Culturally Relevant Pedagogy in K-12 Online Learning: A Systematic Review

Samantha Viano*
George Mason University

Jennifer Darling-Aduana
Georgia State University

*Corresponding author

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Abstract

A growing literature examines how online learning can incorporate culturally relevant pedagogy (CRP) to provide high quality, equitable education to all students with a particular focus on validating and integrating the unique needs and experiences of students from minoritized backgrounds and identities. This systematic review qualitatively analyzes how 42 studies suggest the CRP tenets of academic excellence, cultural competence, and critical consciousness can be incorporated into asynchronous, synchronous, or blended learning overall, by grade level, and online learning modality as well as differences between studies conducted before and during COVID-19. This analysis highlights specific strategies for integrating CRP tenets into online learning with innovative examples from research on how to do so. This synthesis emphasizes the need for further research on how online learning can integrate critical consciousness particularly involving students in social justice work and power sharing with students.

Keywords: distance education, virtual learning, online learning, systematic review, culturally relevant pedagogy, critical consciousness, synchronous instruction, asynchronous instruction, blended learning, COVID-19

Culturally Relevant Pedagogy in K-12 Online Learning: A Systematic Review

While online learning had a robust presence in Kindergarten, elementary, middle, and secondary (K-12) education prior to COVID-19, interest in online learning capabilities exploded as a result of extended brick-and-mortar school closures (Fütterer et al., 2023; Sidi et al., 2023). Along with online learning taking a more central position in K-12 schooling comes the recognition that these online spaces should be accessible to students regardless of their background or identity (Gardner & Leary, 2023; Rose & Meyer, 2006). Among myriad conceptualizations of what it means for instruction to be high-quality, one of the most promising instructional frameworks for supporting the equitable outcomes of all students is culturally relevant pedagogy (CRP; see Ladson-Billings, 1995).

Although CRP is not the only asset-based pedagogical model, we focused on CRP due to its strong theoretical foundation, prevalence in the academic literature and practice, and well-established associations with positive academic and holistic outcomes for students when delivered face-to-face (Aronson & Laughter, 2016; Bonilla et al., 2021; Dee & Penner, 2017; Franco et al., 2023; Parkhouse et al., 2022). Through combining academic excellence, cultural competence, and critical consciousness, CRP integrates students' identities into instruction and empowers them to have agency while supporting their learning (Gay, 2010; Ladson-Billings, 1995; Paris & Alim, 2014). Despite the supporting evidence and popularity of CRP, online learning research has only just begun to consider how to deeply integrate CRP (Bhatnagar & Many, 2022; Gardner & Leary, 2023; Jackson et al., 2021).

At the same time, recent reviews of online learning research have identified general instructional best practices for K-12 online learning. While these reviews on high-quality online instruction connect with CRP through the academic excellence tenet, overlap with other CRP

tenets remains unclear. For instance, Johnson et al.'s (2023) systematic review of research on K-12 online learning in the United States proposed the *Essential Components of Online K-12 Instruction* and included categories like *active learning*, *connected learners*, and *real-time assessment* based on a review of 251 studies.[1] The goal of this previous review was to understand best practices for supporting K-12 online learning, generally, with little attention to equity or CRP. While this previous review noted the efforts to include students with disabilities through making online learning more *accessible*, this same kind of consideration was not noted when it came to the learning of other marginalized students. Other reviews that have examined how online learning can be delivered more equitably have focused exclusively on higher education (Gardner & Leary, 2023; Lambert, 2020). Consequently, K-12 online learning researchers have limited resources for examining the nexus of online learning and CRP.

This study is prompted by the confluence of positive evidence of CRP on face-to-face instruction and the proliferation of online learning in schools. The purpose of this study is to systematically examine how research has discussed the integration of CRP tenets into online learning. We qualitatively synthesize this literature to identify CRP-embedded strategies incorporated into formal K-12 learning environments that were fully online (asynchronous and/or synchronous) or face-to-face with the use of an online learning tool. We also recognize that online learning often differs by modality and grade level, making it necessary to not only look at the intersection of online learning and CRP but also differences by modality and grade level. Additionally, beginning in March 2020, researchers who had previously not been active in online learning scholarship entered this space by continuing their CRP research in online spaces, such that this research might provide distinct recommendations from prior research. In doing so,

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[1] For the purpose of this study, we excluded the course design part of the framework, which focused on the tools used versus the strategies enacted.

we identify promising practices for integrating CRP into online learning through addressing the following research questions (RQs):

RQ1. Among studies that described the enactment of CRP in online learning, what was the prevalence of and strategies used to enact each tenet (i.e., academic excellence, cultural competence, and critical consciousness)?

RQ2. Along which dimensions did studies differ in their enactment of CRP across grade level (i.e., early elementary, elementary, middle, high, mixed), online learning modality (i.e., asynchronous, synchronous, online tool used face-to-face), and time period (i.e., before or during the COVID-19 pandemic)?

Background

Online Learning in K-12 Schools

Online learning has become increasingly common in K-12 schools over the last several decades (Watson, 2007). Pre-COVID-19, the most common use of online learning in K-12 was as an online tool that students used within face-to-face instructional environments, a configuration often referred to as blended learning (Watson, 2008). Fully online instruction, synchronously (in real time) and asynchronously (no fixed time), was less common in K-12 learning pre-pandemic with enrollment primarily concentrated in virtual schools and as extension, enrichment, or credit recovery courses for high school students (Viano, 2018; Gemin & Pape, 2017).

K-12 schools have often adopted online learning because this technology is thought of as either more effective or efficient than traditional instruction, such as by expanding access to educational resources, content, and courses or by "personalizing" learning material to students' learning level (Bernard et al., 2004; 2009; Brown, 2002; Strauss, 2022; Tamim et al., 2011).

However, these arguments around whether online learning are in conflict with the nature of CRP.

Efficiency and effectiveness are valued as part of a neoliberalism perspective on education, in

which schools should minimize costs in relation to arbitrary benefits like test score gains that are

seen as in the service of increasing global competitiveness (Hursh, 2007). As we describe below,

CRP is intended to subvert neoliberal goals of education by re-envisioning how educators can

facilitate justice and equity (Ladson-Billings, 1995). Thus, it is necessary to establish a separate

set of instructional best practices for online learning when working within this equity-grounded

theoretical orientation.

Culturally Relevant Pedagogy

There are well-documented opportunity gaps in the academic experiences of students

belonging to marginalized groups compared to students belonging to dominant groups (Carter &

Welner, 2013). This occurs because schools, as well as other social institutions, reinforce

systemic barriers by rewarding students who conform to dominant sociocultural norms (Lareau,

2002). Ladson-Billings (1995, 2014) proposed CRP as a means to counter systemic inequity in

K-12 classrooms by acknowledging, validating, and integrating students' lived experiences to

support students' academic success and holistic well-being. CRP also lays the groundwork to

challenge, reimagine, and create a more equitable society. Since originally proposed, CRP

enactment has been associated with improved academic outcomes and experiences for all

students (Aronson & Laughter, 2016; Dee & Penner, 2017, 2021). Although the largest positive

benefits of CRP enactment are often experienced by students belonging to marginalized groups,

students belonging to dominant cultural groups also benefit due to the emphasis on relevant,

application-based instruction that fosters higher-order thinking, reflexivity, and cultural pluracy

(Paris & Alim, 2014). Importantly, as expressed by Paris & Alim (2014), CRP does not seek to

deny that "White, middle-class, monolingual, and monocultural norms" (p. 95) are valued in society, rather the goal is to refocus pedagogical practices "on the heritage and contemporary practices of students and communities of color" (p. 87) to benefit students of color and White students who live in increasingly multicultural contexts (Paris & Alim, 2014).

In this study, we follow the operationalization of CRP as the combination of three tenets: academic excellence, cultural competence, and critical consciousness (as detailed through Ladson-Billing, 1995; 2014). The academic excellence tenet requires teachers to support all students in achieving academic success as defined by the culture of power by holding all students to high expectations, integrating opportunities for authentic work (i.e., activities that require higher-order thinking and real-world relevance), meeting students where they're at, and providing appropriate scaffolding, accommodations, and modifications. The academic excellence tenet of CRP has often been interpreted through the definition of culturally relevant teaching provided by Gay (2010) which includes, "setting high expectations for students with a commitment to every student's success" (Aronson & Laughter, 2016, p. 165). Even though CRP and culturally relevant teaching are distinct, previous reviews have found it useful to define academic excellence as including high expectations (see Morrison et al., 2008). We will similarly define academic excellence as high academic expectations as well as high-quality instruction (Johnson et al., 2023; Morrison et al., 2008). Typical strategies to enact the cultural competence tenet include encouraging teachers to develop home-school partnerships, building on students' funds of knowledge, reshaping the curriculum to reflect students' lived realities, and encouraging the development of cultural pluracy (Morrison et al., 2008; Paris & Alim, 2014). The critical consciousness tenet goes one step further with strategies including supporting students in understanding, critiquing, and reimagining existing social structures and inequities through

reshaping power dynamics in the classroom and engaging in social justice work (Morrison et al., 2008). As such, enacting critical consciousness requires power sharing between the teacher and students (Morrison et al., 2008) which can include (but is not limited to) student-driven learning and student voice in selecting and developing curriculum and instruction (Gutstein, 2016; Mitra & Gross, 2009).

