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# Intentional librarian-student interactions during COVID-19: A clear bridge to developing first-year student information literacy skills

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## Abstract

As part of a research study to examine first-year college students' preparation for college-level research, students at six U.S. institutions of higher education were surveyed in the spring semester of 2021. The pandemic continued to affect the delivery of information literacy (IL) instruction and library services across the United States throughout the 2020–2021 academic year. When students completed this survey in April and May of 2021, the majority of instructional services were offered in synchronous and asynchronous remote formats. The students' engagement with librarians and librarian-created instructional resources were captured via the survey and analysed to determine whether students were able to leverage these interactions and materials despite the remote contexts. Students who did not interact with an academic librarian were less likely to use library resources, had more problems accessing information, and felt more overwhelmed by the quantity of resources and services offered by the library. Results show that intentional student-librarian interactions are a bridge to the acquisition and development of knowledge practices and dispositions of the ACRL *Framework for Information Literacy for Higher Education*. The findings suggest considerations for moving forward when it comes to communicating with students and delivering IL support in academic libraries around the world as countries emerge from pandemic conditions.

## Keywords

college students; COVID-19; distance learning; information literacy; library anxiety; librarian-student interactions

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## 1. Introduction

This research study is an offshoot of a larger project that began in September 2019 seeking to examine the preparedness of first-year college students for college-level research. The investigators, representing Library and Information Science (LIS) professors, high school librarians, and academic librarians across the State of New Jersey, focused on understanding the connection between highly effective high school library programs and students' later ability to grasp and apply the concepts of the Association of College and Research Libraries *Framework for Information Literacy for Higher Education* (2016) (*Framework*) when in college. The study began with a survey of high school librarians (Phase 1). A survey of first-year college students was planned for Spring 2021, at which time the seniors whose high schools had participated in Phase 1 would be completing their first year of college.

In March of 2020, one year prior to administering the targeted Spring 2021 'First Years/Alumni Check-in Survey', academic libraries and librarians had to quickly pivot to a new online learning environment as the Coronavirus (COVID-19) pandemic caused campus shutdowns and transformed the delivery of information literacy (IL) instruction and library services. The effects of the pandemic on library operations continued throughout the 2020-2021 academic year.

Accordingly, when first-year college students completed the survey in April and May 2021, the majority of IL instructional services were provided in synchronous and asynchronous remote formats rather than in-person. Five of the six libraries that distributed the survey were physically open, but only two staffed their reference desks, limiting opportunities for students to engage in-person with librarians for their research needs and to further develop their IL skills.

Although it was not the investigators' original intention, student engagement with these transformed services was captured via the survey. The shifts in instructional delivery offered an opportunity for the investigators to not only analyse first-year students' preparation for college research but also examine how student IL behaviours were impacted by the strategies academic librarians employed to continue IL support for students.

The academic librarians involved in this project now took a new view of the data and present findings that will have relevance for years to come. Responses were analysed to glean insight into how students used library services and librarian-created electronic instructional resources when there was a significant decrease in their likelihood of using the physical library. Using such resources as the library website or LibGuides created by the librarians, chat, email, text, or phone reference questions, as well as having a one-on-one consultation/research appointment with a librarian were identified as student-initiated interactions.

Additionally, librarians' pivot strategies to maintain IL instructional services and connections with students were addressed. Survey results were examined to align these intentional librarian-initiated interactions with the acquisition and development of *Framework* knowledge practices and dispositions. Librarian-initiated interactions were identified as giving live guest lectures virtually; participating in the online course; provision of a pre-recorded video; or the librarian

actively participating in the online course. Through an examination of these distinct interactions, a clearer understanding of the impact of librarians' creation of instructional tools and instructional services was revealed as influential in students' acquisition and development of their IL skills during the unpredictability of the pandemic.

## **2. Literature review**

### **2.1 Overall distance learning challenges of students**

The literature acknowledges challenges inherent to distance learning and, by extension, information seeking via a fully online library, which is primarily what libraries could offer during the pandemic. In order to determine the information seeking behaviours of distance learners, Tury et al. (2015) conducted a study with students from 81 countries at one institution who predominantly use an online library. Very few respondents, the majority being undergraduate students, claimed success in finding needed resources. Regarding levels of confidence and claimed success at finding appropriate online library resources, there was a significant number of students with high confidence yet low success. Therefore, students overestimated their skill sets. The majority of respondents who indicated the need for support in the use of library resources were undergraduate students.

Charles and DeFabiis (2021) focus on Michael G. Moore's transactional distance theory as a hindrance to distance learning. This is a 'psychological and communication space that exists in an online setting' (p. 372). Notably, students with a high level of autonomy tend to experience low transactional distance. Surveying graduate students in the Graduate School of Education, they found that intentional interaction with an embedded librarian can serve to reduce the distance perceived by students. One of the major challenges distance learners have is a lack of awareness of library resources available to them. As a result, librarians have marketed resources to students using promotional videos (Dalal & Lackie, 2014). Bonella et al. (2016) surveyed their distance students before and after implementing changes to discover awareness of and satisfaction with library services among online students. Via this longitudinal study they determined that, whereas 55% of undergraduate distance learners were unaware of the library webpage describing key services in 2011, in 2014 there was a 15% increase of undergraduate off-campus students who were aware of these services. This demonstrates the need for and potential impact of marketing of library services and campus partnerships with offices that support distance learners.

