

University Library Educational Services

Program Review and Assessment Committee (PRAC) Annual Report. 2021

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Introduction/Overview

University Library Educational Services is the teaching unit of University Library. Thirteen [liaison librarians](#) collaborate with disciplinary instructors and faculty in course-embedded instruction focused on developing undergraduate and graduate students' information literacy (IL) habits of mind. Information Literacy is the set of skills needed to find, analyze, evaluate, use, and create information effectively and ethically.

Course-embedded instruction is different from credit-bearing IL courses. Librarians partner with disciplinary instructors and faculty in their courses. What this collaboration looks like varies widely, librarians can be in roles similar to co-teachers, guest speakers, and Center for Teaching and Learning

instructional consultants. Here are some examples of what librarians do in course-embedded instruction:

- Lead targeted IL instruction for disciplinary classes in-person or online.
- Make suggestions for tweaking assignments and also help with assignment design to scaffold in appropriate IL outcomes.
- Partner with instructors and faculty to review submitted student work, particularly cited sources, annotated bibliographies, etc.
- Create [subject](#) and [course-specific research guides](#) to point students to appropriate resources.
- Add assessment quizzes for library tutorials to Canvas course sites.
- Meet with students individually or in small groups for research consultations.

Learning Outcomes

University Library Educational Services developed information literacy (IL) learning outcomes in July 2015 (<https://iupui.libguides.com/edservices/IL>). IL learning outcomes are based on national standards, the Association of College and Research Libraries (ACRL) *Framework for Information Literacy for Higher Education* (<https://www.ala.org/acrl/standards/ilframework>).

The information literate IUPUI student is familiar with the following six frames:

1. **Authority of information is constructed and contextual** and depends on where a source comes from, information need, and how the information will be used. Authority should be viewed with an attitude of informed skepticism and an openness to new and varied perspectives and changes in schools of thought.
2. **Information Creation is a Process** where information exists in different formats, which has an impact on how it is used and shared. The underlying processes of creation and the final product should be critically evaluated to determine the usefulness of the information.
3. **Information has** several dimensions of **value** as: a commodity, a means of education, a means of influence, and a means of negotiating and understanding the world. Legal and socioeconomic interests influence information production and dissemination.
4. **Research as Inquiry**, an iterative process that depends upon asking increasingly complex or new questions whose answers prompt additional questions or lines of inquiry in any field.
5. **Scholarship is a Conversation** consisting of sustained discourse within communities of scholars, researchers, or professionals, with new insights and discoveries occurring over time as a result of a variety of perspectives and interpretations.
6. **Searching is a Strategic Exploration** encompassing inquiry, discovery, and flexibility. Searching means understanding how information is organized, identifying relevant sources, and how to access those sources.

By the time an undergraduate student graduates or at the graduate level, the information literate IUPUI student should be able to:

1. **Authority is Constructed and Contextual**
 - Identify authoritative information sources in any form.
 - Evaluate the authority of information from various sources (e.g., peer-reviewed journals, magazines, newspapers, website, etc.).

- Acknowledge their own authority in certain contexts.
 - Recognize that authority or credibility is contextual in relation to time, discipline, methodology, and other factors.
- 2. Information Creation is a Process**
- Articulate the capabilities and constraints of various processes of information creation.
 - Critique the presentation of information within disciplines.
 - Articulate traditional and emerging research processes. (e.g., literature review, statistical analysis, etc.).
 - Distinguish between format and method of access.
 - Select sources that best meet an information need based on the audience, context, and purpose of various formats.
- 3. Information has Value**
- Manage personal and academic information online with a knowledge of the commodification of that information.
 - Recognize that intellectual property is legally and socially constructed and varies by discipline and culture.
 - Cite sources through proper attribution.
 - Identify publication practices and their related implications for how information is accessed and valued (e.g., open movement, digital divide).
- 4. Research as Inquiry**
- Formulate questions for research of an appropriate scope, based on information gaps or by reexamining existing information.
 - Select research methodology(ies) based on need, circumstance, and type of inquiry.
 - Organize information systematically (e.g., citation management software).
 - Synthesize information from multiple sources and a variety of perspectives.
- 5. Scholarship is a Conversation**
- Contribute to the ongoing scholarly conversation at an appropriate level.
 - Identify the contribution that information sources make within a discipline or conversation.
 - Describe the ways that communication systems privilege some perspectives and present barriers to others.
 - Summarize the changes in scholarly perspective over time on a particular topic within a specific discipline.
 - Recognize that a given scholarly work may not represent the only or even the majority perspective on the issue.
- 6. Searching is a Strategic Exploration**
- Identify information need and potential sources of information (e.g., scholars, organizations, governments, industries).
 - Design searches strategically, considering and selecting systems to search and evaluate results.
 - Refine information need and search strategies based on results.
 - Identify how information systems are organized in order to access relevant information.
 - Apply different searching language types (e.g., controlled vocabulary, keywords).