Updates to the original CRP framework have been made by Ladson-Billings (2014) and Paris and Alim (2014) under the moniker *Culturally Sustaining Pedagogy*, which recenters the importance of critical consciousness in CRP enactment, emphasizing the benefit of developing cultural pluracy (not just integrating the frame of references for students in that specific classroom) to support students in achieving success in an increasingly globalized, multicultural society. We engage with these updates in this study where relevant but continue to use the term CRP in acknowledgement of the significant intellectual contribution of Ladson-Billings in this field of study.

Culturally Relevant Pedagogy in Online Learning

While the goals of CRP remain consistent whether enacted face-to-face or online, we expect that the strategies used to foster these goals may vary. Accordingly, we use the same definitions of academic excellence, cultural competence, and critical consciousness presented above to guide this study. The importance of CRP in online spaces is twofold. First, we continue to be concerned with systemic inequities in educational institutions that CRP was developed to disrupt. Second, CRP is a potentially helpful pedagogical framework to counter many of the ways in which online learning has the potential to magnify existing inequities through embedded features like data (in)justice, algorithmic bias, racialized/gendered constructions of online spaces, privatization, and surveillance capitalism (Benjamin, 2019; Gleason & Heath, 2021; Molnar &

Boninger, 2020). One of the main contributions of our review is the identification of strategies that have been used to enact CRP in online learning, which has yet to be systematically investigated in academic literature. In this way, we situate our study at the intersection of research on CRP, which has predominantly focused on in-person instruction, and online learning by exploring how CRP is enacted in virtual spaces.

Students interact with teachers, peers, and content differently in virtual versus face-to-face environments (Darling-Aduana, Woodyard, et al., 2022; Darling-Aduana & Hemingway, 2022; Gamage et al., 2022; Hollister et al., 2022; Shockley et al., 2021). These variations in the learning environment are associated with consistently lower rates of academic engagement in virtual learning environments (Darling-Aduana, Woodyard, et al., 2022; Gamage et al., 2022; Heinrich et al., 2019; Hollister et al., 2022). Understanding when and how to enact CRP virtually given these varied opportunities and constraints can support the scaling up of promising practices that might better meet students' learning needs and preferences in online learning spaces. One of the primary differences between modes is that many online learning models provide fewer opportunities for synchronous communication, collaboration, and interaction, which is associated with not only poorer academic outcomes but also increased loneliness and reduced use of healthy coping behaviors (Agustina & Cheng, 2020; Geary et al., 2023; Moore & March, 2022). The tendency for online spaces to be created and directly managed by instructors runs counter to the power sharing essential to CRP. Additionally, the emphasis of many online course and digital tool vendors on scalability and profitability means many students are exposed to minimum-competency-based instruction that prioritize student-directed, independently completed remember-and-recite based tasks over deeper learning, relationship building, relevant content, or responsive instruction (Darling-Aduana, 2021; Molnar & Boninger, 2020).

Regular communication via calls, messaging, and social media as well as a sense of being part of a learning community can mitigate some of these negative associations (Geary et al., 2023; Moore & March, 2022). However, that doesn't negate the reality that individuals often experience more strain during virtual interactions than when engaging in comparable face-to-face interactions (Shockley et al., 2021). Given the emphasis on deep engagement with the teacher, peers, and content required to facilitate CRP, understanding how interactions can be facilitated virtually is of critical importance. In the following section, we describe the methodology for our study synthesizing research that addresses how to enact CRP in online learning including strategies by CRP tenet and how CRP is enacted differently by context.

Method

Since our focus is on understanding how previous research has described ways in which online learning can be culturally relevant, the methodology best suited for addressing our research questions is a qualitative systematic review. Our goal was to compile research studies that examine the enactment of CRP in online learning, identify themes across these studies, and systematically summarize their findings. This methodology allows us to identify common practices, the affordances of online learning with CRP, and areas where more research is needed. Below, we describe how we identified our corpus of studies and synthesized the findings.

Search Strategy

We searched the full ProQuest database (including ERIC), Google Scholar, and EBSCO's Education Research Complete on May 7, 2022. In ProQuest and Education Research Complete, we limited our search to abstracts or titles only, and the Google Scholar search was title only. The search term had three core elements, each with multiple terms: (education* OR pedagog* OR school* OR instruct* OR teaching*) AND ("culturally responsive*" OR

"culturally sustaining" OR "culturally relevant*" OR "multicultural education*" OR "ethnic studies" OR "culture of power" OR "multiculturalism" OR "cultural responsive*" OR "cultural relevance") AND ("distance learning" OR "MOOC" OR "massive online" OR "synchronous" OR "asynchronous" OR "online" OR "virtual"). Including a broad set of databases and search terms resulted in a diverse set of articles from countries around the world including Italy, Mexico, and Jamaica (Boveda et al., 2023).

        We included the first parenthetical's set of terms to identify research on formal learning settings. The second parenthetical identified research using culturally relevant framing alongside other overlapping frameworks like culturally sustaining or responsive pedagogy and multiculturalism. Specifically, we added "multicultural education" as the primary precursor upon which Ladson-Billing (1992, 1995) built CRP. Similarly, "culture of power" is a foundational concept to CRP (Morrison et al., 2008), while "ethnic studies" pedagogy is a common, compatible strategy used to enact CRP (Bonilla et al., 2021; Dee & Penner, 2017; Tintiangco-Cubales et al., 2015). Although not an exhaustive list of asset-based pedagogies, we prioritized the inclusion of those frameworks most closely associated with CRP in our search terms. Finally, the third parenthetical restricts results to studies on online learning, including asynchronous, synchronous, and virtual tools. Note that our search terms were relatively narrow in that we focused on CRP and not critical frameworks in online learning more generally such that research in online learning that uses a framework like Dis/ability Critical Race Studies, as an example, would not appear in our search unless that study also had a focus on cultural responsiveness.

Study Screening for Inclusion and Exclusion Criteria

        When we performed the search described above, we limited our search results based on several inclusion criteria. See Figure 1 for the PRISMA flow diagram. First, we specified in

these searches that the databases only return studies from 2000 onward. While distance learning

and CRP were active areas of research pre-2000, the advances in technology since 2000 and the

expansion of interest in and research on CRP made studies post-1999 more relevant to current

practice (e.g., a recent CRP synthesis included studies published post-1995; Aronson &

Laughter, 2016). The online learning landscape post-1999 was shaped by the growing popularity

of state virtual schools, for-profit online schools, and learning products (Gemin & Pape, 2017).

Second, we limited our search to studies written in English. The resulting search identified 1,032

results. After removing duplicates and identifying results that did not have an associated study

(Google Scholar only), we had 695 studies to screen.

[Insert Figure 1]

Both authors screened the titles and abstracts of the 695 studies to assess whether our

search terms resulted in studies that were (1) instructionally focused (2) with content delivered

online and (3) a focus on CRP. We reviewed the titles and abstract to identify where the search

terms appeared (i.e., why the study appeared in our search of the databases), and if the search

terms had captured the term as we had intended. For instance, abstracts often included the term

"online" in reference to an "online survey" that was part of the study, but our intent was to

capture online instruction, not online data collection methods, such that these articles were

excluded. We similarly excluded studies that were not instructionally focused (e.g., discussion of

the cultural responsiveness of online forums youth engage with outside of school) or did not

have a focus on CRP. The studies excluded at this stage for not having a focus on CRP tended to

be those that appeared in the search results because the studies mentioned the term

"multicultural" as related to our multicultural society, not multicultural education as a

pedagogical approach as was intended in the search term.

After comparing our screening from this first round of screening, we downloaded 127

studies (134 marked for inclusion minus 7 not retrieved[2]) for full-text coding. We double coded

the full text studies for our inclusion/exclusion criteria (see Online Appendix B for the Coding

Manual we applied for full-text screening). We re-applied inclusion criteria for publication year

(1/1/2000 and onward) and language (English). To limit our synthesis to more trustworthy

publications, we included articles from peer-reviewed journals, peer-reviewed conference

proceedings, doctoral dissertations, and reports from government, university-affiliated, or non-

partisan organizations. We excluded master's theses, books/book chapters, non-peer reviewed

articles, and reports from private companies due to concerns about rigor, originality, and bias.

