Spark: Students Describe Curiosity and Passion for Learning

Linds West Roberts, Cynthia Rain Keller, and Megan E. Welsh

abstract: This article explores the connection between curiosity and feelings of joy in information seeking. The authors interviewed 41 transfer students about their transition to their new campus. As part of the interviews, the investigators asked students to describe a time when they felt curious or excited to learn more about something. The researchers found that emotions were inherently connected to students' curiosity and identified patterns among students' descriptions of curiosity. The themes included excitement in discovering the resources of a large academic library; interest in ideas; curiosity inspired through hands-on learning experiences, such as labs, study abroad, or internships; and curiosity initiated by connecting with personal values or relevance to life or career. Curiosity was also sparked through a mixture of these modalities. This range of curiosity suggests an array of connection points for librarians to support students engaged in information seeking. The authors note implications for librarians who work with students across this curiosity spectrum.

Introduction

For many information workers, the attraction to the profession lies in the discovery process, linking curiosity and positive emotions. Curiosity is experienced in myriad ways, however. The authors are intrigued by how librarians and libraries contribute to learners' curiosity journeys across the lifespan, beginning with public library experiences as children. These encounters continue through exploration in primary and secondary school and as students deepen their information practices through curiosity in higher education. Ideally, these journeys continue past graduation as learners become informed participants in democratic societies.

Sadly, academic libraries and librarians are not always associated with curiosity and positive emotions, particularly when college assignments focus on completion of requirements rather than on the process of learning and discovery.[1] The authors would

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like to raise questions about how the profession might refocus on this most central component of our professional calling: specifically, how librarians can contribute to learning that centers curiosity and inquiry.

Curiosity is inherent to all human beings, and the focus of this article is on how libraries and librarians may help cultivate it. This study centers on qualitative interviews with transfer students asked to recall a time when they felt curiosity or an intense desire to know more about something. Transfer students are "movers" on a curiosity journey. They have experienced multiple academic settings and have chosen to leave one (or more) higher education institutions to enroll at another, for various reasons. While transfer students are not a monolithic group, the researchers observed that these learners have strong intrinsic motivation and purpose in pursuing their academic work, often driven by curiosity and a passion for learning. Since the number of transfer students is predicted to continue to grow, it makes sense to consider them (and all students) as learners on a lifelong curiosity journey.

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Literature Review

Curiosity in LIS

There is surprisingly little research in the library literature using the term *curiosity*, perhaps because *interest*, *relevance*, *meaningfulness*, and related terms are more often used.[2] And yet, our profession seems to deeply integrate a professional commitment to cultivating curiosity. Numerous practitioner articles suggest practical ways for libraries to support curiosity.[3]

We might trace some of the conceptual roots in the field of library and information science (LIS) for understanding curiosity to Jesse Shera's notion of social epistemology, the study of the production and flow of information within societies, developed beginning with a 1951 conference paper.[4] Shera was among the earliest LIS scholars to conceive of information from both a philosophical and a pragmatic perspective. He recognized that the circulation of information is highly context-dependent and is a collective, as well as an individual, practice.

In France, Suzanne Briet extended the theorization of LIS through the lens of documentation. She recognized documents and technologies as evidence of culture and context and viewed information broadly across a wide range of formats and technologies.[5] In the 1920s, Briet opened the first information center at the Bibliothèque nationale de France, the national library of France, increasing access to information. The center made information more available to the public, providing detailed reference service through card catalogs and indexes.[6] Such innovations greatly enhanced libraries as spaces open to the curiosity and exploration of the public. Tim Gorichanaz expands on Briet's work,

relating art making as a form of documentation to both joy and curiosity through Nelson Goodman's concept of intrinsic purpose, *the idea that artists* work "just for the joy of it" or because they "cannot stop."[7]

