ The Framework, according to Mays, is designed to meet the IL needs of the new competency-based education and, in doing so, moves students outside the narrow realms of a database search to a research process that involves a quest for a variety of information formats and artifacts.⁵⁴

Even before the Framework was introduced, Maura Seale mentioned the ineffective text-based focus of the Standards that failed to address the influential and complicated power relationships involved in the production, dissemination, and assigned value of different information formats.⁵⁵ The ability of the Framework to engender a more subjective approach to information literacy, as Gibson and Jacobson state, offers a “spectrum of possibilities” for teaching.⁵⁶ The Framework allows for generic IL concepts to be adapted to a variety of instructional opportunities, ranging from the redesigning of entire courses in any discipline, through the teaching of single IL sessions, to the planning of individual assignments that focus on one or two frames.

The Framework and Learning Outcomes

Two welcome deviations from the previous Standards are the capacity of the Framework to facilitate the teaching of concepts that are more applicable to conversations around pedagogy and the Framework’s ability to accommodate a more seamless integration of IL instruction into disciplinary content. Emily Drabinski and Meghan Sitar caution that, if the frames are seen as “foundational” and the threshold metaphor is interpreted as moving from one fixed space to another, these conceptions may inadvertently restrict the scope of acquiring IL to the learning of specific frames. In this way, the Framework would become just another list of standards that instructors should aspire to teach.⁵⁷ Meyer and Land insist that understanding threshold concepts is not a finite, linear process but is achieved “by redesigning activities and sequences, through scaffolding, [and] recursiveness.”⁵⁸ Megan Oakleaf, in her paper on student learning and the Framework, interprets Meyer and Land as saying that it is difficult to use threshold concepts to write learning outcomes because these broad, abstract concepts allow for much variation in learning achievements at the end of the process. She understands Meyer and Land to say that, unlike learning outcomes, threshold concepts cannot be taught and assessed in the same way that the Standards were.⁵⁹ Oakleaf disagrees with this view and proposes that these concepts can be individually assessed if certain approaches to assessment are taken. In this way, she argues, threshold concepts may be used as learning outcomes. She suggests that, first, by providing feedback to help students pass through “stuck places” and then by making provisions to assess the differing routes the students take to their new understanding, relevant assessment can then focus on evaluating the resulting transformative ideas and metacognition that have taken place. Rebecca Kuglitsch seems to support this view as she expounds on the value and importance of teaching transferable skills and the way such teaching allows students to use their subject knowledge to contextualize and apply the IL threshold concepts.⁶⁰

IL threshold concepts are a component of all disciplinary learning objectives. Due to their integrative nature, they should not stand alone as separate learning outcomes. The Framework itself states that its application is much broader than that of learning outcomes, thus acknowledging that the implementation of threshold concepts will take time if they are to shape not only individual lessons but also course and curriculum changes.

Methodology

Phenomenography is a research method commonly used in the social sciences to investigate how a group conceives and experiences a phenomenon. It differs from phenomenology in that it does not investigate the phenomenon itself or attempt to define the phenomenon. Instead, it is solely interested in how the participants interact with and relate to the phenomenon.⁶¹ In the qualitative approach of this study, data are collected through semi-structured interviews. The analysis consists of iterative readings and coding to identify patterns and common themes in the transcripts that epitomize the participants' experiences with the phenomenon under investigation. This study analyzes faculty's experiences with teaching information use. It describes these themes and patterns as "categories of descriptions" (articulated via quotations) and presents the relationships between these categories of description as an outcome that describes the group's conception of the phenomenon under investigation.

Survey data were collected as described in the 2017 article by Dawes.⁶² The author collected data via 24 semi-structured interviews with faculty of various genders and ranks, in a wide range of disciplines, and with a broad range of teaching experiences. All the subjects taught three-hour credit courses to first-year students (see Table 1). The interviewer used an intentional-expressive approach, similar to that explained by Samantha Sin, to focus on the subjects' intended meanings, encouraging them to describe their experiences and to reflect and clarify concepts or terminology.⁶³ The interviewer, who is a librarian, avoided library terminology and employed the term "effective use of information" in lieu of the phrase "information literacy," giving faculty the opportunity to provide their own descriptions and limiting the influence of the interviewer. Interviewees were asked to describe how they approached teaching the "effective use of information" and to explain what this meant in the context of their course objectives. The interview guide consisted of eight questions that focused on the teaching of information use, the pedagogy, and the assessments in the course. The researcher analyzed the transcripts using an inductive thematic approach, drawing conclusions about themes from the information gathered. She took several close readings and cycled through a process of repeatedly moving between analysis and reading. She extracted words and phrases employed to describe the teaching of information use and student learning and then grouped them into categories of descriptions. The results from questions one to six yielded four conceptions of teaching information literacy that were explored in the 2017 article.⁶⁵

This paper focuses on the results from questions seven and eight: "Can you think of any key concepts or big ideas that you think your students struggle to understand in relation to information use in your class?" and "How do you know when students have used information effectively in your class?" The researcher analyzed the subjects'

Table 1.