We had no other criteria related to rigor, relying on the peer review process, dissertation

committees, and official reports as establishing the minimum bar for quality of the research. We

then applied inclusion criteria to limit the data corpus to only research on K-12 learning (any

grade(s) within that range; excluding college, teacher education, and adult learners, see Online

Appendix B, criterion 5). We included studies of formal instruction only, either in a classroom or

out-of-school, excluding informal instruction (see Online Appendix B, criterion 6). Studies

excluded because they focused on informal instruction focused on topics like video game design,

recording of YouTube videos, book clubs on Facebook, or parent involvement (not instruction-

related). We included studies that featured online instruction that was asynchronous,

synchronous, or use of an online tool face-to-face (see Online Appendix B, criterion 7). We

excluded studies that did not examine online instruction, and all studies excluded for this

criterion focused on the creation of online resources but not the use of those resources in

instruction (e.g., the filming of a web series). Finally, we assessed whether the study included

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[2] The authors requested all 7 of these studies from their libraries and through interlibrary loan with none of the requests resulting in securing the text of these studies. For a list of unretrieved studies, see Online Appendix A.

evidence of CRP in online learning (Online Appendix B, criteria 8-10). Specifically, we

excluded studies that did not include evidence of incorporating either cultural competence or

critical consciousness in the online instruction. Studies were included regardless of the method

they used to examine the incorporation of cultural competence or critical consciousness

including whether the evidence was based on direct observations of instruction or teachers'

perspectives on implementation.

We supplemented our search in two ways. First, we did a hand search of the Journal of

Online Learning Research since it is the most prominent peer-reviewed journal of online learning

in K-12 education (i.e., focused on K-12 and not K-12 and higher education as is more common),

identifying two potential articles for inclusion. Second, we did a progeny search of articles

identified for inclusion from the databases, a practice that is useful for identifying child articles

of influential studies (e.g., Billingsley & Bettini, 2019). The progeny search involved looking up

every included article on Google Scholar, identifying articles that had cited the included study,

and screening those articles. It is typical for systematic reviews to include studies identified

through ancestral searches (studies cited within included studies), but our original search

parameters were comprehensive enough such that, any time a potential study was identified in

our hand search of included studies when reviewing the full text of an article, we had already

included that study in our screening process. As shown in Figure 1, our final sample includes 42

studies.

Data Extraction and Analysis

We created a Google Form to facilitate data extraction from our data corpus. The Google

Form aligned with our research questions, beginning by asking which of the following tenets of

CRP did the study discuss being integrated into the online learning (RQ1). Then, three items

asked "If there is evidence of [TENET HERE], describe the independent variable (i.e., what were the relevant components of the intervention)" one for each tenet of CRP. We included an indicator of whether the online learning took place pre-COVID-19 or during COVID-19 (RQ2, we collected other indicators for RQ2 including grade level and online learning modality during full text screening, see Online Appendix B).

We piloted the Google Form by both authors coding three studies and comparing our results. After making a few updates to improve upon the form, the second author coded the remainder with periodic check-ins about questions or discrepancies while coding. We trained a research assistant to assist with coding, so every article was double coded using the Google Form. The first author then combined responses from the two coders such that each article had one record.

For the analysis of RQ1, the authors synthesized the extracted text from the Google form items on the enactment of the three tenets of CRP, by tenet. Each author completed a cycle of inductive coding through the extracted text to identify themes in how studies operationalized the integration of each tenet in the online learning and synthesized these themes in analytic memos, which were used to guide discussion and the refinement of codes and emergent analytic themes. This inductive process successfully identified clearly defined themes related to cultural competence and critical consciousness, but the authors found it necessary to continue the coding process for academic excellence through additional rounds of deductive coding using previously identified frameworks (Johnson et al., 2023; Morrison et al., 2008). RQ2 asks about differences in the patterns from RQ1 across online learning modalities, grade level, and time period. To address RQ2, we used matrix analysis to identify differences in the prevalence of themes identified in RQ1 across grade levels, modality, and pre/during-COVID.

Positionality Statement

Both authors identify as cisgender, non-disabled, White women. Our research focuses on various intersections of educational policy, equity, and online learning. The first author has previous experience as a K-12 classroom teacher who engaged her students in blended learning to supplement traditional instruction with online tools such that she has had a long-standing interest in how to integrate online tools into in-person instruction. This positive view of the potential for online learning informed both the selection of this topic. The second author has experience as a college educator and has worked in long-term partnership with school districts and educators across the United States. These experiences as a teacher (for the first author) and in the classroom partnering with educators (for the second author) directly informed how the author approached designing this research and interpretation of findings. Both authors have often published articles integrating critical theories, including Critical Race Theory and CRP, and were drawn to this research topic out of a desire to highlight promising practices and gaps in CRP enactment online. As researchers, we worked to acknowledge and question our personal frames of reference throughout the analytic process by engaging with critical theoretical traditions, discussing emerging themes within and outside the research team, considering alternative hypotheses, and triangulating across studies.

Results

Before we begin with the overview of the findings, we situate the 42 studies in our corpus to better understand the sources of evidence for how studies have conceptualized integrating CRP into online learning. These studies commonly motivated the need to integrate CRP into online learning in a similar fashion as this review: the confluence of increasing technology in schooling and continuing gaps in achievement/opportunity necessitates a culturally responsive

approach to instruction. As noted in Lawrence (2017), "There is emerging evidence to indicate

that cultural differences do matter online, in both instructor assumptions about learners, in

learners' online experiences, and in their attitudes about online learning" (p. 14) with the

proposal that, "Research in multicultural education for culturally responsive pedagogy can

provide one conceptual framework for investigating what instructional and communicative

practices work online for diverse learners" (p. 21). As will be clear in the findings (below), these

justifications for integrating CRP in online learning tended to rely, either explicitly or implicitly,

on the academic excellence and cultural relevance tenets of CRP, with notable exceptions. For

instance, Nieroda (2019) motivated a photovoice project connecting American and Moroccan

youth by writing, "In promoting critical consciousness, I hoped youth might challenge

underlying assumptions, prejudices, or singular narratives of people and places in order to

cultivate more enriched understandings of themselves and the world" (pp. 1-2). Studies in the

corpus most often conceptualized cultural relevance through the writings of Gay, like Barzanò et

al. (2017) who writes their project is a response to the "rallying cry" of culturally responsive

teaching, summarizing Gay's work as, "The focus on 'multi-cultural competencies' – [Gay]

underlines – allows students to learn more about their own and others' culture as part of their

personal development and preparation for active citizenship in their country and in the world."

The next most commonly cited CRP theorist is Ladson-Billings, whose 1995 and 1998

references are commonly summarized, either in isolation or alongside definitions from Gay. We

have a smaller subset of studies that tended towards terminology of "multicultural education"

that cited Banks, and a subset that used the term "culturally sustaining pedagogy" with citations

of Paris and Alim (2014, and others).

In this corpus, studies used a variety of methodologies, engaged with diverse populations around the world, and had different goals in relation to building understanding of CRP in online learning. These studies were situated in indigenous communities (e.g., schools serving Native Hawaiian students) as well as in urban neighborhoods (e.g., a Title I school in Atlanta). Several studies focused on interventions for K-12 students that took place on college campuses while others were fully synchronous/asynchronous with participants from countries including Italy, Jamaica, Mexico, Morocco, New Zealand, and Taiwan. Of the 42, 26 studies described an intervention that infused CRP into online learning, 10 studies focused on observing the use of CRP that was occurring in online learning settings (e.g., a study on fully virtual high school teachers' use of CRP), and 6 studies reviewed the possible uses of CRP in online learning. Just over half of studies included students or teachers as participants (22 studies, each) with a quarter including both (10 studies). For the studies of interventions, the interventions were primarily designed by researchers (17/26) with 5 studies co-designed with members of the community and 4 studies co-designed with students. Of the 26 intervention studies, 4 studies were designed to evaluate the causal effects of the intervention. Of the causal effect studies, 2 used a pre-post design (students completing the same data collection instrument before and after the intervention), and 2 used random assignment to the CRP online learning activity compared to an online learning activity without CRP. Outcomes of these 4 studies included 3 that examined attitudes about the course subject (e.g., interest in computer science) and 1 study evaluated the effect of the intervention based on a mathematics assessment. Even though a small proportion of the studies evaluated the causal effect of the intervention, 22 of the 26 intervention studies integrated the perspectives of those involved in the intervention to understand their experience with the intervention. Specifically, 15 studies included students' perspectives on the intervention

while other studies included the perspectives of teachers (9 studies), parents (3 studies), leaders

(2 studies), and community members (2 studies).

Below, we organize our findings around the research questions and the three tenets of

CRP. We summarize themes on how to enact each tenet of CRP in an online format by CRP

tenet (RQ1) and describe how enactment of that tenet differs across grade level, modality, and

time period (RQ2).

Academic Excellence

The academic excellence tenet of CRP has traditionally focused on academic success as

measured by "long-term academic achievement" (Aronson & Laughter, 2016, p. 166). While this

tenet of CRP can be interpreted as an outcome more than an instructional strategy, our

interpretation of academic excellence focuses on how to operationalize this tenet through

pedagogical practices. In this way, academic excellence tends to align with more traditional

conceptions of high-quality instruction, such as those highlighted in the *Essential Components of*

Online K-12 Instruction first noted above (Johnson et al., 2023). Correspondingly, we use the

framework from a previous systematic review that operationalized high academic expectations

(Morrison et al., 2008) in addition to the framework from Johnson et al. (2023) to structure our

findings on this tenet. Combining these framings provides continuity between the recent online

learning systematic review (Johnson et al., 2023), which did not include high expectations but

focused on high-quality online instruction, and reviews of CRP (Aronson & Laughter, 2016;

Morrison et al., 2008).