Recent LIS work has looked specifically at affective emotions in connection with information seeking.[8] Crystal Fulton identified pleasure and an intense, almost addictive, state of curiosity in the hunt for genealogical information among hobbyists.[9] Gorichanaz conceives of curiosity as a component of personally meaningful information activities.[10] Leanne Bowler studied 10 adolescents' research processes in depth, finding two types of curiosity based on the topic or the process of curiosity. She observed that students at times needed to ignore "the pleasurable aspects of information seeking" to reign themselves in and move ahead with their assignments.[11] Researchers identified scientific curiosity as a mitigator of politically motivated reasoning with a large-scale sample, finding individuals with greater curiosity more willing to examine surprising or contrary evidence.[12] More often in LIS, scholars have been interested in the shadow side of curiosity, when information becomes threatening or overwhelming and may lead to procrastination or avoidance.[13]

In information science, scholars have begun investigating "curiosity detection in text," or how text mining may be used to analyze students' questions to look for markers of curiosity, as well as exploring how virtual reality might increase curiosity.[14] In academic libraries, Noa Aharony and Gur Hadas issued a battery of seven personality questionnaires, finding curiosity to affect students' information literacy levels.[15] Gregory Boyle extensively critiqued the validity of the scale Aharony and Hadas used.[16] Sarah Mabee and Sarah Fancher published a piece titled "Curiosity Is a Luxury of the Financially Secure" identifying many affective barriers to pleasurable information seeking among students at a community college, including financial stress.[17] Despite these obstacles, the students Mabee and Fancher interviewed shared examples of their curiosity, particularly when a topic relates to their lives, to a problem they want to solve, or to "casual curiosity" around celebrities. Most students interviewed could remember at least one academic assignment about which they felt curious and passionate.[18]

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Most influential for the present article, Anne-Marie Deitering and Hannah Gascho Rempel mined scholarship on curiosity and focused on three types of curiosity based on their work with students: (1) epistemic curiosity, the desire to gain new knowledge; (2) perceptual curiosity, the interest in novel sensory experiences; and (3) interpersonal or social curiosity, an interest in other people and their activities, thoughts, and feelings.[19] Deitering and Rempel questioned the ways academic assignments discourage students from pursuing topics that engage their curiosity. They attribute this dampening of curiosity to academic requirements that focus on meeting expectations for a grade. Such a focus encourages students to choose topics that may be too broad or overdone but feel "safe" in terms of finding enough sources to write about, rather than to engage in the more intellectually risky process of a learning journey guided by curiosity.[20]

Evolving Understandings of Curiosity

Part of the difficulty in exploring curiosity is the lack of consistent use or definition of the term *curiosity*.[21] Related expressions include *play*, *exploration*, *learning*, and *interest*. Marvin Zuckerman developed the Sensation-Seeking Scale, an instrument designed to measure subjects' tendency to seek varied, novel, and intense sensations. The scale includes the subcomponents thrill and adventure seeking, experience seeking, disinhibition, and boredom susceptibility.[22] George Loewenstein notes there may be "behaviors under the heading of curiosity that are only distantly related to each other."[23] This range of terms and overlapping research contributes to the difficulties of classifying curiosity.

Curiosity has been viewed differently by diverse cultures and within various contexts.[24] Loewenstein traces the earliest discussions of curiosity to philosophers and scholars of religion, who approached it as a moral question. Historical views often depicted curiosity as negative or dangerous, as in the myth of Pandora's box or the cautionary tales in children's literature. Such attitudes shifted to a modern perception that sees curiosity as a key component to be encouraged for educational purposes.[25] Sandy Grande's seminal book *Red Pedagogy* characterizes the "colonialist underpinnings of the (academic) 'demand to know'" as stemming from an "academic arms race that misrepresents the (fast) production of knowledge as 'progress' or worse as a transit for intellectual imperialism."[26] This view aligns with curiosity's aspect of the "private, the secret, the forbidden, the foreign."[27]

