

**Black and Latinx Adolescents' Developing Beliefs about Poverty and Associations with
Their Awareness of Racism**

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Poverty and economic inequality are longstanding and pervasive problems in the United States that cannot be understood outside of their racialized contexts (DeNavas-Walt & Proctor, 2014; Pew, 2012). White (non-Hispanic) families in the United States possess, on average, more than ten times the wealth of Black and Latinx families (Kochhar & Fry, 2015) and report approximately \$20,000 more per year in median household income (DeNavas-Walt & Proctor, 2014). Such inequality contributes to a system of economic stratification in the United States in which Black children are four times more likely to be born into poverty than White Children (DeNavas-Walt & Proctor, 2014) and, of those children born into poverty, Black children are one-and-a-half times more likely to remain poor as adults (Pew, 2012).

Numerous scholars report that interpersonal and structural forms of racism contribute to such economic circumstances for Black and Latinx Americans in myriad ways including employment opportunities, access to the housing market, and in consumer interactions (e.g., Pager & Shepherd, 2008; Schmitt, Branscombe, Postmes, & Garcia, 2014). Researchers have also found these forms of racism to affect the economic circumstances and opportunities afforded to Black and Latinx adolescents (Gardecki, 2001; McLoyd et al., 2009; Duncan & Murnane, 2011). For example, adolescents of color put more effort into job-seeking but are less likely to be employed than White adolescents (Gardecki, 2001; McLoyd et al., 2009). Likewise, Black and Latinx adolescents' have less access to advanced coursework in high school than White adolescents, which weakens their economic and occupational opportunities in adulthood (Duncan & Murnane, 2011).

Relatively little scholarship has investigated Black and Latinx adolescents' developing beliefs about the causes of poverty, or the relationship between these beliefs and their awareness

of racism. Investigating these young people's beliefs is important because a growing body of scholarship suggests that understanding the social forces that contribute to inequality can serve as a protective factor for adolescents marginalized by these forces (Diemer, Rapa, Voight & McWhirter, 2016; Ginwright, 2011). The present study contributes to this scholarship with a longitudinal investigation involving Black and Latinx adolescents (n = 457) attending six urban secondary schools in five northeastern cities.¹ Specifically, we investigated 1) change over time in adolescents' beliefs about the causes of poverty, 2) relationship between their developing beliefs about the causes of poverty and awareness of racism, and 3) the role of a progressive schooling experience in moderating adolescents' beliefs about the causes of poverty.

Adolescents' Understandings of Poverty and Economic Inequality

Americans are typically characterized as holding either individualistic or structural beliefs about the causes of poverty and economic inequality (Kluegel & Smith, 1986). The individualistic perspective favors character traits such as laziness, perseverance, and intelligence to account for differences between affluent and poor citizens while the structural perspective relies on societal factors such as job shortages, low wages, discrimination, and unequal schooling opportunities (Bullock, 2006). A longstanding body of research has found that, on average, American children, adolescents, and adults cite individualistic factors as the primary cause of poverty (Flanagan et al., 2014; Kluegel & Smith, 1986; Leahy, 1983; Stuber, 2006).

In terms of the development of such beliefs, children as young as four or five years old can classify individuals as rich or poor based on observable features such as the size of their house or the type of clothing they wear (Horwitz, Shutts, & Olson, 2014; Mistry, Brown, White, Chow, & Gillen-O'Neel, 2015). By 10-12 years old, children can incorporate possessions,

¹In this paper, we use "adolescents of color" and "Black and Latinx adolescents" to describe our sample, with the goal of being both as precise as possible and inclusive of the labels participating adolescents chose for themselves.

lifestyle markers, and social comparisons to inform their conceptions of an individual's economic status (Chafel & Neitzel, 2005; Mistry et al., 2015). During this same period, children also demonstrate awareness of the stereotypes associated with being wealthy or poor, and assign more negative attributes to poor individuals than to wealthy individuals (Mistry et al., 2015; Woods, Kurtz-Costes, & Rowley, 2005).

In comparison to the scholarship on children's poverty beliefs, the developmental literature on adolescents' poverty beliefs is scarce (Arsenio & Willems, 2017; Flanagan et al., 2014). Skafte (1989) reported that, similar to younger children, a sample of predominantly White American adolescents ages 11-16 attributed more negative traits to poor strangers than to rich strangers. Goodman and colleagues (2001) found that, with age, a sample of predominantly White American adolescents between 12 and 16 years old grew increasingly attentive to sophisticated indicators of economic status, and more accurate in their subjective interpretations of their own economic status. Also, in two different studies that asked American adolescents ranging from 10-17 years old to explain why some people are rich while others are poor, scholars found that, with age, adolescents demonstrated a higher ability to offer causal explanations for people living in poverty (Leahy, 1983; Sigelman, 2012). Finally, Flanagan and Tucker (1999) found that, in a study involving a racially diverse sample of American adolescents between 12 and 18 years old, older adolescents were more likely than younger adolescents to cite multi-dimensional factors contributing to poverty. A similar pattern emerged in a study of Malaysian adolescents between 12 and 16 years old, with older adolescents again offering more complex and multi-faceted explanations for poverty (Halik & Webley, 2011).