Components of Academic Excellence

High Academic Expectations. Table 1, Panel A includes the alignment of our data

corpus with the conception of academic excellence as enacted through high expectations. As

shown in the first row, column (1), 81% of our studies[3] aligned with different elements of high

academic expectations. The most common conceptualization of high academic expectations was

through modeling and scaffolding of challenging curriculum. For instance, a study on

incorporating Web 2.0 technology into multicultural education recommended online activities be

structured in collaborative groups of students, with expectations that deliverables include

multimedia presentations, and integrate reflections on students' own experiences and the

products produced by other groups (Hossain & Aydin, 2011).

[Insert Table 1]

Over a third of articles included strategies for creating and nurturing cooperative

environments. For instance, a dissertation on culturally responsive teaching strategies during

COVID-19 remote learning found teachers were able to create belonging in their virtual

classrooms by encouraging open dialogue and incorporating students' interests into instruction,

like if students are interested in astronomy, then the teacher would select books about NASA

(Joiner, 2021). Relatedly, a third of studies used students' strengths as instructional starting

points. For instance, one study used animated folktales in the Korean language to support

students in dual-language discussions and foster cultural understanding (Kim et al., 2018). In

another study, educators in Hawai'i transitioned their schedule of huaka'i (experiences outside of

school) into virtual spaces during COVID-19 to continue connecting students' Indigenous

knowledge with educational experiences, "Kānaka ʻŌiwi (Native Hawaiians) and ʻāina (land and

all that feeds and nourishes life), draw upon place-specific intergenerational knowledge systems,

language, and customary practices to frame curricula for all learners" (Maunakea et al., 2022, p.

21). A third study sought to increase the scientific rigor of a cosmetology course by integrating a

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[3] The denominator of all percentages is 42 unless otherwise stated in the text.

computer coding program, "Cornrow Curves," that would encourage computational thinking

through the students' interests in hair and braiding (Lachney et al., 2021). All of these studies

included high expectations through building off students' strengths as entry into more

challenging topics.

The two areas of high academic expectations that were less commonly included in our

corpus were investing and taking personal responsibility for students' success and high

behavioral expectations The only study that included behavioral expectations and taking

responsibility for students' success studied a virtual elementary school classroom, finding that

culturally responsive teachers structured their virtual classrooms with logical consequences as

well as systems that encourage celebration of collective success (Walker, 2021).

Essential Components of Online K-12 Instruction. As shown in Panel B of Table 1,

column (1), many studies integrated elements of the *Essential Components* framework. In

particular, we identified a high prevalence of *Active Learning* strategies such as student-directed

choices and project-based learning. One study accomplished this by integrated inquiry-driven

learning through augmented reality, with gamification of the virtual reality space facilitating

building understanding of geometry concepts (Brown et al., 2016). Specific to the online

infrastructure, several studies also integrated elements of digital storytelling to support active

learning.

Additionally, over half of studies integrated strategies to foster *Individualization &*

Differentiation such as through engaging learners in higher-order thinking tasks. For instance, an

asynchronous Advanced Placement course provided individualization and differentiation by

giving regular feedback and communicating with students through the learning management

system as well as revising the curriculum based on students' interests (Lawrence, 2017).

Integrating student-directed activities was another common strategy used to foster individualization like in a study of art teachers pivoting to virtual learning because of the COVID-19 pandemic. Hamlin et al. (2021) describe how students shared self-portraits with each other that could help to share more about themselves and their neighborhoods with each other.

Aligning with the emphasis on creating and nurturing cooperative environments discussed above (Morrison et al., 2008), we identified frequent mention of strategies aimed towards fostering *Connected Learners* and developing *Supportive Learning Environments*. Almost a third of articles discussed how instructors support online learning efforts. In a study of mentor teachers partnered with high school students in a 10-week online mentoring program, teachers built one-on-one relationships with the students and used several different communication platforms in order to facilitate relationship building and student-led learning tasks (del Rosal et al., 2017). Additionally, studies often emphasized some form of peer collaboration to build community and connect learners. This peer collaboration could either be virtual, like in the cross-cultural photovoice collaboration between peers in upstate New York and Morocco (Nieroda, 2019), or student collaboration in-person using virtual tools. In their study of a project to create a multimedia map of their San Diego neighborhood, youth collaborated on compiling the videos and other media that they embedded in their virtual map (Aitken et al., 2021).

In contrast, we observed fewer instances of real-time assessment and no evidence of accessibility, as defined by the *Essential Components* framework. As noted previously, we only included studies that specifically focused on CRP such that the lack of studies focused on accessibility should be interpreted as a paucity of studies that engage with CRP and accessibility in online learning concurrently, *not* that online learning research, generally, has ignored

accessibility (accessibility in online learning is a rich area of research, see Rice & Dunn, 2023).

One of the two studies that included *Real-Time Assessment*, recounts the value of a Kahoot quiz

students took together synchronously in which students answered questions together. Those

interactions laid the foundation for future student-led discussions on similar mathematics topics

(Gartland, 2021).

Differential Enactment of Academic Excellence

COVID-19 turned many research studies that were intended to be of face-to-face

instruction into studies of online learning. Correspondingly, we observe several differences

between studies that took place before versus during the COVID-19 pandemic, see Table 1,

columns (2) and (3). *Creating and Nurturing Cooperative Environments* appeared in over half of

the during-COVID-19 studies (57% of 14 studies) compared to only 25% (of 28 studies) of the

pre-COVID-19 studies, a difference primarily attributable to during-COVID-19 studies being

more likely to discuss the inclusion of activities to create a sense of belonging. In contrast *Active*

Learning strategies tended to be more common pre-COVID-19 than during-COVID-19,

especially for problem/project-based learning which appeared in almost half of pre-COVID-19

studies (46% of 28 studies) and in only one study during COVID-19 (7% of 14 studies).

As shown in Table 1, columns (4)-(8), similar proportions of studies discussed *High*

Academic Expectations across grade level configurations, although how they did so differed

across the coded categories. All seven of these elementary-level studies enacted high

expectations exclusively through *Modeling and Scaffolding the Challenging Curriculum* which

was often done through modeling concepts through virtual reality, encouraging students to

collaborate through gamification of activities (Barmpoutis et al., 2016; Brown et al., 2016;

Brown, Boda, et al., 2021; Brown, Pérez, et al., 2021). Some strategies for academic excellence

were not age specific like problem and project-based learning strategies which was just as likely in elementary school and high school studies (43% of seven elementary school studies, 41% of the 22 high school studies) although the examples in high school were more advanced like virtual forensics labs (Elrick et al., 2018) and modeling a meteor strike on a city (Vann-Hamilton, 2015). Others, like digital storytelling, were only mentioned in studies on middle and high schools (33% of three studies and 23% of 22 studies, respectively). As far as *Supportive Learning Environment*, the activities likely reflected differences in age with mentorship appearing only in high school studies (18% of 22 studies) while parent and family engagement was concentrated in the early childhood/mixed levels studies (25% of four studies and 17% of six studies, respectively).

We often observed somewhat predictable patterns of different academic excellence strategies based on online learning modality. Studies of synchronous online learning had the highest prevalence of strategies that focused on building a sense of community including creating a nurturing cooperative environment (65% of synchronous studies) and connected learning (53% of synchronous studies). To accomplish this, many synchronous instructors included activities that had students try to bridge their physical distance through online collaboration. For instance, some of these studies grouped students in online breakout rooms with similar interests (Hamlin et al., 2021; Leibu, 2021).

The four asynchronous learning studies, reflecting the instruction taking place not-in-real-time, were more likely to emphasize independent instructional strategies. *Active Learning* strategies were most common in asynchronous learning. The pattern was similar for *Individualization and Differentiation* with half of asynchronous course articles discussing higher-order thinking and self-directed learning and the other options including a wider array of

strategies including individualized scaffolding (18% of 17 synchronous studies, 5% of 21 online

tools studies) and multiple approaches (24% of 17 synchronous studies, 10% of 21 online tools

studies).

Cultural Competence

Almost all (98% or 41/42) studies demonstrated at least one strategy for fostering cultural

competence, see Table 2, column (1). Across the 42 studies in the corpus, 83% included

reshaping the curriculum, 60% being responsive to students' backgrounds and/or needs, 48%

involving students as experts, 19% incorporating family partnership, and 5% working to revise

the narrative of a minoritized group within dominant cultural norms (i.e., working within the

culture of power). We discuss the strategies used to enact each of these components below.

[Insert Table 2]

Reshaping the Curriculum

There were several ways interventions reshaped the curriculum including incorporating

images/videos/music/artifacts of People of Color (POC; 52%), integrating multicultural and/or

cross-cultural content (50%), being community grounded (33%), highlighting POC as experts

(26%), emphasizing sociopolitical context (17%), developing assignments with value outside a

school setting (14%), and incorporating multilingual content and/or instruction (14%). We focus

below on describing codes that represent deeper enactment of CRP (e.g., being community

grounded versus simply adding pictures of POC to a slide deck).

