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ABSTRACT

Critical consciousness refers to the ways in which individuals come to understand and challenge oppressive social forces. Philosopher-educator Paulo Freire argued that critical curiosity—an eagerness to learn more about and develop a deep understanding of issues of social justice—serves as an important catalyst to critical consciousness development. Yet, relatively little scholarship has considered how to foster critical curiosity in adolescents. The present qualitative study analyzed semi-structured interviews with 60 adolescents attending five Northeastern urban charter high schools with mission statements focused on fostering students' engagement in social action. Specifically, the study considered these students' perceptions of the impact of their respective schools' social engagement programming upon their critical curiosity. The interviews were analyzed using a flexible inductive/deductive approach drawn from the thematic analysis approach to qualitative analysis. The findings of this study indicate that students had a variety of conceptions of what stimulates their critical curiosity, including relevance, exposure to new perspectives, and receiving new, surprising information. Alignment with Freire's conceptions of critical curiosity and current curiosity scholarship, implications for educators, limitations, and future directions are discussed.

Many educators agree that fostering curiosity in the classroom is a worthy goal (Engel, 2011), yet little extant research has examined how to foster *critical* curiosity in adolescents. Critical curiosity refers to an eagerness to learn more about and develop a deep understanding of issues of social justice and inequity (Shor, 1992). Several scholars (e.g., Freire, 1970) consider critical curiosity to be a key precursor and catalyst of critical consciousness, which Brazilian philosopher-educator Paulo Freire (1970, 1998) described as the ways in which individuals come to understand and take action against systems of oppression. For Freire (1970), students become critically curious about their social worlds through engaging in dialogue. In so doing, they begin to understand systems of oppression and become motivated to challenge such oppressions (Freire, 1970, 1998; Lewis, 2012). In turn, developing such critical consciousness is associated with a host of positive outcomes, particularly for marginalized youth (Diemer, McWhirter, Ozer, & Rapa, 2015). Specifically, critical consciousness has been found to be associated with school engagement (O'Connor, 1997; Ramos-Zayas, 2003), academic achievement (Diemer & Blustein, 2006; Watts, Williams, & Jagers, 2003), resilience (Ginwright, 2010), occupational attainment (Diemer & Blustein, 2006), civic activism (Watts, Diemer & Voight, 2011), and voting behavior (Diemer & Li, 2011). Yet, despite these positive outcomes, limited empirical research has investigated antecedents to or mechanisms contributing to youth critical consciousness development (Diemer & Li, 2011). Given the proposed association between critical curiosity and critical consciousness development, additional research is needed examining how educators can spark students' critical curiosity in the classroom. The present

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study sought to examine this question by investigating the practices that adolescents describe as fostering their critical curiosity while they were attending five urban charter high schools that focused on social engagement programming.

From a theoretical perspective, Freire positioned critical, or epistemological, curiosity as a central element of critical consciousness development (Shor, 1992, 1998; Irwin, 2012; Lewis, 2012). Freire argued that although all humans exhibit spontaneous curiosity, this naïve, spontaneous curiosity is transformed into epistemological, critical curiosity through self-criticism and reflection on the self and the world (Freire & Macedo, 1995; Lewis, 2012). In turn, this epistemological curiosity "help[s] students gain a rigorous understanding of their historical location so they can turn this understanding into knowledge, thus transcending and universalizing it" (Freire & Macedo, 1995, p. 385), suggesting that critical curiosity serves as an integral step in critical consciousness (Shor, 1992).

Although Freire argued that students' critical curiosity *must* be fostered in order for students to become critically conscious (Freire, 1970; Shor, 1992), relatively few scholars interested in critical consciousness development have focused on the role of critical curiosity in such development. The present study sought to contribute to this literature by investigating the curriculum, programming, and practices that adolescents attending five urban charter high schools describe as fostering their critical curiosity. Below, we describe the theoretical framework guiding our investigation of critical curiosity in the participating schools.

Theoretical framework

Critical curiosity

Curiosity can be defined as a multi-dimensional construct that includes an "urge to know more" (Engel, 2011, p. 627). *Critical* curiosity specifically refers to curiosity about issues of power and inequality as well as a willingness to question dominant society (Shor, 1992).

Freire referred to two types of curiosity—spontaneous curiosity, which all humans exhibit, versus critical curiosity, which he described as, "the readiness and eagerness of a conscious body that is open to the task of engaging an object of knowledge" (Freire, 1998; Freire & Macedo, 1995, p. 382). For Freire, critical curiosity not only led "to an awareness of the world but also to a thorough, scientific knowledge of it" (Freire, 1998, p. 66), furthermore allowing for "a capacity for learning not only in order to adapt to the world but especially to intervene, to re-create, and to transform it" (Freire, 1998, p. 66). Thus, critical curiosity was central to Freire's process of *conscientização*, or critical consciousness, in that critical curiosity both motivated students to engage with their world in efforts to "unveil reality" (Freire, 1970) and "seek the reason for being of facts" (Lewis, 2012, p. 30). That is, critical curiosity helps students gain an understanding of systems of oppression, but also, in turn, motivates students to challenge such systems (Freire, 1998). Shor (1992) summarized Freire's position: "people are curious about their environment and conditions. They can learn what they know and don't know, and then use their knowledge to learn more as well as to solve problems they observe" (p. 86). Despite Freire's assertions regarding the importance of curiosity, little empirical research has investigated how to foster critical curiosity in adolescents.

Context and curiosity development

Curiosity is fostered through interactions between an individual and his or her environment (Kashdan, 2004). In seminal research on curiosity, Berlyne (1960) argued that contextual variables including novelty, complexity, uncertainty, and conflict evoke curiosity. More recently, Litman and Jimerson's (2004; Litman, 2005) interest/deprivation model argued that an individual's curiosity may be piqued either by the individual's interest in a subject or, conversely, by his or her desire to eliminate a gap in knowledge. Similarly, Schiefele (2009) proposed a model wherein situational cues of complex or novel information spark an individual's situational interest, in turn leading to the development of intrinsic motivation and longstanding individual interests. Like Litman and Jimerson (2004), Schiefele (2009) also acknowledged

that individual interests can concurrently directly influence an individual's situational interest or the situational cues to which an individual attends.