Demographics of participants

Gender	10 female; 14 male
Discipline	Science 11; social science 5; humanities 8
Rank	Tenured professors: 4 full professors, 7 associate professors, 4 assistant professors *Professors of practice: 1 professor, 2 associate professors, 2 assistant professors Lecturers: 3 Postdoctoral research associate: 1
Years teaching first-year students	From 3 to 24 years
Years teaching the course	From 1 to 15 years

* The title “professor of practice” is usually held by a non-tenure track faculty member with a high teaching apportionment.

answers to identify the main concepts relating to information use that faculty found difficult to teach. These two questions forced them to select the most critical concepts relating to information that students struggled with and that hindered understanding of information use. The author then compared these concepts with the frames from the Framework to identify new IL concepts or refine the existing frames.⁶⁶

Results

Four faculty members found it difficult to differentiate between issues that related to information use and issues that related to understanding the subject content. The remaining 20 faculty, however, clearly articulated five “big ideas” or overarching concepts relating to information use that they identified as the most difficult to teach and the hardest for students to understand (see Table 2). This paper refers to these concepts as possible threshold concepts relating to information use. Faculty see these aspects of information as having an impact on the students’ ability to manage and make sense of the information they encounter. Interview quotations will elucidate the threshold concepts, identifying faculty by their rank and discipline, for example, “associate professor, biology.”

Information Is Part of a Discourse

That information is part of a larger conversation is a concept that many faculty identify as one of those “big ideas” that students find difficult to understand. Specifically, they speak of students concentrating on minutia, lacking ability to see the “big picture,” and failing to understand the larger purpose of their information quest. Instructors talk about

Table 2.

Information literacy threshold concepts identified by faculty

Information is a part of discourse.

Information is an exchange of ideas between researchers and scholars or between content producers and content learners, and these exchanges occur through a variety of formats and forms.

Information consists of multiple competing narratives.

Information is composed of facts and ideas that are equally valuable and have one purpose, which is to further one's understanding or increase knowledge. Disparate information or conflicting ideas are as important and as valuable as similar ideas.

Information value and credibility are socially and contextually derived.

Information can have different value in different contexts and is subject to social context and disciplinary standards of credibility and relevance.

Cite ideas and concepts, not text.

Analyze and reference the message, ideas, and concepts that are under discussion, but do not copy the language that is used to convey the ideas.

Information receivers need to become information generators.

The major purpose of using information is to increase knowledge and generate new information.

That information is part of a larger conversation is a concept that many faculty identify as one of those “big ideas” that students find difficult to understand.

students' inability to understand how the information they encounter in the course fits into larger conversations within the discipline. This lack of understanding is most evident in how students “read” the textbook and value the content of the lectures. One lecturer explains that the students “are very much focused on

the high-stakes game of getting the highest grades they can, rather than the experience that they're gaining” (lecturer, geography). Students in the liminal state of this threshold concept seem unable to identify, value, and appreciate all the voices in the discourse. Instead, they become overwhelmed by the volume of available information and cannot move on to evaluate the quality or relevance of the information to their specific needs. A life science professor describes his frustrations with textbooks

that contain too much information. Students, he says, “struggle with how to use the textbook and how to read it and what do they view as important when they read a textbook versus what does an instructor or expert view as important” (assistant professor, biology education). The professor is aware that the students do not yet understand the existing relationship between the textbook and the larger discipline discourse, comment-



ing, “So, they’re not viewing the textbook as . . . coverage or as exposure to a topic.” Consequently, students fail to understand the purpose of the textbook and where it fits into their learning. Another member of the life science faculty explains this challenge in terms of teaching concepts and applying formulas. He tries to identify exactly why the students struggle with a concept, a condition that he characterizes as “swimming in the numbers.” He suggests that they may not see the big picture and explains that they seem to be in search of a “magic formula.” They fail to see the information in conceptual terms, which he calls an ability to think “both ways”:

They’re just swimming in the numbers. I think they’re struggling . . . They’re not seeing the big picture. They’re struggling, they’re trying to find the magic formula if they can do it, and once you kinda conceptually see the bigger thing then . . . you realize . . . how you have to think about it this way or that way, and I have not backed down from getting them to kind of think about it both ways.