Being Community Grounded. The most frequent example of being community

grounded occurred within Indigenous communities and emphasized learning about and applying

local Indigenous community values and knowledge, including through the involvement of local

community elders (Lin & Yang, 2015; Tartaglia et al., 2022; Warner, 2012). For example, Grant

(2011) documented how a virtual high school integrated students' tribal culture and activities in their school day. Programming included inviting community speakers to discuss aspects of Indigenous culture, playing hand games, and including interviews with tribal leaders in newsletters. In another project, when working with museum staff to create a digital exhibit of Indigenous artifacts, students consulted tribal leaders and interviewed them to learn more about the unique histories and importance of the selected artifacts (Christal et al., 2005).

Other studies used technology to map/recreate students' physical communities, while, in two other instances, teachers invited community members to participate in class activities. Two studies documented projects where students were tasked with building a multimedia neighborhood map (in one instance) and their neighborhood in virtual reality (in another instance). These projects included recording and embedding community pictures, interviews, videos, and audio (Aitken et al., 2022; Brown, Boda, et al., 2021; Brown, Pérez, et al., 2021). In a less-student-involved project, the researchers developed a virtual reality model of the students' community with researcher-selected music, visuals, and other audio they believed represented students (Brown, Boda, et al., 2021). On a smaller scale, two studies focused on ways to integrate home culture into classrooms (DeVito et al., 2020; Rasmussen, 2021). For instance, DeVito and colleagues (2020) detailed a culturally responsive music program that encouraged students to share, arrange, and receive input on music from family and community members in their homes and community spaces.

Emphasizing Sociopolitical Context. The next strategy that more deeply reshaped the curriculum is emphasizing sociopolitical context (17%). In several examples, teachers infused sociopolitical context by highlighting normative cultural points of views (e.g., Columbus "naming" America), the sociopolitical context of the literature being read, or colonial influence

(Darling-Aduana, Good, et al., 2022; Lawrence, 2017; Walker, 2021; Williams, 2022). Other studies went further, documenting projects that had students apply the content they were learning to real-world topics. For instance, Brown, Pérez and colleagues (2021) detailed a virtual reality lesson that allowed students to "walk" through their local community to examine a socially relevant topic, in this case the availability of healthy food in their neighborhood. Similarly, Kier and Johnson (2022) described a series of engineering design challenges that supported students in learning engineer principles by proposing school improvements. Design challenge topics included improving recycling sorting processes and redesigning their school blueprint. Another lesson integrated the sociopolitical context in students' lived experiences by featuring morning star quilts made by the Lakota tribe as a means to discuss the struggle of maintaining cultural identity (Serrano Corkin et al., 2020).

Developing Assignments with Value Outside a School Setting. We identified four projects (six studies, 14%) that allowed students to work on assignments with value outside a school setting – digitalization of Indigenous museum artifacts; integration of Indigenous values and knowledge into public health research; design-based, socially conscious engineering activities; and an arts-based quarantine diary project. Several of these studies described a "digital repatriation of museum artifacts" where students selected Indigenous artifacts that reflected their shared heritage, created virtual versions of their chosen artifacts, conducted research, consulted with community elders, and created online descriptions (Allen et al., 2002; Christal, 2003; Christal et al., 2005). Another project-based activity asked high school students to consider how to integrate Indigenous values and knowledge into public health by introducing concepts and hearing from Indigenous health professionals before integrating the framework into student-directed research projects (Dreifuss et al., 2022). A third project paired underrepresented

minority STEM undergraduates with classroom teachers during COVID-19 to support design-

based engineering activities online. Many pairs worked on socially-conscious solutions to

community challenges like sorting recyclables (Kier & Johnson, 2022). The final project asked

students to document their experience during quarantine using images and video collected via

smart phones (Hamlin et al., 2021).

Students as Experts

Centering students as experts in their own learning (and as generators of knowledge) is a

goal of constructivist teaching philosophy as well as in alignment with the values of several

cultural groups (e.g., Indigenous traditions, Allen et al., 2002). At its most basic level, teachers

provided opportunities for students to serve as experts by integrating opportunities for student-

directed teaching and learning. A common way that teachers demonstrated value for students'

funds of knowledge and provided students an opportunity to serve as experts was by encouraging

students to share and make connections between home traditions/cultural practices and course

content during class discussions or virtually by sharing (or co-creating with peers) blogs, wikis,

podcasts, or social networking content (Hossain & Aydin, 2011; Barzanò et al., 2017). Other

programs supported students in creating art (compose songs, write stories, develop performance

pieces) to share their experiences (Kaler-Jones, 2021; Kier & Johnson, 2022).

Other projects emphasized student-driven assignments (e.g., arts-based learning) as a

means of centering students as experts as well as encouraging students to apply their skills and

knowledge to develop content. Many of these projects encouraged student-directed exploration,

encouraging agency, creativity, and choice within the confines of a teacher-defined activity (e.g.,

Woodley et al., 2017). For instance, an engineering design project empowered students to use

their music and entrepreneurship skills to "stand up against inequality" (Kier & Johnson, 2022).

Similarly, two studies described assignments encouraging students to share and discuss differentiated beliefs and controversial issues with classmates with teachers only providing guidance and support (Barzanò et al., 2017; Hossain & Aydin, 2011). Four projects gave students the opportunity to document and share their experiences in their neighborhoods using virtual reality, multimedia maps, photos, or virtual museum tours (Aitken et al., 2022; Brown, Boda, et al., 2021; Christal et al., 2005; Nieroda, 2019).

Responsive to Students' Backgrounds/Needs

Most instances of being responsive to students' backgrounds/needs were accomplished by either reshaping the curriculum and/or providing students opportunities to serve as experts. In two of the instances where the online learning was responsive to students' backgrounds/needs without these other strategies, responsiveness was accomplished through awareness of students' backgrounds that was integrated in the design and implementation of an activity incorporating awareness of students' social-emotional needs and trauma-informed pedagogy (Gartland, 2021; Walker, 2021).

Family Partnership

Eight studies (19%) emphasized the importance of family partnership, a strategy Morrison et al. (2008) found to foster cultural competence in the classroom. Many examples of fostering family partnership described keeping channels of communication open and easily accessible. For instance, one teacher invited parents to respond to questions and share in her virtual class (Rasmussen, 2021). Another study noted the use of WhatsApp to foster parent-teacher communication. The direct access to the teacher via an app that parents were already using made it easier for parents to integrate lessons into daily activities and provided space for parents to ask for more culturally relevant content (Raynal & Light, 2021). Other communication

strategies employed to involve families during virtual instruction included phone calls, emails, text messages, Google docs, and virtual meetings (Bhatnagar & Many, 2022). Back-to-school nights, surveys, and a project that asked students to identify parts of their culture they wanted to share also encouraged family involvement (Walker, 2021). In contrast, two of the eight studies described strategies for family involvement centering families as sources of knowledge. In one study, students created a multimedia map of their neighborhood with clickable photos and interviews. The over 100 interviews incorporated into the map included family members and other community members (Aitken et al., 2022).

Differential Enactment of Cultural Competence

We observed variation in cultural competence strategies by school level, online learning modality, and time period, see Table 2, columns (2) through (11). Studies conducted prior to COVID-19 were more likely to incorporate multi/cross-cultural content and grounding lessons in community experiences (57% and 39% of 28 studies, respectively). In contrast, studies conducted during COVID-19 were more likely to report being responsive to students' backgrounds/needs and emphasizing family partnership (71% and 36% of 14 studies, respectively). These differences may reflect the increased importance of family participation during the COVID-19 era of fully virtual learning and that the priority of educators was to transition instruction online quickly versus redesign content to be more multicultural or community grounded.

By grade span (Table 2, columns (4) through (8)), early elementary settings had the highest proportion of studies that incorporated multilingual content/instruction and emphasized family partnerships (50% and 75% of 4 studies, respectively). Elementary settings were more likely to reshape the curriculum using images, videos, music, and/or artifacts of POC (100% of 7

studies), while middle school settings were more likely to engage with multi/cross-cultural

content (67% of 3 studies). High school settings were most likely to incorporate activities with

value outside of school but were less likely to emphasize being responsive to students'

backgrounds and needs (27% and 55% of 22 studies, respectively). The increasing depth of CRP

enactment based on grade span may reflect the increased capacity (and/or perceived capacity) of

students as they mature.

By modality (see Table 2, columns (9) through (11)), online tools were more likely than

asynchronous and synchronous learning to reshape the curriculum by using images, videos,

music, and/or artifacts of POC (67% of 21 online tool studies compared to 25% of 4

asynchronous studies and 41% of 17 synchronous studies) as well as by grounding the

curriculum in the community (48% of 21 online tool studies compared to 25% of 4 asynchronous

studies and 18% of 17 synchronous studies). In comparison, none of the asynchronous learning

environments integrated projects with value outside of school and students as experts. These

differential enactment patterns may reflect an emphasis on (or ability to enact) CRP online when

tools are more fully integrated into face-to-face instruction (as in the case with digital tools), or,

at a minimum, when real-time student-teacher interactions are possible (as in the case with

synchronous online instruction).