### **2.2 Library anxiety of first-year students**

The literature provides many insights into students' reluctance to ask for assistance from a librarian, a behaviour that is identified in the current study. Theories about shame and library anxiety are useful frameworks for describing the barriers students experience when seeking information for academic assignments (Lund & Walston, 2020; McAfee, 2018; Mellon, 1986). Students' perceptions of the research process are characterised by emotions that can inhibit their use of the library, such as fear and apprehension, as described by Mellon (1986) in early research on the phenomenon, as well as by Kuhlthau (1991), but root causes of these emotions continue to be the subject of research (Carlile, 2007; McAfee, 2018). Library anxiety may stem from the library's size, lack of knowledge of where to find information, how to begin the research process, or how to conduct research (Mellon, 1986), and the affective aspects of the research process should be addressed (Kuhlthau, 1991). Perceived lack of knowledge may also contribute to library anxiety (Jiao et al., 2017). Carlile (2007) noted that library anxiety may contribute to inadequate academic behaviours such as reluctance to ask for research help, poor

research and study skills, and avoidance of the library. Additional research by Pellegrino (2012) on strategies to help students overcome library anxiety found that reference librarians' approachability and accessibility as well as a personal connection with a librarian contributed to the likelihood of students seeking research assistance from a librarian, although encouragement from teaching faculty had more influence. Research on information seeking practises by Project Information Literacy (Head, 2013) revealed that the majority of freshmen (first-year students) were overwhelmed by forming search strategies and navigating the amount of information available to them, and most freshmen were underprepared by high school research experiences. A study of 51 freshmen by Gross and Latham (2007) that looked at scores on the Information Literacy Test and Library Anxiety Scale showed that the majority of students with lower proficiencies in research skills overestimated their abilities, but library anxiety scores fell as knowledge about the library increased. A study of library anxiety in second-semester freshmen by Blundell and Lambert (2014) found that students expressed that they were uncomfortable with the research process and unsure how to begin, but students' lack of motivation and willingness to learn emerged as important factors for further exploration. A qualitative study of first-year students by Kocevar-Weidinger et al. (2019) also uncovered feelings of anxiety among participants regarding uncertainty and fear during the research process.

### **2.3 Information and help-seeking behaviours among college students**

The literature identifies librarian/library contact and student perception of IL and library services as factors in student acquisition of research skills. Interaction with a librarian is associated with enhanced IL competency. Bennedbaek et al. (2021) found that student-librarian contact ranging from one-on-one consultations to formal IL instruction sessions was associated with (among other things) increased use of library resources and perceiving the library as an inviting place. However, Black and Allen (2019) noted the prerequisites to academic help-seeking as 'opportunity, motivation, and permission' (p. 64). Opportunity to seek help is predicated on the availability of help from a librarian at the time of need, students must also have a desire to reach out, whether for an assignment or from personal autonomy, and they must feel like they are allowed to do so. Establishing opportunities for building student-librarian relationships is an important factor in encouraging student help-seeking behaviours in academic libraries (Miller & Murillo, 2012). According to two studies by Karabenick and Knapp (1991), students with low self-esteem are less likely to seek help as they regard help-seeking as threatening, while active learners are more likely to seek help because they recognize the need, although they may not always seek help because of their higher proficiency with learning strategies. In an attempt to further explore library perceptions and research confidence of first-year students who receive library instruction, LeMire et al. (2021) conducted surveys. Responses reveal that students became more comfortable asking librarians for help after having a library instruction session, a finding that is supported by the current study. This conclusion also aligns with strategies for reducing library anxiety mentioned above.

Through a two-step process of data collection including an IL test and an interview, Gross and Latham (2009) examined perceptions of IL among traditional first-year undergraduate students who were straight out of high school. Imposed versus self-generated information seeking provided the framework for the investigation. They concluded that from the students' perspective the process of information seeking was less necessary than successfully finding the needed information. Notably, students did not prioritise evaluation of information as a necessary skill set.

Regarding information seeking among distance learners, Oliveria and Greenidge (2020) conducted a 20-year review of literature on library services for graduate distance learners around the world. They concluded that the LIS literature highlights that 'engagement with the library could be a key factor positively influencing students' learning experience' (p. 2).

## **2.4 Information seeking behaviour during the COVID-19 pandemic**

Few studies at this point in time focus on the pandemic's impact on student experiences during the pandemic and on their information seeking behaviour. Shi, Li, and Luo (2021) conducted a qualitative study to determine information seeking behaviour and library needs of college students in China during the pandemic. Findings show that students were not aware that subscription databases, which they could access without going to the library pages, were library resources, suggesting that better outreach by the libraries was necessary. Respondents also exhibited signs of anxiety such as difficulty focusing. It was suggested that libraries offer events that create community for distance learners to address these issues. Yap and Manabat (2021) sought student perceptions of virtual library experiences including reference questions, orientations and instruction from subject librarians. Findings reveal that synchronous and asynchronous instruction were highly valued by students and that the librarians were in sync with students' emergent needs from the pandemic. However, students expressed confusion regarding their IL skill levels.

