Critical Online Library Instruction: Opportunities and Challenges

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Abstract

Although critical information literacy, critical pedagogy, and online library instruction are commonly discussed in the library and information science literature, they are rarely discussed together. This qualitative interview study with academic librarians conducted in 2022 identifies opportunities and challenges of teaching critical information literacy online. Findings suggest that critical information literacy and critical pedagogy can be integrated into online library instruction through online workshops, digital learning objects, and online credit-bearing courses. However, librarians face challenges implementing critical pedagogy online related to the lack of dialogue and co-creation of knowledge between students and instructors, limitations of the one-shot model of library instruction, which is often replicated online, limited engagement during asynchronous learning, and limitations of educational technology. Additional research is needed to establish frameworks and best practices for teaching critical information literacy and implementing critical pedagogy in online library instruction.

Keywords: critical information literacy, critical pedagogy, critical library instruction, online instruction

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Librarians have argued that traditional approaches to teaching information literacy tend to focus on technical skills for finding and evaluating information without sufficiently addressing the social and political contexts in which information is produced, disseminated, and consumed (Battista et al., 2015; Beilin, 2015). Critical information literacy (IL) seeks to empower students to engage in critical inquiry and analysis of information, particularly regarding issues of social justice and inequity. This approach draws on critical pedagogy and critical theory to highlight the role of information and knowledge in shaping our understanding of the world and our place within it and encourages learners to become active participants in information ecosystems. Giroux (2007) defined critical pedagogy as educational practices that "emphasize critical reflexivity, bridge the gap between learning and everyday life, make visible the connections between power and knowledge, and provide the conditions for extending democratic rights, values, and identities" (p. 28). During IL instruction, this might include using examples that highlight social inequality, decentering one's authority as an instructor, and drawing on students' previous knowledge to ask critical questions about information systems. Another key aspect of critical pedagogy is dialogue and reflection (Kaufmann, 2010). Through conversations between students and the instructor, students can engage with diverse perspectives, question their own beliefs, and develop new perspectives that actively work toward social change. However, this can be particularly challenging in an online environment with less social interaction.

For some time, trends in online learning in higher education and the shift to remote instruction during the COVID-19 pandemic have increased the demand for academic librarians to provide online information literacy instruction, typically through one-time synchronous online workshops, or "one-shots," and by creating standalone digital learning objects (DLOs) (Beglou & Akhshik, 2022). Also referred to as online learning objects, DLOs could include videos, interactive tutorials, modules, and online research guides. Although best practices for online instruction have been defined (Goodsett, 2020; Haber, 2019), the Library and Information Science (LIS) literature has not yet explored the unique approaches and challenges to teaching critical IL online. Online instruction may adhere to the "banking" model of education described by Paolo Freire in *Pedagogy of the Oppressed* (1968/2014), in which learning happens through passive knowledge transfer rather than the co-creation of

knowledge (Boyd, 2016). If adopted without careful intention, online teaching may be at odds with the goals of critical pedagogy.

This qualitative interview study aims to identify approaches to teaching critical IL online and make recommendations based on the experiences of academic librarians who use these approaches. Interviews with academic librarians contribute to this gap in the LIS literature by highlighting approaches used for teaching critical IL online and the opportunities and challenges of using critical pedagogy in an online environment. A preliminary investigation into how academic librarians are integrating critical IL into online instruction may inspire librarians to go beyond simply how to find, use, and evaluate information in their online instruction and empower learners to think critically about the social, economic, and political dimensions of information to enact social change. The exploratory research questions for this study are as follows:

- RQ1: How are academic librarians incorporating critical information literacy and critical pedagogy into synchronous and asynchronous online instruction?

- RQ2: What are the unique possibilities and challenges to implementing critical pedagogy online?

