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Purpose

The purpose of this study is to investigate how first-year students conduct everyday life research and how, if possible, their everyday research skills can inform information literacy instruction in higher education. Very few studies in information literacy emphasize existing knowledge that students bring with them to college; instead, the emphasis tends to fall on deficits in students' academic research skills. Strengths-based approaches or asset-based approaches as found in the literature of psychology and education provide a basis for exploring this direction in information literacy education.

Design/methodology/approach

The research used a phenomenographic methodology, interviewing 40 first-year students from four different institutions; including two large research institutions, a medium sized university, and a community college.

Findings

Our qualitative study suggests that first-year students are capable of using information purposefully to learn or research interests that have sparked their curiosities. They are also capable of reflecting on the ways that their investigations fulfilled their purposes, resulted in unexpected outcomes, or made them consider their issue in a new light. These existing

capacities provide promising starting points for strengths-based approaches to information literacy instruction.

Originality/value

This study provides a valuable contribution to empirical evidence of student research skills prior to entering higher education and suggests connections between those skills and the ACRL Information Literacy Framework. In addition, the study provides a case for strengths-based education, activating students prior knowledge to learn and create new knowledge.

Practical implications (if applicable)

Dialogue with students about prior research experiences enables teaching librarians to plan engaging, authentic information literacy curriculum that acknowledges existing strengths.

Social implications (if applicable)

Keywords:

Information Literacy, Constructivism, First-Year students, Phenomenography, Strength-based approach, asset-based approach

Type: Research Paper

**Title: On Their Own Terms: First-Year Student Interviews about Everyday Life Research
Can Help Librarians Flip the Deficit Script**

Introduction

How well do teaching librarians know first-year students as researchers?

We typically have a lot of ideas of what we expect first-year students to know about research. We believe it is critical to provide first-year students with baseline knowledge about research so that they can succeed in their first-year research projects and establish transferable skills that they can carry with them into subsequent research endeavors. We may spend considerable time with their instructors, getting to know their research assignments for first-year students and the more advanced research challenges that students will face as they progress more deeply into the curriculum. Our goal is to develop a clearer sense of what first-year students *need to know*.

But how much do we know about the research experiences that first-year students bring with them into higher education?

Although our professional literature frequently emphasizes gaps in students' preparation, there are reasons to expect first-year students to bring a significant core of learning experiences on which to build in higher education. First-year students have demonstrated sufficient skill and aptitude as learners to get through high school. Many have learned to manage family and work responsibilities as well. Our students engage in personal interests in their free time, and such pursuits inevitably involve the use of information to inform their choices. Undeniably, many first-year students struggle to do research in a higher education context, but the issue is not

simply a lack of knowledge on the students' part. It is more realistic to attribute such challenges to difficulty in adapting or transitioning to the more specialized research norms one finds in higher education. As Salisbury and Karismanis put it:

While it is not surprising, nor should it be expected, that commencing students are ready and equipped for discovering and using scholarly information, it should also not be assumed that this lack of awareness and readiness means that students are information illiterate. . . . Existing skills represent a milestone along the lifelong information literacy learning continuum and provide a starting point for building and refining existing skills to suit the university environment. (2011, p. 44)

Viewed from this perspective, the challenge for teaching librarians in higher education is not just to determine what beginning students need to know; it also involves capitalizing on what these students already know.

We undertook this project in hopes of developing a more holistic sense of what our students bring with them as they transition into higher education. We are not alone in looking beyond deficits for possible starting points to stimulate students' learning. Constructivist learning theory emphasizes building on prior knowledge, particularly as it is applied to information literacy instruction (Cooperstein and Kocevar-Weidinger, 2004). The information literacy movement has begun to consider the promise of asset-based learning, as evidenced by the ACRL Instruction Section's recent review of scholarship in this area (ACRL Instruction Section, 2018). Positive psychologists have long touted an emphasis on strengths as the surest path to learning and growth (McCashen, 2017).

We decided that the best way to explore possible alternatives to our field's predominant emphasis on gaps was to ask first-year students about their prior experiences using information to learn. The research team conducted semi-structured interviews with first-year students at four institutions varying in size and student populations. We analyzed the resulting interview data using the phenomenographic method in order to identify thematic variations and similarities in students' experiences of searching for and using information to learn more about something new or to solve their everyday life problems. Although our conversations with students took us in strikingly divergent directions, our time talking with our students resoundingly confirmed our initial hunch: when it comes to research, there is much, much more to first-year students than just their deficits.

Literature Review

A review of the literature on first-year students and their information literacy skills yielded four areas for closer examination: faculty and librarian perceptions of first-year students' information literacy skills, first-year students' self-perception as researchers, predominant assessment methods for evaluating student information literacy, and the disconnect between high school and college information literacy curricula.

Faculty and Librarian Perceptions of Student Information Literacy Skills

A significant portion of the library research literature reports on faculty perceptions of first-year students' information literacy skills. Bury's (2011) survey discusses faculty perceptions of first- and second-year students as lacking information literacy skills. As for undergraduate

students who are about to graduate, only 52% of surveyed faculty believe that they are information literate (Dubicki, 2013). Some studies of disciplinary faculty affirm similar concerns. Perry's (2017) interviews with science faculty reveal challenges students face while evaluating different types of information sources. Furthermore, in Kim and Shumaker's (2015) survey study, both faculty and librarians gave lower appraisals of student's information literacy skills than students gave themselves. In particular, the researchers found a statistically significant disparity for participants' ratings on critical evaluation and legal and ethical use of information. Some of faculty and librarians' negative perceptions may be attributed to students' overconfidence in their information literacy skills.

Students' Self-Perceptions

The research team of Gross and Lathan has significantly contributed to the literature on students' views of their information literacy skills and perceptions of a research process (2007, 2009, 2011, 2012, 2013). They find that, both before and after administering an information literacy test, students tend to overestimate their performance. This is especially true of students who do not score at a proficient level on the test (Gross & Latham, 2007, 2011, 2012). Even after a one-hour workshop on research skills, students still exhibited difficulty adjusting their own evaluation of their information literacy skills (Gross & Latham, 2012). In addition to the inflated views of their information literacy competencies, interviews with students paint a picture of research as a simple matter of searching for and locating the answer rather than a process of locating, evaluating, and using the information (Gross & Latham, 2009, 2011).

Similar to Gross and Latham's work, Angell and Kose (2015) asked students to estimate their performance on an objective test that included questions about information literacy and

general knowledge. The researchers found that students struggled with estimating their performance on both tests, implying that information literacy skills prediction is not unique in this regard. On the contrary, other studies that ask students to rate their confidence in their information literacy skills show surprisingly different results. While Gustavson and Nall (2011) find no significant relationship between students' predictions and their performance on an objective test of library skills, in their study of students in a first-year experience program, Kim and Shumaker (2015) discover a positive correlation between students' confidence in their research skills and their successful performance on research assignments that demonstrate these skills. One may conclude that students form a more realistic idea of their skills in research contexts that involve more of their time, attention, and personal investment, i.e., on assignments rather than on standardized tests.

Assessment Practices

To better understand the literature discussing faculty, librarian, and student perceptions of information literacy competencies, it is important to examine the methods used to assess those skills. Walsh's (2009) review of a decade of information literacy assessment practices found that the most used assessment methods were bibliographic analysis, quizzes/tests, and multiple choice questionnaires, with the latter the most popular choice among librarians. Recent studies confirm a reliance on quizzes and tests, with mixed results. Bryan and Karshmer (2013) and Chan (2016) discuss the results of post-testing that illustrate increased student performance after library instruction compared to pre-testing which identified student knowledge gaps. However, Carlin (2013) and Hufford (2010) did not find a significant information literacy improvement while testing student competencies after library instruction.