As noted, the context of liaison librarian instruction is course-embedded. University Library cannot offer credit bearing courses. Because each school, discipline, major, etc, has different learning outcomes,

liaison librarians map the disciplinary curriculum and outcomes to the UL IL Learning Outcomes. Additionally, librarians work to scaffold IL through the curriculum (from first-year through senior and graduate) so that students are exposed to increasingly complex concepts. Here are examples of liaison curriculum maps for the School of Science Departments of [Chemistry](#) and [Psychology](#).

IL & the Profiles of Learning for Undergraduate Success

University Library Educational Services was one of the first units on campus to align our learning outcomes with the IUPUI Profiles of Learning for Undergraduate Success.

Information Literacy Framework Concepts	IUPUI UL Learning Outcomes By the time undergraduate students graduate, they will be able to:	IUPUI Profiles of Learning for Undergraduate Success
Authority Is Constructed and Contextual	<ul style="list-style-type: none"> Identify authoritative information sources in any form. Evaluate the authority of information from various sources (e.g., peer-reviewed journals, magazines, newspapers, website, etc.). Acknowledge their own authority in certain contexts. Recognize that authority or credibility is contextual in relation to time, discipline, methodology, and other factors. 	<p>Communicator</p> <ul style="list-style-type: none"> Evaluates information. Conveys ideas effectively.
Information Creation as a Process	<ul style="list-style-type: none"> Articulate the capabilities and constraints of various processes of information creation. Critique the presentation of information within disciplines. Articulate traditional and emerging research processes. (e.g., literature review, statistical analysis, etc.). Distinguish between format and method of access. Select sources that best meet an information need based on the audience, context, and purpose of various formats. 	<p>Innovator</p> <ul style="list-style-type: none"> Investigates. Creates and designs. Makes decisions. <p>Problem Solver</p> <ul style="list-style-type: none"> Analyzes, synthesizes, and evaluates.
Information Has Value	<ul style="list-style-type: none"> Manage personal and academic information online with a knowledge of the commodification of that information. Recognize that intellectual property is legally and socially constructed and varies by discipline and culture. Cite sources through proper attribution. 	<p>Community Contributor</p> <ul style="list-style-type: none"> Behaves ethically. Anticipates consequences.

	<ul style="list-style-type: none"> Identify publication practices and their related implications for how information is accessed and valued (e.g., open movement, digital divide). 	
Research as Inquiry	<ul style="list-style-type: none"> Formulate questions for research of an appropriate scope, based on information gaps or by reexamining existing information. Select research methodology(ies) based on need, circumstance, and type of inquiry. Organize information systematically (e.g., citation management software). Synthesize information from multiple sources and a variety of perspectives. 	<p>Innovator</p> <ul style="list-style-type: none"> Creates and designs. Confronts challenges. Makes plans. <p>Problem Solver</p> <ul style="list-style-type: none"> Thinks critically.
Scholarship as Conversation	<ul style="list-style-type: none"> Contribute to the ongoing scholarly conversation at an appropriate level. Identify the contribution that information sources make within a discipline or conversation. Describe the ways that communication systems privilege some perspectives and present barriers to others. Summarize the changes in scholarly perspective over time on a particular topic within a specific discipline. Recognize that a given scholarly work may not represent the only or even the majority perspective on the issue. 	<p>Communicator</p> <ul style="list-style-type: none"> Evaluates information. Listens actively. Builds relationships. Conveys ideas effectively. <p>Innovator</p> <ul style="list-style-type: none"> Investigates. Creates and designs.
Searching as Strategic Exploration	<ul style="list-style-type: none"> Identify information need and potential sources of information (e.g., scholars, organizations, governments, industries). Design searches strategically, considering and selecting systems to search and evaluate results. Refine information need and search strategies based on results. Identify how information systems are organized in order to access relevant information. Apply different searching language types (e.g., controlled vocabulary, keywords). 	<p>Problem Solver</p> <ul style="list-style-type: none"> Thinks critically. Analyzes, synthesizes, and evaluates.

Brief discussion of curriculum or co-curricular experiences

Liaison librarians collaborate with disciplinary instructors and faculty to teach IL competencies. We teach both undergraduate and graduate students primarily through their disciplinary curriculum via the following methods/mediums:

- In-person
- Online synchronous via Zoom.
- Asynchronous via Canvas modules, videos, and/or tutorials.

In 2021, librarians taught n=370 instruction sessions split about equally between in-person, online-synchronous, and online-asynchronous.

