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Research Article

Content Matters: How Information Literacy Workshops Tailored for Marginalized Groups Can Impact Student Performance

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Abstract

Objective – This study sought to understand information literacy instruction tailored for first-year students of color in higher education, and the impact of that instruction on student performance and confidence levels.

Methods – The study was conducted at a four-year doctoral-granting higher education institution and was designed as a QUAL+quan convergent mixed-methods study. It utilized critical race theory (CRT) as its theoretical framework, a participatory action research (PAR) approach for its design, and critical pedagogical practices to tailor the instructional content and delivery. The instruction was designed as a multi-session information literacy workshop series delivered outside of the traditional classroom and was comprised of six one-hour sessions: an initial focus group, four information literacy sessions focusing on specific aspects of the research process, and semi-structured interviews.

Results – Data collected through discussions, open-ended activities with rubrics, and pre- and post-series surveys were analyzed to determine whether the instructional series impacted student learning outcomes. The results showed the series had a positive impact on student performance and their confidence levels pertaining to understanding and applying information literacy concepts.

Conclusion – The study is significant as it is the first to specifically utilize CRT and PAR in a multi-session information literacy workshop series for first-year students of color delivered outside of the traditional classroom setting and can serve as a model for other institutions.

Introduction

The past two decades have seen a transformation in the way that information literacy instruction is delivered in higher education, both through technological advances that have been made and the shift away from predominantly task-based learning to higher-order thinking skills (Gross et al., 2018). This shift in focus was solidified in 2016 when the Association of College and Research Libraries (ACRL) rescinded their *Information Literacy Competency Standards for Higher Education* which described information literacy practices through a checklist of five tangible tasks and replaced them with the *Framework for Information Literacy for Higher Education.* The new Framework centers less on tasks or tangible steps to take in the research process and more on concepts within the research environment that will give its users a deeper understanding of and more agency in the information creation process and scholarly conversation. Through these new frames, information literacy instruction has become more nuanced, creating more of a dialogue between instructor and student to deepen learning and engagement.

With instructional methods changing has come a growing awareness around racial and cultural inequalities, both in general society as well as the educational system. While educational and learning opportunities have been unequally available across race, gender, ethnicities, and class, this disparity has become even more prevalent in the past two decades with such initiatives like the No Child Left Behind Act, the Common Core State Standards, and the Every Student Succeeds Act. These initiatives, while meant to bring a universal level of learning and accessibility to every student, inadvertently reinforced disparities by putting heavy focus on high-stakes testing; this can force students into a performance-based mindset rather than a critical or inquisitive mindset for the sake of learning (Safir & Dugan, 2021). Even more detrimental, students working below grade level may not have the extra time or instructor interaction they need when most curricula are set at a breakneck pace to prepare students for the more rigorously designed testing standards (Hammond, 2015).

This educational disparity is not confined to K-12 learning environments. Students who have had to adopt an academic mentality suited for test-taking and performance-based outcomes bring these habits into higher education, which may not be equipped for breaking down that mentality and reinforcing critical thinking and intellectual expansion. Most professors assume that students come to college knowing how to write papers and conduct research appropriately, when in fact those skills more often than not have not been developed (Huddleston et al., 2019). Adding to this, many colleges and universities do not have coursework dedicated to research methods or information literacy. One national survey found that only 23% of librarians are teaching credit-level courses (Julien et al., 2018), and while embedded librarianship or one-shot instruction sessions are helpful, they may not be the most effective methods to deliver a standard baseline of skills and learned concepts to students (Henry et al., 2016).

Considering the above factors, this study was conducted at a four-year doctoral-granting private university in an urban area; the author (who then served there as a faculty librarian) found that these factors combined made for uneven application of effective information literacy instruction across the

university's academic units, especially for first-year students of color. This observation predicated the creation of the study and its execution.

Literature Review

In order to understand the surrounding circumstances and implications of the environment more fully, the literature was comprehensively surveyed across several areas, specifically: information literacy instruction; first-year students and their IL skills; critical race theory and its application in the educational field; and critical pedagogy, information literacy, and librarianship (Ball, 2024).

Information Literacy Instruction

While there are various methods and instructional tools used within instructional settings in higher education, the modalities used to deliver information literacy instruction (ILI) can be broken down into four categories. The first is the "one-shot" session, when a librarian is brought into a classroom (or the class is brought to the library) for instruction on the library's resources and how to use them. The second, embedded librarianship, is more involved, with a librarian most often being brought in by the teaching faculty to teach several classes across the semester, and potentially collaborate on syllabi and course assignments. Credit-bearing information literacy courses are the third and ideal delivery method for ILI, as they provide students sustained exposure to the nuances and complexities within research and information literacy. The last category is programs or events held outside of the classroom (like a scavenger hunt or a misinformation seminar), which will be discussed in further detail.

Places Outside the Classroom for Collaboration

A wealth of opportunities lay outside the traditional classroom that have the potential to instill higher-order thinking and IL skills with students. One of the most prevalent opportunities is the library orientation session, or library visit. While this can typically be seen as a simple perfunctory walk around the physical space and services, there are innovative ways to infuse it with IL learning and skills (Boss et al., 2015; Brown, 2017). By using critical pedagogical practices and discourse analysis, Dandar and Lacey (2021) were able to interrogate terminology used during library orientation sessions for institutionalized structures of power and privilege and find ways in which to rectify them. Rutledge and LeMire (2017) talk about ways in which to infuse IL skills and concepts into "microteaching" opportunities (such as the reference interview, serendipitous meetings between librarian and student, orientation sessions) to foster collaborative student engagement and deep learning, and "enable students to take ownership of their own learning process" (p. 354). Using grounded theory as their framework, McBurney et al. (2020) developed a way to both build a collaborative relationship with teaching faculty and impact student IL skills through "research sprints", where librarians and teaching faculty worked together to create a research project or assignment in one week that was infused with IL and built social capital between the teams.