Critical Consciousness

Only seven of the 42 studies (17%) demonstrated at least one strategy for fostering

critical consciousness, indicating that the majority of studies reviewed did not enact the critical

consciousness tenet of CRP. Of the studies that fostered critical consciousness, five (12%)

acknowledged the role of power/systematic bias in society and two (5%) encouraged social

action. None of the studies directly involved students in social justice-oriented work.

Additionally, although there were some examples of minimal power sharing as part of student-directed activities, all choices were confined within teacher-defined activities. Accordingly, we didn't code any excerpts as fully realizing sharing power.

Acknowledge Power/Systemic Bias in Society

Online instruction that acknowledged power/systemic bias in society was relatively rare, even among the subsample of studies we examined that specifically integrated CRP. Additionally, many of the studies that did acknowledge power often did so only during a single activity or a small proportion of lessons. For instance, a study that coded the presence of culturally relevant curriculum, instruction, and assessment across several asynchronous online courses developed by one of the largest online course developers in the United States found that the culture of power was acknowledged in only 1-13% of lessons per course. These limited examples included a discussion of racism and oppression when reading a biography of Maya Angelou and asking students to compare and contrast nature-based cultural beliefs and norms by examining myths from their own and various other cultural backgrounds (Darling-Aduana, Good, et al., 2022).

Two studies documented how CRP-aligned resources or support networks could be integrated to help foster critical consciousness. For instance, during the COVID-19 precipitated transition to synchronous instruction, an engineering design activity in a high school, "drew upon the Your Voice is Power resources to guide Zoom discussions about racial injustice in society with students. They tasked students to use their power as songwriters to stand up against inequality" (Kier & Johnson, 2022, p. 16). Another study examined a school network developed by the Italian Ministry of Education to support an online pen pal program with high school students from other countries. This program guided students to discuss global issues, religion,

and other controversial issues by selecting materials and designing units that engaged with these topics (Barzanò et al., 2017). An advantage of these types of CRP-aligned resources and support networks is that they are less dependent on individual teachers' knowledge of critical consciousness and reduce the time investment required to design activities that acknowledge power in society.

Alternatively, an equal number of interventions acknowledging power in society demonstrate the role teacher choice plays in whether instructional activities are adapted in a manner that fosters critical consciousness. For instance, one teacher designed a lesson requiring students to synthesize and evaluate online resources available through Google searches. In describing the importance of this activity, the teacher shared, "I must encourage my students to think critically about all information they receive, including that which they read on the Internet. Who built this Web site? Who funded it? Whose voice is it pushing forth?" (Gorski, 2004, p. 39). Similarly, in one of the strongest examples of fostering critical consciousness, one elementary teacher co-constructed with students an afterschool online literacy club during COVID-19. The club was facilitated through Schoology and Zoom meetings and included reading and discussing (often dual language) books on topics related to social justice, racism, and inequity that also provided space for students to share their lived experiences (Leibu, 2021). An advantage of these local, teacher-initiated activities is the ability to adapt to local context and student needs.

Encourage Social Action

Two studies documented practices that both acknowledged power in society and encouraged social action. These examples provide a particularly strong example of fostering critical consciousness in online learning. Interestingly, both of those studies also integrated arts-based learning activities and opportunities for self-expression. The first study took place during a

five-week, arts-based, virtual summer program facilitated via Zoom. In this program, Black, high

school girls contributed artifacts and performances that reflected their lived experiences (Kaler-

Jones, 2021). During that summer, the students shared counter-narratives, learned to engage in

self and communal care, and centered the role of Black women in history. The program

encouraged students to engage in social action by helping participating Black girls engage with

leadership, activism, and community organizing to fight for the future they and other Black girls

deserve (Kaler-Jones, 2021). The program was designed and implemented by the teacher-

researcher conducting the study.

The second study, a computer science intervention that used Native American star quilt

designs to teach the coding program Python, explicitly acknowledged and engaged with the role

of power/bias in society by discussing the pressure for acculturation that resulted in a reduction

in these quilt designs as well as watching "an eight and a half minute video of a professor with a

computing background discuss his Latino background and experiences with discrimination on

his path to becoming a computational and applied mathematician" before encouraging students

to share "personal or historical examples of their experiences with prejudice attitudes directed at

them, and/or discrimination and ways of challenging discriminatory practices" (Serrano Corkin

et al., 2020, p. 958). Similar to the previous example, the CRP-aligned coding lesson was

developed and implemented by one of the study authors.

Differential Enactment of Critical Consciousness

We observed a slightly higher proportion of studies conducted during COVID-19 as

fostering critical consciousness (of the seven studies, three were pre-COVID, four during

COVID), potentially due to the dual pandemics of COVID-19 and increased attention to and

exacerbation of pre-existing systemic inequities. Alternatively, this could reflect an underlying

trend towards increased attention to fostering critical consciousness or be a result of transitioning all schooling to virtual instruction during the pandemic. Most studies that integrated strategies supporting critical consciousness occurred in high school (*n*=5) and synchronous (*n*=4) or blended environments (*n*=3).

Discussion

Through this synthetic review, we contribute to the literature on best practices in K-12 online learning as well as the enactment of CRP through exploring literature that are located at the intersection of these research domains. In doing so, we provided a summary of ways in which educators can incorporate CRP into their online instruction as well as ways to expand this burgeoning area of research. We added specificity to these recommendations by examining key differences by grade level, modality, and whether the study took place pre- or during-COVID-19. These analyses were essential as online learning often differs in significant ways based on modality and grade level. Additionally, beginning in March 2020, researchers who had previously not been active in online learning scholarship entered this space by continuing their CRP research in online spaces. Their experiences contributed to novel ways of conceiving of CRP in online learning.

Below, we integrate findings that emerged through the examination of each research question to present a cohesive summary of evidence. This section provides a roadmap for instructional practices with documented success supporting CRP enactment online overall, for various age groups, by learning modality, and across time frames before highlighting study limitations and recommendations for future research.

Summary of Evidence

All studies in our review built in academic excellence with almost all describing strategies to develop cultural competence (98%) and 17% integrating strategies fostering critical consciousness. From this finding, we hypothesize that the conceptualization of cultural competence might be a prerequisite to critical consciousness, despite CRP theory not including an explicit statement that cultural competence is a necessary precursor for critical consciousness (Ladson-Billings, 1995). Whether this occurred because the strategies used to foster critical consciousness inherently also fostered (or required) cultural competence and/or because educators emphasizing critical consciousness in the classroom had a deep enough understanding and valuing of CRP that they purposefully enacted both is unknown.

Importantly, we also observed that many strategies used to foster critical consciousness required high expectations of students and, in that way, might build (or provide a means to enact) on some of the strategies used to foster academic excellence. For instance, reshaping the curriculum required the belief that students could engage with multiple perspectives. Many strategies used to reshape the curriculum were also based on the assumption that students were ready to and that there was value in students engaging with experts and on assignments outside of the traditional school context. Additionally, almost half of all studies documenting strategies to foster cultural competence did so by providing a mechanism for students to serve as experts. All of these strategies also require mastery of core academic concepts and scaffolding to support students in learning to perform higher-order tasks. Although not conclusive, these patterns may indicate a staircase-like relationship between the three tenets, with each subsequent tenet building upon the foundation of (and reinforcing) the previous one.

Summary of Academic Excellence

We used both the *Essential Components* framework and previous findings on integrating CRP through high academic expectations to examine the strategies used to enact academic excellence within our sample. For high academic expectations, K-12 online learning research often integrated a focus on modeling, scaffolding, and challenging curriculum including encouraging student collaboration, modeling core concepts, and monitoring student learning. Other common strategies to integrate high expectations included creating and nurturing cooperative environments, primarily through activities to create a sense of belonging, and using students' strengths as instructional starting points.

At the same time, we found little evidence of some core components of academic excellence within studies on CRP in K-12 online learning. Specifically, we noted minimal attention in the CRP online literature to behavioral expectations and taking personal responsibility for students' success. Given evidence that students require more self-regulation skills to learn online (Viano, 2018; DiPietro et al. 2008), future online CRP interventions would benefit from explicitly supporting students in developing these skills.

We also identified some noteworthy differences between the ways in which the broader K-12 online learning research defines academic excellence versus research on CRP in K-12 online learning. The most noticeable difference was less emphasis on *Real-Time Assessment* within our sample, which could reflect lower emphasis and reliance on summative, standardized, and/or solely academic-focused assessments in online learning environments seeking to be culturally relevant. This hypothesis aligns with the emphasis on responsive, formative feedback and holistic student outcomes within CRP (Morrison et al., 2008), as normative assessment practices are viewed as tools used to legitimize and maintain the power of dominant cultural groups (Ladson-Billings, 1998). This tension creates both a challenge and

opportunity within online learning environments, many of which collect large quantities of real-time data on student behaviors and performance. On one hand, these surveillance practices raise privacy and profiling concerns (Benjamin, 2019). On the other hand, access to these real-time, micro-interactional data – within a secure environment with an eye for digital equity – may empower educators to find new assessment strategies that center students' unique needs, experiences, and funds of knowledge to provide real-time, formative feedback and support.