Literature Review

Librarians have written about and applied critical pedagogy and critical IL to library instruction for quite some time. Elmborg (2006) sparked a more recent interest in teaching academic literacies and developing critical consciousness in the library classroom. Soon after, Accardi et al.'s (2010) *Critical Library Instruction: Theories and Methods* applied various critical theories, such as feminist, queer, and anti-racist theories, to library instruction and included practical examples to use and adapt. Tewell (2015) provided a comprehensive literature review of the history of critical information literacy scholarship for interested readers. Foundational texts that continued this conversation include Downey (2016), Pagowsky and McElroy (2016), and Brookbank and Haigh (2021). More recently, Leung and López-McKnight (2020) and Cooke (2020) have critiqued previous critical IL scholarship for its lack of more explicit engagement with race, power, and white supremacy in its theory and practice. Scholars outside the U.S. have also contributed to the development of critical praxis for critical IL in the LIS literature (Bezerra, 2021). Although these works are important for articulating what and how critical librarians teach, their theoretical and

practical applications are typically described in a traditional face-to-face classroom and rarely address the unique opportunities and challenges of online learning.

Critical digital pedagogy asks educators to think critically about the technologies they adopt and to center their practice on community and communication (Stommel, 2014). Morris (2018) argued that human connection is lost in the digital environment, where the Learning Management System (LMS) and video lectures stand in for the instructor and students' differences are erased. While an online community may be easier to achieve in a semester-long class, academic librarians may face significant barriers given limited time and interpersonal interaction with a class. There are some examples of the use of critical digital pedagogy in library instruction. Waddell and Clariza (2018) used infographics and digital storytelling as methods to empower students to become producers of information, and Boczar and Jordan (2021) used digital humanities tools to create galleries of primary source materials for students to explore and engage with collections that centered underrepresented voices. However, the profession would benefit from further discussion and use of critical digital pedagogy as library instruction increasingly occurs online.

Practitioners in other fields have discussed using critical pedagogy in online education. Caruthers and Friend (2014) described their approach to critical online instruction as a "thirdspace" where students have the agency to co-create knowledge and engage with social justice issues. Wiley and Hott (2020) employed feminist pedagogies such as participatory learning, validation of personal experience, and social activism assignments in their online courses. Garza (2021) suggested promoting inclusivity in the classroom by using breakout rooms in video conferencing platforms where students can discuss in small groups without the presence of the instructor, as well as tools like polls and chat. Myers (2021) described humanizing online education by maintaining a presence through video introductions, personalized feedback, and giving students the option to respond through video, audio, or text. Lalonde (2011) argued that online forums and feedback can be a site for critical evaluation and collaboration. Critical pedagogical practices are possible in the online environment given the time and autonomy to structure the learning experience with intent and cultivate authentic relationships with students.

However, there are significant barriers to enacting critical pedagogy online. Smith and Jeffery (2013) argued that within the structure of the neoliberal university, online learning becomes a place where tracking technologies decontextualize student participation in critical reflection. Morris and Stommel (2018) noted the ubiquitous discussion forum is insufficient

when "students post because they have to, not because they enjoy doing so. And teachers respond (if they respond at all) because they too have become complacent to the bizarre rules that govern the forum" (para. 6). In an online course where students supply readings and other media to co-create the curriculum, Cutri et al. (2020) described a tension between shifting the power dynamics in the virtual classroom by removing the instructor's presence and maintaining critical reflection of students' opinions. Issues with technology, student engagement, and course design can hinder the effectiveness of critical pedagogy in an online environment.

Librarians may face similar challenges as course instructors with implementing critical pedagogy online, but their unique challenges are not well known. Librarians engage with students less frequently and often have little influence over the classroom culture, curriculum, and assignment design. Librarians have described challenges to using critical pedagogy in the classroom, particularly those related to the one-shot model, as they are expected to teach the basics of searching, have limited time to further explore other aspects of information systems and society, and lack the rapport with students needed to engage in critical conversations (Tewell, 2018). These challenges may be extended into the online environment, but previous studies have not addressed online learning explicitly. A better understanding of the barriers librarians face in teaching critical IL online may result in solutions that harness the flexibility and potential of online teaching to extend critical conversations where they may not have been possible in a traditional one-shot.

Methods

Since the author was primarily interested in academic librarians' current practices and experiences, qualitative interviews based on academic librarians' experiences were used as the primary object of study, and inductive thematic analysis was used to classify responses and interpret results (Ryan & Bernard, 2003). This study was approved by California State University Dominguez Hills' Institutional Review Board where the author was employed at the time of this study in August 2022.