In explaining these changes in adolescents' understandings of poverty, scholars theorize that increases in cognitive complexity during adolescence (Smetana & Villalobos, 2009;

Steinberg, 2014) better equip older adolescents than their younger peers to consider structural explanations for poverty and economic inequality such as job shortages, a low minimum wage, inherited wealth, etc. (Flanagan et al., 2014; Halik & Webley, 2011). Likewise, Flanagan (2013) reported that older adolescents can form understandings of abstract concepts such as the economy and the common good that facilitate more structural understandings of economic inequality. That said, it should be noted that, despite increases in the cognitive abilities necessary to understand structural causes of poverty, American adolescents' beliefs about economic inequality—like those of adults— remain heavily informed by widespread societal beliefs that favor individualistic factors over structural ones (Flanagan et al., 2014). Put another way, adolescents in the United States between 11 and 18 years old, on average, characterize rich people as harder working than poor people (Leahy, 1983) and the poor as possessing less aptitude and fewer capabilities than wealthy people (Leahy, 1981; Skafte, 1989). Such a perspective aligns with system justification theory, which posits that most individuals seek to justify the social order and to avoid beliefs—such as a structural understanding of poverty—that challenge the social order (Jost, Banaji, & Nosek, 2004).

A number of demographic factors have also been found to moderate adolescents' understandings of poverty and economic inequality. In their study of American adolescents between 12 and 18-years old, Flanagan and colleagues (2014) found that male adolescents were more likely than their female peers to cite individualistic explanations for poverty in responding to an open-ended prompt about why some Americans are poor. Likewise, a number of different studies have found that adolescents of color (Flanagan et al., 2014; Woods et al., 2005) and adolescents from low-SES families (Dickinson, 1990; Flanagan & Tucker, 1999; Flanagan et al.,

2014) in the United States are more likely to identify individualistic factors that contribute to poverty than their White and high-SES peers.

The present study sought to contribute to this extant scholarship by investigating low-SES Black and Latinx adolescents' developing beliefs about the causes of poverty, as well as the relationship between these adolescents' developing poverty beliefs and their awareness of racism. Attention to this group is important in light of the paucity of research on the poverty beliefs of adolescents from marginalized racial and economic groups. Better understanding these young people's developing beliefs about poverty is critical given that adolescence represents a key period for considering one's place in the world (Erikson, 1968) and that such identity work is explicitly informed by what people believe to be true about the groups in which they are members (Oyserman, Brickman, & Rhodes, 2007; Tajfel, 1982). Put another way, marginalized adolescents' beliefs about the causes of their own economic circumstances are consequential because those beliefs (whether consciously or unconsciously) influence their choices, behaviors, expectations, and aspirations for adulthood (Savitz-Romer & Bouffard, 2012).

Adolescents' Awareness of Racism

The Center for Racial Justice Innovation (2017) offers a conceptual framework that defines racism as consisting of two types of individual-level racism (interpersonal, internalized) and two types of systemic-level racism (institutional, structural). The present study considered adolescents' awareness of two of these types of racism: interpersonal and structural.

For youth of color, awareness of interpersonal racism entails the recognition that others are likely to define them negatively (e.g., stereotyping), see them only as a member of a negatively valued group (e.g., conscious and unconscious biases), and treat them inequitably (e.g., racial discrimination) (Oyserman, Harrison, & Bybee, 2001). Children of color in the

United States as young as six years old demonstrate awareness of stereotypes about their own racial group (Bigler, Averhart, & Liben, 2003). By age eleven, they are able to infer other's stereotypes and describe broadly held societal stereotypes about their own racial group (McKown & Strambler, 2009). Scholars have posited that such age-related increases in awareness of stereotypes is due to the combination of increased experience and cognitive sophistication as children mature (McLoyd et al., 2009; Spencer, Dupree & Hartman, 1997). American youth across racial groups demonstrate awareness of racial discrimination by 10-13 years of age; however, youth of color, on average, develop deeper understandings of racial discrimination and at an earlier age than their White peers (Bigler, Arthur, Hughes, & Patterson, 2008; Bigler & Wright, 2014; Brown, Mistry & Bigler, 2007; McKown & Strambler, 2009; McKown, 2014; Seaton, 2010).

Scholars have posited that growth in awareness of interpersonal racism continues into middle and late adolescence due to youth's continued development of cognitive and metacognitive thinking skills, acquisition of the independence and mobility to spend time in more heterogeneous settings, and engagement in social comparison associated with adolescent identity exploration (McKown & Strambler, 2009; Rivas-Drake, 2011; Sellers, Rowley, Chavous, Shelton & Smith, 1997). Increases in adolescents' awareness of interpersonal racism and perceived racial discrimination have been associated with the transition to high school, a context wherein many adolescents may experience stereotyping, biases, and discrimination from adults and peers (Bellmore et al., 2012; Oyserman, Brickman, & Rhodes, 2007; Rivas-Drake, 2010).