Researchers continue to explore which elements of a person's environment spark curiosity (Schiefele, 2009). Several scholars have suggested that an individual's feelings of competence, relatedness, and autonomy are intrinsically linked to levels of curiosity and interest (Deci & Ryan, 2000; Kashdan, 2004; Krapp, 2005; Schiefele, 2009). Furthermore, Mitchell (1993) proposed the use of both "catch facets," such as novelty and puzzles, to spark (or "catch") students' curiosity, as well as "hold facets," such as emphasizing the meaning and personal value of materials, in order to maintain (or "hold") student interest. In text-based learning, character identification, novelty, life themes, imagery, and intense action (Krapp, Hidi, & Renninger, 1992) as well as "surprisingness," emotiveness, and ease of comprehension (Schiefele, 2009, p. 199) have all been found to be associated with interest development.

As noted, other scholars have argued that materials must be made meaningful or relevant to students in order to maintain an individual's curiosity (Kashdan & Fincham, 2004; Mitchell, 1993). Meaningfulness refers to whether something is related to a person's daily life (Schiefele, 2009) or fulfills personal needs such as autonomy, relatedness, and competence (Krapp, 2005). Several theories of motivation consider relevance or meaningfulness and curiosity and interest in concert. Indeed, Deci and Ryan's (2000) self-determination theory (SDT) argues that individuals are better able to internalize and integrate an activity when it is made meaningful to them, which, in turn, leads to feelings of self-determination, curiosity, and intrinsic motivation (see also Hidi & Harackiewicz, 2000; Kashdan & Fincham, 2004). Keller (1987), in his Attention-Relevance-Confidence-Satisfaction (ARCS) model of motivation, similarly argued for the importance of relevance in fostering students' motivation and curiosity. His theory draws on the expectancy-value theory of motivation, which argues that individuals are motivated to pursue activities they value and for which they have an expectation of success (Wigfield & Cambria, 2010). In this model, feelings of value include both interest-value, how enjoyable an activity is, as well as utility-value, which encompasses how relevant or meaningful an individual finds a task (Wigfield & Cambria, 2010).

To make content relevant, Keller (1987) argued that teachers must draw on students' experiences, present the worth of the material as well as its future usefulness, and allow for the satisfaction of the basic needs of autonomy, competence, and relatedness. Likewise, Schiefele (2009) suggested that teachers express their own interest in a topic, highlight the real world implications of content to students, and relate content to students' already existing individual interests. In line with these theories and suggestions, Rossing and Long (1981) found perceived value to be more important than surprising information in cultivating student curiosity.

It is important to note here Durik and Harakiewicz's (2007) finding that an intervention aimed at sparking students' situational interest in math using visual complexity, a "catch facet," only had positive effects for those with a low level of individual interest, and actually undermined the interest of those with previously high levels of individual interest. Conversely, foregrounding the meaningfulness of the task enhanced interest in high individual interest students and lowered interest in low individual interest students. In addition, Harackiewicz and Hulleman (2010) have found utility value interventions, where the meaningfulness of a task is emphasized, to be particularly important in enhancing interest in students with low levels of achievement and competence. These studies suggest that students' pre-existing levels of individual interest and achievement need to be considered when choosing pedagogical interventions aimed at fostering student curiosity.

Finally, a number of researchers have argued that curiosity can be cultivated in a social environment (Bergin, 1999; Engel, 2011; Hidi & Harackiewicz, 2000; Kashdan, 2004; Ritchhart, 2002). For example, Thoman, Sansone, and Pasupathi (2007) have found that an individual's curiosity is strengthened when he or she is able to discuss something of interest with others. Mitchell (1993), too, found an association between participation in group work and level of interest in the classroom. Furthermore, a growing body of research argues that interactions with peer perspectives may foster student curiosity through impacting students' open-mindedness. Indeed, Baron (Character Lab, 2015) suggested that open-mindedness, an openness to new ideas and perspectives, is intimately linked to curiosity, given that both involve a search for new information.

Although scholars have considered the role of the environment in cultivating curiosity, relatively little research has examined students' perspectives on what stimulates their curiosity, and even less research has considered how to foster adolescents' curiosity in topics such as social justice and engagement (Schiefele, 2009). In fact, research on topic of interest has so far been primarily confined to text-based learning (Schiefele, 2009). Accordingly, the present study considered student perspectives on the role of the environment in fostering critical curiosity.

Pedagogy for critical curiosity

Freire argued that a problem-posing education—one focused on investigating realistic problems through dialogue and participation between teacher-students and student-teachers—is essential to developing individuals' critical curiosity and critical consciousness (Freire, 1970; Lewis, 2012; Shor, 1992). Essential to problem-posing education is the act of dialogue, in which students and teachers grapple with real life issues drawn from the lives of the students, what Freire referred to as "generative themes" (Freire, 1970; Shor, 1992). Indeed, Freire (1970) commented that "The starting point for organizing the program content of education or political action must be the present, existential, concrete situation, reflecting the aspirations of the people" (Freire, 1970, pp. 95–96). Shor (1992), a critical pedagogue and student of Freire's, diverged from Freire, however, in arguing that topical and academic themes could be introduced in the problem-posing classroom as long as they were introduced within a "meaningful context" (p. 57) and presented as "problem[s] for cooperative study" (p. 55).

As noted above, Freire believed that curiosity is both a precursor to and catalyst of critical consciousness development. Indeed, Freire noted that students cannot learn from dialogue if they are not curious *about* the dialogue:

> Understanding dialogue as a process of learning and knowing establishes a previous requirement that always involves an epistemological curiosity about the very elements of the dialogue … dialogue, as a process of learning and knowing, presupposes curiosity. It implies curiosity. (Freire & Macedo, 1995, p. 382)

Here, Freire posits that curiosity serves as a necessary antecedent to learning through dialogue.