Besides being the most popular tools, multiple choice quizzes or short answer tests are straightforward and convenient for librarians to adopt and implement for quick measurement of library-centric facts and concepts. However, as Oakleaf (2008) argues, these tools do not measure “complex behavior or authentic performances” (p. 236) and can be oversimplified. In addition, if designed in-house, challenges can arise when staff lack the expertise to design a reliable measurement. Do the instruments we use to assess the information literacy of first-year students skew our findings to emphasize knowledge gaps and information literacy deficiencies? What if we are missing a considerable amount of students’ prior research savvy because our assessments do not uncover that knowledge?

Transition from High School to College

Recent research examines students’ high school experiences in an attempt to explain the lack of information literacy skills among first-year college students. Some studies examine various predictors of students information literacy competencies (Fabbi, 2015; Lanning & Mallek, 2017) while others survey high school librarians about their perceptions and expectations of high school students’ knowledge and skills (Varlejs & Stec, 2014; Saunders, Severyn, & Caron, 2017; Schroeder, 2009). After incoming students averaged a grade of C on a pre-test in a one-hour information literacy class, Lanning and Mallek (2017) investigated 47 factors ranging from high school characteristics to social and economic circumstances to explain the low pre-test grades. Among the multiple factors studied, the researchers found that only the ACT score and current college GPA had a discernible correlation with students’ information literacy pre-test scores, and those factors predicted the pre-test score only 20% of the time. Comparably, Fabbi (2015) studied a range of factors that contributed to the development of

information literacy skills in first-year students. She found only one factor that bore a significant relationship with test results: the number of honors classes taken as a high school student.

In addition to investigating the predictors of student information literacy competencies during the first year of college, researchers examine a disconnect between high school and college librarians' expectations of students' knowledge and skills. While conducting a nation-wide survey of both high school and college librarians, Saunders, Severyn, and Caron (2017) found some teaching discrepancies between the two groups. A majority of high school librarians reported spending significant amounts of time on teaching citation skills, but only one third of college librarians believed students were prepared to properly cite sources (Saunders, Severyn, & Caron, 2017). The authors call for improved communication between the two groups of librarians to reduce conflicting perceptions.

Moreover, as Oakleaf and Owen (2010) point out, high school and college librarians share a lot in common that can serve as a basis for productive partnerships. They suggest establishing a syllabus study to determine the skills and dispositions that high school students will need to demonstrate in their first semester of college. The resulting list of objectives would serve as a starting point for the community to align and coordinate information literacy efforts.

The literature regarding first-year students and information literacy competency is resoundingly negative, most frequently concluding that students come to higher education with information literacy deficits that need to be fixed. To start considering another way forward, the research team of Salisbury and Karismanis (2011) encourage us to give first-year students the benefit of the doubt. While acknowledging that first-year students have much to learn, their study

reminds us to uncover and strengthen first-year students' existing skills. Why does this approach seem to be the exception rather than the norm?

Method

To examine students' perspectives about their everyday life research experiences, we chose a phenomenographic research approach. This qualitative method is used to discover a variety of ways people perceive and experience a phenomenon in order to reveal the relationships between the subject and the phenomenon of interest (Gross & Latham, 2011). As stated by Gross and Latham (2011), the purpose of phenomenography is to develop a "second-order" understanding of other human experiences and perceptions of a certain aspect of the world. Such understanding is further mapped to reflect "the qualitatively different ways in which people experience, conceptualize, perceive, and understand various aspects of, and various phenomena in, the world around them" (Marton, 1986, 31).

Our goal was to ascertain a thematic understanding of first-year students' everyday life research as a collective rather than an individual experience. While developing the method, we scanned library science literature for existing studies that inventory students' everyday research experiences. Alison Head's (2011) research on how college students use the web to conduct everyday life research informed our study and influenced the development of our interview protocol. We also reviewed ACRL's *Information Literacy Competency Standards for Higher Education* (2000) and *Framework for Information Literacy for Higher Education* (2016) to develop interview questions that connected everyday research experiences to higher education information literacy standards. We focused on the types of questions first-year students pursued,

how they went about locating and evaluating potential answers to their questions, and how they applied the newly found information in their personal experiences. We piloted our instrument with library student workers, made the necessary revisions, and decided on an individual semi-structured interview protocol.

Participants

Participants were first-year students from four U.S. institutions of higher education, including a community college, a mid-sized masters-level university, and two large research-oriented universities. Located in urban areas, three of the institutions have students from a wide variety of socio-economic, cultural, ethnic, and religious backgrounds. One institution is located in rural area, attracting a predominantly homogeneous student population. Three of the institutions' incoming students have SAT scores ranging from 1100 to 1200 and an average 75 - 85% acceptance rate. The community college employs an open admissions policy with a 100% acceptance rate.

The researchers recruited participants on a volunteer basis with the assistance of faculty members teaching first-year seminars and introductory major and writing courses. Each researcher submitted IRBs to their respective institution. Each institution also provided incentives for participation, ranging from modest commercial and university bookstore gift cards to candy bars. The only criterion the student had to meet was a first-year status in higher education. Participants were informed of the voluntary and confidential nature of the research via verbal and written instructions on a consent form.

Data Collection

Each librarian then conducted semi-structured interviews with open-ended prompts and followed up with questions as needed. All interviews were digitally recorded and uploaded in a secure cloud storage space.

During the interviews we asked the participants the following questions:

1. List 5 things/events/situations in the past year for which you sought an explanation or were curious about.
 - a. Circle the questions that required explanations sooner or later, had some urgency.
 - b. Put a check mark for those you were passionate about
2. Select one question, preferably one that had urgency and that you were passionate about.
3. What steps did you take to find explanations, to satisfy curiosity or fill a gap?
 - a. List 4 if possible
4. Describe the process you used to choose the best explanation OR describe the process you used to decide that you were satisfied with an explanation.
5. Once you come to the found explanation, filled the gap or satisfied your curiosity, how did you apply what you learned?
 - a. What did you accomplish?
 - b. How did it change your initial thinking?
 - c. If you have a similar situation in the future, would you use the same process: why or why not?

We concluded the interview by asking if they had any additional information or questions. The interviews were then transcribed verbatim.

Data Analysis

The recorded interviews were transcribed as Word and plain text documents. Each researcher then listened to and read all of the interviews. To develop codes and categories, plain text data were imported into Coding Analysis Toolkit (CAT), a qualitative analysis package which is free and open source software. Each interview was analyzed and coded by two of the researchers. The two researchers then normed their coding and selected quotes that vividly reflected the codes. After coding, researchers arranged the codes into a structure to illustrate thematic variations in student accounts of their research experiences and skills. This iterative process continued until the categories and the relationships between the categories of the everyday research habits of first-year students were agreed upon and consolidated. Finally, the researchers provided the most relevant participant quotes to illustrate the themes.

Results

Five sequential, often interconnected categories emerged from our iterative analysis of the forty interviews. The categories reflect the participants' narratives of their everyday life research experiences from the origination to the conclusion of their research question.

1. **Reason:** What reasons do participants give for using information to learn about something new?
2. **Sources:** What types of information sources do participants turn to?
3. **Selection:** What do students consider when selecting information that suits their purposes?
4. **Impact:** How does the everyday research impact the participant?
5. **Reflection:** On reflection, what do students think about the strategy or process they used to learn something new?

These categories reflect the collective experiences of first-year students conducting everyday life research; therefore, participants' individual research experiences may be attributed to multiple categories (Maybee et al, 2013).