Several studies offer support for this proposed developmental pattern of youth gaining increased awareness of interpersonal racism and discrimination in middle and late adolescence. Killen, Henning, Kelly, Crystal, and Ruck (2007) reported that, in a racially diverse

sample of 4th, 7th, and 10th grade students, young people's beliefs about the influence of racial discrimination in interracial settings increased with age. Importantly, within this sample, students of color were more likely than their White peers to identify the influence of racial discrimination at all three ages. Additionally, Altschul, Oyserman, and Bybee (2006) found African American adolescents became increasingly aware of racial stereotypes about their racial group over their first two years of high school, and Benner and Graham (2011) reported that Latinx adolescents demonstrated increases in their perceived experiences of racial discrimination over the first two years of high school as well.

Awareness of structural racism entails recognition of how policies, laws, and cultural practices can privilege or obstruct the success of particular racial/ethnic groups over others (Pager & Shepherd, 2008). Whereas interpersonal racism is typically the result of a particular individual's biases, stereotyping or discriminatory practices, structural racism exists within the policies and practices of various institutions. In comparison to awareness of interpersonal forms of racism, there has been less scholarship on the development of youth's awareness of structural racism (Hughes & Bigler, 2011; Hope & Bañales, 2018; Killen, Rutland, & Ruck, 2011). However, scholars have posited that adolescents' growing cognitive abilities—and, in particular, the development of formal reasoning and abstract thinking skills—increases their ability to recognize this more abstract form of racism (Harrell, 2000; Hughes & Bigler, 2011; Quintana, 2008; Seaton, Caldwell, Sellers, & Jackson, 2010).

Although relatively little scholarship on adolescents' awareness of structural racism has drawn on longitudinal data, several cross-sectional studies have found that early adolescents of color demonstrate the ability to recognize structural forms of racism and prejudice. Hope and Bañales (2018) reported that 10-14 year-old African American youth from two Midwestern cities cited structural forms of racism and bias in describing challenges facing their communities.

This finding is consistent with an earlier study of Latinx children from central Texas that found, by early adolescence (10-11 years old), these youth exhibited a “group perspective of prejudice” that included a recognition of how the success of Latinx Americans might be impeded by prejudice embedded in institutions such as law enforcement and schools (Quintana & Vera, 1999).

In work focused on middle and late adolescents, Hughes and Bigler (2011) found that, with age, 14-17 year old African American adolescents became more supportive of affirmative action and school desegregation policies than their European American peers. These scholars concluded that increased support among African American adolescents for such systemic policies corresponded with their emerging recognition of structural forms of racism. These findings are consistent with Cohen’s (2011) report that a nationally representative sample of Black and Latinx young adults between 15 and 25 years old could identify the negative effects of structural racism in America’s education, healthcare, and criminal justice systems. Additional insight into these findings comes from Apollon and Sawyer’s (2011) focus groups with racially diverse 18-25 year olds in Los Angeles, California. These scholars found that young people of color tended to cite America’s education, healthcare, and criminal justice systems themselves as sources of racial inequality; in contrast, White participants in these focus groups tended to blame racist individuals within such systems rather than the systems themselves.

Finally, a number of scholars have posited that the more covert nature of structural racism means that awareness of this form of racism typically develops for adolescents and adults through explicit learning opportunities rather than lived experience (e.g. Dupree, Spencer, & Spencer, 2015; Gurin, Sorensen, Lopez, & Nagda, 2015; Lopez, Gurin & Nagda, 1998; Seaton, 2010). As a result, much of the scholarship on adolescents’ developing awareness of structural racism focuses on the influence of school-based and out-of-school programming. For example,

several scholars have reported on the role of out-of-school youth organizing groups in fostering adolescents' understanding of structural forms of oppression, including racism (Christens & Dolan, 2011; Conner, 2014; Kirshner, 2007; Larson & Hansen, 2005; Mediratta, Shah, & McAlister, 2009). Other studies focused on the role of schools and school-based programming in fostering adolescents' understandings of structural racism are described below. The present study sought to contribute to this extant research by investigating racially marginalized adolescents' developing awareness of both interpersonal and structural racism, and how such awareness relates to their schooling experiences and developing beliefs about poverty.

Children's Intersectional Awareness of Poverty and Racism

Although a wide body of scholarship has reported on ways in which racial discrimination contributes to poverty and vice versa (e.g., Pager & Shepherd, 2008; Schmitt et al., 2014), relatively little scholarship has considered individuals' intersectional awareness of these social forces. Intersectional awareness can be defined as an understanding of the intersecting effects of multiple systems of power upon individuals and communities (Curtin, Stewart, & Cole, 2015).

In terms of children's development of intersectional awareness of racism and poverty, scholars have found that both African American and European American children associate African Americans with low economic status more frequently than European Americans (Bigler et al., 2003; Elenbaas & Killen, 2016; Newheiser & Olson, 2012) and that, with age, children in both groups grow more likely to associate high economic status with European Americans (Elenbaas & Killen, 2016). Elenbaas and Killen (2017) also found that, between five and 11-years-old, African American, Latinx, and European Americans demonstrated an increasing awareness that economic disparities between people of different races are due to differential treatment (i.e. racial discrimination) that disadvantage people of color.

Cumulatively, this scholarship offers important insights into the development of intersectional awareness in childhood; however, we are not aware of similar scholarship that has investigated adolescents' intersectional awareness of poverty and racism. The current study sought to contribute to the extant research by investigating longitudinally the relationship between Black and Latinx adolescents' developing beliefs about the causes of poverty and their awareness of both interpersonal and structural forms of racism.