Instruction is always aligned with course assignments. For example, a course has a research paper assignment so the liaison librarian will teach or develop asynchronous learning objects to develop students' IL competencies in areas such as developing a research question, searching relevant databases to find sources to support an argument, and evaluating the information found.

In addition to course-embedded instruction liaison librarians also provide point-of-need instruction via research consultations. These are normally with one or a small group of students and are targeted towards specific aspects of an assignment. For example, a student is having trouble narrowing their topic into a research question, a student needs help finding relevant sources, etc. In 2021, librarians recorded n=735 research consultations.

One major change brought by COVID-19 was a dramatic increase in online-synchronous and asynchronous instruction and research consultations. Prior to the pandemic, librarians taught 97% of classes in-person. With COVID that flipped to 96.5% online (synchronous or asynchronous). With a return to campus in Fall 2021, in-person instruction accounted for 64% of sessions. This change to online did impact assessment results which will be discussed later in this report.

Overview of our assessment cycle

This is the first year for Library Educational Services to submit a PRAC Report. In the past we have not had a formal assessment cycle of our UL IL Learning Outcomes. In this 2021 PRAC Report, Educational Services is reporting assessment of all learning outcomes. However, with the 2022 report, we will adopt the following assessment cycle:

<i>IL Frame</i>	<i>Assessment Year</i>
Authority is Constructed and Contextual	2022
Information Creation is a Process	2023
Information has Value	2024
Research as Inquiry	2025
Scholarship is a Conversation	2026
Searching is a Strategic Exploration	2027

Description of assessment methods and approaches

Librarians employ a range of assessment methods and approaches. They are encouraged, when possible, to use both direct and indirect assessments to assess student learning. One common method librarians use to gather both direct and indirect assessment of student learning is via a worksheet (direct) and end-of-class evaluation (indirect).

Due to the nature of our instruction (e.g., course-embedded not stand-alone credit bearing courses) our assessments are generally formative. We do not regularly have access to summative assessment measures (e.g., final projects or papers) and end-of-class course evaluations (e.g., Blue).

Direct Assessments

Librarians most commonly use worksheets (both in-person and online) as a direct assessment of student learning. Sometimes worksheets are evaluated using rubrics. For a worksheet example, see this [first-year seminar example](#). For a rubric example, see this [first-year worksheet rubric](#). Another common direct assessment is via classroom assessment techniques such as 3-2-1 and one-minute reflections. Librarians sometimes also utilize pre- and post-tests. Asynchronously, librarians use Canvas quizzes, Quick Checks, and discussions.

Indirect Assessments

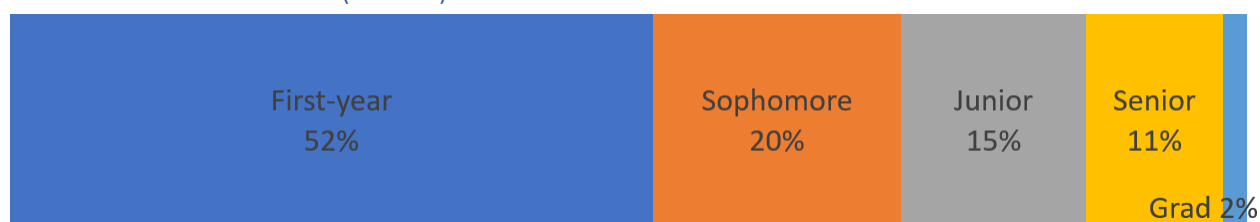
Library Educational Services has common end-of-class and post-research consultation evaluation surveys. Both of these evaluations are intended to assess in-person teaching and in-person, or Zoom, research consultations.

In response to the pivot to more online-asynchronous instruction, Educational Services developed two new evaluations, one for students and one for instructors, specifically targeted towards Canvas integrated learning objects.

Librarians regularly review end-of-class evaluations to help inform future instruction. Librarians also self-report which IL Frames they are teaching to in each instruction session.

Key findings from assessments of learning

End-of-Class Evaluation (n=433)



	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I learned something new that will help me succeed in my classes.	64%	33%	3%	0%	0%
I feel more confident about completing my assignment(s).	56%	40%	4%	0%	0%

I intend to apply what I just learned.	68%	31%	1%	0%	0%
I am more aware of the library's resources and services.	63%	35%	2%	0%	0%

	Excellent	Very Good	Average	Poor
How would you rate the librarian's overall teaching effectiveness?	75%	23%	2%	0%

The End-of-Class Evaluation includes two open ended questions. (1) What was the most important thing you learned during this class? Please be specific. (2) What is one question that remains unanswered? Responses were categorized into the six Frames to determine which broad concepts students identified. Students had many more unanswered questions in the Information has Value frame in relation to the most important thing they learned.