A total of 10 participants were directly recruited based on a content analysis of DLOs in a previous study (Withorn, 2023), as well as an open call with a screening questionnaire (see Appendix A). In this way, the study used a purposive, nonprobability sampling technique (Obilor, 2023) in which the author selected academic librarians based on a review of DLOs participants had created and shared and the author's expertise in both critical IL and online

learning. In the previous study (Withorn, 2023), the author conducted a content analysis in three open repositories for information literacy teaching materials: the Peer-Reviewed Instructional Materials Online (PRIMO) Database, the Association of College and Research Libraries (ACRL) Framework for Information Literacy Sandbox, and the Community of Online Research Assignments (Project CORA). The content analysis went beyond PRIMO, a repository specifically for IL DLOs, since those materials must meet certain inclusion criteria. The author wanted to include materials found in two commonly used, unmediated repositories for IL teaching materials. The author thoroughly reviewed 105 unique DLOs uploaded between 2018 and 2022. The previous and current study defines DLOs as standalone, asynchronous, learner-centered materials that use text, images, and/or videos to convey concepts. Each DLO in the content analysis was reviewed for aspects of critical IL broadly defined based on the author's expertise and Tewell's (2018) definition of critical IL as "a way of thinking and teaching that examines the social construction and political dimensions of libraries and information, problematizing information's production and use so that library users may think critically about these sources" (p. 24). The author emailed the creators of 13 DLOs that fell within the scope of critical IL to invite them to participate in interviews.

Additionally, to recruit librarians who have not uploaded their materials to repositories, the author sent a screening questionnaire through the ACRL section listservs for online learning and instruction asking participants to provide links and/or information about a DLO they had created that they self-identified as relating to critical IL for the author to review, as well as their contact information if they were willing to participate in an interview. The screening questionnaire was also shared at a presentation about tutorials at the 2022 Critical Librarianship & Pedagogy Symposium. After a review of the provided DLOs, all eight participants who provided their contact information on the screening questionnaire qualified as having created a DLO related to critical IL and were contacted for an interview.

In total, eight participants who qualified as currently being employed as academic librarians in the United States and who had created a DLO related to critical IL, which was determined by the author's review of their DLO from either a repository or submitted via the screening questionnaire, consented to being interviewed. Two additional participants joined a group interview with their colleagues. Institution and position titles were collected, but demographic information about each participant was only noted when participants shared

this information voluntarily during the interview. Participants represented libraries across the United States in the West, South, Midwest, and Northeast from public and private Doctoral Universities (R1 and R2), private Doctoral/Professional Universities, and public Master's Colleges and Universities (M1) identified based on the Carnegie classification system.

The author conducted semi-structured interviews (see Appendix B) with participants in October and November of 2022 online via Zoom, with interviews lasting approximately 30 minutes. Questions asked participants to reflect on critical IL concepts they teach, their process for creating and implementing a DLO related to critical IL, and the possibilities and challenges of using critical pedagogy in a synchronous, asynchronous, and/or hybrid online environment. After de-identifying and cleaning interview transcripts generated by Zoom, the author conducted inductive thematic analysis to describe emergent themes using the data analysis platform Dedoose. All names associated with quotes are pseudonyms; participants self-identified their pronouns and a pseudonym if preferred.

Results

The results of this study provide examples of commonly taught critical IL concepts with further explanation of the critical IL DLO participants created and shared, including the concept, technology, and motivation for creating the DLO. Further, participants describe their approaches to teaching critical IL and implementing critical pedagogy online in how they relate to students and faculty in a synchronous and/or asynchronous online environment. The results conclude with participants' responses to perceived challenges and what online critical IL instruction could look like in an ideal world.