Category One: Reason

This category describes students' expressed motivation behind information-seeking behaviors. Two major themes emerged from our interviews: curiosity and problem-solving.

Theme: Curiosity

Participants' curiosity was sparked by abstract intellectual and spiritual questions as well as practical challenges that arose in their day-to-day lives. But regardless of the spark, students demonstrated a "desire to understand various phenomena and a quest for knowledge" (Pisula, 2009, p.129).

Some students' questions showed exciting potential as topics for academic research. For example, one study participant was intrigued to learn more about Bill Clinton while watching the 2016 presidential campaign and hearing the name of Monica Lewinsky:

Participant [hereafter P]:... Yeah, I live in the dorms, so we watched the election in the lobby. So I was wondering if he [Bill Clinton] and Hillary were still married and I googled it that night, and me and my roommate went through and found all this other stuff together.

Another participant was curious about physics and liked to debate with her brother.

P: ...Oh, well, like I said I debate with my brother a lot and he's an engineer. And, I'm actually going into education, but we had a whole three-hour

conversation about basically how light speed is relative to modern time.

One participant shared a more intimate question about spirituality and how his upbringing led him to research different religions:

P: ...I grew up in the church, in the Christian church and my dad was a pastor, and so, I would say I've always been a Christian. But, um, uh, probably around, or a few years ago, I really started, like, getting into apologetics, which is like researching the defense of the faith and like, more recently through that, I've really, like, really getting more interested in world religions and more like world cultures through that. So, yeah. So that's like how I got interested into that topic to find ways to cope with it better and do better in school.

Curiosity or interest that led to inquiry was a prevalent theme that could be capitalized on in the classroom. Our students are curious about the world around them and how it further impacts them. How can we bring their curiosity about everyday life into our content-specific classrooms?

Theme: Problem Solving

In addition to curiosity, our participants' research was frequently motivated by problems varied greatly in subject, urgency, and complexity. Our participants proactively sought answers to their individual problems in a range of areas, including active citizenship, legal matters, health issues, college choices, and future careers.

Upon hearing her medical diagnosis, one participant wanted to learn how to deal with her medical condition and its implications in her school life:

P.: Well I just got diagnosed with like ADHD. Trying to understand it a little bit more and find ways to cope with it better and do better in school.

One participant wanted to make social change in her community by providing more inclusive, safe skating opportunities in the local community:

P.: So, so far I would like to create a gated skate park in San Antonio, specifically in my district. So, my passion came from my younger brother, he was diagnosed with autism and I guess the stereotypes of skaters are very like, druggies, long hair and all that, and so I was thinking that it would be a good idea to implement a skate park like the one in Houston, which is like really big, and it's gated and supervised. So, I said that can change, really, like flip the coin, I guess of the aspect of the way skaters are viewed and there may be, you know, it's like an outlet, like individual sports are an outlet for people to destress and all that, and so by creating a park here like that you're breaking those barriers and breaking all those stereotypes. So, that was really my main concern. So, that's what I've been advocating for I guess.

Perhaps our highest stakes problem solving questions involved immigration. One participant wanted to know about “the immigration visas in the United States and how to get a green card” and another researched the ways to bring her boyfriend to the country:

P.: ...Okay, that is um, how I can bring my boyfriend to the US?

Researcher [hereafter R.]: Oh because you're so in love with each other? Oh my

God, that is so sweet.

P.: Thank you.

Our participants' problems ranged from low stakes (finding driving directions to a local sporting event) to high stakes (whether or not they could legally remain in this country). Most importantly, our participants were engaged and heavily invested in finding solutions. Participants demonstrated the ability to articulate research questions that resonated deeply with them and motivated them throughout the research process.

Sometimes it was challenging for us to differentiate between curiosity and problem solving. The following example exhibits how curiosity about rock climbing measurement led to a problem solving situation. This participant wanted to know about the Yosemite decimal system.

P.: ...It's the system they use for rock climbing and mountain biking. It just rates the difficulty of a certain path. So if something's like a 5, so rock climbing that would require a harness and climbing shoes, would start at about 5.1, and this goes all the way down to a 5.15, which only a few people in the world can climb. So I just started climbing at the gym here and didn't understand any of the grades, just understood that I could touch only a few of the first ones, like a 5.5/5.6 at the start.

Our data about students' motivations to pursue research holds particular promise for application in instruction, as it can be used to inform librarians and faculty as they seek to elicit

students' curiosity for research projects. In our collective instruction experience, we have often heard faculty members' dilemma: to assign research questions that their students may not be interested in, or to let students pick their own research questions for research paper topics. If instructors go with the latter option, the danger is that students may not be able to think of any topics and they resort to picking "safe" topics, such as gun control, abortion, or legalizing marijuana. However, when we asked our participants to list five things they researched in their personal lives during the past year, select the one that had the most urgency and one that they were most passionate about, they did this relatively quickly and easily. In this part of the interview alone, we learned that when prompted, students reveal that they are curious problem solvers. How can we flip the deficit script of faculty frustration from assigning or letting students select topics to soliciting research topics and questions that capitalize on student everyday curiosity? Is it possible to change how we prompt our students to generate paper topics in a way that replicates the interest and passion that they demonstrate about their everyday research?

Categories Two and Three: Sources and Selection

Participants offered their reasons for selecting sources along with reporting the sources they used; therefore, our participants' experiences are best relayed to our readers by combining these two categories. Participants' selection and use of sources was a complex and intertwined process using multiple types of sources and a variety of selection rationales that culminated in four themes:

1. Participants view everyday research as social, based on personal and professional relationships.

2. Participants experience research as a multi-step process involving various types of sources.
3. Participants corroborate information with multiple sources.
4. Participants do what they know.

Theme: Participants view everyday research as social, based on personal and professional relationships.

Our participants experienced the research process as a social function, debunking the stereotype of the solitary researcher. In the social sphere of research, participants selected people based on their authority and reliability. For instance, a participant trying to find financial aid information started at a university's website and followed up with several people:

P: So the first thing I did was search the website, ... they have a very nice website that allows you to input the question and it has a smart system that will bring up resources about that... Although I did do that, I always like clarifying my stuff with an actual person on campus, so the next three steps are all fairly person based. I talked down at the enrollment center, but they weren't able to cover it all, ... so they sent me to financial aid, so then I did make a meeting with my area university representative, but just to double check I did email someone from fiscal services and financial aid several times on campus just to make sure that everything was figured out.

Establishing personal relationships with local government officials as the first authoritative and informative source was crucial to one participant's research in finding out how to create a skate park:

P: ... they started seeing that I really had interest in doing this, then they started like, okay, let's see what you got, what you want to do, and all that. So, it was really actually really cool because now I'm really close with the people in the office, and I go and I joke with them, so it's really fun.

Participants readily identified the value of personal connections in the research process. The social value of personal connections was both informative and emotional as demonstrated in the following excerpt:

R: So how do you think face to face communication was different than email communication?

P: ... They got it right away. Then it was like, okay. It didn't feel so structured. It felt more fluent. I knew who I was talking to like it was just more a better atmosphere than to just, you know.

The social aspect of our participants' everyday research was a predominant element of their everyday research process. Whether peers or family or friends or professionals or teachers, participants greatly desired to verbally communicate their information needs and connect with other people for content, problem solving, and emotional support. How can librarians and faculty incorporate incoming students' social experience with research into their academic assignments?

Theme: Participants experience research as a multi-step process involving multiple types of sources.