(associate professor, biological science)

The faculty member recognizes how important it is for students to understand that the information they use is part of a larger body of work. As students begin to grasp this concept, they gain a more comprehensive understanding of the subject as they connect the information from the lectures with the textbook. One professor says, “They have watched the lectures, and they are putting the pieces together, and that’s the definition, my definition of success is putting those pieces together” (associate professor, biological science). Students also begin to demonstrate an increased engagement with information that goes beyond learning by rote:

When I see not even correct answers but just answers where there is a train of logic and there is an articulation of reasoning that maybe is incorrect but is at least internally somewhat coherent. I feel like students are at that point at least wrestling with information in a way that I want them to and they’re engaging with the information.

(assistant professor, biology education)

Information Consists of Multiple Competing Narratives

When students are confronted with complexity and dissonance in scholarly conversations, they begin to struggle to analyze and evaluate divergent voices. They become wary of holding strong opinions and refrain from challenging or questioning the texts, thus becoming inactive in the conversation. One lecturer tries to address this liminal stage as the students use the textbook:

So, one of the approaches is to have them question the book. Instead, a lot of them have the instinct to take what the book has said for gold, “So the book said it, and so it’s true.” So, questioning, and even if it is true, having them kind of grapple with the questions [and] the implications of the ideas [within the book].

(lecturer, English)

Another facet of the liminal state becomes evident as this lecturer shares the frustration she encounters when students struggle with the notion that there are more than

two sides to an idea: "They think that all issues have two sides, and I want to say, they have lots of sides, you know, and so just getting them beyond the binary is one thing . . .

Understanding is reached when the student can develop a narrative that includes and values all the voices, while still injecting his or her contributions to the conversations.

I guess is one of my frustrations." Students seem unable to make sense of, or understand the value of, so many conflicting voices in the conversation and how they themselves can contribute to an already active discourse. Understanding is reached when the student can develop a narrative that includes and

values all the voices, while still injecting his or her contributions to the conversations. Students achieve comprehension when they move past the "binary" agree or disagree, right or wrong approach and enter into a deeper analysis of multiple views and opinions.

Value and Credibility Are Socially and Contextually Derived

Faculty frequently describe difficulty in teaching students that concepts relating to information value and credibility are more complex than simply crediting value to specific sources and formats. They try to teach students to understand that the value of the information is contextual and socially assigned, and its credibility is primarily determined by the values, conventions, and standards within specific communities and within their discipline. In the liminal stage of this concept, students have difficulty understanding that information can be true, scholarly, valid, and even reliable but still irrelevant or without value in their specific context. In such cases, students have difficulty: (1) identifying information that is suitable evidence to support arguments; (2) understanding the value of normative and empirical information; (3) understanding the relationship between relevance and value; (4) assigning value to information that is available in nontraditional formats; and (5) weighing the influence of genre and other writing conventions on the value of the text. Some faculty argue that the easy access to data on the Internet can either overwhelm students because of the number of "hits" they get or give them a false sense of having found valuable information. According to one English professor, students lack the tools or skills to work through the data and to understand exactly what is valuable and what is not:

Something pops up on Facebook. It doesn't always seem to get framed in their writing early in the semester any differently from something that comes through the *Lincoln Journal Star* . . . It all gets framed in terms of where they found it, "I found this on Facebook, I found this in *Lincoln Journal Star*." You know, "I found this in the *New York Times*, I found this in a *Psychology Today*." Right? It's all pieces of information, which is true, but again I'd like them to have some sense that has evidence for certain kinds of arguments. It gets weighed differently because of the different kinds of publication channels that are out there.

(associate professor, English)

In this situation, when providing evidence for their argument, students give equal value to information without giving any thought to its relevance or credibility within



a context. They fail to understand the impact that the publication process has on the value and trustworthiness of the information. Without this understanding, they not only are overwhelmed by the “glut” of unfiltered information but also cannot identify reputable resources that are relevant to the current paper or discussion. They are unable, one research associate reports, “to really be able to say at the end of the day, ‘This source is not worthwhile, or the source is not the best source, or appropriate source, this is not the correct source, or this source can be used, but to a certain degree this source doesn’t fit into discussion and what I’m doing’” (research associate, sociology). The associate adds, “The information is there, especially in today’s society, but using it, it’s the use of the information that’s really the challenging part, teaching students that it’s there, but it’s how you use it.”