Critical Information Literacy and Digital Learning Objects

Participants were asked at the beginning of the interview to list critical IL concepts that they currently teach or would like to teach, given the opportunity, either in-person or online, to provide a foundation and common understanding of concepts related to critical IL during the interview (see Figure 1). The most frequently mentioned concept among six participants during the interview was related to media and news literacy. Participants mentioned lateral reading strategies (Caufield, 2017) and the framework ACT UP (Stahura, 2018), specifically addressing privilege and which voices and perspectives may be missing from traditional media sources. For example, Maggie addresses bias and political motivations behind creating the news and how this disproportionately affects people of color. Lukas discusses seeding

keywords, a practice where conservative media tags articles with liberal keywords to influence search results. Other frequently mentioned topics were algorithmic bias; emphasizing the economic value of information and information systems; diversity, equity, and inclusion (DEI) issues related to information; mis/disinformation; problematizing classification; and privacy.
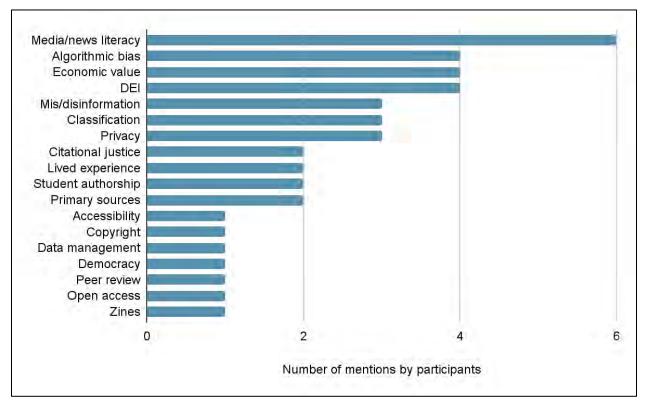
Figure 1: Critical Information Literacy Concepts Mentioned by Participants

Although not intended to be a comprehensive list of critical IL concepts, examples of what critical librarians teach provide context for their teaching materials and can serve as a jumping-off point when brainstorming ideas for new DLOs. However, Natalie emphasized that critical IL "should be incorporated into every aspect of the library" and not necessarily thought of or taught as a standalone or separate topic. Amanda also said, "It's more of an inflection on what you're telling students than a whole separate lesson." The diversity of topics in multiple aspects of the research process and information landscape indicates that the scope of critical IL is far-reaching in its practice and potential.

Participants were then asked to talk about the creation process of one DLO related to critical IL that was identified in the review of repositories or submitted via the screening

questionnaire. Table 1 shows the primary concept the DLO participants highlighted, the technology used to create the DLO, and the motivations for creating the DLO. Six of the eight DLOs were about critical source evaluation, including news, scholarly, and primary sources. Various tools were used to create DLOs, including modules in the Learning Management System (LMS), Springshare products such as LibWizard tutorials/surveys or LibGuides, Articulate Rise, and Powtoons. Motivations for creating DLOs varied. Four DLOs were created to support a specific assignment and were integrated into courses. The COVID-19 pandemic was used as a driver to either create or revise three DLOs while classes were primarily held online. Three participants used their DLO as an opportunity to revise previous approaches to teaching source evaluation, like the CRAAP test. For example, Amanda wanted to move away from the checklist method of evaluating sources to the SIFT method. She included the learning outcome that students should be able to "identify social, political, and economic forces that affect the production and distribution of information." Two participants were motivated by the conviction that critical IL concepts, such as citational justice, are important to teach.

Table 1: Description of Critical IL DLOs

Participant	Concept	Technology	Motivation
Maggie	Evaluating news	Canvas	Personal interest, Pandemic
Carrie	Evaluating and accessing news	LibWizard	For an assignment, Pandemic
Vanessa	Evaluating sources	Articulate Rise	For an assignment, Pandemic
Catherine	Classification	Powtoons	For an assignment, Important to teach
Emma, Dianne, and Lukas	Evaluating sources	Canvas	Improve outcomes, complicating process
Amanda	Evaluating sources	LibGuides LibWizard	Complicating process
Tonia	Evaluating primary sources	LibGuides	For an assignment, complicating process
Natalie	Citational justice	Articulate Rise	Important to teach

Approaches to Teaching Critical Information Literacy Online

Participants focused on modality and their relationship to students and faculty when asked how they incorporate critical pedagogy in a synchronous, asynchronous, and/or hybrid

online environment. Some participants described how their interactions with students in the synchronous environment were enhanced by critical pedagogy. Vanessa liked that online learning gives people different ways to engage, such as speaking or putting questions in the chat. She noted that it is important to "find those pieces of humanity [when] you're teaching online" and get to know students in an online setting as much as possible. Participants emphasized that critical pedagogical approaches rely on a synchronous component that allows librarians to interact directly with and engage students. For example, Lukas reported trying to make online instruction student-led by working with students as a group during online classes to interrogate online sources. He found the critical pedagogy approach to be more effective: "When it's not just me talking at them...you get a lot fewer of the blank [Zoom] screens."