The COVID-19 literature focuses more on provision of and maintenance of library services as higher education made the shift to fully online instruction during the pandemic (Connell et al., 2021; Costello et al., 2021; Radford et al., 2021). Connell et al. (2021) compared the use of academic services before and after the pandemic at three different higher education institutions, finding that the smallest of the three schools saw the biggest drop in services used and the largest school experienced the least drop in usage. All libraries experienced an increase in virtual communication but also experienced a decrease in usage of their library websites, discovery tools, and major databases. A study by De Groote and Scoulas (2021) had similar findings when they compared library use statistics from before and after the COVID-19 closures. Their institution experienced an overall decrease in services involving student-librarian interactions, including virtual reference and library instruction, but they saw an increase in the use of virtual services as compared to pre-pandemic levels. The decrease in service usage suggests that students' knowledge practices related to the Association of College and Research Libraries (2016) frames 'Searching as Strategic Exploration' and 'Research as Inquiry' may have been impacted by a variety of pandemic-related factors. In an attempt to understand the implications of COVID-19 on pedagogical online practices including librarian education, Costello et al. (2021) investigated how librarians made the shift to online services during the pandemic with a focus primarily on virtual reference. Although many academic libraries had some virtual services in place before the pandemic, it is clear that 'developing a comprehensive strategy for producing, integrating, and marketing online, ILI (information literacy instruction) was one of the most central efforts during this swift, high-pressured, and dramatic transition' (p. 6). It became apparent that librarians were integral in leading their campuses in the continuity of quality online service.

## **3. Methods & participants**

### **3.1 Survey design and recruitment**

The research team sought to examine students' experiences with the library during their first year of college. The survey instrument used for this study received Institutional Review Board

approval from all six institutions and is part of a larger study examining students' high school library experiences and preparedness for college research (Valenza et al., 2021). The survey was co-designed by this research team with the help of high school librarians and was field trialed prior to the data collection in April of 2021. The 64-question survey included demographic, descriptive, and open-ended questions which were informed by previous IL studies (Head, 2013; Head & Eisenberg 2010; Julien et al., 2018; Purcell et al., 2012). Questions included familiarity with IL concepts and confidence in completing research expected of them. Qualitative questions included reflections relating to students' library experiences during their first year in college. This survey was intended only for first-year college students who were recent high school graduates (ages 18–20). It was distributed to first-year students on the authors' six college campuses, as well as alumni over the age of 18 who graduated from high schools whose libraries were studied in Phase 1 of the larger aforementioned research project.

Six U.S. institutions of higher education in the State of New Jersey participated in the larger study and the current one: one large, public research university, two state colleges/universities, one independent university, and two community colleges. A convenience sampling approach was used to garner participants. Investigators at each institution used institution-specific methods to reach first-year students including distributing to email lists and targeting classes specifically for first-year students. Since the larger study included alumni from specific high schools, those students had provided their email address prior to graduating to be contacted for inclusion in this study. Many of those high school alumni attended the six institutions but 18 of them attended different institutions.

### 3.2 Demographics of respondents

A total of 614 individuals took the survey but only 425 answered enough questions to qualify for analysis in the study. The survey was limited to those just out of high school, thus their ages were mostly 18-20. 181 participants (43.6%) were eighteen years old. 222 participants (52%) were nineteen. Sixteen participants (3.76%) were twenty, and seven participants (1.65%) selected 'other'. Participants were largely female with 290 (68.1%) selecting that option, 117 (27.5%) selecting 'male', eleven (2.6%) selecting 'non-binary', one (0.23%) selecting 'other', one (0.23%) selecting 'transgender', and six (1.41%) selecting 'prefer not to answer'. Other demographics collected include if they were born in the United States (84.2%) and if they were a first-generation college student (32.8%). Fifty-four of the participants attended one of the selected high schools. Eighteen (18) of those attended institutions other than those involved in the study. Finally, a survey question asked which of the institutions they attended: Rutgers, The State University of New Jersey: 131 (30.8%); Rider University: 47 (11.1%); The College of New Jersey: 69 (16.2%); William Paterson University: 50 (11.8%); Raritan Valley Community College: 42 (9.9%); Bergen Community College: 68 (16%) and Other: 18 (4.2%). The "Other" were high school alumni from our selected sample in Phase 1 of the larger research study.

### 3.3 Quantitative analysis

Statistical analyses were performed using Qualtrics Stats iQ statistical software embedded in the Qualtrics survey platform. Analysis was performed using Chi-square test to evaluate the relationships between selected variables. A  $p$  value  $< .05$  was considered statistically significant. After the data was normalised, only 425 participants met the qualifications for analysis. Those who did not qualify did not answer enough of the non-required questions to be useful. Since not all questions were mandatory, there was a need to analyse the data dependent on those participants who answered that they had a research assignment and

therefore may have had a greater need to do in-depth research, though it is possible that students without an assignment also interacted with the library resources and librarians. Data was also analysed according to the type of interactions students had with a librarian, either librarian-initiated or student-initiated. A librarian-initiated interaction was determined if a student selected one of the following responses to the question, ‘In what ways, if any, did you connect with a college librarian during your first year?’: a librarian gave a live guest lecture in my class virtually; my librarian participates in my course online; watched a pre-recorded video of a librarian; my librarian actively participates in my online course. A student-initiated interaction was determined if a student selected one of the following responses to that same question: used library resources on the website or LibGuides created by the librarians; asked chat, email, text, or phone reference questions; I had a one-on-one consultation/research appointment with a librarian.

