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Fostering Critical Consciousness Online: A Systematic Review of Strategies, Opportunities, and Gaps in the Literature

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Abstract

This systematic review examines how learning in online environments and using online tools foster critical consciousness. A key tenet of critical and liberatory pedagogy - critical consciousness includes developing the skills to think critically about and take action to address structural inequities. Student participation in activities that foster critical consciousness are associated with higher academic, socio-emotional, and citizenship outcomes. However, there is limited documentation of critical consciousness raising online. Further, there is a risk that technology exacerbates rather than mitigates the long-standing inequities for individuals belonging to marginalized groups through embedded normative assumptions, algorithmic biases, and surveillance practices. Grounded in critical theory, we fill that gap and examine the strategies and components of critical consciousness fostered in online and blended learning environments across 96 studies published between 2010 and 2024. The most frequently observed critical consciousness raising strategy was students' engagement with power, and the least documented one was enactment of change inside and outside the classroom. The online environments and tools provided several unique affordances and advantages to fostering critical consciousness online, including digital content creation and sharing, critical media inquiry, online advocacy and community participation, digital cultural repositories simulations, and cross-cultural collaborations. Findings from this systematic review study highlight best practices within online teacher training, professional development, instructional design, and policy to support the enactment of liberatory pedagogy online that both inspires the mind and transforms communities. (231)

Keywords: critical consciousness, liberatory pedagogy, critical theory, educational equity, online learning, instructional design, teacher education

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Introduction

Critical consciousness raising is one of the primary goals and means of enacting liberatory education (Freire, 2000). Critical consciousness is also the third (and ultimate) tenet of one of the most prominent equity-based pedagogical frameworks, Culturally Responsive Pedagogy (CRP; Ladson-Billings, 1995, 2014). With a focus on equity, empowerment, and interactivity, critical consciousness includes obtaining the skills to think critically about and take action to address structural inequities (Freire, 1994, 2000; Jemal, 2017; Watts et al., 2011). Students experience individual as well as collective benefits through the development of critical consciousness including improved academic achievement (Gutstein, 2016; O'Conner, 1997), engagement and test scores (Luter et al., 2017), adolescent mental health (Zimmerman et al. 1999), and career outcomes (Diemer, 2009). Important even in the most progressive of times, critical consciousness raising takes on greater importance in eras such as this one of increased political censorship and the rolling back of human rights protections.

At the same time, online learning has become ubiquitous in K-16 education. While prevalent before the COVID-19 pandemic, the rapid shift to virtual schooling resulted in increased exposure to online learning tools and environments. Technological infrastructure and professional development investments reduced barriers to online and blended instruction (Fütterer et al., 2023; Sidi et al., 2023). It is now standard for children as young as Kindergarteners to receive some direct instruction through online videos and other resources, engage with self-directed digital programs as a regular component of the curriculum, have their behavior monitored and rewarded via online tracking software, and complete asynchronous learning activities during school closures. The dual pandemics of COVID-19 and systemic racism drew increased attention to the impact of long-standing inequities for individuals belonging to marginalized groups, with technology more often exacerbating than mitigating existing inequities (Darling-Aduana et al., 2024). For instance, students tend to be exposed to differential technology use by socioeconomic background with students from lower income and minoritized groups less likely be asked to use technology to create content and more likely to be told to use technology for drill and practice tasks (Delgado et al., 2015; Rafalow, 2020). Further the coding and content within online tools and programs exacerbate inequity through embedded normative assumptions, algorithmic biases, and surveillance practices (Benjamin, 2019; Darling-Aduana et al., 2022, 2024).

Despite the limitations of modal enactment, there are opportunities and bright spots in the use of online learning to support equity-based pedagogy. A recent systematic review identified promising strategies to enact CRP online across 42 studies (Viano & Darling-Aduana, 2025). However, most of these strategies focused on fostering academic excellence and cultural competence, the first and second tenets of CRP. Only 17 percent of studies included a strategy aimed at fostering critical consciousness, the third and final tenet. The strategies for fostering critical consciousness identified in the systematic review included acknowledging the role of power and systemic bias in society and encouraging critical action. None of the studies involved students in political movements or demonstrated a shared power structure in the classroom. Ladson-Billings (2014) has called out researchers and educators for this persistent overlooking of critical consciousness by CRP adopters. Accordingly, there is still a need to document strategies to foster critical consciousness in online spaces as well as to conceptualize the extent to which technology-based tools and learning modes may or may not align with the goals of liberatory education. We accomplish this, in part, by expanding the theoretical lens to include all critical and liberatory pedagogical frameworks.

In conducting this review, we aim to more clearly identify instructional strategies that foster critical consciousness online and expand the theoretical approaches from which we identify promising strategies. To accomplish this, we identified, reviewed, and placed in conversation studies across several fields, including instructional design, teacher education, and critical studies. Operating within critical theory (Apple, 2004; Freire, 2000; Giroux, 2010; Ladson-Billings, 1995, 2014), we comprehensively mapped existing literature to identify best practices and gaps in knowledge for further research through an examination of the following research questions: (1) What were the types and prevalence of strategies used to foster critical consciousness among studies examining online learning and learning using online tools? And (2) compared to face-to-face modes of learning, what are the opportunities for and constraints of fostering critical consciousness online? We examined this second research question using two modes of inquiry. First, we identified intervention characteristics that were unique or enhanced when critical consciousness raising online. Second, we examined variation in the prevalence of studies fostering various components of critical consciousness by time period, grade span, and online learning mode to identify opportunities and constraints specific to each of these elements. We further contribute to the literature by outlining recommendations that can be used to inform online learning policy, teacher training programs, and curriculum development for online learning with the aim of providing equitable, inspiring, and empowering learning experiences for K-16 students online.

Background

Conceptual and Theoretical Framework

Critical pedagogy is a collection of strategies regarding curriculum, instruction, and assessment with common assumptions and goals (Apple, 2004; Freire, 2000; Giroux, 2010; Ladson-Billings, 1995, 2014). Common tenets include the belief that there is no such thing as a neutral education (Apple, 2004; Freire, 2000). As a social institution, schools replicate dominant norms, expectations, and power dynamics unless purposefully identified, challenged, and transformed (Ladson-Billings, 1995, 2014). Schooling as a dominant cultural institution dehumanizes students and other actors (Freire, 2000), creating a self-fulfilling prophecy by which differential outcomes created by unjust social systems and inequities are internalized as personal failures (Jemal, 2017). When not explicitly countered, this internalization serves dominant groups by preventing individuals belonging to marginalized backgrounds from questioning or acting against the social structures and power dynamics that harm them.

Critical pedagogy aims to humanize education by helping students "gain greater control over their identities and lives, protect human rights, and reduce social injustice" (Jemal, 2017, p. 605). One of the primary means through which this is accomplished is by fostering critical consciousness, defined as providing students with the tools to recognize, critique, and work to rectify social inequities (Freire, 1970/2018; Ladson-Billings, 1995, 2014). Dimensions of critical consciousness include (a) critical reflection, (b) political efficacy, and (c) critical action (Jemal, 2017; Watts et al., 2011).

Critical reflection requires an understanding of the extent to which individuals are constrained and can exert agency upon systemic forces and structural oppression (Diemer et al., 2016; Giroux 1983). To build critical reflection skills, students must learn to recognize the underlying norms, beliefs, and assumptions driving individual, institutional, and systemic actions as well as be able

to place those norms, beliefs, and assumptions within appropriate sociohistorical and political context. Carlson, Engbretson, and Chamberlain (2006) identified four stages of critical reflection, including: (1) passive adaptation, (2) emotional engagement, (3) cognitive awakening, and (4) intention to act.

Political efficacy describes the extent to which students come to see themselves as capable of affecting social and political change, either individually or as part of a collective group (Watts et al., 2011). For instance, the Sociopolitical Control Scale (SPCS) assesses youth political efficacy by assessing agreement to statements regarding desire to be a leader and perceived leadership competence, whether they believe individual political action and voice have the ability to shape outcomes, and the value they place on being heard as part of the political process (Zimmerman & Zahniser, 1991). Political efficacy is an important part of fostering critical consciousness because individuals who believe they have the ability to enact change are more likely to feel empowered to advocate for themselves and others.

Lastly, critical action includes participating in individual or collective acts with the goal of changing the systems and processes creating systemic inequities (Diemer et al., 2014; Watts et al., 2011). For instance, the political activities subscale of the Youth Inventory of Involvement (YII) includes measures for participating in a protest as well as making presentations to organizations or politicians (Pancer et al., 2007). Another important element of critical action – desire to engage in political action specifically to reduce inequities - is measured by the Activism Orientation Scale (AOS) (Corning & Myers, 2002).

Critical Consciousness in the Classroom

Students achieve better academic, social-emotional, and citizenship outcomes when exposed to critical pedagogy, with notable effects for students belonging to minority groups (Aronson & Laughter, 2016). Strategies to support the development of critical consciousness tend to be process-intensive (i.e., problem-based learning) and include open conversations about inequity and critical reflection. These activities help develop the ability to identify the "common sense" beliefs and assumptions that dehumanize and disenfranchise individuals belonging to non-dominant groups (Jemal, 2017; Watts et al., 2011). Critical consciousness raising activities create an environment where students are empowered to actively construct knowledge by "integrat[ing] activities that will enable learners to experience, reflect, think, explore, feel, and ask questions. (Junco et al., 2023, pp. 95). These processes further support deep learning by encouraging students to engage in applied complex tasks that require critical thinking with more than one possible outcome (Newmann et al., 1996; Reeves et al., 2000).

Critical consciousness raising is most often conceptualized as occurring through co-learning and other social processes, as modeling, discussion, and social support appear key processes (Jemal, 2017; Watts et al., 2011). As such, fostering critical consciousness inherently places students in a place of power where they can construct their own knowledge by critiquing injustice and imagining new structures for social justice (Flores, 2024; Morrison et al., 2008). Students also tend to engage in learner-centric activities such as content creation, social justice work, storytelling, and service-learning (de los Rios, 2020; Morrison et al., 2008; Thanapornsangsuth & Holbert, 2020).

Lastly, action is a prerequisite to critical consciousness raising as application fosters new skills and understanding both of social processes and individual identity as active citizens and change makers (Freire, 2000; Jemal, 2017). Critical consciousness raising within the classroom empowers students to take transformative action in their own lives and society by engaging in social justice work and providing opportunities for students to engage in community service and citizenship (Morrison et al., 2008). Critical consciousness practices in the classroom also make room for students to hold power in the class by making decisions on curriculum and assessments, as well as class policies (Flores, 2024; Gutstein, 2016). While the aforementioned strategies have been documented in some face-to-face classrooms, they are hardly standard practice, and there remains a gap in understanding how critical consciousness translates to online settings. Similarly, reviews of critical consciousness (i.e., Jemal, 2017; Watts et al., 2011) provide helpful theoretical refinement and support for how the pedagogical components described above foster critical consciousness. However, none includes a discussion of how these theoretical concepts or pedagogical strategies translate to online learning.

Envisioning Equity-based Online Learning

Pre-pandemic, K-16 online learning was most often used for enrichment and credit recovery models, with negligible to negative associations with learning depending on the program model and student population served (Fitzpatrick et al., 2020; Heinrich et al., 2020; Molnar, 2021). Post-pandemic, the rise in demand for online and blended education has sparked interest in further research on creating optimal learning environments online. Despite well documented reduced learning opportunities during the COVID-19 precipitated shift to virtual crisis-schooling (Goldhaber et al., 2022; Heinrich et al., 2022; Kuhfeld et al., 2022; Molnar et al, 2021), post-pandemic enrollment in full-time virtual schools has doubled compared to 2019 (Molnar et al, 2023). At the same time, the proportion of students being homeschooled has doubled, which experts believe is due at least in part to increased access to online curricula and instructional resources (Cheng & Hamlin, 2023; Musaddiq et al., 2022). As online learning becomes the default learning mode for an increasing percentage of students in the United States and is increasingly delivering content and facilitating instruction even within brick-and-mortar schools, deepening understanding of how to foster critical consciousness in this unique, often dehumanizing context is essential to enacting liberatory education.