Historically, research on curiosity has focused on personality traits, measurement of curiosity, or physiological states. Daniel Berlyne theorized curiosity as a phenomenon based on the individual's psychological state and conceived of it having two dimensions: perceptual or epistemic. He saw epistemic curiosity as a higher-order feeling distinguishing humans from nonhuman animals, although this taxonomic approach is now contested as "premature" without the support of empirical testing.[28] Some researchers have conceived of information seeking as emerging from deprivation, a knowledge gap, or the desire to know more.[29] Working through a view of curiosity as a violation of expectations, Donald Olding Hebb delineated the difference between positive and negative affect associated with curiosity: "Up to a certain point, lack of correspondence between expectancy and perception may simply have a stimulating (or 'pleasurable') effect; beyond this point, a disruptive (or unpleasant) effect."[30] The positive side of curiosity seems connected to humans' love of novelty and the corresponding perceptions of pleasure and reward created by dopamine released in the brain.[31]

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Despite the lack of a clear definition, an interdisciplinary group of authors offers three principles of curiosity: that it has multiple forms that are contextual, that it is embodied through practices, and that it is political.[32] Perry Zurn conceives of curiosity at the social level through the lens of political resistance, questioning, transforming, and upending the status quo.[33]

Curiosity and Learning, or the "Need to Know"

Curiosity is understood to be closely related to learning, and this may be particularly seen when learners can exercise choice in ways of exploring new concepts or phenomena.[34] Celeste Kidd and Benjamin Hayden summarize the impact of this type of choice on the brain: "Allowing a learner to expose the information they require themselves . . . may further benefit the learner by enhancing the encoding and retention of the new information."[35] Epistemic curiosity is related to the element of surprise in learning new information, as Min Jeong Kang and her colleagues demonstrate through functional magnetic resonance imaging (fMRI) brain scans and behavioral studies. Participants asked to read trivia questions show more curiosity and arousal when they guess incorrectly; during follow-up studies, they have "better recall of surprising answers 1 to 2 weeks later."[36] This finding aligns with Jean Piaget's notion of curiosity as part of the way developing humans make sense and meaning from the world.[37]

There is also a relationship between curiosity and the "need for cognition" or the motivating desire to know why or how a phenomenon works. This desire may be frustrated and intensified if not resolved through understanding.[38] Finally, the work of Kang and her colleagues supports earlier work that conceives of curiosity as "anticipation of rewarding information" by the brain.[39] These researchers note that other forms of curiosity may be more perceptual or sensory and may operate differently in the brain,[40] and there is still much for scientists to learn.

Method

This study aspires to a critical constructivist epistemology with an asset-based framework that draws on funds of knowledge theory, an approach that values students' lived experiences as strengths.[41] The setting for the study was a large research university in the western United States. For the purposes of this study, transfer students were defined as anyone who had attended another higher education institution before arriving at the study institution and transferring credits there. The authors used a combination of convenience and quota sampling to achieve a study population consisting of roughly half newly arrived transfer students and half transfer students with two or more semesters at the institution. The investigators wanted to gather both fresh experiences of new transfers and more seasoned observations from students who had time to adjust.[42] The research team recruited subjects using an e-mail list from the institutional research office of all transfer students enrolled in their first semester. In the subsequent semester, the researchers e-mailed all other transfer students, offering interview slots and consent information via a LibCal registration form. This process allowed the investigators to maintain a wait-list of students willing to participate so that if a subject canceled an interview, the research team could offer that slot to students on the wait-list. Transfer students were recruited until the number of participants corresponded to the number of $10 incentive gift cards available.

The research team interviewed a total of 41 transfer students in the fall of 2018 and spring of 2019 using a semi-structured interview protocol. About half the students interviewed (n = 20) were in their first semester at the university, and the remainder (n = 21)

had switched to the university more than one semester prior to the study. The average age of participants was 23, with individual ages ranging from 19 to 37. Interviewees identified as White (n = 25), Hispanic/Latino (n = 6), multiracial (n = 4), Asian (n = 3), and Middle Eastern (n = 1), with two students who chose not to disclose their race. A little over half the interviewees identified as female (n = 24), with the remainder describing themselves as male (n = 17). Students interviewed were primarily studying science, with 22 science majors represented, 15 social science majors, and 6 humanities or arts majors.