### 3.4 Qualitative Analysis

Two of the qualitative questions included in the survey were ‘What are the three biggest challenges you have faced finding and using information for your course-related research?’ and ‘What gaps exist between the information skills you learned in high school and what was expected of you for college-level research?’ The answers were then sorted into two categories for comparison: students who had a librarian-initiated interaction and students who did not have a librarian-initiated interaction. Using constant comparative analysis, answers were coded by two members of the research team for inter-rater reliability. Codes were entered and compared manually using Google Drive for ease of adding comments and editing a shared document.

## 4. Results

### 4.1 Effect of student-librarian interactions on IL behaviours

Interactions between students and librarians or librarian-created resources were analysed to gain a better understanding of the impact the pandemic had on librarians’ opportunities and ability to support students’ IL needs. As shown in Table 1, 46.7% (198/425) of our total respondents had interactions with their college librarians or the library’s resources, either self-initiated by the student or initiated by the librarian. When we examined the students who indicated in another question that they had to complete a research assignment during their first year of college, 64.7% (n=180) had an interaction with a librarian or library resource. This increase is expected because students with research assignments have greater need for and motivation to interact with the academic library during that process. Table 1 shows the student-initiated and librarian-initiated interactions for all respondents and for respondents who indicated they had a research assignment.

**Table 1:** Interactions with librarians.

	Percent of responses	Number of responses	Percent of responses students with research assignments	Number of responses students with research assignments
Student-initiated interactions				

Used library resources on the website or LibGuides created by the librarians	19.32%	74	20.29%	71
Asked chat, email, text, or phone reference questions	12.01%	46	12%	42
I had a one-on-one consultation/research appointment with a librarian	3.39%	13	2.86%	10
Total unique number of students who had a student-initiated interaction	25.65%	109	37.8%	105
Librarian-initiated interactions	Percent of responses	Number of responses	Percent of responses students with research assignments	Number of responses students with research assignments
A librarian gave a live guest lecture in my class virtually	24.02%	92	24.9%	87
My librarian participates in my course online (i.e. made tutorials or guides, posts discussions/announcements, etc.)	6.27%	24	6.29%	22
Watched a pre-recorded video of a librarian	10.70%	41	10.57%	37
My librarian actively participates in my online course	3.92%	15	3.7%	13
Total unique number of students who had a librarian-initiated interaction	32.2%	137	46%	128
Total unique any interaction (either student-initiated or librarian-initiated).	46.7%	198	64.7%	180

Student interactions with librarians and library resources support their development of the *Framework's* knowledge practices and dispositions. The academic libraries that participated in this study made significant outreach efforts to maintain or even increase IL support to both

faculty and students, knowing that several of the ‘traditional’ methods of supporting students who had research assignments were limited. Despite this, about a third of our respondents who had a research assignment during their first year of college indicated that they did not have any interaction with a librarian (35.3%). In addition, 54% of students with a research assignment did not have a librarian-initiated interaction. Because this is the first semester this survey was conducted, there is no comparative data to know if these numbers are consistent with a pre-pandemic semester, but this information is helpful to know as future IL outreach efforts are considered.

Students who had a librarian-initiated interaction used the college library website, research guides or online services and tools more frequently than those who did not have a librarian-initiated interaction. This is a statistically significant result,  $p < .05$  ( $p = 0.001042572$ ).

**Table 2:** Frequency of library website use by interaction.

Frequency of library website use	At least once	Once for the semester	About once per month	Once per week	Daily	Total
	% <i>n</i>	% <i>n</i>	% <i>n</i>	% <i>n</i>	% <i>n</i>	<i>n</i>
Had librarian-initiated interaction	10% 12	18.3% 22	40.8% 49	28.3% 34	2.5% 3	120
No librarian-initiated interaction	22.1% 25	31.9% 36	33.6% 38	11.5% 13	0.9% 1	113

In addition, 41% of students who had a librarian-initiated interaction also had a student-initiated interaction. However, only 20.5% of students who did not have a librarian-initiated interaction sought help via a student-initiated interaction. This is a statistically significant result,  $p < .05$  ( $p=0.0000140$ ). Although the data does not reveal if one type of interaction causes the other, there is a correlation between students’ exposure to a librarian via a librarian-initiated interaction and their likelihood of seeking assistance from a librarian. Librarian-initiated interactions seem to enhance students’ disposition to ‘seek appropriate help when needed,’ as described in the frame ‘Research as Inquiry’ (ACRL, 2016, p. 7).

Of the students who indicated they were overwhelmed navigating the quantity of information and services offered by the college library, only 25% ( $n=22$ ) had a student-initiated interaction while 75% ( $n=66$ ) of those who felt overwhelmed did not report any student-initiated interactions. This is a statistically significant result,  $p < .05$  ( $p=0.00490$ ). These numbers suggest that the students who are most overwhelmed by what the library has to offer are not seeking assistance from librarians. It cannot be determined whether they are overwhelmed because they haven’t received any help, or whether they are intimidated to ask because they feel overwhelmed, but either way, this finding has implications for how librarians will continue to address issues of library anxiety among first-year students.