Yet, Freire also noted that dialogue increases individuals' curiosity about the social world, thereby serving as a catalyst to the development of critical consciousness (Lewis, 2012). In discussing this relationship, Lewis (2012) noted that dialogue allows individuals to develop their anesthetized curiosity into "epistemological curiosity, which methodologically unveils the world in its incompleteness so as to 'think accurately' and 'precisely' about the relationship between theory and practice" (Lewis, 2012, p. 31). In fact, Lewis (2012) characterized curiosity as "*the* revolutionary cognitive faculty" (p. 31) in that curiosity allows individuals to expose cultural myths and decode reality. Likewise, Shor (1992) argued that critical curiosity encourages individuals to discover the truth and transform society—defining elements of critical consciousness. Given that both Freire (1970, 1998) and Shor (1992) considered cooperative dialogue as the primary mode for fostering students' critical curiosity, in this study we also sought to explore whether adolescents perceive a similar relationship between dialogue and critical curiosity.

Critical curiosity during adolescence

Freire's (1970) original work on critical consciousness resulted from work with adult migrant workers and was later adapted for use with younger populations (e.g., Shor, 1992). Despite the wide age ranges addressed by Freire, several adolescent identity development theorists and researchers suggest that adolescence, in particular, may be a prime period for fostering students' critical consciousness development (e.g., Watts & Flanagan, 2007), and, thus, also their critical curiosity.

Adolescence has often been characterized as a period marked by fervent identity exploration, wherein individuals seek out new and different ways of being (Nakkula & Toshalis, 2006). Erik Erikson (1968) described two forms of identity development—personal identity, which involves creating a stable sense of an individual self, as well as an ego-identity, which involves coming to terms with how one fits into one's culture, society, and historical situation (Younnis & Yates, 1997). As Younnis and Yates (1997) noted, this suggests that adolescence is a time when individuals are most primed to "confront the political and moral

dimensions of the society they are entering" (p. 165). Similarly, Flanagan (2013) argued that constructing a civic identity—by which she means coming to understand topics like democracy, authority, collective action, as well as ideas such as the social contract and adolescents' own theories about political and economic order—is all an important part of adolescent identity development. Flanagan (2013) argued that adolescents are seeking this information from their social worlds so that they can "make assessments about their society and world—about the options that seem possible for people *like them* but also about the kind of world they want to inherit, to inhabit, and to pass on" (p. 227). This is not to suggest that individuals at other ages may not become critically curious, but rather that adolescence may be a period where students are most open to having their curiosity piqued regarding issues of social engagement and injustice.

Contemporary critical pedagogy

Freire's work on critical consciousness and problem-posing pedagogy has been a key influence in the development of contemporary notions of critical pedagogy (Duncan-Andrade & Morrell, 2008; Irwin, 2012; Welton, Harris, La Londe, & Moyer, 2015). Indeed, a number of contemporary critical pedagogy scholars have foregrounded the importance of drawing on students' experiences in order to foster their curiosity, motivation, and engagement in school. Duncan-Andrade and Morrell (2008) argued that in order for adolescents to develop the "critical double consciousness" necessary to analyze, navigate, and challenge oppressive social forces, their education must be a relevant one that "foregrounds the relationship between education and the most pressing conditions in the community" (p. 11). Moll and colleagues (1992) likewise called for a focus on students' funds of knowledge in the classroom, specifically referring to developing strategic connections among students' home lives, communities, and the classroom in order to deepen the relevance of school programming (p. 132). Thus, contemporary work on critical pedagogy, curiosity, and interest align with Freire's assertion that relevant material, or generative themes, are central to motivating and engaging students' critical curiosity.

Notably, several scholars raise questions regarding which relevant identities or funds of knowledge educators might consider drawing upon in order to foster adolescents' critical consciousness. Although Freire theorized that critical consciousness development was limited to the ways in which oppressed individuals engage in this process (Diemer, McWhirter, Ozer, & Rapa, 2015), contemporary scholars have debated whether "dominant identity" individuals can also develop critical consciousness by engaging in social justice inquiry, education, and action (Diemer et al., 2015; Freire & Faundez, 1989; hooks, 1994). Other scholars have posited that individuals can develop critical consciousness regarding any of their intersectional identities (e.g., sex, gender, religion, ability, nationality, race) that shape their experience and understanding of power and privilege (Goodman & Jackson, 2012; hooks, 1994). Although theoretically an individual could raise his or her critical consciousness regarding any or all of these identities, Diemer, Kauffman, Keonig, Trahan, and Hsieh (2006) have argued that issues of race, social injustice, and sexuality have emerged as the most prominent issues around which to engage in critical consciousness work for youth. Similarly, Goodman and Jackson (2012) have argued that many youth are overwhelmed when trying to understand how intersectional identities shape their realities, and therefore suggest a pedagogical framework that focuses first on race and slowly expands to focus more on intersectional identities. Although the present study draws from a larger study focused on eliciting students' perspectives primarily regarding issues of race and class inequality, in the Discussion we consider more fully how students' broader intersectional identities may impact their experience of critical curiosity.

We seek to build upon the growing body of scholarship on critical pedagogy and critical consciousness development through a close investigation of the role of critical curiosity in this work. As noted above, Freire (1970, 1998) asserted that critical curiosity was a necessary precursor and catalyst for the development of students' critical consciousness, and identity scholars (e.g., Flanagan, 2013) suggest that adolescence is a prime period for developing students' critical consciousness. Yet, although a growing body of work has found relevance, surprising information, and social formats to be successful strategies for fostering curiosity, relatively little research has empirically investigated how to foster adolescents' *critical* curiosity. Thus, in the present study, we used a qualitative interview approach to examine students'

perspectives on the role of social engagement curriculum, programming, and practices on their critical curiosity development. Fuller descriptions of the participating schools and the curriculum and programming they employed are offered below. The research question guiding this study was, "What aspects of social engagement programming and practices do adolescents describe and understand as fostering their critical curiosity?" Ultimately, participating adolescents revealed a number of ways in which their respective school's social engagement programming sparked their critical curiosity that both align with, and extend, contemporary curiosity scholarship as well as Freire's conceptions of the role of curiosity in critical consciousness development. Next, we more fully describe the study's methodology, including the social engagement programming of the participating schools.