Schools as Sites for Learning about Poverty and Racism

Finally, a growing body of scholarship suggests that schools can play an important role in influencing adolescents' understandings of social issues such as poverty and racism. Scholars have reported that adolescents participating in secondary school classroom environments that foster free and open exchanges of ideas demonstrate deeper understandings of social and civic issues (Campbell, 2008; Hess, 2009). Likewise, Authors' Names Withheld (2017) reported that urban secondary schools engaging Black and Latinx students in critical discussions of the college admissions process fostered these students' recognition of structural factors that contribute to economic inequality. At the college level, scholars have found that similar dialogic educational practices can deepen college students' recognition of the structural factors underlying social inequalities such as poverty (Gurin, Nagda, & Zuniga, 2013). Importantly, when disaggregating the effects of such dialogic practices by students' race/ethnicity, these scholars found differing effects on students' structural thinking about racial inequality and poverty. Specifically, students of color in the dialogic group demonstrated significant increases in their structural thinking about poverty in comparison to a matched comparison group, but not in their structural thinking about racial inequality (Gurin, Sorensen, Lopez, & Nagda, 2015).

Other scholars have investigated the impact of academic coursework focused on issues of inequality. For example, scholars have found that Latinx high school students participating in ethnic studies and Mexican American studies coursework demonstrated increases in their ability to recognize unjust policies, practices and institutions affecting their lives and communities (Cammarota & Romero, 2006). Other scholars report that adolescents exposed directly to issues of inequality through experiential learning such as simulations and role-plays (e.g., Levinson, 2012) and youth participatory action research (Duncan-Andrade & Morrell, 2008) are more likely to express concern for such inequality and to question their own preconceived notions about the causes of inequality. However, Mistry and colleagues (2012) found that upper-middle-class adolescents participating in a one-week social studies unit focused on poverty and inequality did not demonstrate increases in their understanding of the structural causes of poverty six months after the intervention.

Importantly for the present study, a number of the schooling practices described above—dialogic education, experiential learning, and programming focused on inequity and injustice—are all key elements associated with progressive schooling models. Influenced by the writings of philosopher John Dewey, progressive educators conceptualize schools as key agents of an effective democracy and, thus, seek to engage students as active citizens within their school community and broader communities (Kohn, 2008). Specifically, progressive schooling models emphasize a caring and collaborative community in which students and teachers work together as partners as well as a curricular focus upon social justice, inquiry-based learning, and deep understanding (Little & Ellison, 2015). The present study contributes to the extant research literature on the role of schools in influencing adolescents’ developing understandings of poverty and racism by comparing these developing understandings in adolescents attending progressive

secondary schools to a comparison group of peers attending a more traditional schooling model referred to as “no-excuses” (Carter, 2000).

The Current Study

To contribute to the extant scholarship on adolescents’ beliefs about the causes of poverty, intersectional awareness of poverty and racism, and schooling practices that foster such understandings, the present study was guided by the following research questions:

1. How do Black and Latinx adolescents’ beliefs about the causes of poverty change over their first three years of high school?
2. How do these adolescents’ change in beliefs about poverty relate to their change in awareness of racism during this same time period?
3. How does the type of school attended by participating adolescents (progressive, no-excuses) influence their developing beliefs about the causes of poverty?

In considering these research questions, we began our analyses with the following hypotheses. First, in light of research literature suggesting that older adolescents are more likely than younger adolescents to understand and speak to structural causes for poverty (Flanagan et al., 2014), we hypothesized that adolescents in the sample would demonstrate significant growth over time in their belief that poverty is caused by structural factors (H₁). Second, given research that suggests children demonstrate a growing awareness of the effects of racism on poverty and economic inequality (Elenbaas & Killen 2016, 2017) we hypothesized that adolescents’ changing beliefs about the structural causes of poverty would correlate significantly with changes in their awareness of both interpersonal racism and structural racism (H₂). Finally, given scholarship suggesting that dialogic, experiential, and equity-focused schooling practices are associated with growth in students’ structural understandings of poverty and inequality (e.g. Hess, 2009; Nagda, Gurin, & Lopez, 2003), we hypothesized that attending a progressive schooling model emphasizing such practices would be associated with higher growth over time in adolescents’ beliefs about the structural causes of poverty than peers attending a no-excuses model (H₃).

Method

Participants

Participating adolescents ($n = 457$) entered the ninth grade in September of 2013 at six urban charter high schools located in five northeastern cities in the United States. The sole criteria for participation in the study was membership in the Class of 2017 at one of these six schools, and this sample represents the entire Class of 2017 at each school (with the exception of a small number of students absent on the days we administered our survey).

Within this sample, 197 students identified as male (43%) and 260 as female (57%). One hundred and ninety-five students (43%) identified as Black or African American; 93 (20%) as Latinx; 140 (31%) as multi-racial; 14 (3%) as Caribbean; and 11 (3%) as Haitian. Five students who identified as White were excluded from these analyses. Nearly 80% of adolescents qualified for free or reduced price lunch, a proxy for low socioeconomic status. Specifically, to qualify for free/reduced price lunch during the 2016-17 school year, a family of four had to demonstrate a combined income below \$44,955 (Federal Register, 2017).