The survey question, ‘What have been your most used subscription databases as a first-year student?’ was answered by 87 of the students who had no librarian interaction. Of those

students, 37.9% indicated that they did not use library subscription databases. Of those who responded to this question by naming a resource, the top 5 listed were: JSTOR, 'not sure', Google, and various non-subscription or non-library tools like Moodle, EasyBib, Grammarly, Chegg, Bartleby, and MSWord. One student commented that they 'did not personally subscribe' and another mentioned 'Netflix.'

**Table 3:** Most used subscription databases as a first-year student.

Answer	Had an interaction with a librarian		Did not have an interaction with a librarian	
	<i>n</i>	%	<i>n</i>	%
Subscription tool	99	69.2%	31	35.6%
None	21	14.7%	33	37.9%
Not sure	12	8.4%	10	11.5%
Google	1	0.7%	7	8%
Chegg/citation/word/other	10	7%	6	6.9%
Total	143		87	

#### 4.2. Challenges with *Framework* knowledge practices and dispositions

Students were asked to name the three biggest challenges they faced finding and using information for course-related research. The categories listed in Table 4 come from the student responses to that question. There were 88 students represented in the librarian-initiated group and 80 students in the no-librarian-initiated interaction group. The categories into which students' challenges are grouped demonstrate a need for further developing knowledge practices and dispositions related to the frames 'Searching as Strategic Exploration,' 'Authority is Constructed and Contextual' and 'Information Has Value.'

Of both groups, the most common responses articulated struggling with refining search/search skills. Both groups also struggled with finding quality sources. Although there were fewer responses in the no-librarian-initiated interaction group, a higher number of those students struggled with access to information (13) than the librarian-initiated interaction group (8). A student with no librarian-initiated interaction said: 'The online databases are different from my own high school's which makes it confusing, no one taught me how to use the college database'. A different student in this group noted, 'Another annoying aspect is that it can be hard to find a good, free database [*sic*] to use'. The librarian-initiated interaction group mentioned both creating and utilising keywords ten times, whereas only two responses in the no-librarian-initiated interaction group mentioned keyword searching as a challenge. It is possible that the librarian-initiated interaction group learned about keywords and recognises the difficulty in effectively searching the databases with them, whereas the no-librarian-initiated

interaction group is unaware of keyword searching as a strategy and is still using natural language to search the databases. A student from the librarian-initiated interaction group, in discussing using and applying keywords, explained the challenge as, 'being specific enough in my key terms to narrow down to relevant sources while not being too specific that potentially relevant sources are eliminated.' The most common answers are listed in Table 4 below.

**Table 4:** Challenges first-year students faced finding and using information for course-related research.

Category	Librarian-initiated interaction	No librarian-initiated interaction
	<i>n</i>	<i>n</i>
Refining search/search skills <sup>3</sup>	53	24
Finding quality sources <sup>1,3</sup>	20	17
Navigating the library's website/databases <sup>3</sup>	17	7
Using quality sources <sup>1,3</sup>	14	9
College-level reading	11	14
Citations/citation formats <sup>2</sup>	11	9
Sorting through search results <sup>3</sup>	10	2
Keywords <sup>3</sup>	10	2
Access to information <sup>2</sup>	8	13
College-level writing	7	11
Total unique students who answered the question	88	80

ACRL *Framework* Frames linked to: 1 Authority is Constructed and Contextual; 2 Information has Value; 3 Searching as Strategic Exploration

### 4.3. Gaps in Research Skills

Students were asked to describe 'what gaps exist between the information skills you learned in high school and what was expected of you for college-level research.' Although 'none' was a common response among both students who had a librarian-initiated interaction and those who had no-librarian-initiated interaction, further analysis of the responses reveals gaps in research skills from high school to college. The librarian-initiated interaction group listed 'using quality sources' as its top answer. Both groups reported gaps related to conducting college-level

research in general. This was the third most common theme mentioned by each group, suggesting that fundamental IL concepts like the knowledge practices related to ‘Searching as Strategic Exploration’ and ‘Research as Inquiry’ need to be explicitly taught to students during their first year of college.

Out of 80 students in the no-librarian-initiated interaction group, 29—over a third of the group—reported ‘none.’ It is possible that these students, having not interacted with a librarian, do not recognize the gaps in their IL skills.

Both groups struggled with citations, specifically with needing to learn a new citation format after learning MLA in high school. Comments included: ‘Everything in high school was MLA format so applying APA citations/References & Chicago Style was something I learned on my own for college-level research in my first year’, and ‘I only learned MLA in high school. I have found that many professors expect us to know how to cite in many different ways, like AMA or APA. I was not prepared for that.’ These responses related to citing sources display a simplistic understanding of citation as a technical aspect of their writing, demonstrating a need to further their understanding of the concepts in the ‘Scholarship as Conversation’ frame.