Another instructor explains how students need to master how to use contextual filters to evaluate for credibility and “relevance, but even more importantly, accuracy” (associate professor, social science). The only way to address this, she argues, is to get students to read slowly and take time to interrogate the text looking for answers to their own questions. A complication is the inability of students to differentiate between empirical information, verifiable by observation, and normative information, which states how things ought to be, and to know which type of information is necessary and valuable for their research. These abstract and philosophical concepts have become, after years of training and practice, almost intuitive to faculty but take students some time to understand:

A complication is the inability of students to differentiate between empirical information, verifiable by observation, and normative information, which states how things ought to be ...

It’s actually, this is really funny, ‘cause I think this empirical-normative distinction is a big deal. I mean it seems really intuitive to me, but in fact, some of the students just can’t grasp that distinction for the longest time. Usually they do by the end, but it’s really interesting to me how long it takes them.

(professor, philosophy)

Faculty members agree that there are no concrete or consistent rules that apply in the same way to every piece of information. In college, evaluation requires a more subjective approach than students previously learned in high school. Students must, in addition to judging the legitimacy of the publication process, learn to negotiate the evaluation that grants information different degrees of importance. One member of the faculty—an assistant professor of practice (a non-tenure track faculty member with a high teaching apportionment) in communications—describes what it looks like when students use information from interviews with business owners. The professor reports that students “just assemble information without thinking or analyzing it to decipher whether or not it’s strong information.” The instructor tries to encourage the students to “dig deeper” by analyzing the business owner’s intent and to subsequently take it into account as they assess the value of the information.

Students are unable, according to a sociology research associate and instructor, to “evaluate reputable resources and their relevance to the current paper or discussion. They need to learn how to be selective in their choice of sources” (research associate, sociology). Members of the faculty also try to explain how information content is impacted by modes of delivery, literary traditions, and conventions. Applying a critical eye to information is integral to assessing the information’s value. This becomes evident in English courses, where students have been trained to think literally, and they lack awareness that “if it’s a literary text, it follows certain expectation and conventions” (assistant professor, English). They do not know that different literary genres require different critical approaches to the use and evaluation of the texts: “I guess it’s difficult because in the primary and secondary level . . . I think there’s a certain literal-mindedness encouraged, really. I think that, to me, the most troubling aspect of working with students today is there is a certain literal-mindedness that’s been cultivated” (assistant professor, English). Evaluating the information cannot be achieved by simply completing a rubric or following a sequential list of requirements but requires a more convoluted analysis of purpose, format, genre, and publication processes.

Cite Ideas and Concepts, Not Text

Few faculty mentioned plagiarism as a concept that students found difficult to understand, but they referenced the students’ inability to understand that they were citing ideas and not sources. Faculty spoke of plagiarism in terms of the students’ failure to recognize the text as an accurate record of a community of voices in a conversation. The liminal state is evident when students deliberate on whether to cite something they have read: “Sometimes they won’t understand that they need to actually include a reference when they’re talking about something that’s mentioned in a textbook or quoting from the textbook” (associate professor, philosophy). Faculty speak of students wanting a formula or a set number of sources because they do not understand that the requisite number of sources is reached when their purpose—that is, relevant critical context and support for their work—is achieved. “They want hard and fast rules, even the number of sources, and I say, ‘Well you have to decide how many are really appropriate,’ and you know they hate that” (associate professor, English). Acknowledging this uneasy state, the professor perseveres and watches as the students learn “to see the value in their research and so have the intrinsic motivation to look for sources until they find what they need to create a good product” (associate professor, English). Students who understand this concept, according to these instructors, become more engaged in their work and are on their way to becoming more independent and more responsible for their learning.

Information Receivers Need to Become Information Generators

The big idea or threshold concept here is for students to understand that they should not reproduce information verbatim but should interpret, analyze, and shape it by their own ideas into something new and relevant to the conversation. Faculty share how challenging it can be for students to do something creative with the information they receive. One lecturer explains that he tries to teach students to use the lectures and textbook to create their own individualized study guides: “I want them to become more critical



thinkers . . . They're responsible for their own learning . . . Too many students have learned to be receivers rather than generators, and I'm trying to change that in my classes" (lecturer, geography). A research associate in sociology explains why this is difficult for students and suggests that their inability to think critically prevents them from understanding what the writers are saying, which makes it even more difficult for them to make valid contributions to the discussion:

I always tell them at the end of the day, you can't oppose an issue or an argument and you have no ideas. It's not a healthy way to have a debate, because you're going with your gut feeling, and you may be right, but at the same time, you have to appreciate the other side. Because even in appreciating the other side, it could be supporting your side as well.
(research associate, sociology)

To help the students develop their own sense of the information they encounter, teachers try to convey to them that information cannot stand without analysis and application. An English lecturer explains, "The central goal I stress is that we are not computers that take in information for the sake of repeating that information verbatim. We take in information, and as we do so, we shape it, making sense of it and applying it through our own understandings." This faculty member regards the students' inability to be analytical as, in part, the fault of the "five-paragraph essay" format taught in high school, which trains students to just "find proof and drop it in there, and just let it back up your point" instead of encouraging students to examine the information and how it supports their argument. Students struggle to recognize and value the agency in their own voices and in their writing. One professor tries to address this challenge by allowing students to discuss the subject content in small groups. He finds that, although there are sometimes a few engaging discussions, most students cannot use the information they have received from lectures and the textbook to engage in "good" conversations and further their own understandings:

I think students are still learning how to use each other as resources . . . and I can see that there are small pockets where no conversation is going on, and then of course there are distractions as well. But I think students are still kind of learning what are good conversations to have and how they can work with somebody who they may or may not know very well to think through a problem and draw in relevant information that's been presented to them before in class, or in the textbook.

(assistant professor, biological science)

One faculty member describes this phenomenon as students "becoming innovative": "I'm asking them to innovate, to come up with ways of using information that suits their own purposes that aren't argumentative . . . It's difficult to teach that because the responsibility is on the student to innovate" (assistant professor, English). Another faculty member refers to "discovery moments" when students realize that they have permission to interpret a text and add their own meaning to the information as they

Students struggle to recognize and value the agency in their own voices and in their writing.

analyze it. The goal, the instructor says, is to ensure that the students are “not taking for granted how they interpret something versus how others might interpret it” (lecturer, English). The learners begin to value their own ideas and develop greater confidence in their understanding of the subject content.

These five threshold concepts that relate to learning information literacy seem to center around the difficulty students have analyzing information as a part of a larger active discourse. Related to this challenge are the struggles students encounter as they identify and evaluate quality conversations and the difficulty they have in acquiring the skills and attitudes they need to become more active participants in their own learning.

Discussion

This study attempts to investigate the connections between the Framework and the concepts that are currently taught in first-year college courses. In a few instances, faculty members seem to have conflated the students' understandings of how to use information with the students' ability to understand the subject content. In these instances, IL concepts became difficult to identify. For those faculty members, helping students to understand the disciplinary content far outweighed the need to help students use and manipulate the information in a broader way. One can assume that these teachers paid little or no specific attention to information literacy and its place in their curriculum. Such instructors and their students would benefit greatly from working with a librarian to help isolate, identify, and teach IL concepts.

Comparing the four conceptions of teaching information literacy found by Dawes in the 2017 study⁶⁶ with the ACRL frames in Table 3 shows that, while faculty are unaware of the Framework, they nevertheless identify and teach IL threshold concepts like those outlined in the Framework as part of the disciplinary content of their courses. Laura Saunders also found these similarities when she surveyed teaching faculty and noted that even those not familiar with the term “information literacy” still spoke in detail of teaching related competencies.⁶⁷ Without the influence of the Framework, faculty instinctively teach information literacy not as distinct unrelated concepts (though they are articulated that way in the Framework) but as a part of their subject content.

Participatory Discourse

“Participatory discourse” is the IL concept that stands at the forefront of first-year instruction and is embodied in the frames “Scholarship as Conversation,” “Information Has Value,” and “Research as Inquiry.” Twenty-one faculty members focus on these core IL concepts teaching their discipline. They present research and subject content as an ongoing conversation that students should evaluate and analyze, and in which they should participate. Faculty utilize many complex and integrated approaches to help students navigate and interpret the information of their discipline. They seem to believe that learning and teaching information literacy are difficult to accomplish in a one-time, finite lesson or activity. Most teachers scaffold this instruction by first introducing students to the scholarly discourse of their disciplines through the introduction of broader, discipline-based conversations and concepts in their lectures and their use of textbooks. They then follow this instruction with more varied information experiences that require



Table 3.