Despite typical practices, there is potential to effectively enact one of the most prominent equity-based frameworks – Culturally Responsive Pedagogy (CRP) - when learning online. In a recent systematic review of 42 studies that enacted at least one component of CRP online, many interventions demonstrated high, culturally responsive expectations of students (the first CRP tenet) by (a) modeling and scaffolding challenging curriculum, (b) building on students' strengths and interests, (c) encouraging open communication, (d) and providing regular, supportive and formative feedback (Viano & Darling-Aduana, 2025). Many of the studies accomplished this first tenet of CRP by incorporating student-directed, problem-based, or inquiry-based learning. Within a liberatory framework, student-directed, as well as problem- and inquiry-based, learning expands choice and autonomy, empowers students as the primary actors in their own learning, and provides opportunities to apply their funds of knowledge authentically (Darling-Aduana, 2021; Gutstein, 2016). While both problem and inquiry-based learning are student-directed, inquiry-based learning engages students in developing and investigating self-generated questions (Pedaste et al., 2015), while problem-based learning encourages collaborative problem-solving to real-world challenges (Hmelo-Silver, 2004).

Additionally, 41 of the 42 identified studies documented a strategy to foster the second tenet of CRP, cultural competence (Viano & Darling-Aduana, 2025). Strategies included reshaping the curriculum (i.e., integrating multicultural content, highlighting POC as experts, emphasizing sociopolitical context), having students serve as experts, being responsive to students' backgrounds and needs, forming family partnerships, and revising narratives within the culture of power. There was also an emphasis on virtual simulations and digital storytelling to allow students of diverse backgrounds to critically reflect & use their voices to shape society for more equity, while also providing student-centered learning that promotes high academic outcomes.

However, the same study found that only seven studies within the sample fostered critical consciousness (Viano & Darling-Aduana, 2025). Five of those studies examined the role of power, while two encouraged critical action. The study called for more research that examined critical consciousness raising online, including expanding the definitions and theoretical orientations examined to provide a more holistic picture of practices beyond CRP. In this study, we aim to respond to that call and in doing so expand understanding of how our increasingly online world and educational system can better serve the needs and develop the competencies of all students using equity-based online pedagogy. By taking a wider theoretical lens than solely CRP, we identify a wider range of strategies for critical consciousness raising and bring into conversation interdisciplinary literature and communities with similar pedagogical orientations and goals.

Methodology

We conducted a systematic review guided by PRISMA 2020 (Page et al., 2021) to allow for a comprehensive examination of best practices and research gaps on fostering critical consciousness online. We identified themes across these studies and systematically summarized their findings. Below, we detail each component in this process including search strategy, study screening, data extraction and analysis, and limitations.

Search Strategy

We searched the ProQuest database (including ERIC), EBSCO's Academic Search Complete, and Google Scholar between August 15–18, 2024. Searches in ProQuest and Academic Search Complete were conducted across abstracts, keywords, and titles, while Google Scholar search was titles only. As such, Google Scholar was considered a supplemental search. The search term incorporated three conceptual components designed to identify studies at the intersection of formal education, critical pedagogies, and online learning: (education* OR pedagog* OR school* OR instruct* OR teaching*) AND ("critical consciousness" OR "critical literac*" OR "critical digital literac*" OR "power dynamics" OR "sharing power" OR "critiqu* soc*" OR "sociopolitical awareness" OR "sociopolitical consciousness" OR "social justice" OR "community action" OR "communitybased learning" OR "service learning" OR "activism" OR "liberatory" OR "resistance" OR "participatory" OR "student voice" OR "critical lens" OR "community partnership" OR "digital dialogue" OR "co-creat" OR "culturally relevant pedagogy") AND (synchronous OR asynchronous OR online OR virtual).

The first parenthetical set of terms captured research situated in formal educational settings, including both classroom-based and structured out-of-school contexts. The second set of terms reflected scholarship emphasizing critical consciousness and related frameworks—such as critical

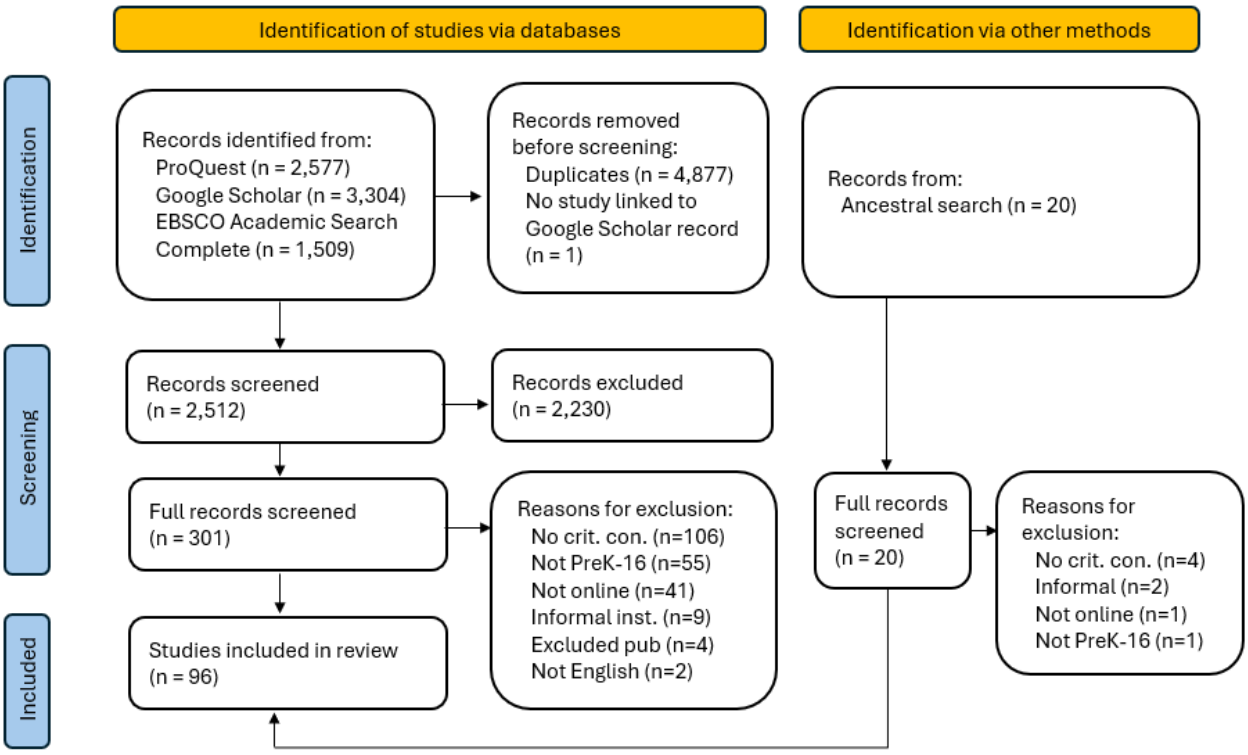
literacy, sociopolitical awareness, and community partnership. These keywords also included overlapping concepts commonly associated with equity- and justice-oriented digital education, such as "co-creation," "digital dialogue," and "community partnership." Finally, the third parenthetical restricted the results to studies addressing online or technology-mediated instruction, encompassing asynchronous, synchronous, and virtual modalities. To be classified as technology-mediated instruction, the technological tool or program had to deliver or otherwise be directly involved in instructional activities. For instance, using a Learning Management System (LMS) to access files did not count, but instruction delivered through a math video game did.

We limited all searches to English-language works published between January 2010 and August 2024, including peer-reviewed journal articles, dissertations, conference proceedings, and educational or governmental reports. The 2010 start date was selected to align with the transformation of online learning environments following the introduction of widely accessible, classroom-ready technologies such as the Apple iPad (Apple, 2010) and the first Chromebooks, which entered U.S. schools through pilot programs that same year (Google, 2021). This period marked a fundamental shift in the infrastructure and accessibility of online learning, supported by the nationwide expansion of broadband internet (Horrigan, 2010) and the Federal Communications Commission's E-rate Modernization Order (2014) to ensure broadband access in all U.S. schools. Limiting the review to studies published after 2010 ensured that the included research reflected the pedagogical, technological, and infrastructural landscape of contemporary online education.

The combined searches produced 7,390 total records (2,577 from ProQuest, 1,509 from Academic Search Complete, and 3,304 from Google Scholar). After removing duplicates and correcting for invalid citations, 2,512 unique studies remained for screening. See Figure 1 for the PRISMA flow diagram (Page et al., 2021). Authors double-coded the titles and abstracts of these studies to assess whether they met the three inclusion criteria using an Excel document: (1) focused on formal instruction in K-16 or equivalent educational settings, (2) examined online, virtual, or technology-mediated teaching and learning, and (3) included evidence of or potential for fostering critical consciousness or related constructs such as critical literacy, sociopolitical awareness, or community engagement. Raters assigned either a 1, indicating that the study met all three criteria, or 0, indicating that the study met fewer than three criteria. We then compared responses, tagging any studies where raters disagreed for review and reconciliation with a third rater and through discussion to clarify original ratings.

Figure 1

PRISMA Flow Diagram



After title and abstract screening, we retained 301 studies for full-text review. During this stage, we reapplied inclusion and exclusion criteria related to publication type, methodological rigor, and substantive focus. We excluded works outside PreK-16 education, those emphasizing informal or non-instructional contexts (e.g., social media participation, online forums unrelated to schooling), and non-academic sources such as magazines. (See Appendix A for the Full Text Coding Manual.)

Full-text inclusion decisions were double-coded using a Google Form to capture responses to the Full Text Coding Manual. Disagreements were resolved through discussion. Following full-text screening, 84 studies met all inclusion criteria. We added to these studies articles cited within the manuscripts in the full text review that appeared to meet inclusion criteria. We captured potentially relevant articles through a question on the Google Form. After which the article was assigned to two raters to double-code using the same process described above. This additional search yielded 12 new studies that satisfied inclusion criteria, resulting in a final sample of 96 studies for analysis. The final dataset thus represents over a decade of scholarship on PreK-16 online and blended learning, encompassing diverse geographic regions and methodological approaches.

Data Extraction and Analysis

We developed a structured data extraction protocol to facilitate consistent collection of information across the full-text corpus. Data extraction was implemented using a Google Form that aligned with our research questions. After piloting the form with sample studies, all the authors reviewed their coding for consistency and refined item wording for clarity and comprehensiveness. Once finalized, all remaining articles were coded using the refined Google Form. Each article was double-coded, with at least two researchers independently completing the form for each study. We reviewed and merged responses from both coders into a single composite record per study, adding a third coder to reconcile any discrepancies.

Using the form, we first coded descriptive characteristics of the study including publication type, research design, grade-level, instruction context, online learning type, and COVID-19 timeframe. Next, we coded each article for the presence of critical consciousness raising strategies that emerged through our conceptual review of prior literature on critical consciousness (see Table 1).[1] Importantly, while we coded each study for whether digital content creation was present based on its prominence and importance in our conceptual review, we decided to summarize findings from this strategy under the unique affordances of critical consciousness raising online section, since it is not inherently a strategy to foster critical consciousness. We report the presence of each strategy within our study sample in the Finding section. Study-by-study coding is available in the supplementary materials.