**Table 5:** Gaps between IL skills learned in high school and expectations for college-level research

Category	Librarian-initiated interaction	No-librarian-initiated interaction
	<i>n</i>	<i>n</i>
Using quality sources	19	11
None	18	29
College-level research	13	14
Citation formats	12	12
Navigating the library’s website/database	8	-
College-level writing	6	-
College-level reading	3	-
Total unique students who answered the question	88	80

## 5. Discussion

Despite best and probably intensified efforts to connect with faculty and students to offer IL instruction and assistance during a COVID-19 academic year, less than a third of the total

respondents indicated that they had an interaction with their college librarian. However, of students who had a research assignment, 64.7% of them had either a student-initiated or librarian-initiated interaction. Head (2013) found that interactions with librarians resonated with first-term freshmen and were helpful in acclimating students to the college research process. Further, Tury et al. (2015) in looking at distance learning behaviours of distance learners from 81 countries found that library-initiated interaction or training was identified as a need by a wide cross-section of students, including highly confident library users and successful information seekers. Although only a small percentage of our total respondents connected with a librarian during this pandemic year, a majority of those who needed to complete a research assignment received IL support from an interaction with a librarian in their first year of college.

### **5.1 Student interactions with librarians and library resources: A bridge to IL knowledge practices and dispositions**

Without interactions with librarians or the library's resources, how do the other 35.3% of students with research assignments meet their information needs? Or more importantly, are they using library resources at all? Some insight can be gained by examining responses to the question, 'What have been your most used subscription databases as a first-year student?' This open-ended question was answered by 87 students who had no interaction with a librarian, and the most frequent answer among them was 'None'. Nearly all of those students also indicated that they had a research assignment (n=77). On the contrary, students who had an interaction with a librarian in their first year most frequently answered 'Ebscohost' for this question. The remaining responses, which are categorised as 'Not sure', 'Google', and 'Chegg/citation/Word/other' illustrate that many students do not distinguish between library subscription databases and other online resources or tools used to complete their assignments. One respondent mentioned 'Netflix' and another stated that they 'do not personally subscribe' indicating a lack of understanding of database subscriptions.

Students who demonstrate an understanding of the frame 'Authority is Constructed and Contextual' are motivated to find authoritative sources and begin to recognise that authority may manifest in unexpected ways. While students who are seeking information outside of library resources will encounter those non-traditional sources of authority, beginning researchers especially will be less likely to find traditional, college-level, authoritative sources. Research documents a related lack of understanding of publishing models at a fundamental level that demonstrates the need for research databases in academic libraries (Dalal et al., 2015). Library databases offer first-year students a platform through which they can identify 'basic indicators of authority, such as type of publication or author credentials' (ACRL, 2016, p. 4). The current study's finding that students who do not have librarian interactions do not readily understand what library subscription databases are used for aligns with the findings of Shi et al. (2021). Those researchers found that when students in China were on campus and could access any subscription database without visiting the library website, 'the majority of the participants did not understand the relationship between the library and the subscription databases and did not view the databases as part of library services' (p. 161). Findings also relate to the phenomenon of container collapse (Brannon et al., 2021; Connaway, 2018; Cyr et al., 2020; Valenza, 2016), where the original format of a source of digital information is not discerned by the student. Container collapse complicates the student's ability to evaluate online resources and can be a barrier to developing the IL skills of defining authority and determining credibility (ACRL, 2016; Cyr et al., 2020). This misunderstanding of subscriptions and library resources is especially apparent among students who do not have interactions with their college librarians. Interactions that support IL skills in the first year introduce students to the valuable research tools offered by the library and guide them to the types of publications expected in college-level research

assignments. Without guidance, confusion about the purpose and existence of library research databases further complicates students' ability to 'recognize that authoritative content may be packaged formally or informally and may include sources of all media types' (ACRL, 2016, p. 4).

The correlation between students who feel overwhelmed by the library's offerings and their reluctance to reach out to a librarian for help is an important finding. The majority of students who reported feeling overwhelmed by the quantity of information and services offered by the library did not report any student-initiated interactions. They are the least likely to seek assistance from a librarian and the most overwhelmed by what the library has to offer. The link between students' reluctance to reach out for help and feeling overwhelmed by the library supports Carlile's (2007) finding that library anxiety contributes to a reluctance to seek help and Mellon's (1986) assertion that the library's size and a lack of knowledge about the research process contribute to library anxiety. A significant number of first-year students who participated in this survey are very early in their development of the disposition to 'seek appropriate help when needed' (ACRL, 2016, p. 7). This reluctance inhibits their ability to grasp 'Research as Inquiry', the frame that includes that disposition and which was self-reported by the students as a challenge in their first year. This finding is particularly important during COVID-19, when the methods by which a student could seek help from a librarian were primarily remote, making it more difficult for librarians to establish connections with students. Pre-dating both the *Framework* and the COVID-19 pandemic, Karabenick and Knapp (1991) found that students with low self-esteem are less likely to seek help. For years to come, residual effects of the pandemic on student confidence, esteem, and anxiety are likely to further impact help-seeking behaviours. In addition to guiding students through the Research as Inquiry knowledge practices, librarians will need to encourage and help develop students' disposition to seek appropriate help, as well as 'value persistence, adaptability, and flexibility and recognize that ambiguity can benefit the research process' (ACRL, 2016, p. 7).