Participants who talked about teaching critical IL in an asynchronous or hybrid environment described other methods for student engagement. During the pandemic, while classes were primarily held online, Amanda was able to collaborate with an instructor to be embedded in the LMS to facilitate discussion board posts for participation points, which allowed her to engage more directly with online students. She also used her embedded connection to students to solicit questions that drove her synchronous online instruction. Similarly, Maggie used online modules to replace a lecture and "flip" the classroom, which she saw as a conversation starter. She then used synchronous sessions for hands-on activities "that you just can't do in the asynchronous [environment]." In a fully asynchronous environment, Amanda acknowledged that most tutorials are point-and-click, but she tried to add reflective questions where possible. Student engagement is an essential aspect of critical pedagogy, but responses indicated that the asynchronous environment was not particularly conducive to critical pedagogical approaches.

Finally, three participants described the importance of communication and collaboration with faculty, which is not unique to online learning but essential for participants to implement critical pedagogy overall. Natalie used a train-the-trainer approach that went beyond standalone librarian-led instruction by explicitly talking with faculty about integrating critical IL into their classes. She commented, "It's easier to incorporate critical information literacy when [faculty] already have the relationship with the student, and it's throughout the semester rather than a one-shot." Others found it more difficult to negotiate critical IL with faculty. Amanda described how working with faculty was sometimes a give and take, and "you just have to find your small moments [to] bring critical considerations in

where you can." Maggie called this the "guerilla method" of "just teaching it and slipping it in." These responses indicate that faculty perceptions of critical IL are a key factor in how librarians can influence the curriculum and pedagogy, which may be true of both in-person and online instruction.

Challenges with Implementing Critical Pedagogy Online

Participants described challenges with online critical pedagogy, both asynchronously and synchronously. Six participants talked about the lack of discussion in the online environment that makes critical pedagogy difficult. Emma said, "This [is the] main reason why I just struggle with asynchronous learning so much. I feel like it is so dang hard because [of that lack of] co-construction of knowledge." Similarly, for synchronous online instruction, Vanessa described how "there is this kind of expectation that it's going to be a presentation…maybe there'll be time for Q&A at the end, but that it's not an active…[or] engaged instructional experience." Catherine described this as a cultural expectation at her institution: "Online instruction is very similar to the banking model, and that you show up and people put content into you…and that it's not something you have to show up and participate in. And you're certainly not co-creating knowledge with your instructor together." Catherine also expressed concern that without discussion, critical IL may feel challenging or threatening to students, "particularly when it comes to identity, privilege, and power, and without being able to sort of gauge reactions it feels a little too scary to put out and…receive feedback." The lack of dialogue in an asynchronous environment and students' expectations of online workshops present significant barriers to enacting critical pedagogy online.

Four participants described challenges with mediating difficult conversations online. Natalie and Maggie both talked about how, asynchronously or synchronously, it's hard to gauge students' reactions to sensitive conversations. Because of this, Catherine avoided requiring students to voice their opinions during online activities and rather asked them to reflect on their own. Tonia emphasized the importance of tone for critical pedagogy and how difficult it is to express empathy in DLOs when challenging students' beliefs. Maggie felt that in an asynchronous environment, "they're lacking that social connection, which is for these kinds of topics [is] so important and impactful for learning." Catherine brought this back to how essential connection is for critical pedagogy: "[it's] really recognizing each other's humanity and what we bring to the table. And there is something about working on Zoom or on Blackboard that sort of de-personalizes the instructor and students." In teaching an

asynchronous online credit-bearing course, she found, "It's very easy for me to not know my students when they're online … I forget who they are, and the names all kind of jumble all together, and I'm sure they feel that way about me." A lack of personal connection with students makes it difficult to teach critical IL, especially when students may resist perspectives that challenge their beliefs.