A comparison of IL concepts of faculty and those of the Association of College and Research Libraries (ACRL)

Faculty concepts teaching IL*	IL concepts identified by faculty	IL concepts outlined in the ACRL “Framework for Information Literacy”†
Participatory discourse	<ul style="list-style-type: none"> Information is a part of a discourse. Information consists of multiple competing narratives. Cite ideas and concepts, not text; focus on the message, not the language. Information’s value, credibility, and relevance do not have equal weight but are socially and contextually assigned. Information receivers need to become information generators. None identified. 	<ul style="list-style-type: none"> “Scholarship as Conversation” “Information Has Value” “Research as Inquiry” “Information Creation as a Process” “Authority Is Constructed and Contextual”
Value assessment		
Behavioral change		
Critical selection		

* Lorna Dawes, “Faculty Perceptions of Teaching Information Literacy to First-Year Students: A Phenomenographic Study,” *Journal of Librarianship and Information Science*, August 28, 2017, doi:10.1177/0961000617726129.

† ACRL, “Framework for Information Literacy for Higher Education,” 2015, http://www.ala.org/acrl/sites/ala.org/acrl/files/content/issues/infolit/Framework_ILHE.pdf.

diverse information formats on specific issues or disciplinary concepts. These, in turn, evolve into more complex class discussions, activities, and assignments. Students are required to assess the information for credibility and relevance and are also taught to respect and participate in scholarly discourse while they continue to work with many information formats and research approaches.

Faculty seem to focus on teaching students how to make sense of, value, and analyze all voices, even as they learn to respect the conversation through proper citation practices . . .

These ideas are articulated in the knowledge practices and dispositions of the frame "Scholarship as Conversation." Faculty seem to focus on teaching students how to make sense of, value, and analyze all voices, even as they learn to respect the conversation through proper citation practices, a knowledge practice outlined in the "Information Has Value" frame. Faculty do not have time, nor do they find it necessary, to address in detail any issue pertaining to copyright, fair use, or open access, or issues that deal with information as a commodity in society.

These concepts are aspects of the "Information Has Value" frame that relate to intellectual property, the politics of information access, and the public domain, which faculty often see as outside the purview of the subject content. This omission provides an opportunity for librarians to work with disciplinary faculty to connect these IL knowledge practices with disciplinary practices and, in this way, make them relevant to, and present in, the curriculum.

Value Assessment

The challenge in value assessment seems to be in teaching students to develop a subjective critical approach to evaluating the conversation while they still acknowledge and respect the value and authority that the disciplinary practices and standards bring. Faculty speak of the difficulty teaching students the importance of asking questions of the readings while the students struggle to understand the core discipline concepts

. . . many students are not aware that evaluating information in English classes entails different considerations and strategies than evaluating information in a political science or history course.

and theories. They note that many students are not aware that evaluating information in English classes entails different considerations and strategies than evaluating information in a political science or history course. Recognizing these differences, and that there are still core principles of information use that are relevant to multiple disciplines, faculty strive to teach students to take a more "critical stance" toward information without divorcing this instruction from the constraints of their own discipline.

The frame "Authority Is Constructed and Contextual" becomes evident in faculty discussions as they report that they de-emphasize information formats and help students analyze the information content and its application to their specific needs and the research questions that they address. There is some



evidence, however, that faculty do deal with issues pertaining to information creation and the impact it has on the value and credibility of information. The need for students to understand this “ambiguity surrounding the potential value of information creation expressed in emerging formats or modes” is the essence of the frame “Information Creation as a Process” and a concept that faculty attempt to teach.⁶⁸ Thus, teachers aspire to move students from novice users who utilize the “basic indicators of authority” to evaluate information sources to expert learners who “recognize schools of thought or discipline-specific paradigms” as they evaluate and select relevant information.⁶⁹

Faculty are more concerned about the students’ mind-set—characteristics outlined in the Framework’s dispositions—and how students experience the discipline information. Their hope is that, in time, the students will experience and interact with information as researchers. Learning is not linear,

and threshold concepts accommodate a recursive and iterative journey through ignorance, misunderstanding, new understanding, and again ignorance of more complex issues. Faculty recognize this process, and although sometimes frustrated, they provide numerous opportunities and novel ways for students to interact with information. They also admit, however, that they have little time to address these issues in class. In this way, they indicate that they would not oppose talking with library faculty, who can provide a valuable supplement to what instructors do in their classes.

Behavioral Change

Pawley proposes a path to information literacy that moves from a “text and reader” approach to a community orientation, defining information use in a context of the “active production and consumption” of information by participants in the community.⁷⁰ Faculty agree with this view and talk of helping students to move from a simplistic “binary” approach to information, in which they look for two sides to every discussion, to a more sophisticated research approach characterized by discovery and investigation that ends with more complex questions. The

concept of “Research as Inquiry” is appropriate here, as faculty try to help students come to terms with the uncertainty, murkiness, and unpredictability of the information search and the research process.