However, the results of this study also show that students who had a librarian-initiated interaction were more likely to use the college library's website, research guides, and online services and tools. The fact that students who had a librarian-initiated interaction were significantly more likely to use the library's online resources supports research that demonstrates guidance from a librarian helps ease the sense of feeling overwhelmed (Gross & Latham, 2007, LeMire et al., 2021). During IL instruction led by librarians, students not only become aware of and familiar with library tools but also begin to learn *Framework* concepts like 'Searching as Strategic Exploration.' Similar to the finding that students who had a librarian-interaction could more accurately identify library research tools like databases, these students exhibit knowledge practices associated with 'Searching as Strategic Exploration,' including matching information needs to appropriate search tools and understanding information systems in order to access information (ACRL, 2016).

Students' qualitative responses to open-ended questions demonstrate that those who did not have a librarian-initiated interaction struggled with the basics of research, while those who did have a librarian-initiated interaction struggled with more complex and nuanced aspects of research. For example, students who did not have a librarian-initiated interaction frequently listed 'finding credible sources' as a challenge. Students who had a librarian-initiated interaction also reported challenges with credible sources, but their comments were more specific, for example, 'struggling to find the right source in scenarios' and 'knowing which source best fits my assignment.' Similarly, students who had a librarian-initiated interaction were more likely to articulate finding 'scholarly' or 'peer-reviewed' sources as a challenge; although they report finding credible sources as a challenge, they exhibit more sophisticated understanding of and

vocabulary to describe source types than those who did not have a librarian-initiated interaction. These students' responses show more growth in the concept of 'Information Creation as Process' than those who did not have a librarian-initiated interaction.

Similarly, more students in the no-librarian-initiated interaction group struggled with access to information (13) than those in the librarian-initiated interaction group did (8), suggesting that if some of these students had a librarian-initiated interaction they may have been able to find and access needed information more effectively. This finding aligns with previous research showing students had increased IL competence associated with an interaction with a librarian (Benedbaek et al., 2021). The introduction to library databases and research tools that is typically part of IL instruction develops students' ability to identify who might produce the information they need and then access that information, as well as to match their information needs to an appropriate search tool, both of which are 'Searching as Strategic Exploration' knowledge practices.

## 5.2 Impact of librarians' pivot strategies on IL instruction

Despite all of the positive findings associated with interacting with a librarian, of the students who indicated they had a research assignment, 54% of them did not have a librarian-initiated interaction. The libraries participating in this study pivoted IL instruction to remote modalities, offered live remote lectures, created or enhanced online videos and tutorials, and had librarians available for virtual reference and research services. But still more than half of the students who may have benefited from IL support did not indicate receiving it. Why is it that only 46% of students with a research assignment had a librarian-initiated interaction? It has been documented that faculty do not always invite a librarian to prepare students for a research assignment. Reasons cited for this include lack of awareness, curriculum time constraints, a preference for teaching these skills themselves, not seeing the relevance or need, and difficulty scheduling a session with the library (Cannon, 1994; Nilsen, 2012). Faculty need to be made more aware that students who attend library instruction have significantly less library anxiety compared to students who participate in IL instruction (Fleming-May et al., 2015; Van Scoyoc, 2003, p. 337).

The fact that over half of the students who had a research assignment did not experience a live, virtual lecture from a librarian, did not have a librarian participating in their online class and did not watch a pre-recorded video of a librarian is (probably) consistent with the percentage of students in any given semester who must conduct research but do not have a librarian 'pushing in' to their class. The challenge in the COVID-19 environment was that one of the most traditional avenues by which a student might interact with a librarian—by physically visiting the library—was an avenue cut off from many students for a variety of reasons. This is especially acute when considering Benedbaek et al. (2021) who identified consistency as a key in creating relationships with librarians, saying it 'provides the structure for a more consistent and individualised experience for student-librarian interactions, allowing students to build a relationship with a particular person' (p. 10). Similarly, traditional one-shot IL sessions which would have been held in-person with classes were either limited or impossible during these students' first year because of COVID-19 restrictions. While the libraries participating in the study offered virtual or remote-synchronous equivalents, classroom faculty were also navigating numerous instructional challenges with these modalities. Many faculty who had to teach in an online modality had never done so before. The challenge of integrating IL in online courses has been documented. Charles and DeFabiis (2021) addressed the question, 'How do you bring the apparently bottomless resource potential available in an online library to the online student?' through the use of an embedded librarian (p. 371). By doing so, they were able to reduce the

inherent transactional distance experienced by students in an online environment. However if faculty did not choose to include an embedded librarian and merely link to library resources (or did not even do that), the previously described problems with novice researchers finding authoritative sources would only increase. While this may have always been a challenge with online education, when nearly the entire higher education system went 'online,' the number of students negatively impacted by that inherent transactional distance increased dramatically.