These demographic categories are also reported by school in Table 1 (schools are referred to by pseudonyms). As is evident, five of the six schools hold student bodies that are majority African American/Black, with smaller percentages of students identifying as Latinx or multi-racial. The sixth school reports a student body that is majority Latinx, with smaller percentages of students identifying as African American/Black or multi-racial. As described below in the descriptions of the participating schools, students attending these six schools were exposed to one of two different schooling models: progressive or no-excuses.

Participating Schools

Adolescents in the present study were recruited from six urban charter high schools in five northeastern cities in the United States. Charter schools are publicly-funded schools that are

overseen by their respective state departments of education rather than by local school boards; are generally granted more autonomy in curriculum and personnel matters than traditional public schools; and often serve relatively small student bodies of 200-400 students (Nathan, 1997). All six schools in the present study were open to any adolescent residing in their respective cities, admitted students by randomized registration lottery, and cited fostering students' civic engagement as a component of their mission (see Table 1 for information about each school).

Three schools in the present study characterized themselves as guided by progressive schooling practices and three by “no-excuses” schooling practices. As described in the Introduction, progressive schooling models emphasize a caring and collaborative community in which students and teachers work together as partners as well as a curricular focus upon social justice, inquiry-based learning, and deep understanding (Kohn, 2008; Little & Ellison, 2015). In contrast, “no-excuses” schools favor a focus on traditional mathematics and literacy skills, direct instruction by the teacher, a strict disciplinary environment, and an extended school day and school year (Carter, 2000). One might reasonably characterize no-excuses schools as embracing highly traditional approaches to teaching and learning. Of the approximately 6500 charter schools in the United States, approximately 9% identify as progressive and 9% identify as no-excuses (McShane & Hatfield, 2015).

INSERT TABLE 1 HERE

Data Collection

All data collection procedures described below were approved by the Institutional Review Board of [Name Withheld] (IRB #3146E: Name Withheld). These data were collected as part of a larger mixed methods study of the development of adolescents' critical consciousness that included surveys, qualitative interviews, and ethnographic field notes.

First, entering ninth grade students (14-15 years old) at each school completed surveys in September of 2013 (n = 457) that included three measures adapted from previously validated scales of adolescents' beliefs about the causes of poverty and their awareness of racism. Participants then completed this same survey in May, 2014 at the conclusion of their ninth grade year when they were 15-16 years old (n = 445); in May, 2015 at the conclusion of their tenth grade year when they were 16-17 years old (n = 391); and in May, 2016 at the conclusion of their eleventh grade year when they were 17-18 years old (n = 368). Only students who completed the Time 1 survey in Fall of 2013 were invited to participate in subsequent waves of data collection.

Measures

The survey completed by participating adolescents included one measure of beliefs about the structural causes of poverty and two measures of awareness of racism (interpersonal and structural). Students responded to all of the items comprising these measures along a 5-point Likert scale. Item responses were averaged to create a single score for each measure, informed by exploratory factor analyses (EFA) conducted prior to this study.

The Beliefs about the Causes of Poverty measure consisted of six items adapted from a sub-scale of the Poverty in America Survey (NPR-Kaiser-Harvard, 2001) that assessed the extent to which an individual conceptualizes poverty as caused by individualistic or structural factors. For each item, a score of "1" indicated individualistic attributions for poverty while a score of "5" indicated more structural attributions for poverty. For example, one item from this measure reads: "A shortage of jobs is a major cause of poverty." A second (reversed) item read: "Poor people are not doing enough to help themselves out of poverty." Prior EFA results supported the computation of a single factor score with acceptable internal consistency reliability (Cronbach's $\alpha = .70$). The Poverty in America Survey was originally developed, validated and administered to

a nationally representative sample of adults in the United States. Five of the 10 items from this sub-scale were used in the present study.

The Awareness of Interpersonal Racism measure is a four-item measure from Oyserman, Gant and Ager's (1995) Racial-Ethnic Identity Scale (Awareness of Racism sub-scale) that assesses an individual's recognition of the presence of interpersonal racism in his or her own life and community. The measure was originally developed, validated, and administered to samples of Black and Latinx adolescents. This measure first asks adolescents to identify their racial identity (which we used within our data-set to code students' race/ethnicity) and then solicits their level of agreement with particular statements into which they insert that racial identity. For example, one item reads: "Some people will treat me differently because I am _____." A second item reads: "Some people might have negative ideas about my abilities because I am _____." Both of these items solicit adolescents' perceptions of the biases and stereotypes other individuals hold about their racial group—two of the most prevalent manifestations of interpersonal racism. Prior EFA results supported the computation of a single factor score with acceptable internal consistency reliability (Cronbach's $\alpha = .73$).

The Awareness of Structural Racism measure consisted of five items adapted from Lopez, Gurin and Nagda's (1998) Structural Thinking about Racial Inequality Scale and assesses the extent to which an individual recognizes the structural factors underlying racial inequality. The scale was originally developed, validated, and administered to college students from diverse racial backgrounds. One item on this measure solicits students' level of agreement to the following statement: "Racism in the educational system limits the success of Blacks, Latinos and other racial minorities." A second item reads: "Many businesses intentionally keep Black, Latino and other racial minorities from gaining positions of power." Both of these items solicit

participating adolescents' recognition of the ways in which racism can manifest—not only in the actions of individuals—but in systems and institutions as well. Prior EFA results supported the computation of a single factor score with acceptable internal consistency reliability (Cronbach's $\alpha = .70$).