Figure: What is the most important thing you learned? (n=395)

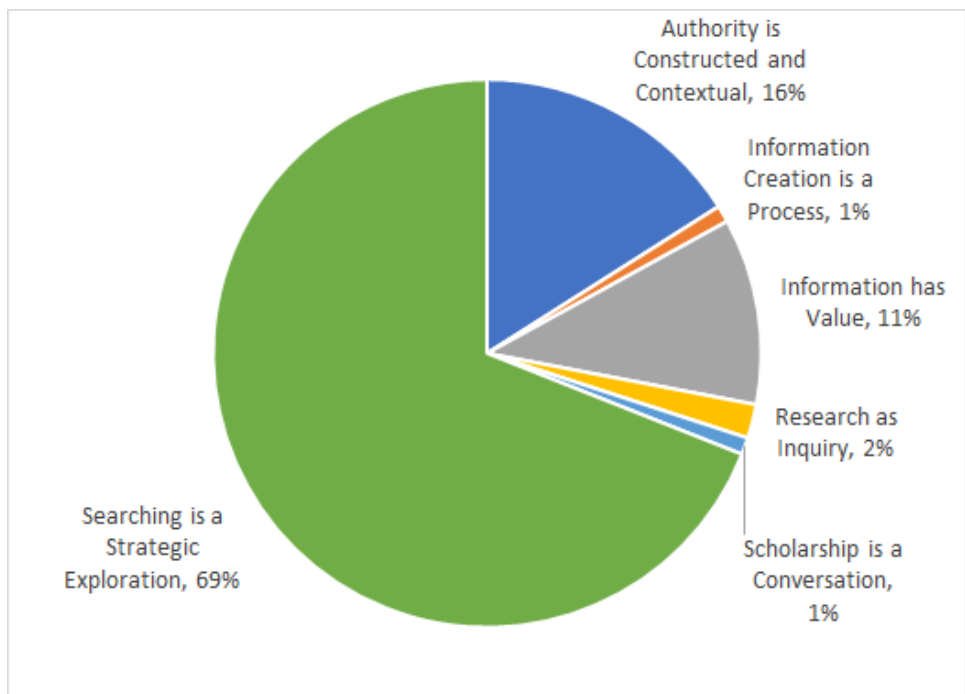
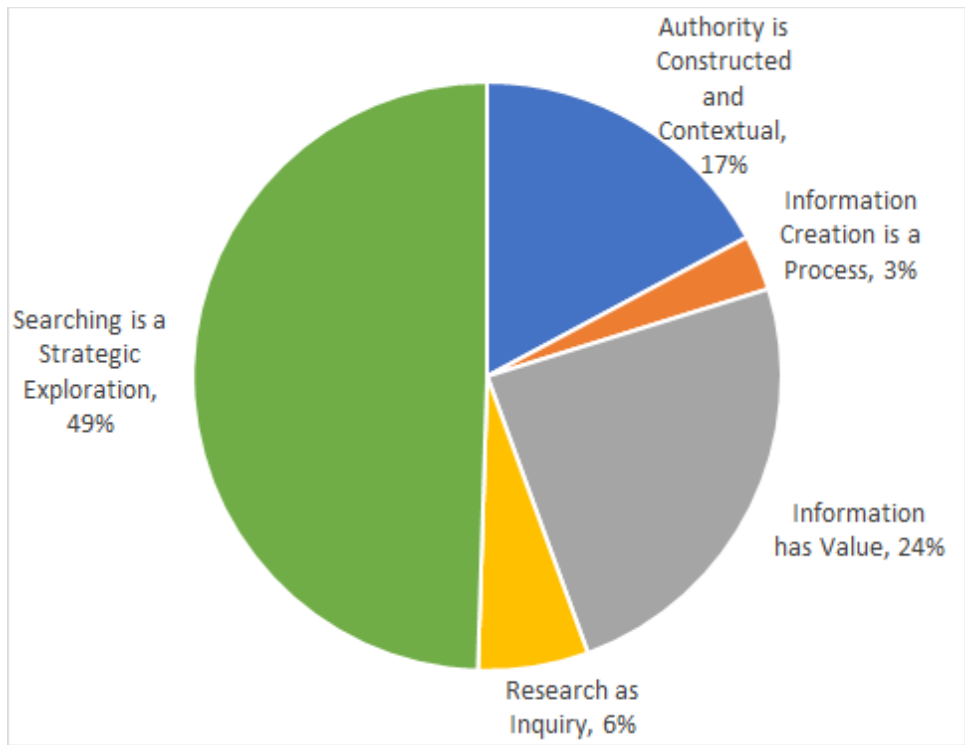
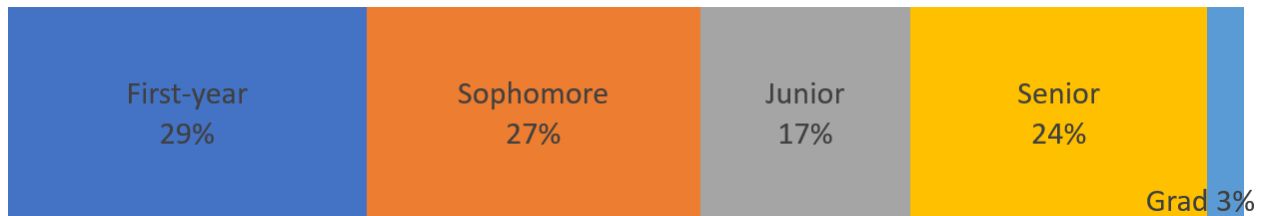