Methods

The present study draws upon data collected for a larger mixed-methods longitudinal investigation of sociopolitical development in adolescents at six northeastern charter high schools that began in the fall of 2013 (Seider et al., 2016). For the larger study, the research team collected quantitative student surveys, completed semi-structured interviews with both students and faculty, and conducted approximately 25 days of ethnographic field observations per school. Data were collected by a racially diverse research team (four identify as African American, four as white) consisting of five doctoral students, one post-doctoral researcher, and two faculty principal investigators. All members of the research team were introduced to the participating school communities as external researchers from a Northeast university interested in learning more about how the schools teach their students about inequality and how to challenge inequality. To reduce researcher bias, the research team held biweekly lab meetings to discuss findings from the data, as well as the roles our perspectives as insiders and outsiders might play in our analyses and interpretations. The present investigation limits its focus to the qualitative interviews collected during the 2013–2014 school year. Please refer to Seider and colleagues (2016) for a full description of the broader study's methodology.

Participating adolescents

This study's participants included 60 randomly selected adolescents (ages 13–16; 47% male, 53% female) enrolled in the 2013–2014 ninth grade cohorts at the five participating high schools. Of this sample, 37 identified as black or African American, 10 identified as Latino, 10 identified as multi-racial, one identified as white, and two as "other." These demographics are representative of the student bodies of the five participating schools. Although participants did not report their socioeconomic status, 70–80% of the students at the participating schools qualify for free or reduced lunch—a proxy for low socioeconomic status. See Table 1 for additional demographic information for the participating schools.

Participating schools

The participating adolescents were drawn from five urban charter high schools located in four cities across the northeastern United States during the 2013–2014 school year. Purposeful sampling was utilized to identify five urban charter schools whose mission statements include a commitment to fostering students' engagement in social action (see Table 1). Despite representing a diversity of schooling models, each school in the study utilizes pedagogical techniques aimed at fostering students' sociopolitical awareness and engagement. The following descriptions are drawn from the participating schools' online documents as well as ethnographic field notes and teacher interviews obtained for the larger study. These descriptions are intended to offer a clearer picture of each schools' social engagement curriculum, programming, and practices. Pseudonyms are used for all participating schools and adolescents.

Make the Road Academy (MtRA)

Two educators founded MtRA with the goal of using Freire's idea of problem-posing pedagogy to develop students' critical consciousness. At MtRA students engage in "Freire Culture Circles" at the beginning

Table 1. Descriptions of participating schools (*n* = 5).

School	Pedagogy	Urban Context	Students of Color	Gender	F/R Lunch	Per Pupil Expenses	Mission, Philosophy or Core Values
Community Academy	Expeditionary Learning	Large northeast city	99% (African-American, 52%; Latino/a, 6%; multi-racial, 38%; other, 4%)	52% female 48% male	75%	$16,902	Philosophy: Develop in students the curiosity, skills, knowledge, and courage needed to imagine a better world and work toward realizing it
Make the Road Academy	Problem-Posing	Midsize industrial city	100% (African-American, 67.14%; Latino/a, 2.86%; multi-racial, 22.87%; other, 7.14%)	59% female 41% male	76%	$15,690	Mission: To provide our scholars with an exceptional educational program that improves the quality of life in our community, by putting scholarship into practice for the purpose of addressing educational and social inequities
Espiritu Academy	Coalition of Essential Schools	Midsize industrial city	91% (African-American, 7.27%; White, 9.09%; Latino/a, 54.55%; multi-racial, 18.19%; other, 10.91%)	62% female 38% male	78%	$12,817	Mission: Community involvement and community improvement are key themes at Espiritu Academy . . . Students study themselves and their relationships to others in the local community.
Leadership Academy	No Excuses	Large northeast city	100% (African-American, 36.61%; Latino/a, 23.21%; multi-racial, 34.82%; other, 5.36%)	48% female 52% male	81%	$15,957	Mission: To educate socially responsible students for a life of active and engaged citizenship
One Vision High School	No Excuses	Midsize industrial city	100% (African-American, 55.36%; Latino/a, 12.50%; Native American, 0.89%; multi-racial, 28.59%; other, 3.57%)	64% female 36% male	77%	$16,878	Core Value: We work to improve our community and the world.

Note: Pseudonyms used for all schools.

of every unit where they engage in dialogue around social issues. For example, one classroom looked at artwork by an assassinated Syrian artist that said, "Without revolution there will be no victory," and used this piece to discuss the impact of censorship. During the 2013–2014 school year, ninth grade students additionally engaged in a social engagement class focused on issues of sociopolitical activism.

Community Academy

Community Academy, an expeditionary learning school, aims to develop students' sociopolitical aware-ness through close, collaborative relationships with peers and teachers as well as inquiry, service, and experiences in the "real world" (EL Education, 2017). Some topics in the 2013–2014 ninth grade human-ities curriculum, entitled "Justice and Injustice," included South African Apartheid, Columbus' interac-tions with the Arawaks, and the Haitian revolution.

Espiritu Academy

Espiritu Academy, a member of the Coalition of Essential Schools (CES), focuses on an inquiry based model of education involving the student-as-worker and teacher-as-coach (CES, 2015) wherein the cur-riculum "deliberately and explicitly challeng[es] all forms of inequity" (CES, 2015). Students at Espiritu engage in twice-weekly community improvement projects focused on social engagement issues such as schools and society or creating a non-profit organization.

Leadership Academy

In their mission, Leadership Academy is explicit about their commitment to fostering students' engage-ment in social activism, stating "we also nurture our scholars' civic soul with many civic engagement opportunities" ([Leadership], 2015). To this aim, junior year students engage in a "sociology of change" course and then produce a "be the change" project during their senior year. Ninth grade students engage in civic activism through experiences such as "get out the vote," and also meet weekly in advisory and "town hall" meetings to discuss current events.

One Vision High School

Located in the same city as MtRA, One Vision, a no excuses charter school, positions social engagement—"striving to improve our community and world"—as one of its core values. In their ninth grade English/Language Arts class, students consider social justice questions such as, "To what extent do internal or external forces shape your life?" One Vision also has an active "applied theater" department wherein students use theater to think about larger political themes and to engage their community in dialogue around issues of oppression, such as homelessness.