In addition to experiencing everyday research as a social enterprise, our participants used various types of sources as a multi-step process encompassing digital, multimedia, print, people and primary sources. One participant combined seeking answers from a medical professional with searching on subject-specific websites after being diagnosed with a health condition:

P: ... So, I talked with my doctor and she explained it a little bit more what it was.

... and then, later on that day, I went on WebMD, started looking at different things, like side effects, treatments, different things that I could do, just symptoms and stuff like that. And then medicine.net same thing, I guess I just needed a second, or third, confirmation type thing. And then I went on drugs.com to look up the medication I was given and the side effects of it because at the time I was taking pharmacology for my spring semester course, so I used that site to do a lot of my drug cards, so, you know it's a pretty reliable source. So I was just looking at the dosage, side effects, and kind of like interactions it would have with other drugs. For example, I learned that it could lessen the ability of birth control and at the time I was on birth control.

Many of our participants weaved together social and text-based research to gain a deeper understanding of their questions and corroborate the accuracy and reliability of their sources.

One participant combined his friend's expertise with watching YouTube videos and a TV show to learn more about baseball:

P: ... Yeah, cause my friend wasn't good at explaining and like watching it you only learn so much if you go to the games alone, and then YouTube didn't work out. Um, so it's just, mainly right now I'm just going based off the show. And then I'll call my friends.

Returning to the participant who was investigating classification systems for rock climbing, she first addressed her questions to employees at a rock wall center, then sought more information and verified what she learned from the employees using Google:

P: ... Well, the first thing was I asked people at the rock wall. I figured someone would know. I got some vague information about intermediate, how eventually when you get to a certain point they start adding on letters and pluses and minuses to distinguish difficulties even within the same subcategory. Right. And then I started googling the whole process and looked at the Wiki page and watched some Youtube videos about it.

We were pleasantly surprised that one participant could identify primary sources were and understood their value in the research process! The participant who was investigating Bill Clinton and Monica Lewinsky watched an interview with President and Mrs. Clinton:

P: Seeing them say it, watching the videos and watching Bill and Hillary and being able to hear and see it. I thought, This isn't an opinion article. This is them say this is what happened at this time. So that

was like when I said, Okay, I can be done now. That's what happened, like make sure I'm getting things right.

We were even more pleased, as librarians, to know that student researchers still value books as an information source in addition to people and Google:

P: I might've started with just searching on the Internet because that is like the quickest thing to do. But then also like, I would just like see, that I had, like, the book on my bookshelf and I'm like oh, that's something interesting that I should... like, oh I've been wondering about this, I can definitely find out from something like that... So what steps did I take to find an explanation of how to do that? I researched online, read it, I had an entire encyclopedia written by Arnold Schwarzenegger that I had.

Theme: Participants verify information by corroboration.

Students demonstrated a healthy skepticism about information. Most used multiple sources and compared them to determine the most accurate and useful answer. This process involved verification and corroboration. A participant who was investigating spirituality compared multiple sources of commentary on Biblical passages:

P: Yeah. Because they're usually accessible and then like a lot of the times I've heard different people speak, so I kind of know the pastors and things that make the commentaries that I align views with, gravitate more towards those. And then, it's also just interesting to see different points of view and from there you can decide what you think is the most accurate or what goes along with your

theology. So, yeah. Reading multiple is good. There's a lot of different opinions that some people miss and others pick up on...

The participant who was investigating how to get a green card for United States residency had one of the highest-stakes questions in need of reliable answers. In the passage below, she relays her experience working with conflicting interpretations of immigration policy:

P: I always check the information in three or four places, if the four places say the same thing and they are alike, like it, they have credibility, they are good, trustful, source. ... And he (the lawyer) didn't read the last update. ... And I talked to him and say they have this new visa. I can apply for this visa, I have all the requirements, and he say no, you don't have. I say who told you I don't have? He say this doesn't exist and I say yes it's in the immigration website. And he start arguing with me saying that it was a fake website. And I open it for him ... I'm going through everything because I want to get all the informations. And this was the whole process, but I would like I want a coach (??) to look for everything, I look for all the informations and I really like to choose for each thing and find each piece. This is how I search for that and I find a lot of information.

Participants' personal stake in the answers they needed drove their motivation to check multiple sources and verify information, whether it was a medical diagnosis, green card application, or driving directions. Overall, participants approached information seeking and

selection as a holistic process, simultaneously finding and accepting or rejecting sources based on authority and reliability from their knowledge base. They frequently used multiple sources to verify and choose their best answers.

Theme: Participants do what they know.

Incoming students come to us knowing how to conduct research in their everyday life and most likely, their prior educational experiences. They have already established research paths and habits. In keeping with the Constructivist theory of building new knowledge on prior knowledge, how do we capitalize on and value the research skills students bring with them. How do we help students transfer these skills and adapt them for academic research? For example, faculty and librarians lament student use of Wikipedia. However, one participant used a strategy that we anecdotally hear from other students (and faculty!): the use of Wikipedia as a starting point, then taking it one step further using Wikipedia references. One participant did this for his everyday research on nuclear energy:

P: I mean, well I started off on Wikipedia, like I don't use it as a source, but like, one of the things you can do is go to the bottom of the page and see where they got their sources from. And, if the source looks credible then I'll use it. So, that's where I started, and then I went onto Google Scholar and looked up stuff that would have to deal with, like, who kind of started it, the nuclear, like you know, what's it called? Reactors and stuff.

Participants use what they know and are familiar with, just like before the advent of the Internet when people knew to go to their public library. Information seekers use who they know, use “libraries” of information, and use a variety of sources:

P: Yeah, so I think I would use that and Google Scholar still. I don't really know of any other, like, things that like, refine your searches to, I know there's the library...

Participants conducted research using familiar methods for searching and evaluating sources and then repeating that process all over again. They followed a replicable search path that was a combination of seeking information from people and/or digital and print sources. Their search process is based on the prior knowledge and experience.

In our classrooms, how do we use student’s previous experience with research as a social, verifiable and familiar process having multiple steps and using multiple sources?

- Typically, library instruction sessions focus on solitary researchers using text-based finding tools, whether library databases or Google, to find information. If our incoming students rely heavily on people with authority and reliability as information sources, if acceptable to faculty, perhaps librarians should spend time on identifying and citing personal interviews as sources for students’ research.
- Research in higher education is a multi-step, multi-source process. So why do our students appear to be impatient and frustrated with this if they already use multiple steps and multiple sources in everyday research? Perhaps we need to start with their everyday research experiences that requires multiple steps and multiple sources, e.g., finding directions to a sporting event or finding out what

the rock wall decimal system is, and draw connections between familiar research tasks and the academic research process.

- In the age of fake news, librarians should be pleased to know that incoming first-year students are already skeptical about information. It may be helpful to have students brainstorm what criteria they use to determine if answers to their everyday research questions are reliable and accurate. Are their criteria similar to ours? Perhaps it is a matter of naming their criteria and applying it to sources for their academic research?
- Incoming students already have well-established search habits. How do librarians draw on what students already do and either relate or adapt it to grow on in academic library research? Can we illustrate the similarities, whether conceptual or functional, between the publicly available search engines and proprietary library databases? Does relating the facets at the top of a Google search result page relate to facets on the left-hand side of most library database search results? How can we value the experience students bring and connect it to academic research?

In conclusion, incoming students have everyday research skills and habits. These skills have the potential to be transferred to academic research processes. Typically, what is different is the nature of the research questions and the types of resources searched and used. Librarians need to make explicit connections between everyday search experiences to academic research to value what students bring to higher education and make cognitive bridges to help students transfer their knowledge to an academic research setting.

Category Four: Impact -- how does research impact the lives of first-year students?