Results of the study that focus on transfer students' overall transition experiences will be reported elsewhere.[43] As part of the semi-structured interviews, students were asked about a recent assignment that required outside sources and requested to recall a time when they felt curiosity or an intense desire to know more about something. Responses to these questions form the focus of this article. The research questions framing the data analysis were "How do students describe their own curiosity and passion for learning?" and "How might academic libraries reposition ourselves as 'the curiosity place'? Or should we?"

Interviews were coded in Dedoose qualitative analysis software by the three researchers, who each coded the interviews separately, then came together to discuss themes. The research team developed a rough list of initial codes prior to data analysis based on the focus of the research project, then added additional codes to the codebook as needed during the coding phase. The excerpts related to curiosity were extracted from the overall data set and reviewed separately through hand coding cycles. All observations from coding were then sorted using an axial coding technique into thematic groupings that correspond to paragraphs in the "Findings" section, under two primary categories: curiosity and affect, and how curiosity is kindled.[44]

Findings

Curiosity, An Inherently Affective Experience

In talking with students about their curiosity or excitement in learning, a handful of affective or emotion-related words appeared multiple times across the 41 interviews. Table 1 depicts the 10 most frequently used affective words, clearly supporting the connection between positive emotions, curiosity, and passion for learning through students' repeated use of positive affective words.

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Several students were inspired to learn by the realization that they had talent or a propensity for an area, thus motivating them to continue or helping them to choose a field of study. The realization of talent contains elements of positive emotion. For example, one student began studying hard sciences at another four-year institution, then had an epiphany while taking a linguistics course:

> I realized that, like, languages come easier to me than most people . . . and I guess just figured that's, like, what I'm good at and what I like. [I] also really like seeing the

Table 1.

The 10 most frequently used positive affective words about students' experience of curiosity, from interviews

Word	Frequency
excited*	48
interest*	46
cool	33
fun	20
super	19
love	15
great	11
awesome	8
passion	5
play	5

*Includes all suffixes: -ing, -ed, -s, etc.

> connections between the languages . . . Spanish and German had a lot more in common than I thought initially, you wouldn't expect them to have similarities . . . It's really fun to see.

The student later decided to major in linguistics. Another had a similar start in the life sciences at a small institution, then after arriving at the study institution changed to their current major, explaining, "I originally came for mechanical engineering . . . and then realized coding was the class that I was most excited for. I was always reading coding over solid works." The student described having "some internal reservations on 'Should I really do the thing that's easy for me?'" but then realized that "you should do that thing that you actually are gonna want to do when you get out of college." This student initially distrusted their enjoyment of coding because it felt "easy" and wondered if they should look for a more challenging field of study. But valuing their interest and curiosity helped them determine the best direction to pursue in choosing a major and a career.

Not all the affective words used were clearly positive. Table 2 depicts a small number of affectively ambiguous terms or words that suggest when curiosity as a learning process includes feeling stressed and overwhelmed. It is helpful to view these words in context, however. Experiences for the word *hard* included adjusting to campus as a transfer student, challenges

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finding resources for academic assignments, a rejection for a medical school application that led to a new career direction, and difficulty communicating while traveling in another country that catalyzed a desire to learn the language of that country. The five instances of *bad* include a student discussing mining pollution as a "bad problem in Colorado." There is a range of nuance and variation for these seemingly ambiguous or negative emotions. These brief examples align with the literature in suggesting that wanting to solve a problem, overcome a challenge, or persist despite obstacles is a natural part of engaging in curiosity as a learning process.

Students' perceptions of the relevance of a subject to their life experiences or career aspirations were another motivating factor that they often mentioned, particularly in the ways that research on these topics could yield a new perspective, help resolve a tension, or suggest solutions. For example, one student told of struggles with substance use that led them to leave their former institution. At the new institution, they drew on these experiences for a paper on drug rehabilitation and the relative effectiveness of different treatments, making meaning through research connected to their own life. A gay, nontraditional student shared feelings of loneliness on campus and difficulty finding a sense of community. They used this background to write a paper on young people's addiction to technology and the barriers to socialization and relationships that result, helping place personal experiences within a larger societal context. A third student wondered about the impact of video games on children's development and shared positive experiences of learning to read and finding community through video games. The student's research was deepened by conversations with scholars and the online community to help challenge assumptions that video games are "bad." These examples demonstrate the powerful fuel for curiosity that integrates affect with lived experiences.