Koelling and Townsend (2019) furthered the collaborative level between librarians and teaching faculty into the creation of research clinics for first-year composition classes at the University of New Mexico, with the clinics held outside of classroom time, lasting 75 minutes each, and covering varying (and often individualized) instructional content catering to the students that signed up. This personalized time with the students outside of the classroom and traditional library interactions helped to foster deep learning and student engagement, however the model uncovered certain challenges (such as time commitment and levels of faculty buy-in) of which other researchers should be mindful.

While these events and programming can be effective and informative in demonstrating information literacy skills to the students involved, they often do not provide enough exposure to or engagement with long-ranging information and critical thinking skills. They also may not be generalizable to the larger student body as they are either open to all students (therefore cannot extrapolate for different student populations) or are confined to a specific course or classroom section, which also may not allow for catered instructional content. This study, therefore, combined features of the above-mentioned modalities to offer a multiple-session IL workshop series but delivered independently of an academic course or program (as with the embedded or credit-bearing course models) and catered toward a specific student population: first-year students of color.

First-Year Students and Information Literacy Skills

Information literacy instruction is an important factor at every level of academic education, but first-year students are an especially important subset on which to focus, as the misperceptions of IL skills coming into higher education (from both the faculty and student perspective) are necessary to remediate as soon as possible. In this way, students are set up at the earliest point in their college careers for critical thinking skills and therefore academic success.

First-year students have been a topic for study in the educational and information science fields for the last three decades (Jacobson & Mark, 2000; Keba & Fairall, 2020), but attention and scrutiny have intensified over the last decade. Specifically, attention has been paid to the IL and critical thinking skills students come into college with, and the different modalities used in ILI once in higher education. A large factor in each of these areas centers on perceptions of IL skills; much research has been done discerning the (mis)conceptions and (mis)perceptions that instructors and librarians may have about students' IL skills, and that students may have of themselves. Differentiation between the two is that misconceptions are incorrect beliefs that are held based on previous experience while misperceptions are based on a lack of prior knowledge or ignorance (Hinchliffe et al., 2018). In numerous studies (2008, 2009, 2011, 2012), Gross and Latham have used competency theory as a framework to conduct their studies and consistently found that while many undergraduates were confident in their information skills, they tended to score lower proficiency scores than anticipated. Meta-analyses conducted across the literature substantiate this presence of the Dunning-Kruger effect, which is the overestimation of one's IL skills, with the poorer performers tending to have the highest confidence levels (Dunning, 2011; Mahmood, 2016). In similar work, Hinchliffe et al. (2018) designed a misconception framework to recognize this perception gap between students' understanding of IL and their actual skills. The researchers then identified and compiled nine of the common misconceptions across the information life cycle into an inventory with connected potential learning outcomes to help overcome these misconceptions. While the idea of these IL misconceptions overlaps other research frameworks, not all the misconceptions were validated through subsequent studies (Keba & Fairall, 2020), showing that these misconceptions may not be able to be universally applied to larger populations, never mind all first-year students.

These studies add to a growing body of literature that illustrates students coming into higher education do not have the needed level of IL skills faculty and librarians are implicitly expecting of them (Gross & Latham, 2012), which has only been compounded by the global pandemic and remote learning conditions during those years. IL may be a foundational tenet in the Common Core and previous K-12 educational standards, but these studies show that it is being unevenly absorbed by the students, making their IL abilities a necessary focus for instruction in higher education. These misconceptions and misperceptions are important to remediate as much as possible because if left unchecked they may perpetuate throughout a student's college career, and beyond into their careers and lifelong learning overall. Thus, to

help students improve their academic achievements and lifelong learning practices, it is imperative to increase student engagement with and understanding of the research process as early as possible in their academic career (Conway, 2011; Freeman & Lynd-Balta, 2010; Germain et al., 2000).

But students are not defined by their academic level alone; they are instead an intersection of many societal constructs that also need to be considered when building instructional content and environments. Of these different societal constraints, the most prevalent in U.S. current cultural conversations, both in society as well as the microcosm of the campus community, is race. To better understand the study's targeted student population, an appropriate theoretical framework must be implemented as the study's foundation. This study's framework is critical race theory.

Critical Race Theory and its Applications in the Educational Field

Critical race theory (CRT) has its roots in critical theory, which emerged at the University of Frankfurt am Main's Institute of Social Research founded in 1923 (also known as the Frankfurt School), where scholars and theorists of the time sought to use their neo-Marxist ideals to inform on and critique contemporary society as well as social theory (Leckie & Buschman, 2010). Critical race theory was first introduced by Derrick Bell and his students at Harvard Law School and sought to interrogate the racial injustices and disparities as seen through litigations and legal decisions. With the introduction of a new vernacular when talking about race and its representation in traditional disciplines, Bell offered students and scholars a shared language to express issues of race within scholarship. There are five tenets integral to critical race theory. The first is that racism is a normal or ordinary part of society, not an aberration; by saying that race is not an aberration of society but one of its norms, CRT scholars aim to illuminate how under-acknowledged racism is in society and thus difficult to directly address so that it may be changed. The second tenet, interest convergence (or material determinism), highlights that racism can be seen to advance the interests of both white elites and working class, so there is little incentive to eradicate it. Third is that race is a social construction, meaning that the idea of "race" is but a product of social thought and not of a biological or genetic reality, so those constructs can be modified or remolded. Intersectionality and anti-essentialism elucidate the fact that no one person can be explained with a single, easily stated identity; while someone may be of color, there are also gender, class, sexual orientation, and religious identities that are interwoven with race, thus creating multifaceted experiences (Howard & Navarro, 2016).