Table 1

Strategies to Foster Critical Consciousness Coded for during Full Text Inclusion

Strategy	Definition
Power	Are students asked to engage with power?
Critical Literacy	Is there evidence of critical literacy "inviting students to question, examine, and even dispute the power relations between writers and readers" (Morrison et al., 2008 pp. 441)?
Critical Digital Literacy	Is there evidence of critical DIGITAL literacy (i.e., encouraging students to deconstruct the meanings, uses, and messages of digital artifacts to make judgments about online tools and content and/or apply ethical perspectives and interrogate power dynamics present in the creation and use of digital artifacts)?

[1] We considered studies to meet the criteria for fostering critical consciousness if at least one strategy was present. However, as we considered engaging with power to be a core tenet of fostering critical consciousness, there was a prompt to re-evaluate whether critical consciousness was present if the rater indicated that students were not asked to engage with power. Ultimately, most studies coded as demonstrating elements of one strategy were coded as meeting others as well given commonalities in the underlying skill set and assignments integrated.

Strategy	Definition
Digital Content Creation[2]	Is there evidence of digital content creation?
Social Justice Skills	Is there evidence of developing the skills and socio-political awareness to engage in social justice work (i.e., by contextualizing academic content in social justice topics)?
Classroom Change	Is there evidence of students enacting change in their classrooms (i.e., co-designing curriculum, reshaping power dynamics in the classroom)?
Community Change	Is there evidence of students enacting change outside their classrooms (i.e., engaging in social justice work or providing services)?

Qualitative Analysis

In addition to calculating descriptive statistics of quantitative coding responses, we exported all narrative descriptions of instructional strategies from Google Forms into Dedoose (Version 10.0.35), a secure web-based platform for mixed methods data analysis. Within Dedoose, we uploaded and organized the extracted text segments to facilitate inductive coding, theme development, and analytical memo writing. Two authors completed an initial cycle of open coding to identify emergent patterns in how studies operationalized elements of critical consciousness online. These initial codes were then refined through team discussions and memo exchanges, which allowed for collaborative comparison and synthesis of ideas.

Through iterative coding cycles, we generated preliminary themes describing the ways in which critical reflection, political efficacy, and critical action were fostered in digital environments using the strategies identified. We then used analytic memos to synthesize these themes across studies, noting both convergences and contextual differences. This process yielded clearly defined, recurring patterns in how online learning settings supported critical consciousness raising. We used the resulting narrative descriptions to provide rich detail on promising instructional strategies. In addition, we used qualitative data to provide nuance, understand patterns in the quantitative data, and consider alternative hypotheses and understandings.

Findings

We first present descriptive statistics of the studies included in the systematic review to define our sample and highlight trends in prevalence by category. Of the 96 studies included in the final synthesis (see Table 2), most were peer-reviewed journal articles (78.1%), followed by doctoral dissertations (11.5%), and a smaller proportion of book chapters (5.2%), conference proceedings (4.2%), and books (1%). Nearly half of the studies employed intervention designs (49%), and another 42.7% used observational approaches, with only a few conceptual or review pieces. In terms of educational level, undergraduate (47.9%) and high school (30.2%) contexts were most

[2] During our analysis, we determined this was most appropriately discussed under the section on unique affordances of critical consciousness raising online, as digital content creation without a critical framework was insufficient to foster critical consciousness on its own

common, while elementary and middle-level settings represented smaller portions of the corpus. We did not identify any studies examining critical consciousness enactment in pre-Kindergarten through second grade. The majority of studies (78.1%) were conducted in formal classroom environments. Approximately one-fifth (21.9%) took place in structured out-of-school instructional contexts. Regarding online modalities, synchronous learning was the most prevalent (46.9%), followed by in-person instruction that integrated online tools (32.3%), asynchronous courses (16.7%), and a small number of face-to-face interventions that taught digital literacy without online tools (4.2%). Nearly half of the studies were conducted before the COVID-19 pandemic (46.9%), with the rest of the studies conducted during (40.6%) and after (12.5%) COVID-19.

Table 2

Included Study Characteristics

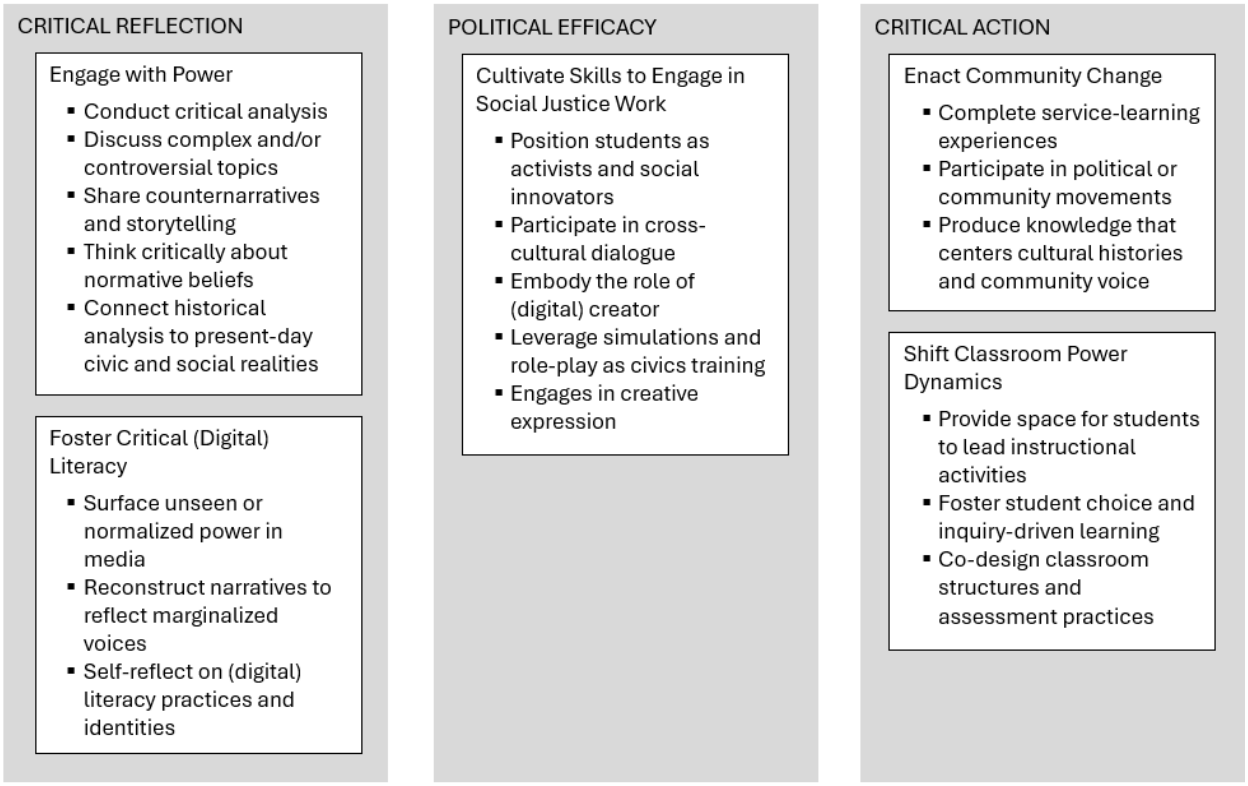
Domain	Category	Number	Percentage
Study Type	Peer-reviewed journal	75	78.1
	Book chapter	5	5.2
	Book	1	1.0
	Doctoral dissertation	11	11.5
	Peer-reviewed conference proceeding	4	4.2
Research Design	Review	1	1.0
	Observational	41	42.7
	Intervention	47	49.0
	Conceptual / Theoretical	7	7.3
Grade Level	Elementary (3–5)	9	9.4
	Middle (6–8)	12	12.5
	High school (9–12)	29	30.2
	Undergraduate	46	47.9
Instructional Context	Formal instruction, in a classroom environment	75	78.1
	Formal instruction, in an out-of-school environment	21	21.9
Online Learning Type	In-person instruction using a fully online tool or resource	31	32.3
	Fully asynchronous online	16	16.7
	Synchronous online	45	46.9
	Face-to-face on the topic of digital literacy	4	4.2
COVID-19 Timeframe	Before COVID-19	45	46.9
	During COVID-19	39	40.6
	After COVID-19	12	12.5
Critical Consciousness Strategies	Engage with power	93	96.9
	Social justice skills	75	78.1

Domain	Category	Number	Percentage
	Critical literacy	44	45.8
	Critical digital literacy	39	40.6
	Community change	32	33.3
	Classroom change	27	28.1
	Digital content creation	62	64.6

Next, we report descriptive analysis of the 96 studies included in the review by critical consciousness strategy. Overall, 97 percent of studies documented instructional strategies that asked students to engage with power. The majority also cultivated the skills to engage in social justice work (78 percent). We observed elements of critical literacy in 46 percent of studies and critical digital literacy in 41 percent of lessons. The least frequently observed elements included enacting community change (i.e., change outside of the classroom) (33 percent) and classroom change (i.e., shifting classroom power dynamics and processes to give student voice) (28 percent). We identified key strategies and insights used to foster each of these elements of critical consciousness in Figure 2. We discuss and provide examples for each strategy in greater detail below. Additionally, 65 percent of studies incorporated digital content creation (other than Word documents or essays), which we discuss in in the unique affordances and enhancements of critical consciousness raising section.

Figure 2

Strategies to Foster Critical Consciousness Online



Strategies that Engage with Power

As a core element of critical pedagogy, 97 percent of studies asked students to engage with power. The three studies without this element all detailed critical literacy projects that incorporated critical action to address environmental and globalism related issues, but without identifying systemic inequities as a contributing factor. In this way, the studies that did NOT ask students to engage with power did support students in developing political efficacy and taking action without requiring critical reflection (Jemal, 2017; Watts et al., 2011). Strategies to support students in engaging with power and inequality included (a) conducting critical analysis, (b) thinking critically about normative beliefs, (c) sharing counternarratives and storytelling, (d) discussing complex and/or controversial topics, and (e) connecting historical analysis to present-day civic and social realities. We discuss each in greater detail below.

Around half of the studies documented students **conducting critical analysis** as a means to make visible and critique systems of power and inequality. Critical analysis often included introducing students to an applicable theory, engaging with the theory through real-world or virtual activities, and forming informed, individual opinions and reflections (i.e., Dancis, 2024; Kumar, 2024; Muriel & Acosta, 2015; Porto, 2018). For instance, one undergraduate course grounded critique in political philosophy (Kaye & Spurgin, 2011). Students examined John Rawls' Theory of Justice alongside real-world inequalities supplemented by virtual simulations in Second Life to

model civic engagement and resource distribution (Kaye & Spurgin, 2011). Also with undergraduates, Wittebols (2016) describes a series of iterative assignments designed to build analytical power that transfer to civic judgement. Assignments included bias self-audits and cross-source research. In another study, middle school students examined U.S. foreign policy and military interventions through the Just War Project (Lawrence & O'Brien, 2016). The project provides expert video interviews, articles, and training to support ethical decision-making in modern warfare, situating global systemic critique in an accessible classroom format (Lawrence & O'Brien, 2016). We observed the use of similar strategies with elementary school students although at a more basic level. For instance, one fifth grade teacher used a series of blogging exercise to develop students' critical literacy skills (Chamberlain, 2017). Particularly relevant to critical analysis, students were prompted as part of their blog writing and commenting to recall previous knowledge (engaging funds of knowledge), make connections, decide what was important to remember from the text, and articulate an opinion (Chamberlain, 2017). All these experiences positioned students as critical investigators of social systems rather than passive learners, providing a process for students to apply their own experiences and form their own opinions on class content.