Finally, participants struggled with limited technology provided by their institutions and expressed concerns about educational technology's pedagogical effectiveness and privacy. Tonia and Catherine were limited by their institutional access to tools like LibGuides and Google Jamboard, which can be restricted or locked down by campus IT. Amanda expressed discomfort with some online tools: "I was really uncomfortable in a one-shot trying to do things like breakout rooms and polls…they felt sort of gimmicky and distracting and overly complicated when I was already a stranger." Given the tenuous position of being a guest in a class, educational tools could be counterproductive to the session's goals. Amanda also expressed concern for student privacy, which is sometimes ignored or obscured with educational technology. Although these participants intentionally use educational technology, barriers to access and use limit their ability to harness its full potential.

Online Instruction in an Ideal World

Given some of the challenges addressed, participants were asked to describe what online critical IL instruction might look like in an ideal world. All participants discussed some form of increased student engagement, such as more back-and-forth discussion with the instructor and peers in an online setting, having cameras on during online workshops to increase social connection, and feeling a sense of ownership in the learning process through online engagement. Three participants envisioned opportunities for going beyond the one-shot model, wanting to interact with students at multiple points throughout the semester. Tonia would like to see her institution value critical approaches to instruction. She would like frameworks and best practices for online critical IL instruction and critical pedagogy in place to support faculty and librarians.

Participants were also prompted to think about how technology might be leveraged to address some of these challenges. Three participants hoped for a more seamless online learning experience where everything is centrally located for a better student experience. Three participants mentioned existing or possible tools for social annotation or comments that might encourage asynchronous discussion. Lukas suggested a choose your own

adventure DLO "where students really have to critically reflect on how they get to where they go." When incorporating technology, Carrie emphasized: "I think it's essential to not get bogged down with too many tools" and recommended using tools that are already familiar to students.

Finally, Natalie and Tonia called for critical IL to be fully integrated into all forms of library instruction. Natalie feels that critical IL should be incorporated "in everything we do…it should be an approach that the library takes overall, and hopefully, faculty want to partner on that." Instead of small ways of integrating critical IL, Tonia envisions significant ways: "I think it would be more comprehensive…the criticality would be part of all of it instead of [a] thing on the margin or on the side." They felt that critical IL and critical pedagogy could be incorporated into library instruction regardless of modality.

Discussion

The concepts associated with critical IL and approaches to teaching critical IL online mentioned in this study align with Downey's (2016) and Tewell's (2018) findings that critical librarians teach using student-centered pedagogy and dialogue, and they most frequently discuss critical source evaluation, the commodification of information, and critiques of subject headings. Participants also discussed methods for teaching critical pedagogy mentioned in the literature, such as humanizing students and the instructor (Myers, 2021) and using technology such as discussion boards and features in video conference software to encourage engagement and student-led learning (Garza, 2021). As librarians are increasingly creating asynchronous teaching materials for library instruction, a review of DLOs related to critical IL provides examples to inspire librarians to incorporate critical IL concepts and critical pedagogy as much as possible into their online materials. Recommendations for utilizing critical pedagogy online prioritized a synchronous component that allows for dialogue and community. Suggestions for asynchronous instruction included reflective questions, social annotation tools to encourage asynchronous conversation, and a "choose your own adventure" approach where students have more autonomy in learning.

Participants described unique barriers to enacting critical pedagogy online that differed from semester-long online instruction represented in the broader education literature. Participants struggled with integrating critical pedagogy in an online environment with limited student engagement and opportunities to co-create knowledge with students

virtually. While several participants encouraged reflection in their online instruction, limitations with time and technology meant there was less dialogue among students and the instructor in tutorials and online workshops. This lack of social connection and dialogue in the online environments where academic librarians typically teach means they face challenges with facilitating humanizing conversations with students about difficult topics such as identity, power, and privilege, which participants found essential for teaching critical IL. Recommendations for overcoming these barriers included using DLOs to "flip" the classroom, being embedded in the LMS to extend the conversation over a longer period of time, and effectively using educational technology to encourage participation, dialogue, and connection.