The final tenet of CRT, voice or counter-narrative, responds to the "master narrative" normative society projects that does not reflect the lived experiences or perspectives of minority or marginalized groups, and advocates scholars of color to offer their lived experiences (usually in the first-person and allegorically) to counterbalance the master narrative (Delgado & Stefancic, 2012). Differential racialization is a later addition to the theory, which explains how dominant society racialized different minority groups at different times through history, most often for gains in power or capital (Delgado & Stefancic, 2012).

While the original tenets of CRT are foundational to this study, several scholars have offered additional tenets specific to education and research. DeCuir-Gunby et al. (2018) call for educational practices and environments to challenge dominant ideologies and the "myth of meritocracy", which ascribes that advancement in the classroom (and society) occurs solely because of hard work and ability. Solórzano (2022, p. 51) also calls for learning environments to:

- challenge traditional research paradigms and theories to expose deficit notions about students of color and educational practices that assume "neutrality" and "objectivity";

- focus research, curriculum, and practice on experiences of students of color and view these experiences as sources of strength;
- offer a transformative solution to racial, gender, and class discrimination by linking theory with practice, scholarship with teaching, and the academy with the community.

Review of the literature across both information science as well as other cognate disciplines reveals interesting and unique applications of CRT, demonstrating the theory's versatility and flexibility for application. Whether examining statistics for inherently coded bias or racist perspectives (Gillborn et al., 2018), investigating motivations and practices of digital humanists as information workers within the humanities (Clement & Carter, 2017), analyzing the interface between CRT and the philosophy of information in order to reflexively examine each through the lens of the other (Ali, 2013), or using CRT alongside participatory action research to seek and explain the nexus between everyday lived experience and social systems (Torre, 2009), CRT has been applied across a broad range of information topics. Crenshaw's (1989) introduction of the term intersectionality (the reality that people do not fit into just one societal construct, like race or gender, and that true understanding comes at the intersection of these identities) coupled with Ladson-Billings' (1998) introduction of CRT into educational settings opened further research avenues for interrogation. In the years since its educational establishment, CRT and intersectionality have been used to examine educational settings ranging from the intersection of race, gender, and disability (Gillborn, 2015), to how race combined with socio-economic levels can compound inequitable learning environments in the classroom (Hammond, 2015; Milner, 2013).

As specifically applied to higher education settings, CRT can be used to interrogate almost every facet of the academic campus and coursework. Yosso et al. (2009) examine the overall campus climate for the Latinx student body at three classified "Carnegie Doctoral/Research Universities-Extensive" schools, and how they navigate microaggressions and feelings of unwelcome from their peers. By utilizing focus groups and CRT as a theoretical framework, they were able to categorize microaggressions into three types and show that, despite these situations, the students were able to succeed and how community building and critical navigation skills can help empower these students (Yosso et al., 2009). Within the classroom an important factor is not only student learning but teacher education and development. Sleeter (2017) uses CRT to investigate the discrepancy between what teacher education programs purport they do in terms of diversity training and the seemingly underprepared white teachers that are produced and not adequately equipped to offer a "strong and culturally strong education" to diverse student populations (p. 163).

The importance of explicitly using this theoretical framework does not end at the improvements of academic settings and classroom environments, but persists into the students' worldviews and how they situate themselves in the larger societal community and advocate for change: "In order for youth to transform their lives they must understand the oppressive forces that impact them and their communities and possess the ability to relate to other oppressed groups in order to engage in transformational social action" (Flores-Gonzalez et al. 2006, as cited in Martin, 2014, p. 247).

Critical Pedagogy, Information Literacy, and Librarianship

Critical pedagogy has its roots in critical theory and seeks to connect "larger cultural goals, values, and expectations to education…reject[ing] the idea of schools and libraries as neutral institutions, focusing instead on the politics of information and education" (Elmborg, 2016, p. ix). Brazilian educator Paulo Freire's introduction of two concepts, the banking concept and critical consciousness, aim to decenter the educator's hierarchical power and role in the classroom to instead empower student voices and

knowledge through interaction and co-learning opportunities (Freire et al., 2018). The banking concept describes learning environments that treat the learner as an empty receptacle in which the instructor deposits knowledge without any development of critical thinking skills. This one-way instruction ignores the knowledge and experiences students bring to the learning environment and focuses more on storing information given rather than contributing to and understanding it. Instead, Freire calls for educators to reject the banking concept and help students develop their critical consciousness through a problem-posing mindset using discussion and collaborative communication to understand the complex nature of oppression in society, and to see themselves as political actors for change and not just subjects (Garcia, 2016). This study centralizes the development of students' critical consciousness through reflective activities and incorporation of their lived experiences and prior knowledge to anchor the study.