Procedure

Ten to 12 students were randomly-selected from each school to participate in 40–60 minute semi-structured qualitative interviews during the spring of 2014 for a total of 60 interviews. As part of the larger study, the interview protocol was designed to elicit students' perspectives on pedagogical practices they believed contributed to their sociopolitical consciousness, primarily regarding issues of race and class inequality. Included in this protocol were questions about students' curiosity about their respective school's social engagement programming including, "How curious are you to learn about these topics?" and "How has attending [school name] changed your views about the world?" Although all research team members used the interview protocol as a guide, interviewers also remained open to the students' narratives and perspectives and asked follow up questions as appropriate.

Data analysis

All student interviews were audio-recorded and transcribed verbatim. Analysis of the student interviews began during the summer of 2014 and continued throughout the 2014–2015 school year. As part of the larger study on sociopolitical development, our research team developed an initial codebook drawing

on both etic[1] codes from the extant literature, such as "Analysis of Social Forces," and emic codes drawn from the interviews themselves, such as "struggles" (Maxwell, 2013; Strauss, 1992; Strauss & Corbin, 1990). "Curiosity" was coded for under the "Analysis of Social Forces" thematic code. Two members of the research team independently coded each student interview using NVivo Research 10 software, and identified the codes through three readings focused on the larger themes and then narrowing to focus more on the specific etic and emic codes. Analyses were then compared until any inconsistencies were resolved.

Subsequently, we employed a five-step approach to data analysis drawing on Braun and Clarke's (2013) thematic analysis approach. First, utilizing selective coding, we identified areas of the student interviews previously coded as "curiosity" or as a related code such as "student engagement." Second, we engaged in a close reading of these sections to identify emergent, emic, in-vivo themes (Charmaz, 2006), such as "opening of eyes." Next, we constructed a conceptually clustered matrix to allow for cross-data analysis. In the matrix, all relevant quotes from each school were sorted by emic theme, which then allowed for the identification of patterns across schools and students. Using this matrix, these more specific, emic themes were then grouped into broader, related etic themes, such as "perspective taking," "relevance," and "new information." We then examined these larger thematic areas for possible missed subcodes. Finally, we wrote a narrative summary synthesizing each of the larger themes to further clarify the various relationships between the codes. This data analysis was carried out by the lead author—a white, female doctoral candidate from an upper middle class background—and the second author—a white, male professor from an upper middle class background. For this article and as part of the larger study, both researchers engaged in reflection with the larger research team about their roles as outsiders to the communities participating in the study, as well as their own race and class privileges, to consider how these backgrounds might impact the analyses. In order to reduce researcher bias, we aimed to stay close to the data and used quotes from the students themselves. Below, we outline the major findings that emerged from these analyses.

Results

Across the five schools, three themes emerged in participating adolescents' explanations of how their school's social engagement curriculum fostered their critical curiosity: (a) the importance of providing new information; (b) the importance of using relevant, "real life" examples, and (c) the importance of providing new perspectives. We consider each of these three themes in turn below and examine the implications of these themes in further detail in the Discussion.

New information

Fourteen students specifically referenced the importance of learning about novel information in fostering their critical curiosity. For these students, it seemed to be the exposure to an entirely new sort of curriculum, one specifically focused on issues of social justice and engagement, that was enough to spark their curiosity. For example, Gabby, an MtRA student, stated, "Um, I'm a very inquisitive person. So when I find out something that, that is foreign to me, like, it just makes me wanna know more about it." She expanded her statement to add that her curiosity was "especially" sparked by social justice topics like "capitalism and heterosexualism" because she "never knew [about them]." Community Academy student, Ella, also made the explicit connection that she was "really curious" to find out that "what's happening here [social inequalities], it's been happening in a lot of other places that I never knew of." Furthermore, Monica, at MtRA, in speaking about her school's social engagement class, noted: "When we came to this school and they gave us this class, I was like 'This is gonna be good' because there's so much going on in the community we don't know about." Again, it is this exposure to new information, particularly new social justice information, that seems to spark Monica's interest in the curriculum.

Similarly, two other students spoke about how their school's social engagement curriculum was interesting specifically because it was new information that went against, or overturned, their previous

learning. For example, Community Academy student, Janelle, in response to a question about her curiosity, spoke about a unit in her humanities class on South African Apartheid. She noted:

> I was really interested because, like, I always wanted to know how they treated the people … because at first I thought everything was okay in what happened in South Africa but when I heard they had to carry passbooks and everything.

Another Community Academy student, Bianca, reiterated this sentiment in expressing how "shocking" it was to learn about Apartheid:

> I think it's pretty interesting and I'm very excited to learn more about it 'cause, you know, it was kinda, like, shocking to hear what really happened, like, I know people got beat or whatever, but I didn't know all of this went down.

Again, like Janelle, Bianca seems to be making the connection that it was this overturning of her previous knowledge that piqued her curiosity.

Twelve students specifically described how their school's curriculum "opened them up" or gave them a new outlook on the world, which, in turn, sparked their curiosity. For example, Monica, at MtRA, reported that learning about these topics made her more interested in school because of this exposure to new information:

> I think 'cause this school is so centered around, like, the racial-ness and everything like that that, it makes … it's like a huge impact 'cause, like … at first I wasn't so sure if I wanted to be in a school that was so inquiry based … but once I got into it, like, I really realized that this is something I need 'cause when I'm just living, I'm just going day by day, living life not really knowing what's going on, until I really got to this … they open us up to stuff that you won't be opened up if you go to [another area high school]. This school has given us, like, stuff that we never even imagined was going on in the world.

Melanie, a One Vision student, reiterated that it was the opening of her eyes in her middle school (a feeder school to her current high school) which led to her interest: "In middle school they really open up your eyes to [social justice issues], and so, it got more interesting. Like now I'm really interested in that. And, like, I kind of like learning about it 'cause you, like, you're learning the truth." Echoing Melanie's comments, Kelly, a Leadership student, noted that her school's curriculum:

> … really opened us, that there's people who are dying, there're people who are homeless, there're people who can't even get an education because they have a certain color or because they're women or because of their religion, and they really opened us to be grateful, not only to be grateful and want to do better for ourselves, but to go back and say, "I'm here for you," and help out those who can't advocate for themselves. So they do shine light on it.