Next, we asked students to tell us how their research experiences impact their lives. Two striking aspects of this category surfaced as we were coding the interviews. The themes that emerged were both some of the most subjective we encountered, but, on the other hand, also had the most practical application. Students can clearly make decisions about solving a problem after researching, but they are also capable of reflecting on the mental shifts that provide them with a new perspective. As first-year students considered the impact of their research, four distinct themes emerged from this category:

- Participants' research findings help them make an *informed decision*.
- Participants develop a *shift in perspective* that fundamentally changes the way they see a question or problem.
- Participants' research process sparks their curiosity to learn more about a question or problem.
- Participants are unsatisfied by their research process.

Theme: Students' research helps them make an informed decision.

The first theme illustrates just how many challenges first-year students face while in college, with financial management a top concern. Several students discussed the challenges of financial planning during their interviews. One student talked with someone at a local bank about a savings account:

P: I have Wells Fargo and with that they have actually a college fund account ...

so I kinda explained to the teller about me being in college and me paying for my own college tuition. He kinda guided me in the right

direction for what savings account I should get - I forgot which ones there are, but he got me the most beneficial one.

Finding and obtaining a job while in college was also weighing on the minds of students.

We found that students turn to their friends frequently to help them make decisions and friends proved to be a valuable asset while on the job market:

P: I actually just recently got a job, I haven't started it, I start next week, but, since

I moved to a new city I don't really know anybody so I don't have the connections. So, I did the process where I was looking online, and whenever I went out to go get groceries or something, I would see who is hiring and I would, like, ask my friends that are from here, like, I guess I, because I asked people that I became friends with, like, oh, do you know a job, or something close or something. And they would tell me, and I was like okay, and then I'd look into it. So, I did that, but like, as far as them putting in a good word for me, it wasn't like that because they didn't work there, they just knew they were hiring. So, I applied to a bunch of places online and then I finally got the call back, and then I went to the interview and, I got it.

Theme: Students experience a shift in perspective after research.

Students exhibited an impressive amount of cognitive flexibility as they developed new perspectives from their research. The previous section discussed how research led students to

change their behavior to make a decision, but some students experienced a conceptual shift in thinking that resulted in an openness to new ways of looking at their questions.

Participants learned deeply about the people and processes that can inform their life and future decision making. One student wanted to know more about a former United States president, while another wanted to learn more about local government leaders. One participant researching Bill Clinton and Monica Lewinsky came to understand the president in a new light:

P: I find him very interesting. I just saw him different. I didn't know anything about it, but I watched one video where he said he had nothing to do with it and another where he admitted to doing it, so I was just kinda like, whoa, the president lied ... I just saw him and Hillary different because they are still married. Not in a bad way, but I didn't think they were still married when I started this.

Another student was considering people of different faiths and gained a better understanding of religious practices:

P: It changed ... just like looking at different worldviews, like the preconceived stereotypes that you might have about a certain group, just like, sort of finding out like where those come from or like why that's happening or ... even just stuff like why people dress a certain way or like why Jewish people wear prayer shawls or something like that ... But, like, you could get more, like a better understanding of why they are doing that...

The participant who developed a proposal for a new skate park got to know the local city council, which enriched their perspective on local government:

P: Based on what [the council] says, they prioritize ... that's what they do and it's like, every so often, they don't do it every year, so. Yeah, I've learned a lot through this process and I've learned a lot of things, how the government runs, especially municipal, local government. And also I've met a couple people that are in power and that have an influence that's really cool.

In some cases, research precipitates a shift in how students think about problem-solving. First-year students face complex problems, especially as they prepare to enter college. Research equipped students to tackle these problems and break them down into more manageable tasks so things did not seem as bad. The next several passages will emphasize that this process was crucial to students as they were coping with complexity. One participant attended math tutoring sessions in high school to help with understanding the material. The step-by-step process the student adopted helped him develop a strategy to solve problems:

P: They said don't just like read the problems and do it in your head. Always take out a paper. You write down every number you see there and make a list, then I started writing down the techniques and the formulas that go with it ... So like actually writing it, I had my formulas written down on the side, so I could just solve it. ... The lesson I learned was like no matter how big or small the problem is, like

break it down, break it down completely and then solve it, so that's what I learned.

One participant commented that the search process helped her find a starting point for researching immigration:

P: It helped me because I was so confused before searching because different people told me it is impossible, you cannot do that. So, some of them told me, no it is possible you can do that. You know? I was not sure. And I didn't know how and where does this start, where should I start. So after all this research, I feel a little bit better.

Furthering this point, some students approached the process in steps so it was not overwhelming, as shown from a participant who was conducting legal research:

P: Before I did all the research I definitely had a very pessimistic attitude about everything, and then I had a list of questions that I needed answered. And then I went about them in like "A, B, and C" and initially it still didn't relieve any sort of stress, but after I had all the answers to the questions from all the people with credibility I definitely felt a lot better about the whole situation, so, information was helpful.

Breaking down the search process helped make situations not seem as bad, which is illustrated in this example from a participant who was diagnosed with tuberculosis:

P: After reading up on it, I realized it wasn't as bad as the active one, considering mine was just latent and I would just have to do a 6 month course

treatment, but, I guess it was more reassuring, or, I settled down to the point where I was like, okay, I have latent TB, you know, I can't get rid of it, you know, I can just keep it contained. So there's not much I can do, but it's there, but I can't let that limit me.

However, at times, the research process showed students the issues they face might be *more* complex than they seemed at first. After dealing with a ADHD diagnosis, one participant said:

P: It became more complex ... It was a more complex perspective, I think. It

wasn't as simple of an idea. The initial misconceptions I had about it were taken away as I read about it.

Several participants commented that the research process helped them gain self-confidence and begin to form an independent voice. One participant conducted research on local homelessness and homicide rates. After reflecting on the research she had read, she developed her own sense of purpose apart from her family's influence and was inspired to make change in the community by joining a local church:

P: In the beginning, to be honest ... I just thought, like, okay well since my family

does this, it's probably what I should do. My grandpa is a pastor back home, so I was always in charge and he has a rescue mission ... so I always was like well I need to make him proud and I need to still do, give back and do this and that for the community ...

After all that research, when I started to look at the seriousness of everything and how bad it is ... the church really motivated me to,

like, take it seriously. Like, at first, I was taking it serious, but I actually got an interest in it now, and asking people what to do, I actually just saw my myself, I actually want to do it ... So, I try my best now to give money and, you know, just talk with [the homeless] because they don't have anybody to talk to.

Another participant developed self-confidence by listening to podcasts on outdoor adventure and hiking:

P: I think, like, self-assurance and self-confidence by seeing something that I'm really passionate about or enjoy, it helps me become more of myself. And, like, how I define myself or see myself and it, I think it in turn gives me something more to offer to other people, you know, just with conversation.

Theme: Research sparks students' curiosity.

In some cases, the participant's new perspective sparked their curiosity to continue their research. These comments are worthy of mention because they demonstrate that students can articulate what the next steps might be along their research continuum. One participant who was reading about fashion blogging around the world said:

P: I would like to look the other countries actually influence us and our society, because we are a melting pot society, so it's really interesting to see where these things are coming from, how they are influencing our culture.

A desire to learn more to shape future interests was also a common theme among participants. Research into ADHD made one participant consider a career in neuroscience:

P: I think it's made me interested in neurophysiology as a subject ... studying it in school and maybe helping others.

Another participant who read about Bill Clinton and Monica Lewinsky was inspired to ask our researcher about what was available in the library so that they could read more about the other presidents:

P: Do you have any stuff about Clinton in the library? Because once I saw Clinton the gears in my head started turning. I don't know anything about the JFK assassination either, maybe I should look at that and look at things that look into stuff like that.