Another key difference includes limited mention of *Accessibility* (as defined by Johnson et al., 2023) within studies examining CRP in online learning. While the term itself is used infrequently, CRP has an inherent focus on supporting the unique needs of every student (Ladson-Billings, 1995). This more holistic understanding of meeting each student's needs resulted in the identification of several successful strategies aimed at building supportive learning environments as well as individualizing and differentiating instruction that provide important insights for educators striving to improve the quality of students' academic experiences online.

Concurrently, some scholars have criticized the broader CRP literature for failing to center the roles of both racism and ableism in existing power structures (Annamma et al., 2018). Thus, the dearth of accessibility strategies could reflect this blindside within the broader field of CRP. In addition to being an area for future study, inclusive online practices may be particularly fruitful given that there are several technology-based accessibility tools well-equipped to address many types of physical, visual, and auditory processes differences that could be more explicitly and purposefully integrated as a component of enacting CRP, particularly in online spaces (CAST, 2018; Ortiz et al., 2020; Rice & Dunn, 2023; Xie et al., 2018) as well as a framework

published since our review that lay the groundwork for more inclusive, equity-based K-12 online

learning (Rice et al., 2023).

Summary of Cultural Competence

Common strategies used to develop cultural competence online included reshaping the

curriculum, being responsive to students' backgrounds and/or needs, involving students as

experts, incorporating family partnerships, and working to revise the narrative of a minoritized

group within cultural norms (Gay, 2010; Gutstein, 2016; Ladson-Billings, 1995, 2014; Morrison

et al., 2008; Paris & Alim, 2014). These strategies reflect either the integration of multicultural

content or being responsive to the unique strengths, needs, and backgrounds of students in the

classroom. Both approaches foster cultural competence, but an emphasis on multiculturalism was

less likely to acknowledge students' unique experiences and funds of knowledge.

Correspondingly, the strategies had the potential to support the development of deeper forms of

cultural competence, such as by being community grounded and providing opportunities for

students to serve as experts and/or generators of knowledge. As such we observed strategies that

accomplished each of the three instructional strategies used to foster cultural competence

identified by Morrison et al. (2008): reshaping the prescribed curriculum, building on students'

funds of knowledge, and encouraging relationships between school and community.

Variation in strategies used to enact cultural competence by grade-level appeared to align

with different developmental needs in each grade span. However, integrating CRP into online

tools was much more likely to be used to foster deeper levels of cultural competence (i.e.,

reshaping the curriculum) than CRP in asynchronous or synchronous modalities. We do not have

enough information to determine whether this is because cultural competence requires some

face-to-face involvement or just reflects the different opportunities for or priorities of educators

teaching across different modalities. For instance, educators in face-to-face settings might have more discretion over content and instructional strategies, allowing them to integrate activities that foster deeper levels of cultural competence.

Some of the strategies used to foster cultural competence – such as providing multilingual content, reducing geographic and time-based barriers to communication, and access to artifacts that center POC perspectives – were comparatively easier to provide virtually due to built-in language features and easier access to an array of online resources and tools. Additionally, educators often leveraged the consistent access to virtual platforms and infrastructure required for online learning to facilitate more regular, real-time, and convenient family communication and involvement. Educators also sometimes fostered cultural competence online by substituting CRP-aligned practices – like interacting with community-based or other POC experts and visiting culturally relevant sites – for virtual alternatives that had the potential to provide similar quality learning experiences with fewer time, financial, and (in the case of COVID-19) health costs. Notably, none of these beneficial strategies require a fully online environment; each can be enacted across various online and blended instructional environments with similar rates of success. In fact, many of the strategies used to foster deeper levels of cultural competence (e.g., centering students as experts, assigning activities with values outside of school) can be enacted online or face-to-face.

Summary of Critical Consciousness

Mirroring observations in traditional, face-to-face environments (Ladson-Billings, 2014), critical consciousness was the least often observed component of CRP in the online studies reviewed. While Ladson-Billings (2014) notes that CRP may be potentially more palatable to the general public without elements of critical consciousness, true CRP (and associated benefits to

students) cannot be realized without developing in students the skills, competencies, and beliefs to critique and reimagine social inequities. Although observed less often, acknowledging the role of power/systematic bias in society and encouraging social action were the most common strategies used to develop critical consciousness in the reviewed studies.

In most instances, the strategies used to foster critical consciousness required elements of cultural competence as prerequisites, such as understanding, integrating, and building upon an understanding of students' lived experiences as well as integrating trauma-informed practices to support students' holistic wellness. Notably, although sometimes educators curated content and/or activities to students' backgrounds and interests, there were also several instances where the educator provided space for students to create their own relevance by being allowed to choose what resources to use or how to integrate them to accomplish a student-directed, action-oriented task. Ultimately, although critical consciousness can be (and traditionally has been) integrated in face-to-face classrooms, these studies highlighted several ways online tools such as digital storytelling, video conferencing, virtual lab experiments, and virtual reality simulations can provide impactful ways to foster critical consciousness. Interestingly, many studies that fostered critical consciousness were part of action research-based studies where the researcher designed, implemented, and evaluated the program - often co-creating initiatives with participating students or at least incorporating student interests and input. This pattern may have occurred solely because the research expertise of the author allowed the study to be documented but may also indicate the importance of classroom experience, pedagogical knowledge, and/or educator passion for the fullest enactment of CRP.

Additionally, the low rate at which we observed strategies fostering critical consciousness online within studies *explicitly framing* their studies using CRP is notable. Only 7 of the 42

studies reviewed integrated any critical consciousness raising strategies, and none of the studies

involved students directly in social-justice oriented work. The consistent overlooking of critical

consciousness as a core tenet of CRP within face-to-face classrooms and research is bemoaned

by Ladson-Billings (2014) who initiated a call to action for educators and researchers to engage

more directly with the transformative and empowering potential of critical consciousness instead

of just the academic excellence and cultural competence tenets as a distinguishing feature of

CRP (see also Paris & Alim, 2014). The low prevalence of strategies aimed at fostering critical

consciousness raises the potential concern that educators and researchers may be co-opting the

equity-based language of CRP without fully embodying the underlying principles. In doing so,

they risk reproducing the dominant cultural and institutional norms that CRP was designed to

disrupt. It is also possible that, while aware of the importance of critical consciousness, educators

were unable to enact aligned strategies due to program constraints, implementation challenges, or

the local sociopolitical climate.

Limitations

As a systematic review, this study is limited by the academic literature base and did not

include unretrievable studies (*n*=7). For instance, we cannot consider or integrate concepts that

are infrequently used or documented, such as more radical transformations of the structure,

goals, and norms of schooling that are likely required for fully realized enactment of CRP in

online learning. Although we disaggregated results (i.e., grade-level, instructional mode,

pre/during COVID-19), we are unable to determine whether any difference observed between

these groups are caused by group differences versus other confounding factors.

Additionally, as a framework developed for face-to-face instruction, it is plausible that

online learning might not be fully compatible with CRP. In the places where we noted a weak

literature on enacting CRP tenets online, we could be observing a conflict between online learning capabilities and CRP theory (with at least one study explicitly noting this limitation, Vann-Hamilton, 2015). It is possible that face-to-face instruction is a clearly superior option for some aspects of CRP. Our review suggests several ways that online learning can successfully be culturally relevant, but we acknowledge that strong CRP implementation in online learning might not be feasible or, potentially, be diluted compared to face-to-face CRP instruction.

Conversely, it is possible that online educators and researchers interested in the more critical and social justice components of CRP might instead be choosing to engage with pedagogical toolkits that more explicitly center those elements (i.e., critical and liberatory pedagogy; hooks, 1994; McLaren, 2015). Because we focused specifically on CRP, we did not capture studies that focused, for instance, on accessibility online using Dis/ability Critical Race Studies (DisCrit) to frame their inquiry (Annamma et al., 2018). We argue focusing on CRP in online learning is instructive, as CRP is popular, has a robust literature supporting its efficacy, and provides a holistic package of strategies aimed at helping students identify, navigate, and succeed within the culture of power as well as transforming society and students' experience within it (see Parkhouse et al., 2022).

Recommendations for Future Research

In conducting this systematic review, we noted the salience of the recent call in this journal for research that seeks to disrupt educational inequality both in the available research on culturally relevant online learning we reviewed and in what we did not find in available research (Boveda et al., 2023). We identified no articles on CRP in online learning that directly involved students in social justice-oriented work. Examples of power sharing were rare, with most choices confined within teacher-defined instructional activities. Relatedly, even in the context of explicit

focus on CRP, we infrequently observed strategies that fostered critical consciousness. There is a need for research that details the more complete enactment of strategies to support critical consciousness in online and blended instructional settings, particularly when the learning is intended to be guided by CRP. There is also space for conceptual papers that detail the potential and challenges of enacting successful face-to-face CRP strategies in virtual spaces and using online instructional tools. Our review leaves open the possibility that researchers consider new frameworks for enacting CRP online that note which aspects of CRP are compatible with online learning versus aspects better to implement in-person.