Relevance

As evidenced in some of the previous comments, numerous students attributed their curiosity to the relevance of the material to their own lives, cultures, or communities. In their own words, the students described that relevance as "learning the truth" or "[it's] what's happening here." Four subthemes emerged within students' relevance comments, including: (a) personal relevance; (b) cultural relevance, particularly to a student's racial or ethnic group; (c) contemporary relevance to the individual's current society or geographic community; and (d) lack of relevance.

Personal relevance

For two students it was the personal relevance of the material that sparked their curiosity. For instance, a student at Community Academy, Lanie, noted, "I really want to learn about that, I like learning about stuff like [social inequalities] … because, like, I faced things like that." Similarly, Erica, at MtRA, noted:

> I like learning about [social justice issues] a lot since it's, this is the world I'm living in, and, like, we learn so much about, like, the world that we didn't even know about, and the world before that we didn't know about.

Both the relevance to "the world I'm living in" and new information about that world contributed to Erica's interest.

Cultural relevance

Nine students noted that it was the relevance of their schools' curriculum to their culture, specifically their individual racial or ethnic group(s), that fostered their curiosity. For example, Eric, at MtRA, noted, "it's never too much of learning your culture." Similarly, one Community Academy student, Kendra, talked about how it was "really cool" to "see what my culture is about." In fact, Kendra noted that she is interested in learning more about this material because of its cultural relevance:

> I really, like, really wanna learn about that stuff, um, 'cause it's kinda not fair … So to learn about the things that happened in South Africa and all that, it's kinda cool, but I don't think it was fair for black to people to be treated, like, unfairly and Whites to get treated like they're the kings or something. I don't think that's fair, so it was really cool to like learn about … really cool to learn about that stuff.

Furthermore, Jake, a student at Leadership Academy, described how he enjoyed reading Toni Morrison's critique of the dominant standard of beauty in *The Bluest Eye* because it "connects more to how I feel in society." Likewise, Sarah, at One Vision, noted, "especially about history, I love to know that there's, like, somebody there with my racial skin color that has, like, that has, um, set a goal and achieved."

Contemporary relevance

Twelve students described how the relevance of their schools' curriculum and programming that focused on current society, particularly their own geographic communities, sparked their curiosity. For example, Damion, an MtRA student, described the importance of focusing on "real life," particularly the real life of his community, in sparking his curiosity in his social engagement class. For example:

> Well, social engagement, I never heard of a class like that until I came here, and we have that every other day, and it's just interesting 'cause we learn about actually stuff, like, around, and outside, like, racism, and how, like, social … people, like, food stamps, and stuff like that. And it's about stuff like that, basically, life.

Moreover, Damion, in describing what was interesting, commented:

> Especially if it seems like it's real life, like, if you know that that stuff is goin' on it's gonna get interesting to me. … I mean, like, welfare and stuff like that, like, that stuff is in real life, so it's interesting to me.

Jackie, a fellow MtRA student, echoed Damion's sentiments, noting that social engagement class was her "favorite" class because "it's, like, where I go to look at the situations outside of the classroom, and, like, what's happening in the real world, and, like, what's being said about us and about our community."
Similarly, Carlos, a student at Espiritu Academy, commented:

> I wanna learn about what happens because a lot of that, well, a lot of it still happens and you can see it in the news that people get treated unfairly and that I wanna learn because, like, people are still getting treated unfairly today and, like, how it's going to progress.

Natasha, a student at Leadership Academy, likewise noted, "I think I have a good, you know, good interest in it because it's still happening and we could still fix it, but people don't wanna fix it for some reason." In both these statements, we see Carlos and Natasha asserting that the material is interesting because it relates to current circumstances still occurring in their communities.

Lack of relevance

Two students appeared to feel that the curriculum was not relevant to them, as they described not experiencing or witnessing oppression in their own lives. For example, Marcos, at Espiritu, in responding to a question about how curious he was about social justice issues, replied, "Not that much, like I said, on my soccer team I'm the only dark skinned person there, so there's no racism there … Here, I don't see any racism so that's not a topic I would like to learn in school." Here, Marcos seems to be suggesting that it is the lack of relevance of the curriculum to his experiences that is contributing to his lack of critical curiosity. Similarly, Darryl, at Leadership, noted that he would probably become interested in the subject matter if he began to feel like it affected him: "I wouldn't say I'm that interested because I don't think it really affect[s] me. Unless it really does, I see it's affecting everybody, then eventually comes to me, then I'll probably start thinking about it."

New perspectives

Specifically at MtRA, two students noted that it was exposure to their peers' perspectives, rather than new information per se, that cultivated their curiosity. One MtRA student, Cyndi, particularly noted that the information was *not* new, yet it was the exposure to her classmates' perspectives that sparked her interest in the material:

> At first, um, I'm not gonna lie to you, I was not interested at all because I feel like that's something that I see every day and *it's nothing new*. … But … now, going on in the school year. Like, we all have our views on, like, social injustices, but when you go in a classroom, and you're around these … students who have different thoughts, you get a new way of looking at something. … you get these different views and standpoints, and you see what other people in the world think.

Similarly, Jackie, at MtRA, in speaking about her curiosity, noted the importance of getting to hear other students' opinions and experiences:

> Well, because, like, in [MtRA], like, we sit, like, when we sitting around, we're able to, like, learn off of our other peers, and, like, experience the way that they're thinking, and then, like, that might change our minds, and our experiences, and our opinions so that we might be able to, like, you know, see things from their perspective, and then it might change our perspective.

Again, though, there is an emphasis in Jackie's statement on this new information gained from others' perspectives in providing a form of learning that was not previously accessible.

In all, many students commented that their school's programming and practices cultivated their critical curiosity because they provided new information, "opened their eyes," allowed for access to new perspectives, or were relevant to them in some way—either personally, culturally in regard to their racial or ethnic group, or to their current society or community. Notably, students described a lack of curiosity when materials were not relevant to them. In the following Discussion, we explore how these results support and broaden Freire's conception of critical curiosity and current curiosity scholarship.

Discussion

Although Freire (Freire & Macedo, 1995) asserted the importance of critical curiosity as a catalyst for fostering critical consciousness, relatively little extant research has specifically investigated how to cultivate critical curiosity in adolescents. Accordingly, this study served as a preliminary step in this work by investigating the ways in which adolescents at five urban charter schools described the influence of their school's social engagement programming on their critical curiosity development. The adolescents in this study identified a number of pedagogical and curricular strategies that align with and extend both Freire's assertions and contemporary curiosity scholarship.