Relatedly, a little over half of all studies prompted learners to **think critically about normative beliefs**. By naming and questioning "common sense" assumptions—about knowledge, identity, institutions, media/tech, and civic life—interventions supported students in developing more complex, justice-oriented understandings of the world (Hicks, 2022; Philpot et al., 2024). Assignments emphasized fact-checking, rewriting, or deconstructing dominant narratives (Hilton, 2013; Huang, 2014). In one study, students re-wrote one-way policy documents as two-sided policy discourses (Garcia & Mirra, 2021). Media literacy projects taught students to spot bias, resist stereotypes, and critique power in texts (Nash, 2021; Wittebols, 2016). One assignment took an additional approach to encourage critical reflection on normative beliefs by asking students to take and reflect on their responses to the Harvard Implicit Bias test (Rippy & Muñoz, 2019). Classroom activities placed results in their larger sociopolitical context, discussing relevance to future careers and social issues. Similarly, a simulation exercise encouraged deeper reflection on systemic barriers; the teacher randomly provided some groups with truncated instructions for a group project (Schnurr, 2013). Students rated and discussed the merits of each project before being told about the experiment and asked to reconsider in light of the different instructions provided.

Importantly, around one-fourth of interventions involved **sharing counternarrative and storytelling** – in digital, oral, written, and performative forms - to help students surface, interrogate, and contest power dynamics. These interventions highlighted how personal narratives made structural inequities tangible. Students' artistic and multimodal projects — such as artwork expressing marginalization (Murray et al., 2024), spoken word and performance of lived histories (Kaler-Jones, 2021), or podcasts, comics, and digital storytelling about disability, religion, identity, and belonging (Matias & Grosland, 2017; Murray et al., 2024; Price-Dennis et al., 2015) — exemplify how creative practices enabled participants to communicate private, painful, and often silenced experiences. In Catena (2020), a high school journalism project, students developed first-person narratives that functioned as civic texts—using personal stories to address community issues and public concerns. These projects both humanized abstract issues like discrimination and created emotional entry points for peers and broader audiences to grapple with inequities. In these instances, storytelling was used not only as a pedagogical tool but also as a form of civic intervention, validating lived experience as knowledge alongside academic or statistical data.

Another strategy for encouraging reflections on power – observed in a little under one-fourth of studies - included **discussing complex and/or controversial topics** such as systemic inequality, race, gender, and economic injustice. Rather than avoiding contentious issues, these interventions framed dialogue, debate, and critical reflection as central to the learning process. Across settings and levels, students were prompted to confront privilege and oppression. Undergraduate courses tasked students with "Difficult Dialogues" assignments that developed skills in challenging conversations (Hicks et al., 2023) or structured discussions on systemic inequality and sociopolitical awareness (Weiner et al., 2020). Similarly, when working with younger students, a virtual Freedom School used Children's Defense Fund-approved texts that centered the experiences of individuals from marginalized groups and on social justice topics, with guided discussion prompts and teacher modeling to encourage discourse on these complex topics (Harris et al., 2025).

Lastly, eight particularly impactful studies detailed interventions that **connected historical analysis to present-day civic and social realities**. Across diverse grade levels, contexts, and online tools, students were guided to interrogate how historical narratives—and their exclusions—continue to shape inequities in contemporary life (Mills et al., 2011). These interventions spanned middle school through undergraduate levels. Many of the interventions were synchronous (e.g., live discussions, performances), reflecting the importance of dialogic, collective processing when working with contentious histories (Şenbayrak & Hart, 2024). Yet asynchronous spaces (e.g., online archives, wiki projects) also emerged as important venues for preserving and sharing historical narratives (Boetto & Bell, 2015).

At the undergraduate level, history was explicitly mobilized to expose systemic inequities in professional and disciplinary contexts. For instance, technical writing courses interrogated the systemic inequities and gender-based violence (Jones, 2021), while health-focused courses examined how historical exclusion of marginalized groups underpins mistrust in the healthcare system today (Donovan & Barcus, 2021). Both cases illustrate how embedding historical perspectives in disciplinary content can challenge students' assumptions about neutrality in professional fields. For middle and high school students, history served as a mirror for civic engagement. Case studies, conflict analyses, and social movements were analyzed not only to understand the past but also to build civic literacy and consider strategies for contemporary conflict resolution (Lawrence & O'Brien, 2016). In science classrooms, students were asked to interrogate why the "canon" of famous physicists is dominated by white men, sparking discussions about exclusion from STEM and the importance of diverse representation (Ross & Grant, 2022). These examples highlight how historical narratives — who is remembered, who is omitted — shape students' understanding of justice in present domains. These approaches did more than transmit historical knowledge — they emphasized history as living and actionable, a resource for shaping present civic identities.

Strategies that Cultivate Skills to Engage in Social Justice Work

While asking students to engage with power supports critical reflection (the first tenet of critical consciousness), developing political efficacy (the second tenet of critical consciousness) requires fostering the skills to engage in social justice work. In all, 78 percent of studies integrated strategies that fostered students' capacity to move from reflection to action, developing the confidence and agency to enact social and political change. Some of the strategies used to cultivate the skills to engage in social justice work within our study sample included (a) positioning students

as activist and social innovators, (b) participating in cross-cultural dialogue, (c) embodying the role of (digital) creator, (d) leveraging simulations and role-play as civics training, and (e) engaging in creative expression.

By embedding social justice within subject content, educators moved beyond identifying and critiquing power dynamics to emphasizing the need for action. Several interventions used identity-based pedagogies to **position students as activists and social innovators.** Jones (2021) integrated victim advocacy and critique of the justice system into undergraduate learning. Thompson (2012) guided teacher candidates to integrate disability justice into broader social justice agendas. Another study documented student reflections on the activist role of social media in mobilizing around #BLM (Beck et al., 2021). High school students connected inequities in healthcare to advocacy organizations and campaigns (Mills et al., 2011) and proposed social entrepreneurship projects to address social issues in health care that they had the opportunity to share in a science fair format (Huang, 2014). High school students in Baltimore learned from museum activists and visited museums to critique and suggest ways to expand access, diversity, and the relevance of exhibits (Zeleny, 2023). Environmental projects, such as the Watershed Council initiative, developed middle schoolers' awareness of the political dimensions of ecological issues and helped them identify actors who should be involved in solutions (Marques et al., 2020).

Several interventions support the development of political efficacy through student **participation in cross-cultural dialogue**, either through global exchanges or by examining a global perspective. For instance, elementary students engaged in cross-cultural dialogues to build empathy and global awareness (Kerkhoff et al., 2024). In another study, Şenbayrak and Ortaçtepe Hart (2024) gave undergraduates a platform for global civic dialogue through language learning. While Dawson and Robinson (2021) fostered embodied learning tied to activism, blending online and offline spaces with social justice issues.

Additionally, a strong cluster of studies focused on computing programs designed for marginalized groups. These interventions encouraged students to **embody the role of (digital) creator**. Several studies described culturally responsive computing initiatives for high school students, particularly adolescent girls of color in urban districts (Lee et al., 2021; Scott et al., 2010; Scott & White, 2013). For instance, the COMPUGIRLS program reconceptualized technology as raced, gendered, and classed, framing digital education as a site of identity affirmation while positioning students as creators of technology for social justice (Scott & Garcia, 2016). Similarly, da Silva and colleagues (2024) aligned course design with culturally responsive practices by encouraging students to share art that represented their daily lives, reflect on the historical precedent for normative preferences in landscape design, and re-envision outdoor spaces together. In doing so, the activity affirmed injustices while offering inspiration for action.

Other interventions **leveraged simulations and role-play as civics training**. These interventions used immersive experiences to model political or social change (Basile, 2021; Brown et al., 2021; Levett-Jones et al., 2015; Kaler-Jones, 2021; Rippy & Muñoz, 2019; Schnurr et al., 2013). For instance, Shliakhovchuk (2023) employed a refugee simulation game, connecting gameplay to concrete activism (donating, sharing, advocacy). Bell et al. (2015) had undergraduates use economic justice simulations to explore structural inequity and fairness, while Huang (2014) assigned students to play roles (e.g., mayor, police chief) in community decision-making, prompting reflection on power and action. Games, simulations, and issue-driven cases provide

opportunities for students to delve deeply into the contextual factors and systemic pressures of a specific case. Simulations and games show structural patterns beneath personal experience.

Interestingly, **engaging in creative expression** often functioned as a bridge between reflection and advocacy. Kaler-Jones (2021) engaged high school students in arts-based performance as a call to action. The Black Girls Movement (BGM) program also encouraged middle school participants to use performance-based expression (spoken word, public storytelling, artistic presentations) as a form of advocacy and healing in their communities (Smith-Purviance et al., 2022). Price-Dennis (2016) worked with elementary students to produce stop-motion films on gender inequality. Brown and colleagues (2021) required undergraduates to create photo essays on health inequities, while da Silva and colleagues (2024) encouraged online students to use visual culture projects to address inequities and propose solutions. In Ireland, 11- to 16-year-olds participated in a socially engaged digital art summer program that used storyboarding, sketching, and script writing to engage with complex issues; the program ultimately led to student-produced newspaper articles and memes (Murray et al., 2024).

Strategies that Foster Critical (Digital) Literacy

The next most common strategies for critical consciousness raising included critical literacy (46 percent) and/or critical digital literacy (41 percent). In total, 59 percent of studies engaged with one or both frameworks. Critical literacy and critical digital literacy are overlapping, related concepts from different subfields with the primary difference that critical digital literacy specifies the media format examined. Therefore, although we separated these elements when identifying studies to ensure we captured studies employing either approach, we summarize strategies across both elements here due to substantial overlap, since our sample was inherently limited in its focus on online learning. Strategies used to foster critical (digital) literacy online included (a) surfacing unseen or normalized power in media, (b) reconstructing narratives to reflect marginalized voices, and (c) self-reflecting on (digital) literacy practices and identities. Digital content creation was also a crucial element of critical digital literacy enactment, which aims to support students in developing an identity as digital creators. However, since content creation was enacted within various frameworks and to support several tenets of critical consciousness, we summarize this element separately in a later section.

Almost all studies that fostered critical (digital) literacy did so by helping learners **surface unseen or normalized power in media**, such as political and algorithmic bias, gatekeeping, datafication, curricular canons, and platform economics. An understanding of edtech power and datafication was a fast-growing theme within the data. Learners surface algorithmic and institutional power that usually feels "neutral." Students reject platform neutrality, linking datafication to how school systems "reduced their participation… to a static metric" (Pangrazio et al., 2022). Several studies framed digital platforms (e.g., YouTube, social media, online discussion forums) as both tools for learning and objects of critique. In the Critical Media Creators Club, middle school students investigated YouTube algorithms, questioning why certain videos appeared and whether targeted ads reflected or distorted their identities (Adams-Grigorief, 2023). Students scrutinized authorship, frames, and omissions to reveal who is centered and who is erased. Across interventions, students used structured, repeatable prompts to fact-check and evaluate media and other digital platforms (Huang, 2014; Nash, 2021). In one classroom, students identified racist/sexist ads "not… noticeable at first glance" (Rippy & Muñoz, 2019). In other assignments, undergraduates are prompted to ask, "who pays for it?" and "who held power within

the text" to help identify media–political economy ties (Wittebols, 2016, pp. 7). These studies highlight that students learned not only how to develop and use (digital) literacy skills across a range of relevant contexts, but also why and for whom media and online platforms function as they do.

Within this category, several programs explicitly centered identity, intersectionality, and epistemic power to reveal how knowledge gets authorized. COMPUGIRLS made visible the "power asymmetry" in tech design (Scott & Garcia, 2016). Integrating Decolonial/Indigenous lenses exposed canon power and epistemic dominance (Ripero-Muñiz et al., 2021; Dawson & Robinson, 2021). While international and global citizenship interventions used cross-cultural comparison to name asymmetries and privilege (Waghid, 2024; Sernbo et al., 2024; Fuchs et al., 2010).