At the heart of critical pedagogy is its liberatory nature and call for transformative actions towards social justice and change. Incorporating race and racial justice into educational settings through critical pedagogy can aid in disrupting the educational status quo through transformative course design, such as centralizing diverse scholarly voices or modeling racial reflexivity, which is the "process by which one evaluates the way race shapes our knowledge of ourselves and others, as well as our biases and beliefs" (Bandy et al., 2022, p. 119). While information literacy sessions themselves may not be able to change a campus or community's racial climate directly, "it can powerfully foster space for students to gain strategic research skills while learning about themselves and society" in order to foment change (Willoughby & Blanchat, 2016, p. 213).

Bruce (2003) frames information literacy as the critical literacy for 21st century learners, and advocates that it is the "catalyst required to transform the information society of today into the learning society of tomorrow" (p. 11), which became solidified through the introduction of critical librarianship and critical pedagogies into both the library's instructional environment as well as the workplace. Though cultural diversity issues had been addressed within the LIS field and curriculum previously (Welburn, 1994), the critical approach to both information literacy and librarianship was cemented through James Elmborg's works. Definitions of critical information literacy and librarianship have taken many nuanced forms during its considerable maturation over the last decade, but the underlying tenets are the same: being able to critically interrogate systems of knowledge or information as a societal construct with political dimensions, realizing that there are many ways information can be presented and being able to critically evaluate them, and that the information user or instructor becomes an active participant in the conversation and with that active status comes the power for change (Elmborg, 2012; Tewell, 2018). The challenging of privilege and systems of power with the incorporation of advocacy or activism for change can be folded into ILI through multiple modalities (Branch, 2019; Drabinski, 2017; Torrell, 2020), though it has not been an easy transition to make, and is still not wholly adopted. As Elmborg (2005) states, "a critical approach to information literacy would appear to require a daunting paradigm shift within a professional group that is generationally the product of a baby-boom, late print training" (p. 6), and again confronts the dichotomous views of a library as either a neutral purveyor of information or as a site for empowerment and possibly activism through knowledge (Elmborg, 2012).

The applications of critical librarianship within the field have varied widely, such as using CRT to interrogate the racialized obfuscation of the Dewey Decimal System (Furner, 2007) or the classification and cataloging schemes as used by book discovery platforms (Kumasi et al., 2020), championing the We Need Diverse Books campaign in libraries to promote race representation in children's literature (Mabbott, 2017), or using validation theory to emphasize Latinx scholarship within information literacy classes to promote the student scholar identity for first-generation students of color (Quiñonez & Olivas, 2020). Incorporating social justice issues such as race, gender, and free speech into IL settings can also

help to normalize the topics for students in a way not presented in other coursework, and give an opportunity to show the bridge between critical thinking, information, and current societal issues (Pegues, 2018). This critical lens is not for the instruction session alone; many scholars call for the profession itself to look reflexively at and interrogate our own work environments to ensure that these oppressive or normative structures are not being perpetuated (Alabi, 2015; Arroyo et al., 2018; Brook et al., 2015; Ferretti, 2018; Warren, 2016), as well as other inequitable administrative policies and technological practices (Leckie & Buschman, 2010). But some see these advances as not going far enough; while critical librarianship perspectives are woven into the ACRL Framework, the terms "race" or "racism" are not present. Indeed, Rapchak (2019) goes so far as to say that without explicitly naming race or racism in both the Framework as well as ILI sessions, "white hegemony in higher education, librarianship, and information literacy instruction" will continue (p. 174).

Aims

Despite information literacy being integral to a well-informed society, the literature provides evidence that ILI in higher education is not universally applied. This means that students are either not provided with the same exposure to IL, or that there is potentially no IL instruction at all. This subjective level of exposure coupled with the fact that most teaching faculty are not trained in IL instruction reinforces a potentially inequitable environment, which can put students at a disadvantage; not having the foundation of these critical thinking and research skills embedded in their education can stymie their lifelong learning.

Numerous studies into learning modalities have been conducted over the past two decades, but none have focused on a multi-session IL workshop series delivered outside of the traditional classroom for a specific student group. Most of the work delves into instruction through one-shot sessions, embedded librarianship, or credit-bearing IL courses. Literature on librarian-led events outside the classroom—like workshops on identifying fake news or library scavenger hunts—offer steps to address this gap, but more rigorous research is needed.

Yet another gap to address in concert with the instructional environment is the systemic racial inequalities inherently built into the educational system. To truly engage with students of diverse backgrounds in instructional sessions, this issue cannot be overlooked; as students do not divorce themselves from their lived experiences once they walk through the classroom door, neither should instructors expect it of them.

To address the multiple gaps identified, this study focused on the following research question: does a multi-session information literacy workshop series delivered outside of the traditional classroom setting impact learning outcomes for first-year students of color?

Methods

This study was designed as a convergent mixed-methods study, collecting both quantitative and qualitative data during the pre- and post-series surveys and workshop sessions, and qualitative data during the initial focus group and semi-structured interviews. It was informed by an IRB-approved pilot study conducted in 2019, but was edited and updated after the pandemic and concurrent socio-racial events to more explicitly reflect the underlying theoretical framework and importance of critical thinking skills.

Theories and Frameworks That Informed the Study

The theory and approach that informed this study were CRT and participatory action research (PAR). PAR aims to disrupt the hierarchical relationship between researcher and participant by immersing the researcher in the learning environment as practitioner and allowing for the instruction to be shaped by the participants' lived experiences or knowledge (DiSalvo, 2016). This then allows for those experiencing oppression to help create actionable outcomes towards social justice within the learning environment (Edirmanasinghe et al., 2022).

The *Framework for Information Literacy in Higher Education* (ACRL) and High-Impact Practices (HIPs, as laid out by the Association of American Colleges and Universities) are educational practices that help to enhance students' engagement and deep learning opportunities. Research shows significant educational benefits for students who participate in HIPs, especially those from demographic groups historically underserved (AAC&U, 2024).