Many adolescents interviewed for this study attributed their curiosity to their exposure to new information, or information that overturned their previous learning, stating that they were now "learning the truth," or having their eyes opened. A large body of interest and curiosity scholarship supports these students' perspective that "new information"—information that is surprising, puzzling, challenging, or ambiguous—leads to curiosity (e.g., Berlyne, 1960; Litman, 2005; Silvia, 2008). Moreover, these students' assertions regarding how their curiosity was piqued by "learning the truth," coincide with Freire's claim that critical curiosity is fostered through a problem-posing pedagogy focused on a "constant unveiling of reality" (Freire, 1970, p. 81) and through forging a new understanding of the relationship between the self and the world (Lewis, 2012). Recall that adolescent participants, such as Melanie, noted that it was the opening of their eyes that made the social engagement material so interesting to them.

Notably, students referenced a wide variety of identities when commenting on new information that piqued their curiosity, noting issues of class, sexuality, religion, and race, amongst others. This finding is in accord with the claims of intersectional theory that all individuals have multiple, intertwined identities that shape their views of power and privilege (Goodman & Jackson, 2012). Yet, in contrast to Diemer and colleagues' (2006) suggestion that issues of race, class, and social injustice serve as the best

"vehicles" for youth critical consciousness raising, our findings would suggest that educators committed to fostering their students' critical curiosity might utilize a broader view of youth identity and social engagement topics in order to provide multiple avenues for "catching" student interest. For example, educators might consider discussing intersections of race, class, and religion. Goodman and Jackson (2012) noted that since students are often overwhelmed by discussing intersectional identities in the classroom, future researchers might more fully consider the impact on student interest and critical curiosity when social engagement curriculums are constrained to single identities versus when they are expanded to explore students' intersectional identities.

Numerous adolescents in our sample also made reference to the importance of "relevance" or "real life" examples in sparking their curiosity, and, indeed, a large body of work on culturally relevant pedagogy and interest has highlighted the importance of using relevant curriculum and drawing on students' funds of knowledge to engage students and cultivate curiosity (e.g., Duncan-Andrade & Morrell, 2008). As noted previously, Freire (1970) believed that drawing on generative themes would spark students' critical curiosity, which in turn would lead to critical consciousness development. Lending support to Freire's argument for the importance of drawing on students' lived experiences, many students in this study described how they were curious about material that was both personally relevant, similar to experiences they might have faced, or culturally relevant, meaningful to their sense of racial or ethnic identity. In addition, several students noted their interest in themes, such as welfare, in their own geographic communities because they were "still happening," indicating a possible relevance to their own daily lives. Moreover, it is important to note here that the two students in this study who stated that they were *not* curious specifically made reference to the fact that they did not think the material "affected" them, further supporting the link between generative themes and critical curiosity.

Another key finding, however, was that several students in our sample identified elements of their respective school's social engagement programming that sparked their curiosity that were *not* drawn from their direct lived experience or conversations. For example, many students at Community Academy spoke about their unit on South African Apartheid, while other students noted how their curiosity was sparked by topics like "capitalism and heterosexualism," religious persecution, and prisons. Although it is possible that some of these themes *did* relate to participants' lived experiences, these comments suggest that adolescents' perceptions of relevance need not draw necessarily on their lived experience—the generative themes suggested by Freire—but that Shor's (1992) conception of topical and academic themes may be similarly adept at sparking students' critical curiosity. Indeed, Shor (1992) argued that critical educators should consider the introduction of topical themes in the classroom because important social issues are often *not* a part of student conversation—topics such as "big oil" or taxes (Shor, 1992).

A noticeable pedagogical theme that arose for some students was the importance of exposure to multiple perspectives in fostering their critical curiosity. Recall, for example, that two students from Make the Road Academy described exposure to "different thoughts" and perspectives from their classmates as one aspect of their curriculum that sparked their critical curiosity. As noted above, Erikson (1968) and other adolescent development scholars have characterized adolescence as the period in the lifespan in which individuals move beyond a blind adherence to the perspective and ideologies of their nuclear families and seek out new and different ways of understanding the world and their role in it. These students' interest in hearing multiple perspectives support the work of Flanagan (2013) and other identity scholars who suggest that adolescents are particularly receptive to curriculum and programming during the high school years that offer new information and perspectives about issues of power and inequality. Again, it may not be that critical curiosity can only be fostered in adolescents, but our findings suggest that adolescence may be a prime period for fostering students' critical curiosity in issues of social engagement given their predisposition towards identity exploration.

Perhaps more importantly, these students' statements regarding the importance of "experiencing" other's thinking in fostering their critical curiosity directly supports Freire's (1970; Freire & Macedo, 1995) argument that dialogic education, education inherently focused on the sharing of new perspectives, is innately linked to critical curiosity and critical consciousness development. As noted earlier, Freire (1970) believed that individuals must be curious *about* a dialogue in order to engage successfully

in dialogic, problem-posing education, but that critical curiosity is also raised *through* engaging in such education. For Freire, this critical curiosity then serves as a main catalyst to critical consciousness development (Freire, 1970, 1998). Participating adolescents' descriptions of how exposure to others' perspectives not only sparked their curiosity but, in turn, also made them begin to see the world in new ways, serve as evidence of the ways in which critical curiosity may serve as a catalyst to critical consciousness development through shaping students' new sense of reality. Thus, these findings further substantiate Freire's (1970) claim that critical curiosity may not only presuppose dialogue, but also may be an important outcome of the dialogic process, suggesting an important feedback loop that motivates students' interest and engagement in social engagement programming and their subsequent critical consciousness development. In other words, students' curiosity may need to be raised to begin engaging with social engagement material, but the material itself may then further foster critical curiosity, in turn motivating continued engagement with the material and, subsequently, the development of critical consciousness. As Shor (1992) noted, it is not dialogic education in and of itself that leads to critical consciousness; rather, it is the impact of dialogue on, "the students' experience of learning, encouraging them to learn more and to develop the intellectual and affective powers to think about transforming society" (p. 111). In all, our findings align with Freire's assertion that it is the fostering of critical curiosity through dialogue that encourages this eagerness to learn more. Given that this finding was limited to students at MtRA in our study, future research should consider the importance of dialogue and multiple perspectives in fostering students' critical curiosity across pedagogical contexts as well as the schooling conditions that promote such dialogue.