Beyond identifying media bias, several interventions asked students to **reconstruct narratives to reflect marginalized voices**. For instance, high school students "analyzed journalistic conventions" before creating new media that better represent the narratives, perspectives, and experiences of individuals belonging to marginalized communities (Catena, 2020). Others engaged high school students with policy reports to reveal how official documents framed their communities, then produced fuller portraits of their schools as acts of counter-storytelling (Garcia & Mirra, 2021). These activities foregrounded students' ability to challenge deficit-based narratives and recenter community perspectives.

In addition to engaging with and critiquing (digital) literacy, several interventions encouraged students to **self-reflect on (digital) literacy practices and identities**. Nash (2021) guided students to ask culturally grounded questions such as "how does my own culture or background influence the links I click on?", encouraging reflexivity and relevance in digital literacy practices. The COMPUGIRLS program positioned technology as a "vehicle by which students reflect and demonstrate understanding of their intersectional identities" (Scott & Garcia, 2016). Programs like Black Girls S.O.A.R. (Kaler-Jones, 2021) and other feminist digital pedagogy projects (Eudey, 2012; Donovan & Barcus, 2021) used digital storytelling and activism to connect students' lived experiences with broader struggles against systemic inequality. Such work foregrounded race, gender, and cultural identity as necessary entry points for digital literacy, reframing learning as both personal and political. Taken together, this body of work demonstrates how digital literacy education can become transformative when it explicitly embraces the tensions of power, identity, and inequality. By situating students in spaces where reflection, discomfort, and critique are expected, these programs helped learners not only deepen media literacy but also understand its roots in systemic power relations.

Through strategies aimed at fostering critical digital literacy specifically, students learned that algorithms shape identity, representation, and visibility, raising questions about fairness, bias, and digital selfhood. These studies discuss how digital literacy was positioned not just as a technical skill, but as a civic responsibility, equipping students to interrogate how online tools mediate democracy and justice. In addition, digital projects – discussed in greater detail in a following section - emphasized production (videos, stories, collaborative digital artifacts) as a pathway to empowerment and to foster equity, representation, and democratic representation.

Strategies that Enact Community Change

Beyond critical reflection and political efficacy, a key component of critical consciousness is critical action. In total, 33 percent of identified studies integrated activities that extended students' learning into civic and community spaces. These projects positioned students as civic actors, educators, and advocates. Some of the strategies used to involve students in critical action in their communities included (a) completing service-learning experiences, (b) participating in political or community movements, and (c) producing knowledge that centers cultural histories and community voice.

The most prevalent strategy for critical action in our sample, particularly in undergraduate classrooms, involved **completing service-learning experiences**. Assignments went beyond volunteering to explicitly address structural inequities through structured community service experiences connected to and supported by classroom learning on topics such as health disparities (Brown et al., 2021), food insecurity (Muriel & Acosta, 2015), and racial justice (Rapp, 2023). University students partnered with local or global communities (Lyons & Howarth, 2022). Several service-learning experiences, particularly during the COVID-19 pandemic, were conducted virtually, whether through advocacy websites tied to the Black Lives Matter movement (Ordem, 2023) or multimodal campaigns shared with the public (DeWaard & Roberts, 2021). By situating students as both learners and change agents, programs disrupted traditional hierarchies of service, reframing it as reciprocal, justice-oriented, and transformative.

While service-learning courses tended to provide semester-long community service experiences aligned with classroom instruction, other interventions provided the opportunity for (often shorter) direct **participation in political or community movements.** Projects tied to the Black Panther Party's political framework (Kaler-Jones, 2021) or to transnational collaborations (Lyons & Howarth, 2022) underscored how online tools and assignments can connect learners to broader struggles for justice. Undergraduate and high school students engaged in structured community service experiences—addressing racial justice through oral history projects (McDaniel, 2024), supporting food pantries (Muriel & Acosta, 2015), or creating digital campaigns tied to Black Lives Matter (Ordem, 2023). High school students also engaged in local civic projects such as online petitions, protests, and campaigns for social issues (Dias-Fonseca & Potter, 2016). Similarly, Giunco (2020) described middle school students synthesizing their learning into public speeches with calls to action, inviting community members to join their advocacy efforts, while elementary school students participated in a National Day of Social Action on voting rights (Harris et al., 2025). Students also organized protests, engaged in public storytelling, and shared digital products with family, schools, and broader communities (Price-Dennis et al., 2017).

In many cases, assignments explicitly required students to engage in digital activism — from community media campaigns (Murray et al., 2024; Amgott, 2018) and advocacy websites (Ordem, 2023) to digital storytelling projects addressing racism, food insecurity, and environmental justice (Brown et al., 2021; Muriel & Acosta, 2015; Lyons & Howarth, 2022). Amgott (2018) described undergraduates designing online media campaigns about food insecurity that included educational resources and actionable steps for community response, which they shared publicly online. Other instructors treated online petitions, campaigns, and multimodal presentations as authentic political action (DeWaard & Roberts, 2021; Dias-Fonseca & Potter, 2016; Lee et al., 2021). In doing so, these activities connected students to larger social movements, providing an avenue for broader community engagement.

Many critical action interventions also encouraged students to educate others by **producing knowledge that centers multicultural histories and community voices.** Students often completed these activities in collaboration with museums, community centers, and other organizations with the means to disseminate this knowledge. In other interventions, students contributed to online archives such as Civic Voices (Mills et al., 2011, Marques et al., 2020). For instance, students created digital storytelling projects that documented the experiences of underrepresented groups, connecting historical struggles to current social issues (Marques et al., 2020). Multimedia outputs (infographics, digital campaigns, and online debriefs) allowed students to circulate historical insights beyond the classroom, engaging broader publics in debates about justice. These examples highlight how community-centered knowledge production foregrounds cultural histories as sources of civic insight and resistance (Ordem, 2023; Lee et al., 2021).

Strategies that Shift Classroom Power Dynamics

The final way interventions engaged students in critical action was by empowering students through shifting classroom power dynamics and structures. This was the least observed strategy to foster critical consciousness with only 28 percent of studies in our sample enacting classroom change. At the same time, programs that disrupted traditional classroom hierarchies stood out as especially impactful. In these studies, many of the following normative educational practices were reimagined: positioning the teacher as "giver of knowledge", prioritizing respect for authority, and expecting all student to engage in the same teacher-directed and designed activities. Some of the strategies used to shift these classroom power dynamics included (a) providing space for students to lead instructional activities, (b) fostering student choice and inquiry-driven learning and (c) co-designing classroom structures and assessment practices.

One of the most prevalent strategies used to shift classroom power dynamics included **providing space for students to lead instructional activities**. Taking leadership in instructional delivery could look like co-leading lessons, facilitating discussions, or organizing guiding projects. In one high student class, students led class dialogues and shaped instructional flow using online blogging (Muriel & Acosta, 2015). Middle schoolers led international citizenship projects, producing deliverables and exchanging leadership roles across borders (Porto, 2018). In another example, Spanish-speaking students' linguistic and cultural skills became recognized sources of instructional authority by serving and translators and team leads in collaborations with Columbia partners, while non-Spanish-speaking students were asked to contribute more through reflection on how narratives, values, and language may need to be presented differently to different cultural groups (Lyons & Howarth, 2022).

Across contexts, teaching strategies also shifted classroom power dynamics by **emphasizing student choice and inquiry-driven learning** as ways to empower students to direct their own learning. Elementary school students completed independent oral history projects on voting rights and inequities exposed by COVID-19 (Harris et al., 2025). Similarly, youth research that integrated their lived experiences into topic selection, asset-building, and public-facing communication (Scott et al., 2010) reinforced that student choice and co-curation can challenge deficit narratives.

Lastly, some studies documented teachers and students **co-designing classroom structures and assessment practices**. Shifting who decides what is taught and how learning happens allows students to experience power-sharing firsthand. Practices such as self-grading, co-designing course goals, and peer lectures enabled students to directly shape learning outcomes (Philpot et al., 2024;

Dancis, 2024). Students also developed case studies, debate topics, and mini syllabi based on their own sociopolitical interests (Sernbo et al., 2024; Lawrence & O'Brien, 2016; Ordem, 2023). Dancis (2024) used several democratic power-sharing and transformative accountability practices; students co-designed syllabi, self-graded, and planned collective action projects. Marques et al. (2020) demonstrated how middle school students collaboratively designed environmental solutions, merging curricular and civic agency.

One commonly observed structure for co-design was Youth Participatory Action Research (YPAR), which empowered students to investigate and challenge local power structures (Amgott, 2018). Full realization of YPAR tenets included opportunities to act on research findings—such as students analyzing pandemic-related disparities and proposing school policy solutions (Blue & Redick, 2022) or building advocacy units and community collaborations (Giunco, 2020). Participatory justice research in elementary curricula likewise framed young learners as co-researchers investigating fairness, equity, and community issues in their own school contexts (Little et al., 2024). In Little et al. (2024), children and adults collaboratively explored whose voices were heard or silenced in classroom decision-making, demonstrating that participatory justice research can surface power relations even in early schooling. In other studies, students acted as co-researchers, conducting investigations of digital platforms and sharing findings (Guo, 2019). Across grade levels and modalities, co-creation strategies disrupted traditional hierarchies, validated students' lived experiences, and fostered inclusive and democratic learning environments.

Unique Affordances of Online Tools & Settings in Fostering Critical Consciousness

In addition to documenting the form and prevalence of strategies to foster critical consciousness online, we examined whether there were any unique affordances to fostering critical consciousness online. Across the studies in our sample, only five used online technologies in a manner that could not be modified to achieve similar goals in face-to-face instruction. Although small in number, these studies highlight particular affordances within online learning that enabled forms of critical engagement that extend beyond what can be achieved in traditional face-to-face instruction. These affordances included expanded access to public sharing and digital dialogue, multimodal authorship, and digital cultural repositories.

One critical digital literacy assignment that could not have achieved a similar goal without the use of online tools asked K-12 students to use Blendspace, Flipgrid, and Spotify to curate and circulate counter-narratives on race and justice. Blendspace interactive digital boards allowed students to access, engage with, and juxtapose multimodal artifacts—news articles, images, and videos—to critique dominant media representations (Pangrazio et al., 2022). Not only did these platforms enhance the ease, impact, and sharing of comparisons, but the media's virtual nature also necessitated the use of online tools.

Three studies leveraged the increased ease of sharing digital content to expand impact. For instance, one activity conducted with undergraduate students used virtual museums and interactive archives synchronously in a classroom environment to democratize access to cultural institutions (Zeleny, 2023). Students navigated and annotated digital exhibits, reframing museum literacy as civic activism by curating their own counter-collections—something constrained by logistical and spatial limits of in-person museum visits (Zeleny, 2023). In another study, high school students used digital petition platforms and moderated youth forums to expand their audience beyond the classroom, transforming critique into consequential public authorship (Dias-Fonseca & Potter,

2016). These online tools connected local inquiry projects to authentic civic spaces, enabling visible participation in public discourse that could not be simulated through in-class debates or school displays.

Another intervention also leveraged the unique affordance of online platforms, but this time to provide safe, identity-affirming spaces where Black, middle school girls blended self-expression with social critique. The digital format allowed participants to control pacing, edit their contributions, and engage in reflective exchanges without the surveillance and social pressures often present in in-person discussions (Price-Dennis & Muhammad, 2021). These digital dialogues were used as an online supplement to traditional, face-to-face instruction to minimize some of the barriers and judgement of participation for a minoritized student group in a way that offered support without stigma.