A number of students shared how a professor's enthusiasm for a topic could be contagious, driving their affective interest and motivation to continue learning. These experiences often included a professor's own research interests and passion for the subject area. One student described how a neuroscience professor ignited curiosity: "He has

Table 2.

The five most frequently used ambiguous or negative affective words about students' experience of curiosity, from interviews

Word	Frequency
hard	8
bad	5
weird	5
challenging	4
difficult	3

a lot of examples, and he was explaining how bees communicate. And I was just like, 'That's so cool!' He, like, keeps things very simple, very relatable. And well organized. All his thoughts are so well connected, and he transitions into the next thing. And I'm just all about it." Another student described how an engaging professor inspired his commitment to his major and the discipline-specific research that followed, which also integrates with tangible local environmental issues:

> I knew that I wanted to study geology, but there's just so much to learn in geology that I wasn't quite sure yet. And so, I was in this course called Geochemistry. And the professor—she's fantastic. She's probably one of the best in the department. And so, there is one part of the course . . . and it was on acid mine drainage. It's just this really interesting environmental problem that I was super dumbfounded by.

Although inspiring professors sparked students' curiosity, a few students described opposite experiences with faculty that led to their disengagement from learning. One student stated, "This semester, all of the fun classes I signed up for aren't fun." This student went on to describe a desire for interactive class discussions and for professors to share their own experiences that relate to the material: "There's just so much more that could be put into the class and just . . . I want to say emotion, but, like, excitement about it and making us excited about it instead of just slides."

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While the majority of students shared positive emotions integrated with learning and curiosity, a few reported turnoffs that limited their enthusiasm for learning. For example, one student taking a heavy computer science course load shared that they sometimes felt "so stressed that I don't remember the last time I was really excited about something." Later, however, the student recalled digging out textbooks from a prior institution in their enthusiasm to remember how a concept worked. All these examples reinforce the close relationships among emotions, curiosity, and learning.

Sparking Curiosity

Students described multiple entry points to curiosity, including interest in ideas fueled by their professors and coursework; excitement through hands-on or experiential learning; connection through relationships or personal values; synthesis of ideas across courses or learning modalities; and multiple forms of curiosity that combined to create a potent fuel for learning and excitement. The majority of examples expressed interest in ideas, topics, or concepts, which curiosity researchers refer to as *epistemic curiosity*. This is not surprising, given the framing and context of the interviews within a large academic research institution. Students found intrinsic interest in such topics as criminology, carbon fuel loading contributing to wildfires, or young adult literature. They either chose courses based on these interests or their curiosity was deepened through their coursework. A

nontraditional student described how their initial plan of becoming a history professor and writing an honors thesis on an ancient history topic shifted through a conversation with an encouraging faculty member: "I jokingly told her like, 'Well, if you're still looking for somebody to teach that class in, like, five years to tell them to give me a call.' And she said, 'Well, you might be joking, but you should think about doing that for your thesis.' So, I ended up writing a space history thesis. Totally different from the other thing I was going to do." This conversation encouraged the student to pursue a unique career path that aligned with their curiosity in an understudied area.

Some students spoke of passion and curiosity through the synthesis of ideas. This occurred particularly when students made connections across different courses they were taking. Synthesizing ideas corresponds to Piaget's view of human development through making sense of the world, including building mental maps or schema of how things work.[45] The following excerpt encompasses this experience of synthesis for one student:

> It was weird, last semester all of my courses just kind of came together. Like my history class was cross-sectioned with a women's studies class, and then my Italian class was about the *Decameron* . . . it was about Giovanni Boccaccio and how he wrote it for women. So that kind of tied in with my history course and then the history course with, like, the philosophy . . . it was just nuts! But it was, it was awesome. It was awesome to see the connections between the classes. And I kind of wish that people could have had that kind of epiphany moment like I did where everything just comes together.