Theme: Students are unsatisfied with the research process.

A few participants were unsatisfied with their research process. A couple reasons for the lack of satisfaction emerged in the transcripts. Either the student could not find an exact answer for problem, or, they recognized that they still had to complete more research to become satisfied:

One participant was unsatisfied with not finding exact answers in the scientific literature:

P: Most of the things that [I] found either didn't go the way the [I] wanted them or didn't give [me] an exact answer cause when you search anything scientific that's usually what happens.

Another participant was not satisfied with a choice of doctor:

P: I would probably see more doctors ... maybe see a dermatologist next time,
because the person I saw wasn't a dermatologist ... I don't
understand and no one has an answer for me.

In contrast, another student was aware that not being satisfied was tied to continuing the research process:

P: I didn't really find anything that really satisfies me. I just keep reading about it.
Just keep going along.

What is most striking about the impact category is that students are capable of multiple cognitive processes when encountering new information. They can both practically act on research to solve problems and develop new perspectives that can create new ways of thinking. When working with first-year students in the library, it is important to remember they have already conducted important research in their everyday lives to make important decisions. Furthermore, they have developed some degree of mental flexibility to be open to new perspectives. To handle both these practical and intellectual challenges, students develop strategies to tackle big problems by breaking them down into manageable steps. Since they already have some familiarity with how to make research feasible, could this change how we approach framing the research process with first-year students in the library?

Category Five: Reflection

Near the end of the interview, researchers asked participants whether, if faced with a similar research question in the future, they would use the same strategy they just described or pursue the question differently. Participants gave a broad range of responses that the researchers grouped into four themes:

- Participants *approve* of their research process and would pursue something similar in the future.
- Participants would change *affective* aspects of their experience.
- Participants would make changes to the research *process* itself in order to make it more efficient and focused.
- Participants would consult different *sources*.

Theme: Students approve of their research process.

In the first theme, participants said they were satisfied with their search process and would undertake a similar strategy in the future. An exchange with the participant who was learning about classification systems for rock climbing is typical of this theme of reflection.

R: If you had a similar situation in the future, would you use the same process?

Like if you need to learn about another system?

P: Probably, I would go right to the googling part unless I'm at the gym looking at the [classification] number and I need to know. I would just go to the wiki page and watch some videos.

In many of these cases, students found sources on the open web that met their needs. Some participants expressed satisfaction with their search while also acknowledging that they did not know of other options for answering their questions:

P: Yeah, so I think I would use [Wikipedia] and Google Scholar still. I don't really know of any other, like, things that, like, refine your searches. I know there's the library one.

Our interviews did not press the question further to tease out the degree to which exhausting *familiar* sources contributed to satisfaction with participants' search processes. In other words, it is possible that some participants might have expressed less satisfaction with their research experiences if they had known about other options for learning more about their questions. This could be a fruitful direction for future research.

Theme: Students would change affective aspects of their experience.

Another salient theme among participants was the desire to revise one's affective responses to the challenges of research. Given the chance to pursue similar research in the future, some participants said that they hoped to go about their research in a more calm, level-headed manner.

For some students, the source of emotional agitation was the subject matter of their research, as with the participant who investigated ADHD after being diagnosed with the disorder:

P: I would ask my psychiatrist a lot more questions the first time. Yeah, a lot more, instead of settling for "You have this disorder that you don't know about. You should probably take this medicine." I would find out for my initial reaction for being thrown off, because at first I thought ADHD was a stupid kid, undisciplined kid disease, and thought it was something fake.

In other instances, the source of the unease is the uncertainty involved in the research process itself, as with a participant struggling to find direction for her honors research project:

P: I would definitely take a more relaxed approach with [research], because I am definitely going to stress out a lot and then my brain starts to scramble. I need to sit back, do some more research, write down what I find interesting, instead of backpedaling, trying to figure out what I want to do.

Others expressed fear of making mistakes in research. On reflection, this fear felt like a needless hindrance to learning. The quote below comes from a participant who undertook research to learn how to become more adventurous:

P: What I would like to do different I guess is maybe, like not being afraid to make mistakes in learning, and I feel like I would learn about the process sooner, and, yeah, just not being afraid to make any mistakes with going through learning and that process.

Why such apprehension regarding research? Kuhlthau (2004) observes that the ambiguity often present in the early phases of research typically evokes feelings of unease and nervousness. We did not ask participants to identify which phase of their research journeys brought about the most unease, so it is difficult to say whether participants in our study are exhibiting exactly the same pattern that Kuhlthau describes. However, our results do corroborate Kuhlthau's general finding that dealing with anxiety is frequently a part of the research process.

Another factor may also be at work in our findings. In each of the three examples above (and in many other interviews as well), students are doing research to learn more about significant decisions or important aspects of their lives. Considered generally, uncertainty may bring about varying degrees of apprehension for researchers but, in the case of our students, the

uncertainty applies to undertaking a major academic project, pursuing a much-desired character trait, or facing a new medical diagnosis. Because our participants were using research to learn more about high-stakes areas of their lives, unease seems like a very natural part of the process.

Theme: Students would make changes in their research process.

Other participants indicated that they would make their research processes more efficient by avoiding distraction and by managing their time better. With respect to distractions, the experience of a participant engaged in genealogical research is emblematic. In describing his experience on a particularly rich, genealogical website, the participant compared his experience to “going down a rabbit-hole...sometimes I just get so lost in it, like I lost track of time, and the next thing you know, I was in there for five hours.” In discussing how he would change his process, this participant reiterated the potentials for distraction and proposed a plan for keeping focus:

P: I would try not to get lost as much, because I have a habit of getting lost
 and...sometimes getting off the focus [on] one specific area from
 one to another... I sometimes feel like, oh, hey, maybe I should
 check on this, but then I realize, ok, I'm getting lost again. So
 maybe moreso focus on one [thing] one day and focus on another
 thing another day, and so on and so forth.

In terms of managing time, many participants would begin their research earlier. One participant who was doing research for an animation project shared an example:

P: The process we used, we were always stressed, and I remember staying up
 until one in the morning just animating a scene. Time management

is so important in animation and just in life in general if you're doing a research topic...If someone told me to do something like this, I would want to know two months in advance to formulate or research enough topics for whatever the storyline is going to be and what program I'm using.

The comments above suggest that first-year students have enough life experience to understand that successful research is more than merely finding sources. The researcher's realistic planning and disciplined focus are also indispensable elements of successful research.

Theme: Students would consult different sources.

Still other participants hoped to make their searches more efficient and fruitful by consulting different sources. Some regretted wasting time with sources that were irrelevant or confusing. A participant who wanted to learn more about baseball strategy had unhelpful experiences with both her friend who plays baseball and with YouTube:

P: [My friend] tries to go in with like teams and players and all that stuff. I'm like, "I don't know any teams. I don't know any players, like stop naming names"... I feel like he made it a lot more complicated than he should've, 'cause he tried to explain it to me, but it took about like 3 hours just talking about it. I'm like, "I have no idea what you're talking about."

P: [For YouTube] I just put in baseball and a whole bunch of videos come up, and then you know how it's like suggestions?... And it's just like different video suggestion that have nothing to do with

baseball...[S]o I would just watch like other stupid videos, so I got like off-tracked.