Limitations

Importantly, this study has several limitations. Although we conducted 60 interviews with students across the five participating schools in efforts to obtain a representative sample of student perspectives, these students' comments are limited in their generalizability. Given that our sample was almost entirely low-income youth of color at urban charter schools, it is possible that the pedagogical strategies suggested here may not extend to dominant identity youth or those at public, private, suburban or rural schools. In addition, our findings did not allow us to assess differences in perspectives on pedagogical strategies between students with previously high or low levels of critical curiosity (e.g., Durik & Harakiewicz, 2007).

Moreover, the use of selective coding, as well as the limited curiosity questions in the larger interview protocol, as the basis for this study may have excluded students' comments about other ways in which they viewed their school as sparking their critical curiosity. Given the larger study's confined focus on critical consciousness and sociopolitical development, particularly regarding issues of racial and class inequality, it is possible that we did not allow students to give voice to other areas of their curriculum that fostered their critical curiosity. The fact that students did speak to topics outside of race and class issues that interested them, such as issues of heterosexualism or religion, partially allays this concern.

As the questions of this study focused on curiosity in school, we also were unable to ascertain whether these students now possess a more enduring, individual interest in social justice and social activism as their responses primarily centered on ways their curriculum "caught" their curiosity, rather than markers of long-term individual interest, such as a desire to learn more outside of school (Bergin, Wang, & Bergin, 2015).

Despite its limitations, this study has several larger implications for educators and researchers interested in cultivating critical curiosity and for those hoping to further disentangle the relationship between critical curiosity and critical consciousness development. We turn now to these larger conclusions.

Implications and conclusion

Our findings present several promising pedagogical strategies for educators committed to fostering critical curiosity in their adolescent students. First, in line with the previous curiosity work on "catch facets" (Mitchell, 1993), our findings indicate that one promising strategy for cultivating critical curiosity might be presenting surprising information to students, as evidenced in the adolescents who described their "shock" or "amazement" at information provided by their social engagement curriculum. In presenting this surprising information, educators might consider drawing on students' intersectional identities by focusing on issues of race, class, sexuality, religion, and more. Moreover, our

findings indicate that a curriculum that not only focuses on new, surprising information, but also leads students into a new understanding of their reality, might prove especially adept at heightening students' critical curiosity. Ultimately, what appears to be important for the students in sparking their curiosity is that they learn new information that overturns their current conceptions of reality.

Given Durik and Harakiewicz's (2007) finding that an intervention aimed at sparking students' situational interest in math only had positive effects for those with a low level of individual interest, and undermined the interest of those with previously high levels of individual interest, future researchers might assess the generalizability of these findings across students with specifically high and low individual interest in social engagement issues. For example, do students with lower levels of curiosity describe new information (a "catch strategy") more often, whereas students with higher levels of curiosity described relevance (a "hold" strategy) more often? We are hopeful that the longitudinal nature of our study will allow us to address such a question in the future.

Second, although Freire (1970) championed the importance of generative themes drawn from the conversations of students in the classroom, our findings suggest that larger thematic or cultural topics related to the study of social justice and engagement may be just as interesting to students as topics specifically drawn from their own lives, experiences, and conversations. For example, the interviews conducted for this study were collected between Fall 2013 and Spring 2014, coinciding with the founding of the Black Lives Matter movement, a civil rights movement aimed at challenging forms of systemic oppression. Our findings suggest that drawing on social engagement topics, such as the Black Lives Matter movement, regardless of whether or not such topics serve as generative themes as Freire (1970) conceptualized them, may serve as potent avenues for fostering students' critical curiosity, and, subsequently, their critical consciousness. Making or using materials that are personally, culturally, or contemporaneously relevant to students appears to be one of the most significant ways of fostering student critical curiosity. Future researchers might consider more fully the ways in which students' intersectional identities impact their conceptualizations of relevance, and, subsequently, their critical curiosity and critical consciousness development. In particular, given that our findings indicate that adolescents may be primed towards developing critical curiosity due to their predisposition towards identity development, scholars might consider how students' identity development statuses across identity domains impact their critical curiosity in the classroom.

Finally, the importance two students in our study placed on "experiencing" other's thinking in a dialogic format for fostering their critical curiosity indicates that educators should consider leveraging interactive, collaborative formats where students will be exposed to multiple perspectives in order to cultivate critical curiosity. Too few students spoke to this pedagogical strategy for us to generalize it as practice for fostering critical curiosity; yet, given the overlap with Freire's focus on dialogue we feel it is a promising area for further study. For example, future research might further consider the role of students' critical curiosity in promoting intergroup dialogues aimed at fostering race and class consciousness (e.g. Madden, 2015).

Ultimately, this study also resulted in several more questions regarding the role critical curiosity plays in fostering critical consciousness. Specifically, if critical curiosity is both a precursor and outcome of dialogic education, as Freire (1970) suggested, what are the specific ways that this feedback loop contributes to critical consciousness development? Given the importance Freire placed on dialogic education in fostering critical consciousness, it is important that researchers continue to investigate the possible mechanisms involved in social formats, and particularly dialogic formats, that can contribute to students' critical consciousness development. Moreover, as Freire's (1970) goal of critical consciousness was for individuals to not only understand, but also commit to challenging oppressive social forces, additional research is needed to investigate how to move students' piqued curiosity into longstanding individual interests in sociopolitical activism. By doing so, we can continue to identify the programming and practices that can contribute to adolescents' abilities to analyze the oppressive social forces influencing their lives and commit to engaging in the collective social actions necessary to challenge such forces.

Acknowledgments

Note

1. In deciding to use the qualifiers "etic" and "emic" we drew on work by Maxwell (2013), who notes that "categories taken from participants' own words and concepts" are "generally called 'emic' categories," whereas Maxwell defines theoretical categories, one's that "place the coded data into a more general or abstract framework" that "typically represent the researcher's concepts" as 'etic' categories (p. 108).

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