A geology professor explains,

“There’s a lot of uncertainty in geology, and that often gets students really upset ‘cause they like things black and white” (assistant professor, geology). She proposes that “if you learn the principle underlying all of the facts, then you can use it, you can start from first principles.” Another faculty member shares how she attempts to explain the purpose of

... threshold concepts accommodate a recursive and iterative journey through ignorance, misunderstanding, new understanding, and again ignorance of more complex issues.

... faculty try to help students come to terms with the uncertainty, murkiness, and unpredictability of the information search and the research process.

research to the students when they crave “structure” and just want the “answer”: “I’m not even teaching them to have answers. I’m teaching them to have questions that are smarter than the questions they had before” (assistant professor, English). Faculty talk of how difficult it is for students to dedicate sufficient time for this type of discovery or “open-ended explorations” in their research and how uncomfortable students become when they encounter information that elicits more questions than answers. Closely integrated with the notions of participatory discourse and “Scholarship as Conversation,”⁷¹ this conception focuses on the students’ ability to decipher the many voices in the discourse, identify the gaps, and then contribute to the discussion. It is important for faculty to guide students as they make their own sense of the information and effectively inject it into the scholarly discourse.

Conclusions

This study presents some implications for IL instruction and how library faculty can communicate and work with teaching faculty. Although professors teach information literacy as a part of their disciplinary content, they are constantly aware of time constraints and their inability to dedicate large amounts of time to specific IL concepts that seem more relevant to a separate research course. Some faculty find it difficult to teach

Faculty clearly believe that IL instruction is necessary and desirable but may not be aware of how their library colleagues can contribute to this teaching.

IL because students fail to see the relevance of the instruction. Others feel that they are not up to date and lack the time to keep abreast of sources, research strategies, and new technologies relevant to teaching information literacy. Faculty clearly believe that IL instruction is necessary and desirable but may not be aware of how their library colleagues can contribute to this teaching. There are opportunities for more

discussions and for increased librarian involvement. Library faculty might articulate their expertise and help disciplinary faculty understand what they can contribute to the instruction. This communication might result in collaborations, library instruction, or IL online tools that teaching faculty can easily insert into their courses. In this way, librarians can provide more focused IL instruction that extends what faculty already teach.

Classroom teaching seemed to focus on evaluating, using, and applying the information to relevant research, what one research assistant referred to as teaching students to “break down reputable, reliable sources” (research assistant, sociology). A professor characterized it as teaching students to “figure out what’s important about a reading, what’s major, and what’s minor” (professor, sociology). There is a common emphasis in the disciplines on critical thinking, and faculty expressed difficulty teaching students how to evaluate the authority of different information formats in a variety of contexts. A noticeable omission is any targeted instruction related to finding, searching, accessing, and evaluating different information formats. Although faculty agree that these skills are necessary, like the participants in Maria Pinto’s study, the participants in this study may feel that students can find information independently without class instruction. Therefore, they dedicate their class time to more important analysis and evaluation of



the information.⁷² Saunders suggests that faculty may also believe that these skills need to be taught throughout the duration of the course, and because they cannot decide how and who should do this instruction, the skills are not taught. Consequently, teaching students how to search and access information becomes almost cocurricular instruction and is not completely integrated into the disciplinary teaching.⁷³

The library faculty can become more involved in this aspect of instruction by connecting the frame “Searching as Strategic Exploration” to the discipline-based information search practices. In so doing, they will help students to understand and use a more diverse set of tools and strategies to access databases to find more relevant sources.

The study also indicates that faculty would be receptive to the new Framework because several examples from their teaching show that these concepts are already incorporated into their disciplinary content. The three most commonly taught frames, “Scholarship as Conversation,” “Research as Inquiry,” and “Authority Is Constructed and Contextual,” provide a common language for library faculty to begin discussions about the Framework and collaborate with teaching faculty to provide more substantial instruction in these areas. These initial connections would then open the door for librarians to formally introduce the other frames and become more actively involved in course development.

Linda Adler-Kassner, John Majewski, and Damian Koshnick conclude that it is difficult and counterproductive to detach IL from disciplinary content. They recommend that the concepts that span the disciplines be identified and taught by librarians who have some subject expertise and can understand and teach a critical approach to information that embraces the disciplinary differences.⁷⁴ One faculty member notes that concepts related to information use are difficult to teach because “it feels a little transdisciplinary . . . and it’s not the focus of the course” (associate professor, English). Therefore, it is imperative for librarians to become more assertive in explaining their role and expertise in this “transdisciplinary” teaching. The attention that faculty dedicate to teaching critical thinking and self-reflection, evident in how they encourage students to slow down and examine their information behaviors and experiences, is also articulated in the Framework through its integration of metaliteracy concepts. These concepts are embodied in the “dispositions” of each frame and address what ACRL calls the “affective, attitudinal or valuing dimensions of learning,” about which instructors and librarians are equally passionate.