Lastly, in one intervention, high school students in an out-of-school environment engaged in coding and game design using fully online tools. The program positioned girls of color as technologists and social theorists. The iterative digital creation process—debugging, testing, and remixing—allowed learners to continuously revise representations of identity and power within their games, an affordance not easily transferable to face-to-face analogs (Scott et al., 2010). Additionally, the focus on inherently digital skills, such as coding, requires interfacing with online tools (if not fully online).

Online Tools & Settings Enhancements to Fostering Critical Consciousness

In addition to examining interventions that could not be enacted without the use of online tools or in online settings, we explored interventions that could be enacted in a traditional, face-to-face setting, but only with substantial modification. While not unique to online contexts, the resulting elements highlight some of the ways online learning can enhance current strategies to foster critical consciousness in the classroom. Collectively, these studies illustrate that affordances such as simulations, cross-cultural collaboration, critical media inquiry, and digital content creation uniquely enhance critical consciousness raising in online environments by extending dialogue across distance, democratizing participation, and embedding reflection into multimodal practice.

As one example of effective simulation use, undergraduate nursing students engaged with Wiimali, a simulated community that used reflective exercises and narrative immersion to help students examined how bias and structural injustice shape patient experiences (Levett-Jones et al., 2015). In-person, similar learning could be achieved through community-based simulations, role-plays, or case-based storytelling circles that preserve the reflective and dialogic engagement central to Wiimali. However, the online platform reduces the burden on educators to design and facilitate the simulation.

Similarly, in a university environmental humanities course, students engaged in cross-cultural collaboration with Colombian community partners to create bilingual digital stories addressing environmental justice (Zamparutti, 2022). The online, multilingual format enabled cross-border dialogue and public authorship through a digital storytelling platform that extended learning beyond the university. Adapted for in-person settings, comparable critical exchanges could be structured through joint workshops with local community partners, gallery exhibits of student-created bilingual narratives, or cross-campus exchanges that retain the principles of co-authorship and global solidarity.

In another study, students in a critical media literacy course developed news analysis projects to uncover bias and political economy in contemporary media (Wittebols, 2016). Online assignments required students to track their own confirmation biases, analyze news sources, and critique how corporate and political power shape public discourse. Similar outcomes could be fostered in-person through structured media labs, peer analysis sessions, and collaborative news mapping activities that preserved the course's reflective and dialogic dimensions. However, enacting similar activities in a face-to-face environment would likely have required more time and teacher (versus student) facilitation.

Ultimately, however, we identified digital content creation as the most consistent enhancement to fostering critical consciousness online. Digital content creation is a core component of fostering critical digital literacy. However, it can also be integrated in classroom activities outside of a critical digital framework to engage with power dynamics and/or critical action. Creating digital content is an inherently technology-based process that situates students as empowered creators, critics, and change makers. Emphasizing its centrality, 61 percent of identified studies integrated some element of digital content creation. Studies used media making to help sharpen students' perceptions of what is usually invisible, construct and exert empowered identities, and extend student work beyond the classroom to authentic audiences.

Several studies used student-created film, photography, and digital art to challenge social issues (DeWaard & Roberts, 2021; Thompson et al., 2022). In particular, digital storytelling projects allowed students to use online tools to explore representation, identity, and power. These projects included video creation, Jamboard brainstorms, and community-based digital stories around health, race, and equity (Chappell & Hetherington, 2024 Murray et al., 2024; Rapp, 2023). In another study, students used digital platforms like Pinterest, Prezi, and hip-hop media to generate critique & counter-narratives (Price-Dennis et al., 2017). These activities enabled students to connect personal experiences with broader systemic issues through emphasizing voice and perspective-taking. Engaging in these activities shifted students from consumers of media to critical creators by emphasizing how storytelling provided students with agency to create digital counter-narratives.

Digital content creation was also used to construct and exert empowered identities. The COMPUGIRLS program, for instance, invited high school girls of color to challenge deficit narratives by constructing empowering online identities (Scott & White, 2013). Similarly, projects in undergraduate classrooms asked students to reflect critically on memoirs of sexual assault (Lawrence & O'Brien, 2016) or to co-create antiracist classroom cultures by acknowledging BIPOC students' experiences of exclusion (Dancis, 2024). In these cases, students were not simply documenting stories but also disrupting silencing mechanisms and producing new, justice-oriented ways of knowing. A notable thread across the studies is the use of digital storytelling as both methodology and praxis. Students employed blogs, documentaries, podcasts, and social media campaigns (Doerr-Stevens, 2017; Catena, 2020; Levett-Jones et al., 2015) to amplify their voices and link their local experiences to broader social movements.

Many of the most transformative uses for digital content creation extended student work beyond the classroom to authentic audiences and community connections. In one case, students developed murals and digital counter-stories displayed in community spaces (Garcia & Mirra, 2021). The COMPUGIRLS program had adolescent girls produce digital documentaries and interactive projects on systemic injustice, culminating in public showcases (Scott & White, 2013;

Lee et al., 2021). Other initiatives involved digital campaigns and research products for nonprofits and social justice movements (Eudey, 2012; Hicks, 2022; Lyons & Howarth, 2022; Early & Lasker, 2018). These programs illustrate how authentic audiences elevate creation from a classroom exercise into civic participation.

Building critical digital literacy through digital content creation transforms students' relationships with technology, media, and society. By shifting students into the role of digital creators, educators enable them to interrogate how power operates in digital environments, while simultaneously affirming their voices as contributors to public knowledge. The strongest models integrated multimodal production with explicit attention to platform politics and systemic inequities, supported by authentic dissemination opportunities. In doing so, they advanced students' civic identities and positioned digital content creation not merely as a technical skill but as a practice of critical participation in democratic life.

Critical Consciousness Strategies by Context

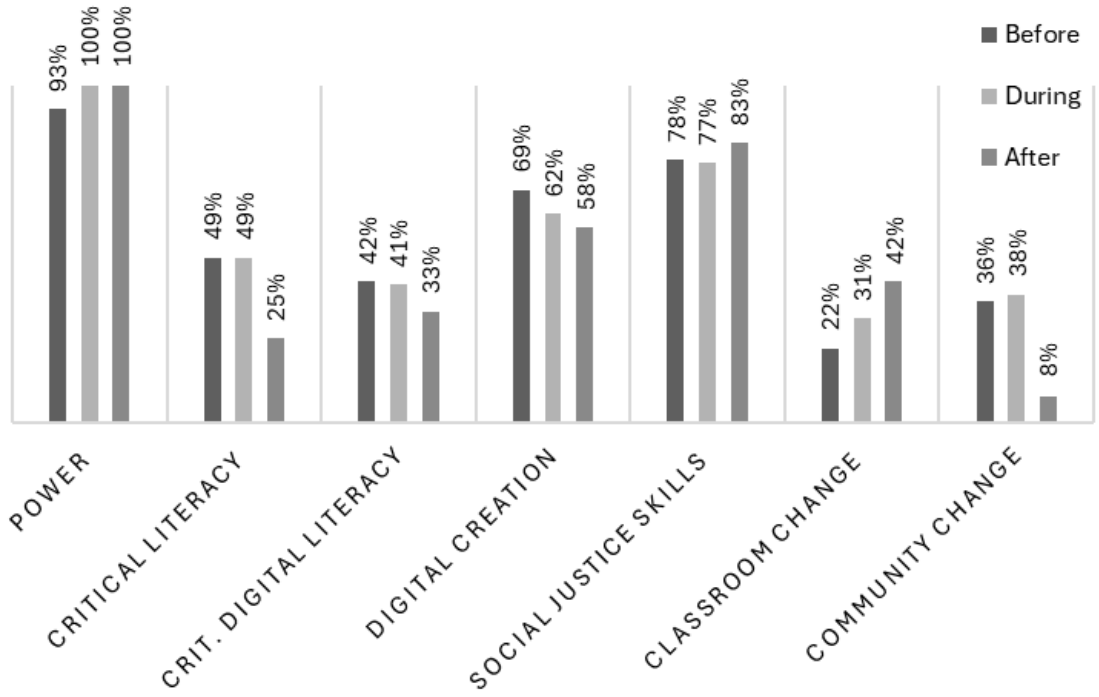
Lastly, in recognition of different opportunities and constraints across time, grade, and online instructional type, we disaggregated strategies along each dimension. In doing so, we examined unique affordances and constraints within each context. We highlight key differences and their implications below.

COVID-19 Timeframe

In comparing critical consciousness raising strategies before, during and after COVID-19, we identified a shift from outward-facing, community-based action toward inward, relational, and reflective practices within the classroom (see Figure 3). These patterns underscored educators' adaptive responses to post-pandemic constraints and the evolving role of technology, pedagogy, and teacher positionality in sustaining justice-oriented learning. Post-COVID interventions more frequently focused on redistributing classroom power, amplifying student voice, and building identity-affirming, care-centered environments that supported belonging and critical dialogue.

Figure 3

Strategies to Foster Critical Consciousness Overall and by COVID-19 Timeframe



Qualitative insights offered several possible explanations for this trend. Educators described how post-pandemic constraints—including increased surveillance of online instruction and the need to attend to socioemotional recovery—often redirected energy away from public-facing activism toward internal classroom equity and relationship-building. In some cases, teachers framed small shifts in classroom voice and participation as meaningful critical action within newly fragile learning communities. Student artifacts showed strong engagement with power analysis (e.g., unpacking algorithmic bias or media stereotyping) but often stopped short of organizing or advocacy beyond the class, reflecting institutional caution and competing priorities during recovery periods. By contrast, some undergraduate instructors used asynchronous forums, podcasts, or digital exhibits to sustain limited forms of civic engagement, suggesting that while the scale of social justice action narrowed post-COVID, the intent to connect critical reflection to action persisted in new modalities. Rather than a retreat from critical engagement, this shift reflects an adaptation—where the classroom became the primary space for practicing equity, reflection, and collective empowerment in a period marked by social disruption and heightened political sensitivity and censorship.

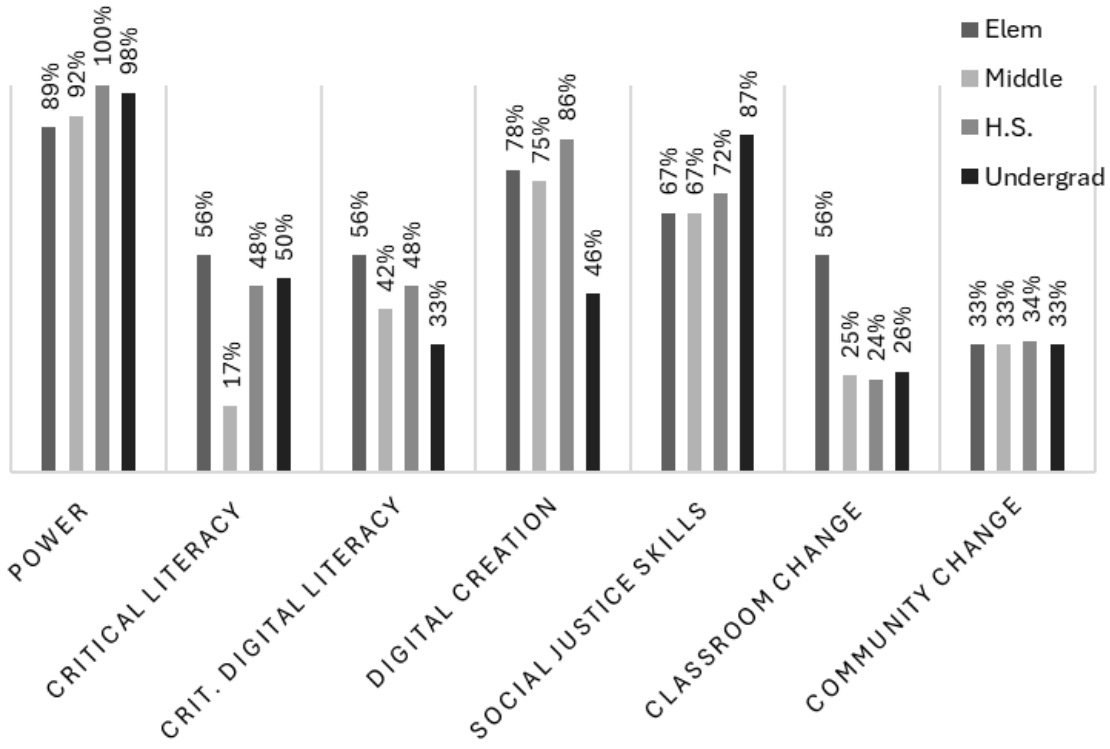
Grade-span

When examining critical consciousness raising strategies by grade-span (see Figure 4), we noted several divergent trends. First, a high proportion of studies at the elementary level (56 percent) involved classroom change compared to studies of older students (24 to 26 percent).