Recruitment

The participants were selected from the institution's mentoring network for first-year students of color with an intended sample size of 20 students; out of the 30 students who registered, 15 students ultimately participated across the series. This group was specifically chosen using selective sampling because it is comprised of self-selected students, meaning they chose to be a part of the mentoring network on top of their other academic responsibilities; this additional engagement was seen to increase the likelihood of their participation in the study.

An email went out to the first-year students in the group with an incentive of a $10 gift card per session attended (which was funded by a small research fund from the institution). Once students registered for the series, another email was sent to them explaining the nature of the study and its schedule, as well as a consent form acknowledging that their anonymized contributions will be published within a dissertation and future venues.

Workshop Series Structure

The workshop series opened with a one-hour focus group, then consisted of four one-hour sessions across the semester, with each session focusing on a specific aspect of the research process. The four sessions (named Search, Source, Write, Cite) mapped to specific frames within ACRL'S Framework as well as AAC&U's High-Impact Practices of: First-Year Seminars and Experiences, Learning Communities, and Undergraduate Research. Each session was also grounded with specific student learning outcomes, an instructional plan, presentation, two in-session activities (one formative, one summative), and rubrics that mapped to the SLOs (see Appendix for sample session instructional materials).

It's important to note that this study was not meant to identify if race or racism are factors in educational settings but instead meant to identify how to create learning interventions that center the tenets of CRT to help remediate the inherent racism and oppression in educational settings. This goal was made visible to the participants through active discussions and activities that highlighted issues such as: the inherent bias of algorithms that power our daily lives in relation to searching for a research topic or sources (Noble, 2018); how scholarship and the publication process predominantly favor white Western voices over voices of color and how that can affect notions and identities of authority in source evaluation (Schlesselman-Tarango & Suderman, 2016); empowering student voices through their writing to show

them as active creators and a vital part of the scholarly conversation (rather than passive consumers) (Pashia, 2016); and how proper source attribution can honor and elevate marginalized voices and their contributions to their fields (Larson & Vaughan, 2019). These examples aimed to develop the students' critical consciousness both through a problem-posing mindset as well as collaborative learning opportunities.

The workshop series centered immigration as the general research trajectory; this topic was chosen to honor the community's cultural backgrounds, being a highly diverse county with a large percentage of foreign-born persons relative to the national average. This topic choice was proposed in the initial focus group to gauge participant interest and relevance and was agreed upon; if during discussion another topic had proven to be more relevant to the students' daily lives, the study and research topic trajectory would have been adjusted. Using the theme of immigration as their research base, each session of the series asked the students to address the formative activities through the lens of a specific topic or issue related to immigration that mattered to them. In this way, the learner-centered model valued by both PAR and critical pedagogy was established with the students being able to see themselves as co-collaborators and active information creators. The model also adhered to a fundamental tenet of CRT that centralizes the lived experiences that students bring to the discussion and honors that knowledge by allowing it to shape the study itself.

Assessment Instruments

The pre- and post-series surveys were administered through Qualtrics and were comprised of the same eight Likert-based questions and one open-ended question. The questions sought to assess the participants' confidence in their research skills (overall, as well as specific skills), their understanding of information literacy, and their familiarity with library resources.

The interviews were semi-structured and conducted virtually within one week of the final session. The guided prompts (which were shared with participants beforehand) were meant to explore several areas of satisfaction and confidence levels, specifically in: what strategies they found helpful (or not) in relation to their research skills, and what they found most informative from the sessions; if there was anything not covered that they would suggest for future sessions; if they felt more confident in their research skills after the sessions, and if they had experienced anxiety previously that may have abated; and if they saw the series and its content as useful for their future academic work as well as in their personal lives.

Ethical Considerations

Although this study did not expect harm to come to participants, several steps were taken to protect them. All study artifacts and documents were submitted to the involved institutions' IRB Offices for review, which were then approved through a reliance agreement. Participants were made aware of the nature and purpose of the study, what it entailed, and the potential outcomes for their involvement through transparent email communications and the consent form, all of which were shared prior to dissemination with the mentoring network's Director for his approval. In this way, there was an added layer of protection for the students via the Director, who works closely with the mentees and would be able to assess for any biases or potential harm that needed to be corrected. Additionally, the only participant information that was collected was their student identification number for the purpose of preventing duplication of content in analysis.

Results

Through analysis of the study's collected data, several findings became visible. Firstly, there was an increase in participants' higher-order thinking skills across the semester (Table 1).

Table 1
Comparative Survey Results (n=6): Mean Scores by Question Pre- and Post-Series, With Change

	PRE (mean)	**POST (mean)**	**Change (mean)**	**Change (%)**
Confidence in Defining IL	2.83	4.83	2.00	40%
Familiarity with Library Resources	2.50	3.83	1.33	27%
Confidence in Evaluating Resources	3.67	4.83	1.17	23%
Confidence in Scholarly vs Popular Resources	3.67	4.67	1.00	20%
Confidence in Peer-Review Process	3.50	4.50	1.00	20%
Confidence in Research Skills	3.67	4.50	0.83	17%
Confidence in Citing Sources	3.83	4.50	0.67	13%
Confidence in Keyword Searches	3.83	4.17	0.33	7%
Total	**3.44**	**4.48**	**1.04**	**21%**

The survey data showed the participants' confidence levels in their research skills increased at a greater rate of change for evaluating resources for credibility and discerning between scholarly and popular resources (23% and 20% positive change, respectively). These areas represent higher-order thinking levels that go beyond skills-based thinking as shown through the revised Bloom's Taxonomy framework and its six categories: Remember, Understand, Apply, Analyze, Evaluate, and Create. Being able to evaluate resources and discern between source type fall into the fourth and fifth hierarchal level of Analyze and Evaluate.