Figure: What is one question that remains unanswered? (n=63)



Asynchronous (Learning Object) Student Evaluation (n=198)



	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
From library materials in Canvas, I learned something new that will help me succeed in my classes.	40%	54%	6%	0%	0%
From the library research materials in Canvas, I felt more confident about completing my assignment(s).	33%	51%	13%	3%	0%
I have applied or intend to apply what I learned in the library research materials in Canvas.	39%	52%	7%	2%	0%

The Asynchronous Evaluation also includes two open ended questions. (1) What was the most important thing you learned from the library research materials in Canvas? Please be specific. (2) What is one question that remains unanswered? Responses were categorized into the six Frames to determine which broad concepts students identified. In comparing the responses, while the most important thing

students learned fit within the Searching frame, students had unanswered questions in the frames Research as Inquiry and Information Creation is a Process. This is something for us to consider when creating asynchronous materials for classes.

Figure: What was the most important thing you learned? (n=152)

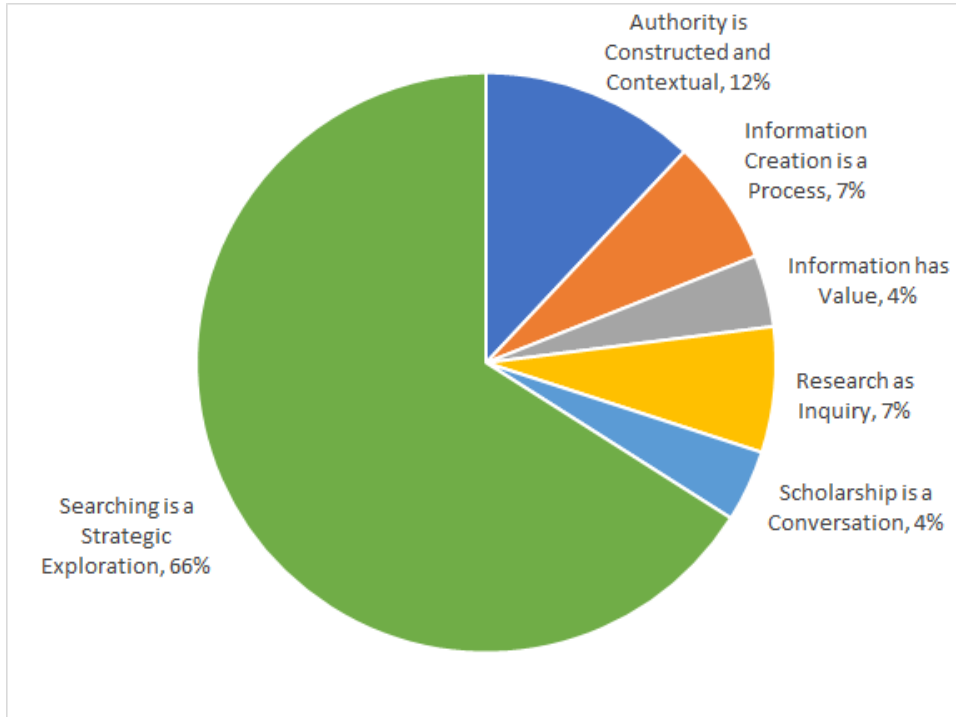
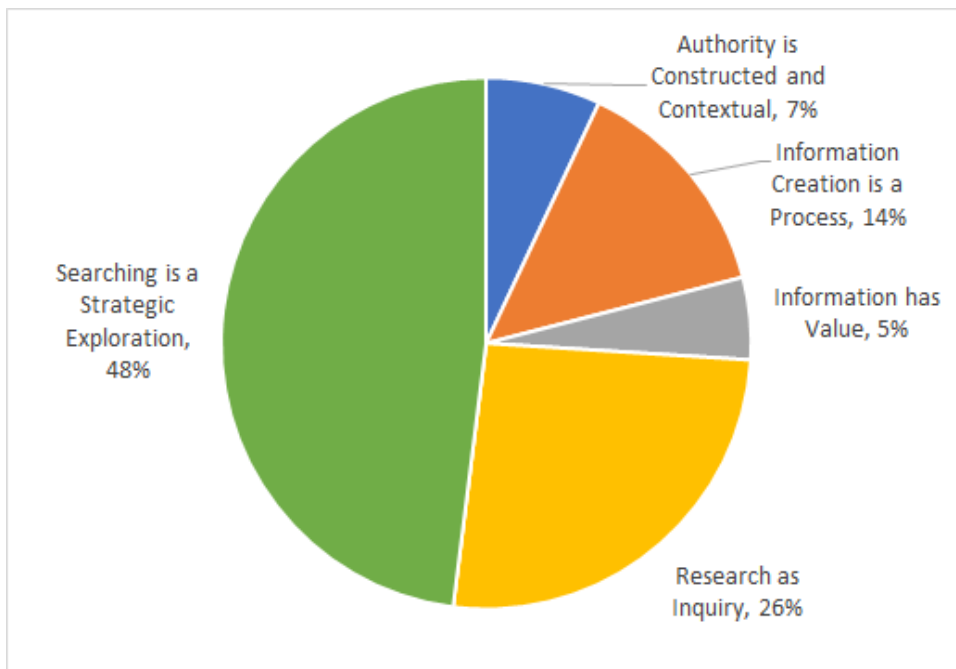
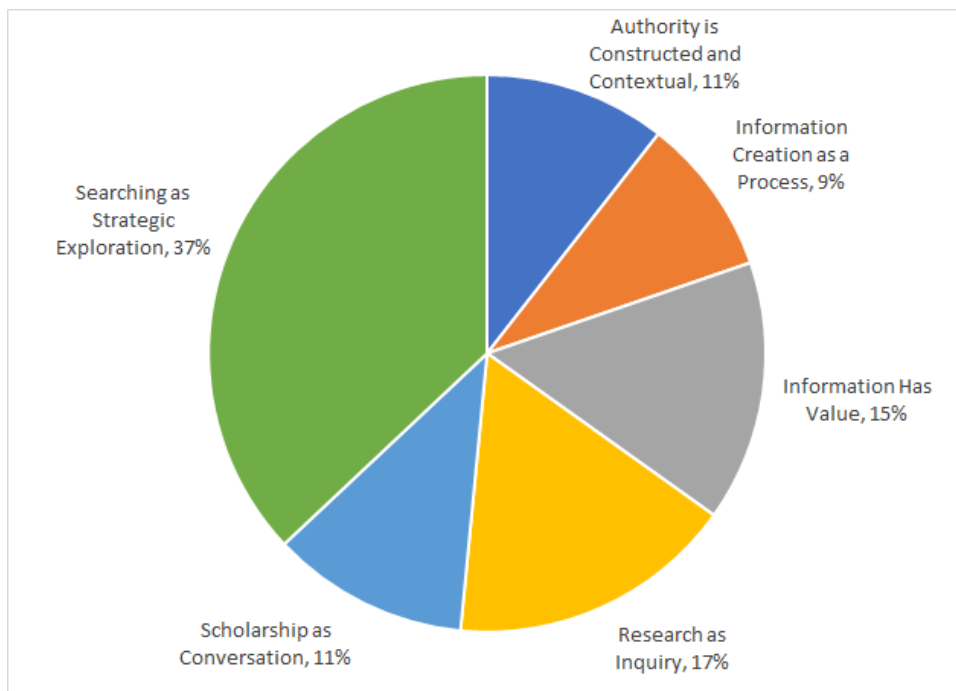


Figure: What is one question that remains unanswered? (n=42)



Librarian Self-Reported Data

Here is the breakdown of self-reported data of which IL Frames librarians taught to in 2021. While librarians are self-reporting teaching the Searching frame more than the others, the ratios are more equal than students evaluation comments on the most important thing they learned.



Research Consultations (n=21)

Although librarians recorded n=612 research consultations in 2021, only n=21 students completed the post-research consultation evaluation. Of respondents, students reported the research consultation helped them feel more confident in their research. Additionally, students indicated they felt better prepared to meet several key IL learning outcomes related to finding, using, evaluating, and citing information sources.