Power sharing tends to take different forms across grade levels, reflecting developmental, curricular, and institutional differences in how agency and responsibility are enacted. In elementary classrooms, power sharing often appears through collaborative rule-setting, choice-based learning, and collective inquiry, where teachers intentionally redistribute voice by inviting students to co-design discussion norms, select project topics, or evaluate peers' ideas. These practices are deeply relational and build from children's social and emotional development, emphasizing voice, belonging, and mutual respect as foundations for early critical consciousness. Teachers at this level frequently use storytelling, dialogue circles, and art-based reflection to help younger students recognize fairness, inclusion, and difference, thereby modeling participatory democracy within the classroom itself.

Figure 4

Strategies to Foster Critical Consciousness by Grade-span



In contrast, power sharing with older students (middle school through postsecondary) tended to focus less on classroom norms and more on shared intellectual authority and civic agency, for example, involving students in curriculum design, issue selection, or facilitation of critical discussions. These classrooms often expected students to take ownership of inquiry and engage with real-world systems of power (e.g., through media critique, research, or activism). However, institutional constraints, grading systems, and curricular pacing in older (tested) can make such power redistribution more limited or symbolic, which may help explain the lower prevalence of observable power-sharing changes in studies with older learners.

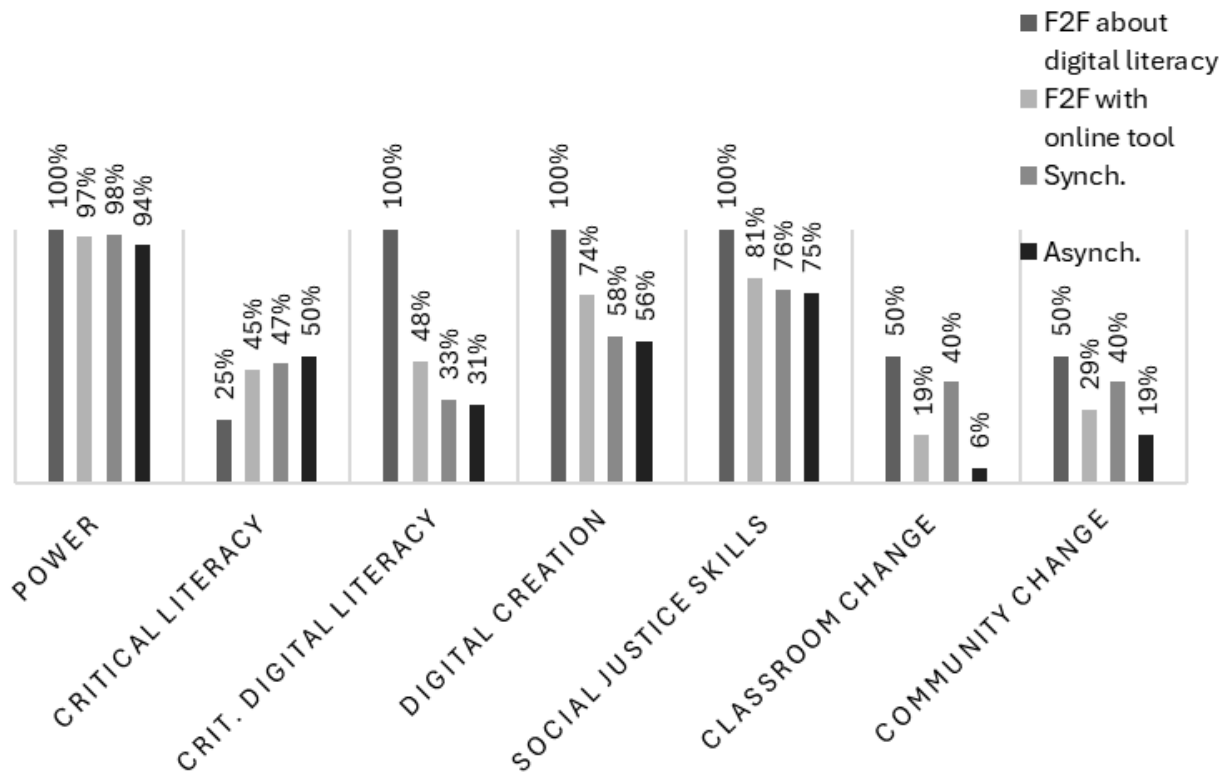
Studies at the elementary level were also slightly more likely to integrate critical literacy and critical digital literacy strategies than studies of upper grades. Importantly, the topic of projects also varied by grade level with critical digital literacy projects in elementary and middle school more often emphasizing awareness of algorithms and civic structures, while critical digital literacy projects in undergraduate settings were more likely to center critical theory, self-assessment, and applied digital justice practices. In contrast, we observed differential patterns of digital content creation between studies at the K-12 and undergraduate level, with substantially lower rates observed at the university level (46 versus 75 to 86 percent).

Online Instructional Type

In contrast, we observed relatively few differences in critical consciousness strategy enactment by online instructional type, as shown in Figure 5. The most notable differences included higher prevalence of change in classroom power dynamics and social justice action outside the classroom in studies examining synchronous online learning contexts (40 percent) or face-to-face classrooms about digital literacy (50 percent). We observed much lower prevalence in face-to-face classrooms using online tools (19 to 29 percent) and asynchronous online contexts (6 to 19 percent).

Figure 5

Strategies to Foster Critical Consciousness by Online Instructional Type



In some ways it makes sense that interventions focusing on online tool integration may be more likely to prioritize novelty or other technology-based advantages over critical action priorities. This lower prevalence in asynchronous environments may reflect the challenges of fostering dialogic exchange and collective reflection—core components of critical consciousness—without real-time interaction or community-building moments. In asynchronous settings, opportunities for immediacy, shared vulnerability, and mutual accountability are reduced, which can make it more difficult to translate critical reflection into collective or outward-facing critical action. Nevertheless, several asynchronous interventions used innovative tactics to engage students in critical action, such as sustained reflective blogging (Chamberlain, 2017), threaded discussions that scaffolded critical dialogue over time (Myers, 2021), collaborative digital storytelling projects (Garcia & Mirra, 2021; Snyder & González, 2021), and the creation of multimodal artifacts (e.g., podcasts, visual posters, advocacy websites; Dias-Fonseca & Potter, 2016; Price-Dennis et al., 2015; Price-Dennis & Sealey-Ruiz, 2021; Rippy & Muñoz, 2019) that allowed students to voice concerns and connect their learning to broader civic contexts even without synchronous interaction.

Limitations

As a synthesis, this study is inherently limited by the available academic literature. We cannot speak to strategies to foster critical consciousness online that have not yet been studied. There is also the possibility that our search strategy excluded relevant literature, although we followed best practices through the inclusion of studies across the three major databases, by including high-quality unpublished as well as published studies, and using a comprehensive set of search terms. We also supplemented our initial search by reviewing cited studies for inclusion in our review. Importantly, our findings are not comprehensive of critical consciousness raising across all open, distance, and digital education contexts. We focus specifically on fully online or technology-mediated instructional environments since the introduction of widely accessible, classroom-ready technologies. Lastly, all findings are descriptive and not intended to imply causality. Replicability of the strategies highlighted depends on local context, including orientation, support, and expertise.

Discussion

Through our systematic review process, we identified prevalent and exceptional strategies for critical consciousness raising in online spaces and using online tools, including unique affordances of these spaces and tools. In addition, we examined variation in the strategies enacted across time, grade span, and online instruction type. This analysis allowed us to speak to potential advantages and limitations of each approach as well as suggest promising strategies for broader enactment. Findings have implications for future research and practice within the fields of online learning, critical theory, educational policy, educator preparation, instructional design, and curriculum and instruction. Policy-makers can use findings to inform online education legislation, curriculum standards, accountability incentives, and education technology funding programs.

Grounded in prior theory and literature, and responsive to emerging trends in our data, we ultimately identified five overlapping strategies employed to foster critical consciousness online. Engaging with power and fostering critical (digital) literacy supported the critical reflection component of critical consciousness, while students developed political efficacy by cultivating skills to engage in social justice work. Finally, students participated in critical action by enacting community change and/or shifting classroom power dynamics.

Across interventions, students engaged in critical reflection online through critical analysis (often using a sociological, historical, political, or critical literacy lens), the discussion of complex and/or controversial topics, thinking critically about normative beliefs, and self-reflecting on identities and practices. Some of the most powerful strategies for accomplishing these aims involved digital storytelling and other forms of art-based expression. Oral history, storytelling, and counter-narrative projects emphasized that students' own testimonies and those of their community were valid data, challenging hierarchies privileging institutional or statistical knowledge (Garcia et al., 2021). This positioned youth and community voices as central to documenting histories of oppression and resistance. Additionally, students were encouraged in several studies to reconstruct narratives to reflect marginalized voices as a way of identifying and pushing back against normative assumptions and power dynamics (Catena, 2020; Garcia & Mirra, 2021). Unique affordances of online tools and spaces directly supported students' critical reflection, including access to digital cultural repositories and the ability to create liberatory content in oral and visual digital mediums.

Interventions cultivated political efficacy several ways, including by positioning students as activists and social innovators, participating in cross-cultural dialogue, embodying the role of (digital) creator, leveraging simulations and role-play as civics training, and engaging in creative expression. Unique affordances and enhancements to enacting these strategies online include learning digital skills to engage in social justice work. Depending on context, learning how to create digital content, leverage online platforms for sharing, and even how to code can cultivate political efficacy. Virtual simulations can also be a helpful platform for allowing students to explore and start building confidence with what critical action looks like in their professions and daily lives (Huang, 2014; Kaye & Spurgin, 2011; Levett-Jones et al., 2015; Shliakhovchuk, 2023). Online tools also reduce barriers to cross-cultural dialogue and collaboration, which support students in developing the skills and confidence to work globally (Dawson & Robinson, 2021; Kerkhoff et al., 2024; Senbayrak & Ortaçtepe Hart, 2024). By transforming students' relationships with technology from consumer to creator, they begin to see themselves as capable of enacting change while developing the confidence and skills to assert their identities and beliefs outside the classroom.

Lastly, students engaged in critical action by enacting community change and shifting classroom power dynamics. In these interventions, participation in political and community movements is shown not as an "add-on" but as integral to classroom instruction. Whether through service learning, participating in political or community movements, or producing knowledge that centered cultural histories and community voice, students' instructional activities had real world relevance and impact outside of the classroom. Students at all grade levels were positioned as civic actors capable of contributing to collective social change. The use of online tools and settings enabled new forms of critical action, including digital advocacy through social media and digital campaign/petition platforms (Harris et al., 2025; Beck et al., 2021; DeWaard & Roberts, 2021; Dias-Fonseca & Potter, 2016; Giunco, 2020; Mills et al., 2011; Ordem, 2023). Students were also able to join in larger social movements regardless of geographic proximity. In many instances, students engaged in critical action by publicly sharing multimodal content, such as digital storytelling, documentaries, and research findings.