Second, there was an increase in information literacy knowledge and ability to apply it as evidenced through the session activity sheets (Table 2).

Table 2
Session Artifacts: Artifact Scores, by Mean Score and Percentage of Points Available, per Activity

Activity Sheet	**Submitted Worksheets**	**Mean Score**	**% of Points Available**
1A: Group Activity, "Search"	8	4.00	66.7%
1B: Solo Activity, "Search"	12	3.83	63.8%
2A: Group Activity, "Source"	9	5.89	98.2%
2B: Solo Activity, "Source"	8	4.63	77.2%
3A: Group Activity, "Write"	10	5.30	88.3%
3B: Individual Activity, "Write"	8	4.50	75.0%
4A: Group Activity, "Cite"	8	1.75	87.5%
4B: Individual Activity, "Cite"	8	1.88	94.0%

There were a total of eight activities in the series, which were then evaluated against rubrics to see whether the SLOs had been met. Mean percentages were calculated for each of the activities against the available points per rubric. The range of mean percentages per activity was 63.8% to 94.0%, with the lowest scores attributed to the first session, "Search", with continuing increases in mean percentages from the first session's activities to the last session's activities.

An interesting finding was that the overall mean scores for group activity work were higher than individual work scores (Table 3).

Table 3
Comparative Means for Session Artifacts by Activity Type

Session	**Group Work Activity Sheets (A)**	**Individual Work Activity Sheets (B)**
1: "Search"	66.7%	63.8%
2: "Source"	98.2%	77.2%
3: "Write"	88.3%	75.0%
4: "Cite"	87.5%	94.0%
Mean %	**85.2%**	**77.5%**

When comparing the mean percentages, the group work activities had higher scores for three of the four sessions. The overall scores for the activities were 77.5% for individual work and 85.2% for group work. This observation aligns with the research on high-impact practices, specifically Collaborative Assignments and Projects.

Interviews were conducted with eight participants in the week following the series. These interviews were then hand-transcribed and coded by the author, using emergent initial coding in the first round followed by axial coding in the second round. The first round identified 30 codes, which were then reduced to 7 categories in the second round. The emergence of two qualitative themes comprised of those seven categories reinforced the data from the sessions, surveys, and focus group: acquisition and application of new knowledge, and research as a pathway or continuum. The first theme centered on the participants acquiring new skills and knowledge and applying them in a learning environment. New awareness of tools that can ease the research process like Google Scholar or bibliographic software (like ZBib) were met with excitement, but more importantly the participants saw the value in these tools when applied to their academic coursework outside of the series. Several participants noted that being able to immediately practice the skills and knowledge learned in the sessions through the activities helped to reinforce their learning and stated that they would continue to use these newly acquired skills in their future work as well. The second theme to emerge moved beyond the initial acquisition and application of new knowledge to a more conceptual understanding of the series' content and how it served to illuminate the research continuum. Participants were able to look back and see the value that this knowledge could have had on their prior research projects and to look forward and see the impact that it will have on their future research.

Participants expressed in their interviews feeling a sense of community through the cohort model, which aligns with the previous finding that the overall scores for the group work activities were higher than the individual activities; this peer-to-peer collaboration for the group activities not only gave the participants a place to discuss their ideas and potentially learn from each other, but also fostered a mini-cohort

environment and sense of belonging, which can be linked to positive academic and socio-emotional benefits. And finally, during interviews several participants noted the importance of adding their unique voice and experiences to the scholarly conversation relating to immigration and its complexities, thereby moving out of the passive observer role that merely absorbs the knowledge and into the creator role that facilitates new knowledge. This shows an understanding of the importance of IL concepts as represented by the ACRL Framework, specifically relating to Information Creation as a Process, and supports the notion of using information for advocacy and activism, which aligns with both the theoretical framework and critical pedagogical practices.

Discussion

These findings affirm several facets of ILI as shown through the literature. Firstly, getting to the more complex levels as represented by Bloom's taxonomy takes time and application, so it can be posited that longer interactions with a librarian and the students' peers in an IL learning environment can foster deeper learning. Secondly, the juxtaposition of the pre-series survey results and the activity sheets relating to keyword searches illustrated the Dunning-Kruger effect, in that there was an initial disparity between the students' confidence levels and their actual skills. This disparity lessened, however, as the series went on and the students became less anxious and more comfortable. As Kuhlthau's six-staged Information Search Process model shows, the affective and cognitive uncertainties an information seeker may experience at the beginning of the research process are assuaged the further one continues (Kuhlthau, 2008).

This study has several implications for the instructional field. By demonstrating the effectiveness of building an instructional environment underscored by CRT and PAR, more researchers and teaching librarians could be inclined to adopt the practice as well, which would bring more visibility to the theory and its application, as well as benefiting marginalized learners. This reframing of instruction through the lens of CRT offers a way to show our students that their experiences and voice matter and can be central to their coursework instead of marginalized or unseen. Data from the interviews supports this, as several students note the impact of being able to see themselves in the research process and more deeply connect to it, and how they can apply the knowledge learned in their personal lives. It also offers a paradigmatic shift in perspective for librarians that moves us away from seeing ourselves as neutral purveyors of knowledge and more towards being active agents of change for our students that help them interrogate information and systems.