Data Analysis

In this study, we fit a series of latent growth models (LGMs) to explore several questions. In this technique, a growth structure is applied to repeated measures data (e.g., adolescents' beliefs about the causes of poverty) to model the trajectory of scores (Bollen & Curran, 2006). These models assume an underlying latent change process drives changes in the observed scores over time and allow us to explore and describe that change. LGMs include an intercept factor and one or more slope factors, which describe initial levels of and change in beliefs about the causes of poverty, respectively. Models specifying linear or nonlinear growth can be tested, but generally the most parsimonious model that adequately fits the data is preferred. Means and variances are estimated for these intercept and slope factors, providing information about the average initial level and the average rate of change, as well as information about individual variability in initial levels and rates of change. Additionally, LGM allows for an assessment of whether there is a relationship between initial levels and rates of change (i.e., correlation between intercept and slope factors). Finally, LGM models can be re-specified to set the intercept to any time point, which does not change the model-data fit but simply allows for the estimation of the mean and variance at different time points (Bollen & Curran, 2006).

LGMs also allow for the evaluation of questions about what variables or characteristics relate to variability in intercepts and slopes. Multivariate latent growth models (MLGM) simultaneously model the growth processes for two variables, each measured longitudinally.

These models allow us to evaluate whether development in one variable relates to development in the other (e.g., does change in beliefs about the causes of poverty relate to change in awareness of racism?), as well as whether the two variables relate to one another at points along the developmental trajectory (Bollen & Curran, 2006). Additionally, conditional models incorporate variables (e.g., gender, race) as predictors of variability in intercepts and slopes, providing information, for example, about whether males have higher or lower initial levels or greater or lesser rates of change in beliefs about the causes of poverty.

To address this study's questions, we first considered the nature of change in adolescents' beliefs about the causes of poverty. To this end, Model 1 was a linear LGM fit to the four scores (i.e., for each time point) for beliefs about the causes of poverty; factor means, variances, and correlations were estimated. Additionally, to obtain means and variances for beliefs about the causes of poverty at each of the four time points, the LGMs were re-specified four times, setting the intercept to each of the four time points. Given the pattern of means in beliefs about the causes of poverty, we expected a model that specified linear change would fit the data well; however, if model-data fit was not adequate, we would test nonlinear models as well.

Next, we explored whether there were variables that related to the change in beliefs about the causes of poverty. To this end, beliefs about the causes of poverty and awareness of racism were simultaneously modeled using two conditional MLGMs. Given the pattern of observed means for the two measures of awareness of racism, the models again specified linear change for these variables. Model 2 simultaneously modeled beliefs about the causes of poverty and awareness of interpersonal racism, whereas Model 3 simultaneously modeled beliefs about the causes of poverty and awareness of structural racism. For both Models 2 and 3, variables representing gender, race, and school type were also included as predictors of intercepts (e.g.,

levels of beliefs about the causes of poverty) and slopes (e.g., rates of change in beliefs about the causes of poverty), allowing us to examine whether change differed across gender (Male = 1, Female = 0), race (two dummy coded race variables were created; Latino = 1 and Multiracial = 1 with Black = 0 for each), or type of school attended (No-excuses schools = 1, Progressive schools = 0).² These models were also re-estimated, setting the intercept to each of the four time points to estimate residual correlations between variables at each time point, after controlling for gender, race, and school type.

All growth modeling analyses were conducted in Mplus, version 7.4. Given that the data were multivariate non-normal (i.e., Mardia's normalized multivariate kurtosis values were 26.3 for beliefs about causes of poverty, 27.3 for awareness of interpersonal racism, and 26.4 for awareness of structural racism), maximum likelihood estimation with robust standard errors (i.e., the MLR estimator implemented in Mplus) was used to obtain an adjusted chi-square and standard errors robust to non-normality. In addition, the MLR estimator is a full information maximum likelihood estimator and therefore allows for the use of all data points despite the presence of missing data (Enders, 2010). Model-data fit was evaluated using a variety of methods. First, we reported the adjusted χ^2 statistic, the adjusted comparative fit index (CFI), the adjusted root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR) as these are commonly used to evaluate model fit in structural equation modeling contexts. Given that these fit indices have not been extensively studied in the context of LGM and it is unknown if cutoffs that are commonly used are applicable for LGMs, additional information was evaluated when determining model-data fit (Wu, West, &

² The optimal approach to incorporating school type would have been to incorporate it in multi-level latent growth models. However, this was not feasible for the current analyses given only $J=6$ schools. We responded to this limitation in our data by including school type at level-2 and reducing the alpha level to .01.

Taylor, 2009). Specifically, we evaluated local fit by examining the standardized mean and covariance residuals, which provided information about how well each model reproduced the observed mean scores (i.e., aggregate form of growth) and co-variances (i.e., individuals' forms of growth). Large residuals highlight means and co-variances that the model does not reproduce well and, thus, are areas of misfit. Traditionally, residuals with absolute values of 3 or greater are said to indicate local misfit (Raycov & Marcoulides, 2000). Finally, given the large number of significant tests associated with the coefficients produced by the LGMs, we used a reduced alpha level of 0.01 to gauge statistical significance; additionally, we focused on the substantive interpretation of coefficients to help determine practical significance.