New language or concepts allowed students to understand and interpret their own life experiences or see relationships among more abstract concepts, effectively building scaffolds on which to construct fresh ideas. These coincidences caused the intellect to spark and catch fire, fed by the combination of ideas, coursework, and conversations with professors and classmates.

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Many philosophers have considered the highest form of curiosity to involve ideas and abstract thought. Other curiosity pathways provide interesting insights from students' own learning journeys, however. Numerous students expressed curiosity inspired by hands-on or experiential learning, including working in a lab, study abroad experiences, attending meetings for start-up businesses, working on a marketing internship, interning in a health-care lab, and visiting the campus libraries' special collections reading room. An international computer science student explained the importance of experimentation and seeing the outcome of their work: "When you're programming, a really frustrating thing to do is, like, when you program something and you don't really see the result . . . But when you do Web programming, you program something and boom, you see it on the website, you see an image, you see an interface." When students lack prior experiences related to the topic, hands-on learning provides context, meaning, and often social relationships that allow curiosity to flourish.

A third subset of students related curiosity to interest in learning about other people, cultures, or values. A student volunteering at a diabetes clinic saw a toddler diagnosed and felt deeply attuned to the emotions of the child and his mother:

> So, he had to sit in his mom's lap, and he was just holding her, crying, and I was, like, "It's gonna be okay. You're gonna be fine." And so, my thing was kind of learning about situations like that . . . every time I go in, we have two or three people that had been diagnosed that day and are finding out, so my biggest curiosity is just how they are, I guess, and how I can help. And that's really what I'm starting to learn is how different people cope with such a hard situation . . . the psychology of emotion is just fascinating . . . that's why I think psychiatry, but I really don't know what I want to do with my future, so we'll see.

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This student related their own experience of being diagnosed with diabetes with their internship experience and their academic work and career goals.

Another student described the personal values behind their passion to continue learning American Sign Language, explaining "There's a huge, huge clash with deaf people in SLP's [speech language pathology] because their main thought is 'They're going to teach me oral, oral, oral, like nothing about my sign and my deaf culture.' And I want to completely switch that around in my personal practice." This student's ethical and humanizing stance toward their future work is an entry point, motivating them to continue learning sign language. A third student described becoming more deeply engaged in their academic department through professional relationships, which led to new opportunities and deeper learning. The student received an invitation from a professor to join a special seminar "which was my first indication that I was being 'accepted into the fold.'" The student then began working in a lab, attended and presented at a disciplinary conference, "And I just all of a sudden got really, really accepted by my department and all the professors knew my name . . . I'm called the 'Swiss Army knife' of the department." Encouragement and invitations from faculty and staff within the student's academic department validated their worth and inspired them to pursue their curiosity through deepening engagement with the life of the department. This student planned to continue their studies by applying to graduate school.

A number of students shared experiences of curiosity and learning that involved multiple modalities, mixing epistemic with hands-on or "people and values" ways of sparking curiosity. In these cases, students' learning was supported and deepened through multiple ways of accessing and exploring the material. The previous example of a student volunteering in the diabetes clinic was one such mixture, with the student's curiosity sparked by the interpersonal and emotional entry point in tandem with an impactful hands-on learning experience that related to the student's academic work. For the geology student who was "accepted into the fold," departmental relationships connected with coursework, attending a professional conference, and lab experiences. For the student who wrote an honors thesis on space history, their relationship and conversations with a mentor encouraged them to pursue a direction about which they were passionately curious. A number of students also shared their desire to study abroad, such as this example: "I really love the mission of, like, global partnership as a mechanism for improving quality of life, giving experiential learning opportunities. And so, I was looking for a way to get engaged with that." Studying abroad ties interpersonal and

cross-cultural curiosity with the experiential learning of a new place through sights, sounds, and tastes.

Finally, a number of students shared their grief and conflicting feelings about choosing a major or limiting their academic exploration, which particularly seemed to challenge students with wide-ranging curiosity and interest. One student discussed this difficult choice, saying, "I have such a weird variety of things that I'm interested in that I've had a hard time finding a major that I would enjoy . . . And that's really what's been keeping me from declaring anything. It's that I'm afraid that if I declare one that sounds somewhat okay, I'm gonna get halfway through it and be, like, 'This is horrible and I don't like it.'" The student explained that their interests are "really widespread and difficult to put down to one thing." Students identified the classic conflict between pursuing a major based on passion versus studying something perceived to be more practical or with direct career applications.