	Very Confident	Confident	Average	Not Confident
How confident in your research did you feel before the session?	4.5%	4.5%	48%	43%
How confident in research are you now, after your session?	29%	62%	9%	0%

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
Overall, I feel the session was helpful for my needs.	86%	14%	0%	0%	0%

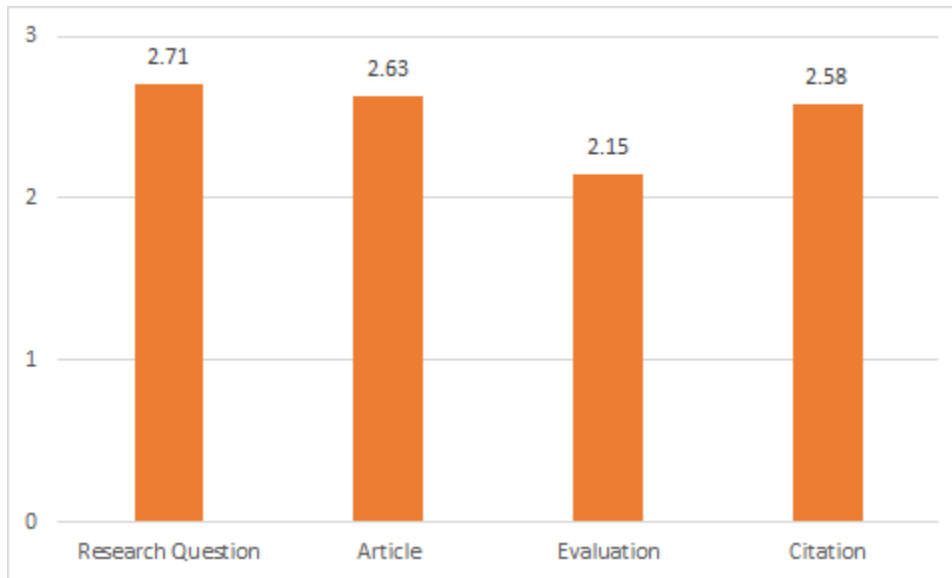
<i>As a result of the session, I feel better prepared to...[Check all that apply]</i>	<i>Frame</i>	
Evaluate the information I encounter (for example, finding appropriate sources for your assignment, distinguishing between primary and secondary or popular and scholarly sources).	Authority is Constructed and Contextual	15%
Select and use sources that best meet my information need (aka my thesis, topic, or research question).	Information Creation is a Process	31%
Cite my sources.	Information has Value	9%
Formulate a research question.	Research as Inquiry	9%
Recognize differences and changes in a topic or discipline (for example, knowing theories change and evolve over time and that there are different perspectives on the same topic, identifying landmark works and authors on a topic).	Scholarship is a Conversation	7%
Design or refine searches.	Searching is a Strategic Exploration	29%

Direct Assessment

Library Educational Services does not have any common direct assessments among librarians. We do have a common rubric for first-year worksheets. The rubric scores students on a scale of 0-3 (0 (not present), 1 (initial), 2 (emerging), and 3 (developed)) on their research question, appropriateness of source, evaluation of the source, and source citation. The learning outcomes to which this rubric is targeted are:

- [Research Question] Formulate research question of an appropriate scope (Research as Inquiry)
- [Article] Design a search and identify potential sources of information (Searching is a Strategic Exploration)
- [Evaluation] Evaluate the authority of information (Authority is Constructed and Contextual)
- [Citation] Cite sources through proper attribution (Information has Value)

Because the rubric is intended to evaluate first-year worksheets, students are expected to score close to *3-developed*. A sample of worksheets (n=65) from first-year courses found students scored highest on Research Question and lowest in Evaluation. However, all scores are solidly above *2-emerging* with three of the four criteria closer to *3-developed*. From rubric analysis, this sample of first-year worksheets indicate students seem to be learning what we hoped they would learn.



Librarian reported results of direct student assessment show the impact of the COVID-19 pandemic on student learning. Integral to teaching IL concepts is to link the instruction to the point of need (aka the assignment in which those competencies will be applied). However, some classes that moved instruction online shifted the IL assessment to modules and times that were more convenient for the instructor rather than student learning. In other words, with asynchronous IL instruction sometimes students are taught the competencies before they understand how those competencies will be applied. Thus the instruction is less likely to be retained, leading to poorer student performance in the course assignment. This dynamic also happens with in-person instruction (e.g., a librarian is asked to teach a class well before the course assignment has been introduced) but for some reason it seems to be somewhat easier to shift instruction dates in-person than in a Canvas module.

Discussion

Although this is the first year Library Educational Services has submitted a PRAC report, one persistent area of concern about student learning is related to the over emphasis of the Searching frame. Both students and librarians are reporting learning related to this frame well out of proportion to the other frames. In order to ensure students have learned all aspects of IL by the time they graduate from IUPUI this is something the program needs to examine. Moving in future years to focusing on single IL frames should help us better understand and identify student learning in these areas.