INSERT TABLES 2-6 AND FIGURE 1 ABOUT HERE

Results

Latent Growth Model for Poverty Beliefs

Descriptive statistics indicated that participating adolescents ($n = 457$) had, on average, an increasingly structural perspective about the causes of poverty over time, as well as increasing levels of awareness of interpersonal and structural racism over time (see Figure 1 and Table 2). Mirroring this, model fit information indicated the linear models fit the data very well (Table 3); thus nonlinear models were not considered. The parameter estimates for Model 1 (Table 4) describe how students' beliefs about causes of poverty change over time (i.e., Research Question 1). The intercept factor mean was 3.311, indicating that, on average, adolescents began with moderate levels of these beliefs. That is, at baseline, adolescents' beliefs about the causes of poverty were neither highly individualistic (a low score) nor highly structural (a high score). Additionally, the slope factor mean was 0.088 ($p < 0.001$), indicating that, on average, adolescents increased in these levels by a magnitude of approximately 0.09 from year to year. Importantly, the variances associated with both the intercepts and slopes were significant,

indicating significant individual variability in both initial levels of ($p < 0.001$) and rates of change ($p < 0.01$) in adolescents' belief that poverty is caused by structural factors. Additionally, re-specifying the intercept to each of the remaining time points indicated significant variability in beliefs about the causes of poverty at all four time points (i.e. significant intercept factor means).

Multivariate Latent Growth Model for Poverty Beliefs and Interpersonal Racism

The results of the two conditional MLGMs provided insight into the second and third research questions. Parameter estimates for Model 2 (i.e., simultaneously modeling adolescents' beliefs about the causes of poverty and awareness of interpersonal racism, while including gender, race, and school type attended as predictors) are reported in Table 5. The results of this model indicated that both variables changed in a positive and linear fashion (i.e., significant positive slope factor means), and that there was significant variability both in levels of and rates of change in both variables (i.e., significant factor variances for all intercepts and slopes). Importantly, the factor correlation between slopes for the two variables was nonsignificant ($r = 0.163, p = 0.254$), indicating that change in beliefs about the causes of poverty was *not* related to change in awareness of interpersonal racism.

When considering the predictor variables, Latinx students had significantly lower awareness of interpersonal racism intercepts (i.e., levels at the initial time point) compared to the reference group ($\gamma = -0.298, p = 0.001$). Additionally, compared to students attending progressive schools, students who attended no-excuses schools had significantly higher initial levels of beliefs about both the structural causes of poverty ($\gamma = 0.227, p < 0.001$) and awareness of interpersonal racism ($\gamma = 0.409, p < 0.001$) at Time 1. Students attending no-excuses schools had significantly lesser rates of change in awareness of interpersonal racism over time ($\gamma = -0.108, p = 0.004$) compared to students at progressive schools. Adolescents' change over time in

beliefs about the causes of poverty did not differ significantly by school-type ($\gamma = -0.058, p = .03$). Finally, the residual correlations ranged from $r = 0.181$ to $r = 0.186$ across the four time points, and were statistically significant ($p \leq .01$) at all four time points. This indicated a positive, albeit weak, relationship between students' beliefs about the causes of poverty and awareness of interpersonal racism within a given time point, similar to the observed correlations between these measures (Table 2). Thus, the residual correlations indicate that, after controlling for gender, race, and type of school attended, individuals with more structural perspectives about the causes of poverty also tended to be more aware of interpersonal racism.

Multivariate Latent Growth Model for Poverty Beliefs and Structural Racism

Table 6 presents similar results for adolescents' beliefs about the causes of poverty and awareness of structural racism, again when including gender, race, and school type attended as predictors (Model 3). Similar to Model 2, both variables had significant, positive change over time on average (i.e., significant and positive factor mean for the slopes) as well as significant variability in both levels of and rates of change in these variables (i.e., significant intercept and slope factor variances). Again, the correlation between slope factors was non-significant ($r = -0.110, p = 0.417$), indicating no relationship between change in beliefs about the causes of poverty and change in awareness of structural racism.

There was no significant relationship between gender or race and levels of (i.e. intercepts) or change in (i.e., slopes) either variable. However, compared to students attending progressive schools, students who attended no-excuses schools again had significantly higher initial levels of beliefs about the structural causes of poverty ($\gamma = 0.236, p < 0.001$) and awareness of structural racism ($\gamma = 0.269, p < 0.001$) at time 1. Additionally, students attending no-excuses schools had significantly lesser rates of change in awareness of structural racism over

time ($\gamma = -0.124, p < 0.001$). Finally, the residual correlations were not significant, mirroring the relatively weak observed correlations between these measures (Table 2). Thus, after controlling for gender, race, and school-type, there was no relationship between adolescents' beliefs about the causes of poverty and structural thinking about racism at any time point.