With the data suggesting a positive impact on students' performance and confidence levels in an IL environment, the study also offers a roadmap for how to make instructional sessions more impactful for our students, namely through content and activities that decentralize instructor authority to instead elevate the students' voices and experiences. By engaging this critical pedagogical practice, instructors would be able to reach students on a more engaged level, which has been shown to increase their understanding of a session's content as well as their performance on subsequent activities or assignments. This deeper level of engagement with the content would also allow them to see the application of their new knowledge outside of the classroom and in their personal lives, thus contributing to true lifelong learning practices and more information-minded individuals.

The findings imply that building campus collaborations outside of a specific course or program (as was done between the library and the mentoring network) offers new non-traditional learning environments in which librarians can reach students. By building up new partnerships or new experiences outside of the traditional classrooms, librarians can extend their reach (and therefore impact) to student groups that

they would not necessarily have come in contact with through the traditional library instruction sessions or modalities.

While the series was impactful for the students and successful in terms of design and execution, several limitations were noted. First, the small sample size of participants, though providing rich qualitative data to analyze and interpret, did not produce quantitative data that could be seen as statistically significant. In relation to the sessions' content, some of the activities were a bit too detailed and in-depth to be accomplished in the allotted 15 to 20 minutes. In hindsight, this could have hindered the students' output as they might have felt rushed for time, thus impacting the scores for the activity sheets. Also, not everyone in attendance filled in their individual activity sheets despite the given instructions. This could be seen to skew the activities' comparative and average scores since all student work was not fully represented. The lack of a control group from the mentoring network limited the comparative information that could have been captured, as well as not testing knowledge retention beyond the semester the series was given. Limited funding opportunities and restrictions on their usage were a limiting factor as well. While the study benefitted greatly from the funds received, the allocation constraints only allowed for compensation to be $10/hour, which is below the current minimum wage in the institution's location; the lower incentive amount could have been unappealing to many students.

There are several pathways for future research. One pathway could be recreating the study with a larger participant pool. A larger sample size would yield higher participant numbers which could then lead to a large enough data set to test for statistical significance. Another pathway for future research could be to replicate the study but with a different underserved student demographic as the focus, such as student veterans, international students, transfer students, graduate students, students identifying as LGBTQIA+, or student athletes. If successful, this could strengthen the argument that instructional content tailored to a specific student group's lived experiences or voices has a positive impact on student performance and confidence levels.

Conclusion

This study was created to better understand how information literacy learning environments and instruction can impact student performance and confidence levels when critical pedagogical practices are implemented with a specific student group in mind. Once the literature was reviewed, the series and its content were designed using CRT and PAR to shape the series and provide each of the four IL sessions with learning outcomes specific to the session's content. Several points for assessment were incorporated to capture comprehensive data regarding student performance and confidence levels. These tools yielded data that showed the series had a positive impact on the students and their work, specifically through: an increase in their confidence relating to higher-order thinking skills, as evidenced through the comparative survey data; a deeper understanding of IL concepts and the research continuum as seen through their work on the activities as well as in the interviews; and most importantly (when viewed through a critical pedagogical lens) an increase in their confidence levels relating to their understanding of IL concepts and their research skills, which then transformed the way they approached their self-chosen research topic and perspective on their place in the scholarly conversation. The interview data shows that the participants had a better understanding after the series of the larger research and information landscape as applied to their academics as well as personal lives, and that their voices and experiences can play an active role within those landscapes.

This reinforces several conclusions that are also supported by the literature: the more time that a student spends in an IL learning environment with their peers and a teaching librarian, the more their skills and

understanding of IL concepts increase (VanEpps & Nelson, 2013); the more that IL content can be tailored to students' lived experiences, the more impactful the content will be and the more students will be interested in engaging with it (Kim & Dolan, 2016); and decentering instructor authority in a learning environment strengthens the student voices, their confidence levels and engagement, and their sense of agency and ownership over their work (Pashkova-Balkenhol et al., 2019).

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Appendix
Sample Session Instructional Materials

Artifact 1: Session 2 (Source): Module Description

Module Name	Source (Mod2)
Module Objective(s)	a. Develop awareness of the importance of assessing content with a skeptical stance and with a self-awareness of their own biases and worldview b. Understand the different methods of information dissemination with different purposes are available for their use c. Question traditional notions of granting authority and recognize the value of diverse ideas and worldviews
Module Outcome(s)	a. Define different types of authority, such as subject expertise, societal position, or special experience b. Use research tools and indicators of authority to determine credibility of sources, understanding the elements that might temper this credibility c. Recognize that information may be perceived differently based on the format in which it is packaged
Module Time Length	60 minutes
Program Mapping	
o ACRL Frames	Authority is Constructed and Contextual; Information Creation as a Process
o High-Impact Practices	First-Year Seminars and Experiences; Learning Communities; Undergraduate Research
Assessment	Formative Activity: Activity 2A – Understanding Authority and Popular Resources Summative Activity: Activity 2B – Understanding Authority for Your Research Topic