We noted in our analysis several differences in the CRP-related strategies of studies that took place pre- versus during-COVID-19. For many researchers, they likely had not planned to conduct their CRP study on online learning instruction. It might be tempting to discount these studies that were "forced" to be online instead of being designed purposefully for synchronous or asynchronous instruction, but we encourage future research to engage with these online learning studies conducted during COVID-19. In particular, even though we examined all research from 2000 onward, half of our sample is from 2021 and 2022 alone. Integrating more traditional CRP research (from the COVID-19 online learning studies) with best practice for online learning presents immense potential for furthering culturally relevant online learning. In addition, online platforms offer unique potential for integrating different kinds of data sources that are, logistically, more challenging to collect in studies of CRP in traditional classrooms. Specifically, online platforms are well-positioned for studies to integrate student-level data, both on their experiences in online learning and outcome measures. We recommend future research on CRP in online learning consider the affordances for student-level data available in online platforms.

From a methodological standpoint, student experiences were included in 52% of reviewed studies. Over half (58%) of studies evaluating the effects of CRP in online learning included students' perspectives. As students' interpretation and perceptions of their educational experiences are central to the successful enactment of CRP, we urge researchers of future studies to integrate more student voice when evaluating interventions. Additionally, the vast majority of interventions studied were researcher developed versus being co-created with students or the community. Only three studies used a youth participatory research design. Participatory intervention design and evaluation methods align more closely with the tenets and goals of CRP. As such we urge future researchers to consider these methodological approaches when studying CRP online.

Conclusion

As a prominent learning modality and instructional tool, online learning needs to be accessible for all K-12 students regardless of their background and identity in order to facilitate educational equity, and CRP is an especially promising framework through which online learning can reach this goal. This review provides many specific strategies online learning can integrate to weave in academic excellence and cultural competence as well as, to a more limited extent, critical consciousness. If online learning is to reduce opportunity gaps, research must more consistently focus on equitable online learning practices.

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Table 1. *Academic Excellence.*

	(1) Overall	(2) Pre-COVID	(3) COVID	(4) Early	(5) Elem	(6) Middle	(7) High	(8) Multi	(9) Asynch	(10) Synch	(11) Online Tool
Panel A: High Academic Expectations	81%	79%	86%	75%	86%	67%	82%	83%	75%	94%	71%
Creating and Nurturing Cooperative Environments	36%	25%	57%	25%	—	—	45%	67%	—	65%	19%
Activities create sense of belonging	26%	14%	50%	25%	—	—	32%	50%	—	59%	5%
Encouraged peer support	12%	11%	14%	25%	—	—	14%	17%	—	18%	10%
Other ways to create safe and nurturing environment	12%	7%	21%	25%	—	—	5%	50%	—	24%	5%
High Behavioral Expectations	2%	—	7%	25%	—	—	—	—	—	6%	—
Rules explicit, communicated	2%	—	7%	25%	—	—	—	—	—	6%	—
Structured routines	2%	—	7%	25%	—	—	—	—	—	6%	—
Investing and Taking Personal Responsibility for Students' Success	10%	7%	14%	25%	—	—	14%	—	25%	18%	—
Accessible to students non-class time	5%	7%	—	—	—	—	9%	—	25%	6%	—
Celebrate student success	2%	—	7%	25%	—	—	—	—	—	6%	—
Commitment to student success	5%	—	14%	25%	—	—	5%	—	—	12%	—
Take responsibility for students' failure	2%	—	7%	—	—	—	5%	—	—	6%	—
Modeling, Scaffolding, and Clarification of the Challenging Curriculum	64%	61%	71%	50%	86%	33%	64%	67%	75%	76%	52%
Challenging curriculum	26%	32%	14%	—	14%	—	36%	33%	75%	24%	19%
Clearly outlining expectations	7%	7%	7%	25%	—	—	—	33%	—	12%	5%
Encouraging student collaboration	36%	36%	36%	25%	57%	33%	27%	50%	25%	41%	33%
Modeling	26%	21%	36%	25%	43%	—	23%	33%	50%	35%	14%
Monitoring student learning	12%	11%	14%	25%	—	—	14%	17%	25%	24%	—
Other scaffolds	24%	25%	21%	—	14%	—	27%	50%	50%	24%	19%

	(1) Overall	(2) Pre-COVID	(3) COVID	(4) Early	(5) Elem	(6) Middle	(7) High	(8) Multi	(9) Asynch	(10) Synch	(11) Online Tool
Panel B: Essential Components of Online K-12 Instruction	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Active Learning	71%	89%	36%	25%	71%	67%	86%	50%	100%	47%	86%
Choices	33%	39%	21%	25%	14%	67%	36%	33%	50%	29%	33%
Digital storytelling	14%	18%	7%	—	—	33%	23%	—	25%	6%	19%
Inquiry	17%	21%	7%	—	43%	—	14%	17%	—	18%	19%
Problem and project-based	33%	46%	7%	—	43%	—	41%	33%	50%	18%	43%
Real-Time Assessment	5%	4%	7%	—	—	—	9%	—	25%	6%	—
Connected Learners	43%	43%	43%	25%	57%	33%	41%	50%	50%	53%	33%
Peer collaboration	40%	39%	43%	25%	57%	33%	36%	50%	25%	53%	33%
Targeted content	5%	7%	—	—	—	—	5%	17%	25%	6%	—
Individualization and Differentiation	60%	57%	64%	50%	43%	33%	64%	83%	75%	71%	48%
Higher-order thinking	38%	39%	36%	50%	29%	—	41%	50%	50%	41%	33%
Individualized scaffolding	10%	14%	—	—	—	—	14%	17%	—	18%	5%
Multiple approaches	14%	11%	21%	25%	—	33%	5%	50%	—	24%	10%
Self-directed	17%	18%	14%	—	29%	—	23%	—	50%	12%	14%
Self-regulation	2%	4%	—	—	—	—	—	17%	—	6%	—
Supportive Learning Environment	40%	39%	43%	100%	14%	33%	41%	33%	75%	59%	19%
Mentorship	7%	7%	7%	—	—	—	14%	—	25%	6%	5%
Parent or family engagement	5%	4%	7%	25%	—	—	—	17%	25%	6%	—
Teacher reinforcement	2%	4%	—	—	—	—	5%	—	25%	—	—
Teacher support	31%	32%	29%	75%	14%	33%	27%	33%	25%	53%	14%
Number of Studies	42	28	14	4	7	3	22	6	4	17	21

Note. The denominator for each percentage is indicated by the bottom row with the Number of Studies in each category. The number of studies can be calculated by multiplying the Number of Studies in each column by the relevant percentage. Having the symbol "—" indicates there were no studies coded to that theme. Table does not include codes for categories that were not coded for any studies in our corpus including "Discouraged, disrupted inequities" which is part of Creating and Nurturing Cooperative Environments; three aspects of High Behavioral Expectations ("Discipline enforced through family, reacting similarly as family would," "Enforced behavior rules quickly," and "No excuses, no arguments"), "Self-initiated PD" which is part of Investing and Taking Personal Responsibility for Students' Success; and "Accessibility" which is one of the Essential Components for Online K-12 Instruction.

Table 2. *Cultural Competence.*

	(1) Overall	(2) Pre-COVID	(3) COVID	(4) Early	(5) Elem	(6) Middle	(7) High	(8) Multi	(9) Async	(10) Sync	(11) Online Tool
Any Inclusion of Cultural Competence	98%	96%	100%	100%	100%	100%	100%	83%	100%	94%	100%
Reshaping the Curriculum	83%	82%	86%	75%	86%	100%	86%	67%	100%	88%	76%
Images/videos/music/artifacts of POC	52%	57%	43%	50%	100%	67%	45%	17%	25%	41%	67%
Multi/cross-cultural content	50%	57%	36%	50%	43%	100%	55%	17%	50%	35%	62%
Community grounded	33%	39%	21%	25%	43%	33%	36%	17%	25%	18%	48%
POC as experts	26%	25%	29%	25%	—	33%	36%	17%	50%	18%	29%
Sociopolitical context	17%	14%	21%	25%	14%	33%	18%	—	25%	24%	10%
Value outside of school	14%	11%	21%	—	—	—	27%	—	—	18%	14%
Multilingual	14%	11%	21%	50%	14%	33%	9%	—	25%	12%	14%
Students as experts	48%	50%	43%	50%	43%	33%	59%	17%	—	53%	52%
Responsive to students' background/needs	60%	54%	71%	75%	86%	100%	55%	17%	50%	59%	62%
Family partnership	19%	11%	36%	75%	14%	—	14%	17%	25%	29%	10%
Revising narrative within culture of power	5%	7%	—	—	—	—	5%	17%	—	—	10%
Number of Studies	42	28	14	4	7	3	22	6	4	17	21

Note. The denominator for each percentage is indicated by the bottom row with the Number of Studies in each category. The number of studies can be calculated by multiplying the Number of Studies in each column by the relevant percentage. Having the symbol "—" indicates there were no studies coded to that theme.

Figure 1. *PRISMA Flow Diagram*