Regardless of whether students had an interaction with a librarian, they identified challenges with citation. The survey uncovered this understanding or attitude in the first-year students, showing resistance to learning another citation style. It is imperative that students understand why they are citing so they see themselves as contributing to scholarship, which makes them predisposed to understanding the relevant dispositions. While first-year students may not be taking courses within their discipline, they should still have an introduction to 'Scholarship as Conversation' and see citation as more than simply a technical skill. The literature shows that faculty believe first-year students are only familiar with citation mechanics, MLA style, and the fact that citing is required (Baird & Soares, 2020). Students participating in the scholarly conversation may not be something normally addressed in the first year especially since faculty find citing low on the list of instructional priorities for librarians (Ard & Ard, 2018). Instead it needs to be addressed in upper level or disciplinary courses making this concept more in the domain of the discipline faculty. Librarians need to collaborate with faculty to inform them of this gap and to develop viable instructional methods for the acquisitions of these skill sets. Further, the opportunity exists for academic librarians to work in tandem with high school librarians to lay the foundation for students to see themselves as contributors and creators of information and understand the spirit of citations, rather than only grasping the mechanical knowledge practice of giving credit to others. This is necessary in all types of instructional modalities (online, hybrid, in-person). This is an area for future study.

### 5.3 Limitations

There are limitations to this research. The survey was co-designed by college librarians from various universities who tried to make questions generic and workable for all institutions. Students might not have understood or recognized some of the phrasing, like 'guest lecture from a librarian', which could have affected their responses. The research study was conducted entirely online, including recruitment, limiting participants to those who are comfortable with online technology. Another limitation is the use of the volunteer sampling approach, which is a convenience sampling technique that consists of recruiting participants from areas that are easily accessible to the researcher. Since most survey questions were not required to be answered by participants, sample sizes varied per data point. Finally, the original study was designed to survey students in what was expected to be a typical semester. The pandemic's impact on students' learning and lives likely altered how they would respond to these questions and how they would behave in their first year of college.

### 5.4 Implications

The implications from this research are useful, not just to reflect on what was learned from one pandemic year, but to help prepare for the present—and potentially a future of—continued increases in remote services. During the pandemic, librarians are encountering the same challenges they have for years: communicating with faculty, increasing student awareness of resources, and offering relevant services. Librarians are agile. In their institutions they are game changers and early adopters, and they were able to provide continuity of services during an exceptionally difficult academic year. At the time students took this survey, the Delta and

Omicron variants of COVID-19 were not yet in existence, and many were expecting campus operations to more closely resemble a pre-pandemic semester by the year 2022. As this article is being written, however, colleges and universities in the U.S. are preparing for the Spring 2022 semester with temporary remote learning and in-person instruction delays (Jaschik, 2022). Higher education institutions around the world will continue to offer online options, even once this pandemic has passed, and the lessons learned from this survey can be applied to serving those students. This research highlights the need to continue to gather data about the usage of library services in order to ensure that students' needs are met and also to prepare to offer relevant IL services in the event of future shutdowns. This study also indicates the importance of promotion of library services and IL instruction, as other research on the use of library services during the pandemic has revealed (De Groote & Scoulas, 2021).

### 5.5 Opportunities for future study

The challenges brought on by the COVID-19 pandemic will have lasting effects on higher education, including academic libraries. Future research could examine how students' research behaviours have evolved in light of new instructional delivery methods, technological advances, and course expectations. Librarians can and should continue certain strategies that were adopted to meet remote learning needs, and the effectiveness of these strategies is worth continued study.

## 6. Conclusion

The first-year college students who participated in this survey encountered college in an unprecedented time. Several of them did not have an interaction with a librarian at all and only 25% physically visited their academic library. While the students in this study primarily attend six institutions and all in the same U.S. state, their experience is not unique: other students at other institutions experienced the same pandemic and disruption. Students were already anxious due to the pandemic, and the tendency of students to experience library anxiety is well-documented (Carlile, 2007; Gross & Latham, 2007; Lund & Walston, 2020; McAfee, 2018; Mellon, 1986). In addition, nearly every student was forced to become an online student, facing the challenge of transactional distance which can increase feelings of isolation and disconnectedness. This study suggests that interactions with librarians supported students' awareness of their IL skills and also gave them greater knowledge about access to library resources. Since some of the student-librarian interactions were curriculum-integrated, partnerships with teaching faculty remain vital for encouraging students to seek help from librarians, and previous research has indicated that students are influenced by their professors (Head, 2013; Pellegrino, 2012).

Librarian interactions are a bridge to the acquisition and development of the knowledge practices and dispositions of the *Framework*. Although only a third of our total respondents had an interaction with a librarian, the data demonstrates that those interactions are valuable for first-year students. This is consistent with literature detailing successful and meaningful first-year library and IL interactions (Berg, 2018). Librarians need to continue outreach efforts to initiate interactions with students, to remove barriers that may prevent students with research assignments from initiating interactions with librarians, and to educate faculty on the value of providing opportunities for librarian-initiated interactions. All of this has been made more difficult in light of 'Zoom fatigue', instructors who are overwhelmed by their own pivot to remote learning, and everyone dealing with their own pandemic limitations (e.g. children at home or illness in the family). But particularly in situations where students may be less inclined to initiate these interactions proactively, like when campuses are closed due to a global pandemic and anxiety in general is at an all-time high, librarians should try to find new and creative ways to get in front

of students. Indeed, intentional librarian-student interactions are a clear bridge to developing first-year student IL skills as the world emerges from the Covid-19 pandemic.

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