Artifact 2: Session 2 (Source): Module Instruction Plan

Lesson Title	"Source"	
Librarian Materials	– PowerPoint for "Source" session (Mod2) – Activity 2A (Understanding Authority and Popular Resources) – Activity 2B (Understanding Authority for Your Research Topic)	
Student Learning Outcomes	Students will be able to: a. Define different types of authority, such as subject expertise, societal position, or special experience b. Use research tools and indicators of authority to determine credibility of sources, understanding the elements that might temper this credibility c. Recognize that information may be perceived differently based on the format in which it is packaged	
ACRL Frames – Threshold Concept	Authority is Constructed and Contextual; Information Creation as a Process	
Introduction	– Welcome students – Summarize topics previously covered – Outline specific objectives for Module Two, "Source"	**Time** **5 mins**
Instructional Strategy One	**Introduction to Source Evaluation**	
Student Role	– Students will break into groups to complete Activity 2A (Understanding Authority and Popular Resources)	**Time** **15 mins**
Instructor Role	– Discuss how information is produced, packaged, and its various forms – Discuss the components used to evaluate sources as scholarly/non-scholarly, and credible – Demonstrate how different resources can be used to fit different research needs – Discuss how marginalized voices in academic publishing can be recovered and highlighted – Demonstrate the resources available to students through the Library (catalog, online journals, databases) – Illustrate how students can transfer their learned evaluation skills for evaluation to scholarly resources	**Time** **15 mins**
Knowledge/Understanding Check	Activity 2A – formative activity: will show students' progression and understanding of how to discern authority through different mediums and identities	*(above)*
Transition	*So how can understanding different resources and their authority help me to write a better paper?*	
Instructional Strategy Two	**Choosing Your Sources**	
Student Role	– Students will use the Library's resources as well as popular sources to locate resources that are credible and relevant to their research topic – Students will explain why they chose their sources, and what makes them relevant/authoritative to their research topic	**Time** **20 mins**

	– Students will be able to ask questions of the instructor if needed while completing Activity 2B (Understanding Authority for Your Research Topic)	
Instructor Role	– Aid students in their activity as requested/needed	**Time** *(above)*
Knowledge/Understanding Check	Activity 2B – summative activity: will show students' comprehension on how to use Library resources and the importance of finding authoritative content for their research topic	*(above)*
Closing	– Summarize key understandings and concepts related to evaluating sources for credible content – Summarize key understandings and concepts related to choosing sources most relevant to your research topic – Provide "teaser" for next module on writing skills	**Time** **5 mins**
Lesson Evaluation (Instructor Self-Reflection – to be filled in post-session)	*Instructor Reflection on:* – *What worked better than expected?* – *What needs improvement?* – *Additional thoughts/changes after student interaction with material?*	

Modified from Lesson Plan Template as Designed by Oakleaf, M. (2008). Retrieved from: meganoakleaf.info/lessonplantemplate.doc

Artifact 3: Session 2 (Source): Rubric

Criteria/SLO	Proficient	Still Learning
SLO 1: Students will define different types of authority, such as subject expertise, societal position, or special experience	Student was able to define different types of authority, such as subject expertise, societal position, or special experience through their activity work.	Student was not able to define different types of authority, such as subject expertise, societal position, or special experience through their activity work.
SLO 2: Students will use research tools and indicators of authority to determine credibility of sources, understanding the elements that might temper this credibility	Student was able to use research tools and indicators of authority to determine credibility of sources through their activity work.	Student was not able to use research tools and indicators of authority to determine credibility of sources through their activity work.
SLO 3: Students will recognize that information may be perceived differently based on the format in which it is packaged	Student was able to recognize that information may be perceived differently based on the format in which it is packaged through their activity work.	Student was not able to recognize that information may be perceived differently based on the format in which it is packaged through their activity work.

Artifact 4: Session 2 (Source): Formative Activity

ID Number	
Date	
Program Name	Search, Source, Write, Cite (Research Skills Series)
Module Name	"Source" (Mod2)
Worksheet Name	Activity 2A – Understanding Authority and Popular Resources

- Break into groups of five and introduce yourselves to each other.
- Determine what topic the group would like to know more about, and 2-3 keywords to use in locating a resource.
- Using your keywords and popular media (newspaper, magazine, blog, social media post, etc.), find a resource related to your topic and complete the following prompts.

1. What topic did your group want to learn more about, and what keyword(s) did you decide to use?

2. What popular media resource did you decide to use and why?

3. As a group, determine what factors you think make a resource credible or not and list them below.

4. Applying your collective set of criteria for credibility, would you consider your resource credible? Why or why not?

5. What other kinds of resources do you think would be relevant to your research topic, and how would you go about finding more?

Artifact 5: Session 2 (Source): Summative Activity

ID Number	
Date	
Program Name	Search, Source, Write, Cite (Research Skills Series)
Module Name	"Source" (Mod2)
Worksheet Name	Activity 2B – Understanding Authority for Your Research Topic

- Use the keywords and research topic you chose in Activity 1B to fill in the box below, then use them to perform searches in each of the listed resources and record your results.

What is your research topic?	
What keywords are you using?	

1. Locate a relevant <u>popular</u> resource in relation to your research topic and answer the following questions:

What is the title?	
Who is the author(s)?	
Who is the publisher?	
When was it published?	
What type of resource is it?	
How did you locate it?	
Provide the link to the item (if available):	

2. Locate a relevant <u>scholarly</u> resource in relation to your research topic and answer the following questions

What is the title?	

Who is the author(s)?	
Who is the publisher?	
When was it published?	
What type of resource is it?	
How did you locate it?	
Provide the link to the item (if available):	

3. Explain why you chose these sources – what factors did you use to determine their relevance and credibility in relation to your research topic?

4. How can you determine whether each author has subject expertise relating to your research topic?

5. What do you think the purpose was in creating each of these resources, and for what audiences were they created?

6. Which source do you feel is most relevant to your research topic? Why?