When asked who or what might serve as a better resource for learning, the participant expressed interest in a teacher who could explain things well and shepherd her through the research process:

P: I would probably just talk to someone just like right away, somebody who is really good at explaining something, you know, just like give me all the basics and I'll be okay. 'Cause [my friend] started explaining about, like, how teams work and how they do trades and all that stuff, and he lost me there... I was like, "No, I don't need to know all that," but he was like, "YouTube," and just went off-track. So if I would find somebody who could like just keep, like keeping me in line, I would appreciate that.

When asked who might be able to provide such guidance, the participant suggested that her friend's baseball coach could be more helpful. Perhaps a skilled librarian could help the student give voice to her question and avoid research roadblocks, but consulting with a librarian did not occur to this participant as a viable option.

The participant doing research for an animation project also indicated that a mentor would be helpful:

P: We definitely needed a mentor, someone who could discipline us in the ways of animation. I remember we were considering emailing John Lannister, the president of Pixar, like, "Hey, we're high school

students and we need help!” Also, I think it would have been better to have a mentor for the research topic as well, because it was such a niche topic [corporate greed]. Someone who possibly worked in corporations, so not only that, but...face-to-face interviews with people, not just books.

In this instance as well, the participant anticipates the best help coming from content experts rather than experts in the research process itself, i.e., librarians.

But not all participants exhibited much trust in personal sources. One participant was quite skeptical of getting information from people. Over the course of her research into the United States immigration system in order to help a loved one obtain a visa, this participant consulted a range of people and came away with conflicting answers:

P: I prefer not to talk with people...you should not just depend all things on what you heard from people. First you have to search, and because of this, I would not talk to anyone, I would first...search the Internet and read a lot about it. And after that, just to find, okay, what people think about it, and after that I will decide. I would change it a little bit... What you hear from people really is not reliable, because some of them are jealous. Some of them don't want to just tell the truth.

It appears that this participant's strategy next time would be to find her bearings by consulting the bulk of information on the Internet. Only after building a knowledge base independently would this student seek the opinions of other people.

The range of responses to the question of how they might do things differently is a very significant finding in itself. Our interviews show that students are indeed capable of meaningful reflection on how they might have done things differently. In similar interview studies with first-year students, Gross and Latham (2009, 2012) uncovered a prevailing view among first-year students that research was not a skill that one could really improve -- it was essentially a matter of looking things up in a search engine. Our study paints a different picture of student conceptions of research. While the participants in this study did not describe research as a skill *per se*, their reflections show that they understand research as an activity that may go better or worse depending on the choices and attitudes of the researcher.

This study addresses two questions: *what is the state of first-year students' existing every day information seeking skills* and *how does one develop effective strengths-based pedagogy for information literacy?* Based on the responses from first-year students, we believe that librarians have the potential to design strengths-based instruction in which librarians support students as they make cognitive connections between their experiences with real life tasks and academic research. This type of instruction would encourage students to capitalize on their existing prior knowledge, and learn through social interaction and authentic tasks, key tenets of Constructivist theory.

In response to our first question, we found that based on our interviews, first-year students who come to higher education are already on a continuum of life-long information literacy. They have the everyday search experiences that lead them to learning information literacy skills similar to those described in ACRL's Information Literacy Framework. These skills are frequently unnamed and uncategorized, are developed for search engines and sources

available to non-university researchers, and are appropriate for the nature of everyday research questions. Our research confirms that first-year college students are curious, have information seeking and evaluation skills, both socially and textually, and apply the information they find appropriately to the problems they seek to solve. When librarians see first-year students in a library instruction session, they should remember that the students do not come with a clean slate or deficits; they come with a rich and closely connected skill set for academic research. It is up to us to activate those connections to provide a positive learning environment that enhances student learning. With this approach, we can make the most of those 50 minutes we get with students.

In response to our second question, *how does one develop effective strengths-based pedagogy for information literacy?*, we suggest that librarians activate students' prior knowledge of everyday research habits exhibited in our interviews and build upon it to design strengths-based instruction sessions. A brief review of the six frames from the ACRL Framework for Information Literacy for Higher Education reveals concepts from students' everyday research that we can value and build on, rather than assuming a blank slate of students' knowledge. In particular, we see potential to exploit the connections between:

- The ease with which first-year students can articulate and prioritize everyday research questions and the *Framework's* Research as Inquiry as exhibited by how readily our participants could list 5 topics they had researched in the past year, and prioritize them by passion and urgency.
- The social nature of first-year students' everyday research and the *Framework's* Scholarship as a Conversation. By and large, our participants sought people rather than

textual sources for answers, whether family, friends, or experts. In addition, they could address the credibility of each of those relationship categories.

- First-year students' holistic and intertwined approach to seeking and selecting of sources and the *Framework's* Searching as Exploration. The students we interviewed simultaneously found and evaluated their sources. Students learned about their topics through a variety of information sources--textual, people, and social media--as they found and evaluated sources.
- First-year students exhibited skepticism about both social and textual information in everyday research following the Framework's Authority is Constructed and Contextual. For example, after checking online directions, one participant verified the online directions with her father, first because he was her father, but secondly, because he had driven to the location before. Another participant trusted but verified an immigration lawyer's advice with the U.S. Government's website. Our participants sought reliable, useful answers. Perhaps they wanted this because their tasks were authentic and urgent, from driving directions to citizenship. Assignment design and research tasks that resemble high-stakes, engaging and authentic tasks may motivate students to seek contextualized authority in academic research.
- First-year students' ability to reflect on their process and articulate its impact on them to the *Framework's* Information has Value. When asked to reflect on their research process, our participants reported solutions to their everyday life problems, newfound perspectives and insights they have developed during research, whether it was curiosity about Monica Lewinsky or solving a medical problem. They identified biases within themselves and in

sources they found. Our students pursued authentic research questions that informed important choices or alerted them to new possibilities that compelled them to conduct further research. Because they generated the question, the answers they found had value to them. As with the Authority is Constructed and Contextual Framework, we suggest that assignment design and research tasks that resemble high-stakes, engaging and authentic tasks may motivate students to appreciate and understand value in academic research.

Discussion

The primary goal of this research was to learn what everyday research skills first-year students possess to determine if conceptual connections exist between their prior knowledge and academic research. If librarians can relate students' prior knowledge from their everyday search experiences to academic research skills, we will build strengths-based rather than deficit-based instruction programs. A brief review of the six frames of information literacy for higher education from ACRL, reveals concepts from students' everyday research that we can value and build on, rather than assuming a blank slate of students' knowledge.

We suggest that librarians activate students' prior knowledge of everyday research habits exhibited in our interviews and build upon it to design strengths-based instruction sessions. In particular, we see potential to exploit the connections between:

- The ease with which first-year students can articulate and prioritize everyday research questions and the *Framework's* Research as Inquiry.

- The social nature of first-year students' everyday research and the *Framework's* Scholarship as a Conversation.
- First-year students' holistic and intertwined approach to seeking and selecting of sources and the *Framework's* Searching as Exploration.
- First-year students' existing skepticism about both social and textual information in everyday research and the *Framework's* Authority is Constructed and Contextual.
- First-year students' ability to reflect on their process and articulate its impact on them to the *Framework's* Information has Value.

Based on our interviews, we believe that first-year students who come to higher education are already on a continuum of life-long information literacy. They have the everyday search experiences that lead them to learning information literacy skills similar to ACRL's Information Literacy Framework. These skills are frequently unnamed and uncategorized, are developed for search engines and sources available to non-university researchers, and are appropriate for the nature of everyday research questions. Our research confirms that first-year college students are curious, have information seeking and evaluation skills, both socially and textually, and apply the information they find appropriately to the problems they seek to solve. When librarians see first-year students in a library instruction session, they should remember that the students don't come with a clean slate or deficits; they come with a rich and closely connected skill set for academic research. It is up to us to activate those connections to provide a positive learning environment that enhances student learning. With this approach, we can make the most of those 50 minutes we get with students.