Curiosity and Libraries

Some students mentioned that their curiosity was ignited by library spaces. As part of their epistemic or experiential curiosity (and likely influenced by the questions about library spaces and resources in other portions of the interview), a handful of students shared their excitement at first seeing the campus library's main stacks and the wealth of information to be explored. One explained:

> There's so much, so much information in there and books of all, all sorts of ages, you know. So, I remember being really excited about that . . . And so, [the main library] kind of feels like the epicenter of, like, school to me. Like if I just have a little bit of time, this [is] where I go. And so, it's kind of like a, you know, little home base on campus for me.

These students may be drawn to the novelty and opportunities of exploration provided by the abundance of library resources.

One student who had visited the libraries' special collections reading room brought up the visit multiple times during the interview as an impactful learning experience and library resources as fuel for their curiosity: "It's not just a place, you know, to sleep or study. You know, I just, I thought getting that hands-on experience in special collections, that was super cool. And that's what really made me think, 'Oh, I can actually pick up, check out books and go and use them' instead of looking up an e-book or something." The special collections visit seems to have initiated the idea that libraries and library holdings spark curiosity for this student.

Our interviews did not include any transfer students who identified library employees as connected to their curiosity journeys. Two of the 41 interviewees alluded to getting to know individual librarians, but no student directly related librarians to the support of their curiosity. When asked about prior interactions with library employees, one student shared, "For me it might have been helpful to have someone drag me in here and be like, 'Hey, these people are friendly, like, you can talk to them.'" Some students shared clearly negative experiences with librarians in K–12 school settings, which may contribute to their views of academic librarians in higher education. Seeing librarians as curiosity agents did not seem to occur to most students. Instead, they often viewed

librarians as there to help find a book, check out materials, assist with citations, or guide the student with a database.

Limitations

This study used a combination of convenience and quota sampling, rather than a randomized sampling method. The participants may have been a self-selecting group with particularly positive or negative attitudes around their transfer transition and information-seeking experiences. Participants in the study may have been influenced by the interview locations within library buildings and either primed in their thinking by the location or felt pressure to answer positively to questions about library experiences to the librarian interviewers. While, as a qualitative study, discussing generalizability of the findings is not appropriate, the researchers aimed for transferability of the findings to similar contexts within higher education and libraries.[46]

Discussion and Conclusion

Placing the interview findings within the context of the literature, the authors regard curiosity as spanning a spectrum of experiences from a transitory fancy, to a passionate and sustained inquiry, to a paradigm-shifting undertaking. The authors note certain correspondences with prior LIS and psychology researchers' focus on epistemic, perceptual, and interpersonal curiosity as entry points.[47] Yet without clear definitions for curiosity as a construct distinct from the many related and overlapping concepts, such as interest and information seeking, it remains difficult to definitively categorize curiosity. Continued research on the neuroscience and behavioral components may yield additional insights, and interdisciplinary and cross-cultural work will help clarify curiosity's manifestations across contexts.

For now, these findings illuminate students' experiences of curiosity as they relate to learning and motivation. Students' stories offer parallels to the research around the human love of novelty, reward seeking, and memory benefits.[48] These neuroscience and psychology findings create clear affective links between curiosity and such positive emotions as interest and excitement. These feelings may lead to persistence in information seeking and an intense "need to know," as well as opportunities for making meaning and finding personal relevance in course material, life experiences, and career aspirations. Students themselves are aware of putting in effort when they are curious, and this metacognition is a helpful learning tool.[49] As one student remarked, "I personally think that that's the only way to do research. If you're not interested in the topic, you're gonna half-ass it and you're not gonna, you know, put as much effort or even thought into it as something that you are passionate about." The shadow side of curiosity also encompasses the anxiety that can accompany information gaps and feeling overwhelmed that may be hallmarks of certain phases of information seeking and seem to involve both affective and cognitive components of overload.[50]