Shifting classroom power dynamics positioned students as collaborators rather than passive recipients, transforming classrooms into democratic and participatory communities. Strategies included providing space for students to lead instructional activities, fostering student choice and

inquiry-driven learning, and co-designing classroom structures and assessment practices. By shifting authority, educators fostered classrooms that modeled equity and justice, preparing students for active civic participation both within and beyond school. These efforts not only expanded the scope of online learning beyond the classroom but also disrupted traditional hierarchies of political voice, showing that young people can, and do, play meaningful roles in shaping civic life.

We identified similar trends in strategies to foster critical consciousness by timeframe, grade span, and online instructional type, with a few exceptions. We noticed lower critical action outside of the classroom, complemented by an increase in shifts in classroom power dynamics, after the COVID-19 pandemic, which may be a response to increased censorship and political backlash against any practices related to diversity, equity, and inclusion. Unfortunately, we are unable to examine within our data whether the shifts of similar magnitude occurred in non-online classrooms during the same time. Shifts in classroom power dynamics were observed across all grade-spans, with the highest prevalence observed in elementary grades.

Most relevant, specifically, to online learning, was the observation that critical action (versus solely critical reflection and/or political efficacy) was more likely to occur in synchronous online classrooms than in face-to-face classrooms integrating online tools or asynchronous online classrooms. Nevertheless, we identified several successful strategies for integrating critical action in asynchronous classrooms that could be expanded more broadly, such as blogging, digital storytelling, and digital content creation. Additional research is needed to document the extent to which lower rates of fostering critical consciousness asynchronously are due to inherent limitations of the instructional mode versus the philosophies of learning within institutions providing asynchronous learning. Doing so will provide educators with insight into how to support the integration of liberatory practices across all online modes.

Implications for Future Research, Practice, and Policy

In conducting this study, we systematically reviewed and integrated insights across numerous disciplinary and theoretical approaches. Literature on critical digital literacy contributed concrete examples of critiquing and creating digital content to engage with power and enact social change (Beck et al., 2021; Darling-Aduana et al., 2024; Price-Dennis & Sealey-Ruiz, 2021), while critical theory and liberatory pedagogy deepened sociohistorical grounding, motivations, and implications for critical consciousness raising (Freire, 1994, 2000; Jemal, 2017; Watts et al., 2011). Importantly, while CRP is one of the most common equity-based pedagogies, we identified substantially more studies fostering critical consciousness within other frameworks (Viano & Darling-Aduana, 2025). Those working within CRP frameworks may benefit from drawing upon the liberatory work being conducted in overlapping fields to deepen critical consciousness raising, the least frequently enacted tenet (Ladson-Billings, 2014). Continuing to draw on insights and collaborate across these fields will only strengthen the work of critical scholars and practitioners working in online spaces.

In particular, an entire field exists around critical digital literacy that is unknown to many other critical scholars and educators but has been remarkably successful in not just fostering critical consciousness but also preparing students to engage in an empowered, informed manner in a technology-based world. Curricula ask students to interrogate representation and ethics and analyze how platforms shape meaning (Adams-Grigorief, 2023; Huang, 2014; Nash, 2021; Pangrazio et al., 2022; Wittebols, 2016). Additionally, the emphasis on digital creation fosters

critical consciousness by positioning them as civic actors. Creating multimodal products (digital stories, art, journalism, simulations, oral histories) extends learning beyond the classroom—making justice tangible (DeWaard & Roberts, 2021; Chappell & Hetherington, 2024; Thompson et al., 2022; Murray et al., 2024; Price-Dennis et al., 2017; Rapp, 2023). This body of work positions critical digital literacy as civic practice, rather than a neutral or purely technical skill. Through educating others, developing agency, participating in movements, and engaging in service learning, students learn to critique power, challenge inequities, and contribute to their communities. Importantly, these studies suggest that critical digital pedagogy can foster not only academic growth but also democratic participation and systemic change.

Similarly, shifting power dynamics in the classroom (Amgott, 2018; Blue & Redick, 2022; Giunco, 2020; Little et al., 2024) was a strategy that received a lot of emphasis in some theoretical traditions and none in others. As a result, we as a research team spent time considering but could not fully answer within our research questions and data the interplay and importance of classroom versus community change under the critical action header. Future research could examine how they are related to (and potentially support) each other in enhancing student experiences, outcomes, and critical consciousness. Another important question is whether they can both be equally impactful or whether shifting power dynamics might sometimes be more akin to developing political efficacy, staging or practicing skills they can use subsequently in broader society.

Another major contribution of this study is the documentation and theorizing of what fostering critical consciousness online looks like for younger students. Historically, most enactment has occurred at the higher education level with critical consciousness raising generally (but especially online) rarely observed at the elementary and even middle school level (Viano & Darling-Aduana, 2025). This systematic review documents several successful strategies enacted at younger grades and highlights several others traditionally enacted at the higher education level – such as service learning and participating in political and community movements – that could be integrated with minor modifications within younger grades. Importantly, students as young as elementary school are more than capable of engaging with power, with shifting classroom power dynamics a common strategy for empowering students to identify, learn skills to, and push back against hierarchical systems (Diller & Hays, 2022; Price-Dennis, 2016; Price-Dennis et al., 2015; Price-Dennis & Sealey-Ruiz, 2021; Little et al., 2023). Some of the strongest enactments of critical consciousness raising in elementary classrooms included Global Read Aloud (GRA) - a literacy project that connects students and teachers globally through shared reading experiences (Kerkhoff et al., 2024). This – and similar programs for elementary students like a virtual Freedom School (Amoako Kayser et al., 2024; Harris et al., 2025) – provided texts and prompts to encourage critical reflection, supplemented by digital content creation and community projects and advocacy work. Despite its promise, we did not identify any students enacting critical consciousness online with students younger than third grade.

Additionally, we were struck in reviewing studies how often and important a role creative expression and arts-based pedagogy played. Its prevalence is hardly surprising, as the conceptualization of lived experience and story as epistemology is central to liberatory pedagogy. The arts and storytelling have also been used throughout history to confront norms and surface hidden assumptions (Murray et al., 2024; Price-Dennis et al., 2015), while counternarratives are central to several critical theoretical traditions (i.e., Solórzano & Yosso, 2002). Nonetheless, we emphasize the frequent use of the arts in fostering critical consciousness to inspire others to take up these essential tools for delving into individual identity, society, and the human condition.

At an organizational level, many strong examples of critical consciousness raising occurred by engaging in programs developed by foundations and other not-for-profit organizations (i.e., CDF Freedom Schools, COMPUGIRLS). Expanding the capacity of organizations to provide easily integratable activities that foster critical consciousness, as well as potentially developing these programs within governmental organizations, could greatly expand access to and use of these resources. The development and funding of these free or low-cost programs remove the often unrealistic and unsustainable pressure on individual educators to fully understand, develop, and implement liberatory pedagogy within their classroom. Partnership in this manner can also expand the impact of student action beyond the classroom, connecting them with peers, experts, and policy-makers outside their local communities.

From a policy perspective, findings provide insight into the types of interdisciplinary, student-directed, community-grounded instructional activities most likely to foster informed, engaged citizens. Encouraging (or at minimum making space for) these practices in curriculum standards, legislation, and funding decisions is likely to have the greatest positive impact. Additionally, this study highlights the types of technological tools, modes, and enactments most likely to foster critical consciousness. Prioritizing educational technology and research funding in alignment with these strategies supports student, community, and societal improvement goals.

Conclusion

In the studies reviewed, fostering critical consciousness cultivated not only critical awareness but also the belief that students' voices and actions could matter in the public sphere. By empowering students to critique social inequity and work towards more just systems, critical consciousness raising acts as a bridge between individual learning and collective transformation. Students gain individual skills and learn how to become — through writing, storytelling, gaming, and advocacy — agents of social change. With this outcome in mind, we hope the findings from this systematic review can be used to create a framework and extend best practices within online teacher training, professional development, instructional design, and policy to support the enactment of liberatory pedagogy online that both inspires the mind and transforms communities.

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Data availability: All research documents reviewed in the systematic review are identified within the reference section and are publicly available.

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* Indicates that this article was included in the systematic review

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Appendix A: Full Text Coding Manual

CRITICAL CONSCIOUSNESS ONLINE LITERATURE SYNTHESIS CODING MANUAL

1. Study ID

2. Publication year (January 1, 2010 and onward)

3. Language

   1 = English
   2 = Another language **[exclude from synthesis]**

4. Publication type

   1 = Peer-reviewed journal article
   2 = Peer-reviewed conference proceedings
   3 = Doctoral dissertation (NOT master's theses)
   4 = Report from trustworthy organizations - governmental, university-affiliated, or non-partisan (exclude reports from companies, partisan organizations)
   5 = Other, specify **[exclude from synthesis]**

5. Grade-level (when more than one grade-level is present, select the span in which the majority of students fall)

   1 = Early Childhood (PreK - 2)
   2 = Elementary (3-5)
   3 = Middle (6-8)
   4 = High school (9-12)
   5 = Undergraduate (preservice teachers if focused on teachers developing skills/competences, excluding preservice/in-service teacher professional development)
   6 = Graduate (excluding teacher professional development) **[exclude from synthesis]**
   7 = Teacher professional development to support enactment in the classroom for students
   8 = Teacher professional development, not specific to classroom enactment **[exclude]**
   9 = Adult learners (career-based) **[exclude from synthesis]**

6. Instruction type

   1 = formal instruction, in a classroom environment
   2 = formal instruction, in an out-of-school environment
   3 = informal instruction **[exclude from synthesis]**

7. Online instruction type

   1 = Asynchronous online course or learning component

2 = Synchronous online course or learning component
3 = In-person instruction using a fully online tool or resource
4 = other, specify **[exclude from synthesis]**

8. Was this study conducted before, during, or after the COVID-19 switch to emergency virtual learning?

   1 = Before
   2 = During
   3 = After

9. What is the research design of the study?

   1 = Intervention
   2 = Observational
   3 = Conceptual
   4 = Review

10. Could the intervention be enacted in a traditional, face-to-face classroom without modifications?

    1 = Yes
    2 = No

11. [If NO] Could the interventions be enacted in a traditional, face-to-face classroom with modifications?

    1 = Yes
    2 = No

12. Are students asked to engage with power?

    1 = Yes
    2 = No **[screen for inclusion, likely to exclude]**

13. Is there evidence of critical literacy "inviting students to question, examine, and even dispute the power relations between writers and readers" (Morrison et al., 2008 p. 441)? **Select and if yes, explain in the following text box.**

    1 = Yes
    2 = No

14. Is there evidence of critical DIGITAL literacy (i.e., encouraging students to "deconstruct the meanings, uses, and messages of digital artifacts to make judgements about digital tools and content… and/or apply ethical perspectives and interrogate power dynamics

present in the creation and use of digital artifact" (Darling-Aduana, 2024)? **Select and if yes, explain in the following text box.**

1 = Yes
2 = No

15. Is there evidence of digital content creation? **Select and if yes, explain in the following text box.**

1 = Yes
2 = No

16. Is there evidence of developing the skills and sociopoltical awareness to engage in social justice work (i.e., by contextualizing academic content in social justice topics)? **Select and if yes, explain in the following text box.**

1 = Yes
2 = No

17. Is there evidence of students enacting change in their classrooms (i.e., co-designing curriculum, reshaping power dynamics in the classroom)? **Select and if yes, explain in the following text box.**

1 = Yes
2 = No

18. Is there evidence of students enacting change outside their classrooms (i.e., engaging in social justice work or providing services)? **Select and if yes, explain in the following text box.**

1 = Yes
2 = No