Conclusion

If we emphasize deficits when we characterize first-year students' information literacy, we neglect to acknowledge the richness of their research experiences in contexts outside of higher education. We also miss out on opportunities to build on their existing information literacy skills. By recognizing that our first-year students are experienced researchers who are making a transition into a new research context, we can facilitate that transition by beginning instruction with examples and conceptual models that students find familiar. Our qualitative study suggests that first-year students are capable of using information purposefully to learn more about matters that influence their choices or subjects that spark their curiosity. They are also capable of reflecting on the ways that their investigations fulfilled their purposes, came up short, or made them consider their issue in a new light. If teaching librarians envision their role as inviting new students to build on these existing dispositions, we can pursue our teaching with a more realistic understanding of our students and greater hope for success.

References

- Association of College and Research Libraries. (2018), “Five things you should read about asset-based teaching”, available at:
<https://acrl.ala.org/IS/five-things-you-should-read-about-asset-based-teaching/> (accessed 01 Feb. 2019).
- Association of College and Research Libraries. (2015), “Framework for information literacy for higher education”, available at: www.ala.org/acrl/standards/ilframework (accessed 01 Feb. 2019).
- Association of College and Research Libraries. (2002), “Information Literacy Competency Standards for Higher Education”, available at: <https://alair.ala.org/handle/11213/7668> (accessed 01 Feb. 2019).
- Angell, K. and Kose, G. (2015). “The library catalog is definitely the best place to find articles!” Overconfidence among undergraduate library users”, *Partnership: The Canadian Journal of Library and Information Practice and Research*, Vol. 10 No. 2, pp. 2-18.
- Bryan, J.E. and Karshmer, E. (2013), “Assessment in the one-shot session: Using pre-and post-tests to measure innovative instructional strategies among first-year students”, *College & Research Libraries*, Vol. 74 No. 6, pp. 574-586.
- Bury, S. (2011). “Faculty attitudes, perceptions and experiences of information literacy: A study across multiple disciplines at York University, Canada”, *Journal of information literacy*, 5(1), pp.45-64.
- Cooperstein, S. E., & Kocevar-Weidinger, E. (2004), “Beyond active learning: a constructivist approach to learning”, *Reference Services Review*, Vol. 32 No. 2, pp. 141–148.

- Dubicki, E. (2013), "Faculty perceptions of students' information literacy skills competencies", *Journal of Information Literacy*, Vol. 7 No. 2, pp. 97-125.
- Fabbi, J.L. (2015), "Fortifying the pipeline: a quantitative exploration of High School factors impacting the information literacy of first-year college students". *College & Research Libraries*, Vol. 76 No. 1, pp. 31-42.
- Gross, M., & Latham, D. (2007), "Attaining information literacy: An investigation of the relationship between skill level, self-estimates of skill, and library anxiety", *Library & Information Science Research*, Vol. 29 No. 3, pp. 332-353.
- Gross, M., & Latham, D. (2009), "Undergraduate perceptions of information literacy: Defining, attaining, and self-assessing skills", *College & Research Libraries*, Vol. 70 No. 4, pp. 336–350. <https://doi.org/10.5860/crl.70.4.336> (accessed 01 Feb. 2019).
- Gross, M., & Latham, D. (2011), "Experiences with and perceptions of information: A phenomenographic study of first-year college students", *Library Quarterly*, Vol. 81 No. 2, pp. 161–186.
- Gross, M., & Latham, D. (2012), "What's skill got to do with it?: Information literacy skills and self-views of ability among first-year college students". *Journal of the American Society for Information Science and Technology*, Vol. 63 No. 3, pp. 574–583.
- Gross, M., & Latham, D. (2013), "Addressing below proficient information literacy skills: Evaluating the efficacy of an evidence-based educational intervention", *Library & Information Science Research*, Vol. 35 No. 3, pp. 181–190.
- Gustavson, A. and Nall, H.C. (2011), "Freshman overconfidence and library research skills: a troubling relationship?" *College & Undergraduate Libraries*, Vol. 18 No. 4, pp. 291-306.

- Head, A., (2013), "Learning the Ropes: How freshmen conduct course research once they enter college", *Project Information Literacy*. [Online]. Available at: http://projectinfolit.org/images/pdfs/pil_2013_freshmenstudy_fullreport.pdf (accessed 01 Feb. 2019).
- Head, A. and Eisenberg, M., (2011), "How college students use the Web to conduct everyday life research", *First Mondays*, Vol. 16 No. 4.
- Hsieh, M.L., Dawson, P.H. and Carlin, M.T. (2013), "What five minutes in the classroom can do to uncover the basic information literacy skills of your college students: A multiyear assessment study." *Evidence Based Library and Information Practice*, Vol. 8 No. 3, pp. 34-57.
- Hufford, J.R. (2010), "What are they learning? Pre-and post-assessment surveys for LIBR 1100, introduction to library research." *College & Research Libraries*, Vol. 71 No.2, pp.139-158.
- Kim, S.U. and Shumaker, D. (2015), "Student, librarian, and instructor perceptions of information literacy instruction and skills in a first year experience program: A case study", *The Journal of Academic Librarianship*, Vol. 41 No. 4, pp.449-456.
- Kuhlthau, C. C. (2004), *Seeking Meaning: A Process Approach to Library and Information Services*, Westport, Conn.: Libraries Unlimited.
- Lanning, S. and Mallek, J. (2017), "Factors influencing information literacy competency of college students", *The Journal of Academic Librarianship*, Vol. 435 No. 4, pp. 443-450.
- Marton, F. (1986), "Phenomenography—a research approach to investigating different understandings of reality", *Journal of Thought*, Vol. 21 No. 3, pp. 28-49.

McCashen, W., (2017), *The Strengths Approach: Sharing Power, Building Hope, Creating Change*. Victoria: Innovative Resources.

Oakleaf, M. and Owen, P.L. (2010), "Closing the 12-13 gap together: School and college librarians supporting 21st century learners". *Teacher Librarian*, Vol. 37 No. 4, pp. 52-58.

Oakleaf, M. (2008), "Dangers and opportunities: a conceptual map of information literacy assessment approaches". *Portal: Libraries and the Academy*, Vol. 8 No.3, pp. 233-253.

Perry, H.B. (2017), "Information literacy in the sciences: Faculty perception of undergraduate student skill". *College & Research Libraries*, Vol. 78 No.7, pp. 964-977.

Pisula, W. (2009), *Curiosity and Information Seeking in Animal and Human Behavior*. Boca Raton, Brown Walker Press.

Salisbury, F. and Karasmanis, S. (2011), "Are they ready? Exploring student information literacy skills in the transition from secondary to tertiary education". *Australian Academic & Research Libraries*, Vol. 42 No. 1, pp. 43-58.

Saunders, L., Severyn, J. and Caron, J. (2017), "Don't they teach that in high school? Examining the high school to college information literacy gap". *Library & Information Science Research*, Vol. 39 No. 4, pp. 276-283.

Schroeder, R. (2009), "Both sides now: Librarians looking at information literacy from high school and college". *Tips. Educators' Spotlight Digest*, Vol. 4 No. 1, pp. 1-5

Varlejs, J. and Stec, E. (2014), "Factors affecting students' information literacy as they transition from high school to college", *School Library Research*, 17.

Walsh, A. (2009), "Information literacy assessment: where do we start?" *Journal of Librarianship and Information Science*, Vol. 41 No.1, pp. 19-28.