As academic libraries consider how they might support learners' curiosity journeys, an important tension needs to surface. Neoliberal and capitalist constructions of curiosity are aligned with messages of innovation, progress, and advancement, and are

often associated with new technologies. Arjun Shankar defines "neoliberal curiosity" as "instrumentalized toward questions that pertain only to monetary success and value . . . carrying with it gendered, sexualized, and racialized norms in the form of competitive 'drive.'"[51] Shankar describes how this cultural conditioning impacts student mental health on college campuses, as students "continue to experience an increase in the distance between what they want to know (i.e., a self-motivated curiosity) and what they ought to want to know (neoliberal curiosity), which in turn tears them from themselves, producing anxiety, depression, and the like."[52] This torque has direct consequences for students' affective experience in learning, as well as their more tangible choices of which major to pursue and which courses to take.

In contrast, though not necessarily in binary opposition, are critical, disruptive, or "resistant" forms of curiosity that inspire questions or challenges, or reject the status quo.[53] These forms of curiosity are evident in social movements, such as the American civil rights movement,[54] the Black Lives Matter movement, prison activism, divesting from police, and the #MeToo campaign against sexual harassment and abuse. In these movements, curiosity is "collective and it is communal,"[55] concerned not only with reforming systems that are harmful but also with questioning the assumptions underlying these systems.[56] In these examples, curiosity contributes to society through a critique of social systems.

Curiosity takes many forms. As libraries move toward intentionally supporting learners' curiosity journeys, we must learn to ask such questions as: Which forms of curiosity do we prioritize? What are the consequences of this prioritization in terms of access to information and services? What language do we use to describe curiosity, exploration, or the questioning of norms? In what ways does our current approach facilitate or limit learning and growth for our community members?

It is perhaps not surprising that none of the students interviewed thought of librarians as related to their curiosity journeys. Only a few decades ago, the professional scope of librarianship consisted primarily of curating collections and providing access to information. It has since broadened to include information literacy and information behavior, extending librarians' professional focus to the process of learning and inquiry. Remembering this relatively recent shift remains useful for librarians and educators concerned with how to help learners kindle their curiosity and learning, particularly by better understanding the ideal conditions for sparking curiosity, as well as those that damper it. There may be opportunities for reframing LIS work and missions more intentionally around curiosity and inquiry, as some academic libraries have begun to do. Academic libraries could also look to examples of such efforts within public libraries and museums.

Deitering and Rempel advise that "instructors and librarians must create conditions where students feel motivated, capable, and safe enough to explore and learn in the research process." They go on to suggest that librarians should be involved in topic selection.[57] They share their own experiments working closely with first-year writing instructors to shift the language and the assignments to facilitate curiosity.[58] While this article focused on describing and documenting curiosity from student perspectives, more empirical research is needed for LIS practitioners to understand which practices are most effective in supporting learners' curiosity.

The researchers empathized with many of the experiences interviewees shared during the study. Through hearing students' experiences, the authors found challenges to their conceptions and professional practices. The editors of *Curiosity Studies* write that curiosity "has the capacity to upend what we know, how we learn, how we relate, and what we can change."[59] This quotation may be just as relevant to information professionals as to the learners with whom we work.

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Linds West Roberts is an assistant professor at the University of Colorado Boulder Libraries and the subject liaison to the School of Education, Department of Ethnic Studies, and Department of Women and Gender Studies at the university. Their ORCID ID is 0000-0002-4141-7182, and they may be reached by e-mail at: linds.roberts@colorado.edu.

Megan E. Welsh is an associate professor, associate faculty director, and the interdisciplinary arts and humanities librarian at the University of Colorado Boulder Libraries. Her ORCID ID is 0000-0002-9514-5012, and she may be reached by e-mail at: megan.welsh@colorado.edu.

Cynthia Rain Keller is a senior instructor and learning coordinator at the University of Colorado Boulder Libraries; she may be reached by e-mail at: cynthia.keller@colorado.edu.

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