Another area of concern about student learning is what we are missing programmatically due to our overreliance on indirect assessment measures. In individual classrooms direct assessment of student learning is happening but getting that data to scale or as representative of all student learning has been, and continues to be, a challenge.

Planned Improvement Initiatives

There are several improvement areas Library Educational Services has identified that we will be implementing or discussing how to implement in 2022.

First, because the nature of librarian teaching is course-embedded, we recognize that a key piece of feedback we're missing is from the disciplinary instructors and faculty with whom we collaborate in teaching IL competencies within their credit-bearing classes. These are an indirect assessment we are currently failing to systematically collect. To address this, in 2022 we are planning the development and launch of common faculty end-of-class and end-of-semester evaluations.

Second, since a large percentage of librarians teach to worksheets, we would like to explore the feasibility of more common rubrics to evaluate student learning via the worksheets. Due to the wide variety of courses librarians teach, this may or may not be possible, but it is worth an exploration.

Third, the response rate for the post-research consultation survey is very low. Part of this may be that the only consistent way the survey is being distributed is via an automated email follow-up only to students who booked a research consultation through our automated system (<https://iupui.libcal.com/appointments/iupui>). We need to develop a more comprehensive method for distributing the follow-up survey.

Outside of Library Educational Services, University Library is developing a Student Employment Program. This program is working in 2022 on developing assessments of student engagement and learning and we plan on including this program in next year's PRAC report.

Library Educational Services and the Record

Library Educational Services has one experience on the Record, Student Peer Teacher (<https://www.ulib.iupui.edu/peer-student>). Student Peer Teachers are trained to assist librarians in teaching information literacy and research skills in 100- & 200-level undergraduate courses.

The position is designed to build students leadership, presentation, communication, and IL competencies. The first semester students work through a [curriculum](#) designed to develop their teaching and IL competencies. During the first semester, students have the opportunity to shadow teaching librarians and begin to co-teach. After completing the curriculum in the first semester, students enter the peer student teacher pool and can volunteer to teach or co-teach classes as well as meet with students 1-1 in research consultations and participate in our chat reference service.

The curriculum involves direct assessment of student learning of IL and teaching competencies through hands-on assignments. For example, create a lesson plan, develop an evaluation exercise, create a citation activity. During the curriculum and after becoming a student peer teacher, indirect assessments in the form of student reflections are used to evaluate student learning.

The mid- and end-of-curriculum reflection questions are the same and help the librarians teaching the student peer teaching curriculum to adjust the curriculum.

Mid- and End-of-Curriculum Student Peer Teacher Reflection

1. What skills have you learned through being a peer teacher?
2. What skills do you feel you could improve or still need to learn?
3. How confident do you feel in your ability to help other students? Explain.
4. Do you feel being a peer teacher has had an impact on your own coursework? Explain.
5. What would you change (and/or add and/or remove) about the curriculum?
6. How could we better support your experience as a peer teacher?

In the mid-curriculum reflection, student peer teachers noted they were forgetting what had been taught earlier in the semester. To address this, we added curriculum “reminders” in the Canvas modules in the second half of the semester more explicitly linking what they had learned to what they were learning at present (e.g., “Why are we doing this?”). Peer teachers also requested more opportunities to put the curriculum into practice. To address this, librarians modified some upcoming assignments to make them more hands-on.

One theme that has remained consistent throughout all the students who have completed the peer teaching curriculum is they all report feeling much more confident in doing research in their other classes. In other words, student peer teachers are transferring what they learn in this program to the rest of their academic experience. For example, “Being a peer teacher has definitely impacted my coursework. Research papers and bibliographies aren’t so scary to me anymore. I actually really enjoy doing them, since I love to write and now finding sources isn’t as daunting. I think that it also helps me in finding the best sources that I can for my papers, by knowing how to complete strategic searches and which databases to use,” “I was writing a paper on the spread of misinformation around vaccines and how a retracted medical journal article in 1998 linking the MMR vaccine to autism has created a culture of skepticism and the “anti-vaccine” movement. I was much more inclined to use peer-reviewed journal articles as sources of information for my paper and did a lot of reverse citation linking to gather up a collection of scholarly journal articles with tons of information! I was able to locate these articles faster and with more ease knowing how to navigate University Library’s online database catalog.”

The experience is approved as both internship (while students are learning the curriculum) and leadership (after students have completed the curriculum and are teaching). To date, five students have completed the curriculum and entered the student peer teaching pool. Two students participated in Spring 2021. As this experience is paid, with COVID-19 budget restrictions the program is on hold for the 2021-22 academic year.