Although some participants successfully negotiated an embedded or hybrid approach to online instruction for a class, others expressed frustration with the one-shot model, which often extended into online teaching opportunities. One solution to the one-shot model includes faculty training, and some librarians have created a faculty teaching institute on critical IL (Lechtenberg & Donovan, 2022; Schlesselman-Tarango & Becerra, 2022). Participants in this study also recommended the train-the-trainer approach to integrating critical IL into the curriculum instead of replicating the one-shot in online learning. Given the limitations of standalone online instruction like one-shots and DLOs, librarians can seek additional opportunities to integrate critical IL into the curriculum by collaborating with course instructors and offering online credit-bearing courses where librarians can more easily build community, as suggested by Caruthers and Friend (2014).

There are limitations to this study given the small sample size, which may not represent academic librarians as a whole, and the results are not generalizable. The DLOs that determined who was approached for this study were also subject to the author's experience and interpretation of Tewell's (2018) definition of critical IL. Other librarians who are teaching critical IL online may have recommendations that are not represented in this study. Coder bias is possible since emergent themes were only assessed by the author. It may have also been relevant to collect demographic information about the participants to see if identity influenced their perceptions and practice of critical IL.

Conclusion

Academic librarians have cited the lack of time and the one-shot model as barriers to implementing critical IL (Tewell, 2018). Pagowsky (2021) has argued that standalone

learning experiences can be ineffective and decontextualized, including an online one-shot session, single video, or tutorial. Integration into courses through being embedded in the LMS, scaffolded DLOs, and offering online credit-bearing courses through the library could provide additional learning opportunities that effectively teach critical IL online. However, if we want students to co-create knowledge and enact social change, academic librarians should consider resisting traditional, passive methods of instruction that may be replicated online through video lectures and tutorials that do not engage students in a reflective learning process. As library instruction increasingly moves online, it's important to implement critical digital pedagogy by leveraging the strengths of online learning, such as providing opportunities for reflection and autonomy in the learning process and overcoming its limitations, such as challenges with encouraging dialogue and building community.

This exploratory study addresses a gap in understanding the intersections of critical IL, critical pedagogy, and online learning and may have a significant impact on academic librarians' approach to teaching online. This study also encourages librarians to incorporate critical considerations into all aspects of their online instruction, especially frequently taught concepts like searching and source evaluation. Including links to the DLOs provided by participants would compromise their anonymity. However, creators of critical IL DLOs should consider uploading their DLOs to open repositories and using the tag "critical information literacy" to make these materials more discoverable. Teaching materials can also be licensed under various Creative Commons licenses to encourage their remixing and reuse.

The implications of this study suggest the need for frameworks and best practices for teaching critical IL online. Future studies could provide more concrete examples of using critical IL and critical pedagogy in online library instruction, assess the effectiveness of these approaches, and investigate student and faculty perceptions of how academic librarians teach critical IL online. Librarians would also benefit from case studies of approaches to overcoming barriers to teaching critical IL online and using critical digital pedagogy for library instruction.

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Withorn
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Appendix A: Screening Questionnaire

Are you currently an academic librarian employed by an institution in the United States?

> Yes

> No (exit survey)

Have you created a digital learning object (e.g., video, interactive tutorial, module) that addresses a concept related to critical information literacy?

> Yes

> No (exit survey)

If yes, please provide a link (if possible) to one DLO that you feel fits within the scope of this study.

Briefly describe your selected DLO and how it reflects critical information literacy and/or critical pedagogy.

Are you interested in participating in a follow-up interview?

> Yes

> No

If yes, please provide your name, institution, and email address.

Appendix B: Interview Questions

What are some critical information literacy topics that you have or would like to incorporate in your instruction?

Now, let's focus on one digital learning object, such as a video, interactive tutorial, module, or research guide that you've created that addresses a critical information literacy topic. Can you tell me more about it?

- What concept(s) does it cover?

- Why did you choose that/those concept(s)?

- What was your design process?

- Who was involved?

- How has the DLO been used at your institution?

- How have you measured student learning?

How have you incorporated critical pedagogy in a synchronous, asynchronous, and/or hybrid online environment? How do those approaches differ?

What are some challenges you've faced with using critical pedagogy in an online environment?

In an ideal world, what would critical pedagogy look like in an online environment?