Long before the introduction of the Framework, James Elmborg, in applying critical theory to the concepts of information literacy, suggested that librarians move away from transferring their skills and knowledge to helping students develop a “critical consciousness” toward the information.⁷⁵ Such consciousness would help students to become more responsible for their own learning and subsequently make more relevant meaning of the information. Supporting this view, Troy Swanson sees this critical information literacy as “understanding information in a humanistic sense,” a way of teaching students about the relationship between information and the power, economics, and politics within society.⁷⁶ This critical perspective is now at the core of the Framework and has renewed discussions and conversations around critical information literacy and IL’s relationship with social justice. Critical information literacy is an educational approach that acknowledges the social norms and culture aspects surrounding information and encourages a

questioning attitude toward information, especially its political, social, and economic dimensions. It is integral to the teaching of information use within the disciplines.⁷⁷ Faculty in this study not only shared the desire to teach students how to use and experience information within the discipline but also aspired to help students understand the transdisciplinary nature of information literacy, and how these classroom information experiences are applicable and valuable in their post-university careers and their social lives. This goal highlights the contextual nature of the Framework and the departure from teaching information literacy as a universal skill set or definition of learning that Drabinski so clearly discourages.⁷⁸ The Framework now enables students to engage in a more insightful, reflective learning that forces them not only to question the value

... for students to gain the agency they need to become intelligent contributors and consumers of information, they will need to understand the inherent power behind the information and begin to be more critical of the entities responsible for its publication and creation ...

and credibility of the information that they use but also to go further and consider issues that influence the publication and distribution of the information within the society.⁷⁹ Sociocultural discussions surrounding scholarly communication and information are now addressed in multiple frames (“Authority Is Constructed and Contextual”; “Information Has Value”; and “Scholarship as Conversation”). These discussions accurately tackle the concerns of faculty, who still struggle with teaching students how to think beyond traditional sources of information and how to evaluate and participate in this ever-changing

information landscape. The Framework, through its accommodation of a more critical approach to evaluating authority, brings an “informed skepticism and openness to new perspectives” that librarians need to facilitate to help students cultivate a deeper understanding of the connection between information literacy and social justice.⁸⁰ To address this issue, Saunders proposes a new frame, “Information Social Justice as a Solution.”⁸¹ Although some may think this unnecessary, for students to gain the agency they need to become intelligent contributors and consumers of information, they will need to understand the inherent power behind the information and begin to be more critical of the entities responsible for its publication and creation, even before they themselves become actively involved in these processes. The Framework instigates discussions around social justice with increased vigor, as librarians deliberate on the responsibility of the profession to be more involved in sociopolitical and sociocultural change.⁸²

Discussions surrounding source data are still unresolved. Faculty sometimes mention the difficulty they had teaching students to understand the raw data, the data’s credibility, and the data’s visualization and application to real-life problems. Librarians can become even more actively involved in this area. Issues relating to big data—data sets too large and complex to be easily processed with traditional data mining and handling techniques—although obscure, are present in all the frames. Librarians’ involvement with big data and information literacy at the moment seems limited to the development of research data management plans with researchers as covered in workshops such as the

ACRL Research Data Management Roadshow.⁸³ Further examination of the influence and relationship of big data to society, and how these data are owned, used, and dispersed, will reveal the pertinent need for librarians to help students develop the ability to track and evaluate the data behind the source, critique the origin and type of analysis that influenced the data, and in doing so assess the relevance of the data to their specific need.

Finally, this study has provided evidence that the Framework is relevant and integrative in its approach to IL instruction. There is a need for more dedicated IL instruction. Like faculty in Dubicki's study, instructors interviewed in this survey also felt that students would benefit from more teaching in this area.⁸⁴ It may be helpful for librarians to shift the focus of their consultations with faculty to include more discussions about what instructors currently teach in relation to information literacy. Librarians could use this information to assess what is done in the discipline and then employ that information to help shape curriculum planning for their involvement. Faculty and librarians are equally concerned about, and invested in, the teaching of IL concepts, and the new Framework provides a common language with which to begin discussions and teaching collaborations.

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