Summary of Key Findings

In summary, Model 1 offered support for our hypothesis (H_1) that adolescents in the sample would demonstrate positive and significant change over time in their belief that poverty is caused by structural factors. Cumulatively, Models 2 and 3 partially support our second hypothesis (H_2) in that Model 2 indicated a significant relationship between adolescents' beliefs about structural causes of poverty and awareness of interpersonal racism at each time point, while Model 3 indicated no relationship between poverty beliefs and awareness of structural racism. This discrepancy is unsurprising given that awareness of interpersonal racism was only moderately correlated with awareness of structural racism (i.e. correlations ranged from $r = .25$ -.50). Finally, Models 2 and 3 do not support our third hypothesis (H_3) that attending a progressive school would be associated with higher growth over time in adolescents' beliefs about the structural causes of poverty than attending a no-excuses school.

Discussion

This study's findings offered support for our first hypothesis (H_1) that adolescents in the sample would demonstrate positive and significant change over time in their belief that poverty is caused by structural factors. Specifically, we found that that young people moving from mid-adolescence (13-14 years old) to late adolescence (16-17 years old) demonstrated significant linear change over time in their belief that poverty is caused by structural factors, such as low wages and unemployment. This finding is consistent with previous scholarship that has reported

older adolescents to be more likely than early adolescents to offer structural explanations for poverty, wealth, and economic inequality (Flanagan et al., 2014; Flanagan & Tucker, 1999; Halik & Webley, 2011). However, this finding extends such scholarship, given that this is the first study of which we are aware that has longitudinally investigated change over time in adolescents' beliefs about the causes of poverty as they move from mid-adolescence to late adolescence. Our finding that a linear growth model fits these data well offers additional insight into the nature of such change.

In interpreting these results, the extant research generally posits that older adolescents are more likely than younger adolescents to cite structural causes for poverty because, with age, adolescents develop the formal reasoning and abstract thinking skill necessary to consider complex, structural causes of poverty (Flanagan et al., 2014). However, given related work that found no significant differences in the recognition of systemic forms of racism between adolescents with pre-formal and post-formal reasoning (Seaton, 2010), additional research is needed to confirm this claim. For example, an alternative explanation for such change in adolescents' beliefs about poverty is that parents, teachers, and other adult mentors may perceive older adolescents as more capable than younger adolescents of understanding abstract, structural causes of poverty, and therefore may be more likely to engage older adolescents in discussion and learning about these topics. While the present study contributes to a growing understanding of adolescents' developing beliefs about the structural causes of poverty, more research is needed to clarify the processes underlying such development.

An important caveat is that we do not intend these findings to suggest that these adolescents currently, or as adults, will be more likely to favor structural attributions for poverty over individual ones. While the results reported here offer additional evidence that adolescents

develop the ability over time to recognize structural causes of poverty, there remains a convincing body of theory and research that adolescents and adults in the United States generally favor individualistic explanations for poverty over structural ones (e.g. Bullock, 2006; Flanagan et al. 2014; Jost, Banaji, & Nosek, 2004; Kluegel & Smith, 1986; Skafte, 1989; Stuber, 2006). Moreover, it important to note that adolescents' mean scores on this study's Beliefs about Poverty measure—which utilized a five-point Likert scale on which a “5” represented a more structural understanding of poverty— only grew from 3.35 (SD = 0.65) at Time 1 to 3.61 (SD = 0.75) at Time 4. While this change over time proved to be both linear and statistically significant, these scores also reveal that adolescents' poverty beliefs did not reach, on average, into the upper quintiles of the scale. Put another way, the significant growth in poverty beliefs demonstrated by adolescents in this sample does not mean that, on average, these young people were citing highly structural beliefs about poverty at the conclusion of eleventh grade. For this reason, we do not regard our findings to be in conflict with scholarship that American adolescents and adults favor individualistic attributions for poverty over structural ones.

Poverty Beliefs and Awareness of Racism

This study's findings offer partial support for our second hypothesis (H₂) that adolescents' positive change over time in their beliefs about the structural causes of poverty would correlate significantly with their growing awareness of interpersonal racism and structural racism. This hypothesis had been based upon a small body of scholarship on youth intersectional awareness that found, with age, children demonstrate increased recognition of the ways in which racism leads to economic disparities for people of color (Bigler et al., 2003; Elenbaas & Killen, 2016, 2017; Newheiser & Olson, 2012). However, after controlling for adolescents' race, gender, and type of school attended, we found a significant correlation at all four time points between

adolescents' beliefs about the structural causes of poverty and their awareness of interpersonal racism, but not their awareness of structural racism. Since little scholarship to date has investigated the development of such intersectional awareness in adolescence, the finding of a significant correlation at each time point between adolescents' structural beliefs about poverty and awareness of interpersonal racism offers initial insight into how such intersectional awareness of racism and poverty manifests in adolescence. Given that the present study only identified a correlational association between the two variables, however, additional research is necessary to clarify the nature of this relationship.

In terms of the non-significant relationship between adolescents' poverty beliefs and awareness of structural racism, recall that Gurin et al. (2015) found that college students of color participating in intergroup dialogues demonstrated significant growth in their structural thinking about poverty, but not in their structural thinking about racial inequality, in comparison to a matched control group. This previous study is consistent with our own, then, in finding differences in the development of structural thinking about poverty and structural racism in adolescents of color. Unfortunately, Gurin and colleagues (2015) did not hypothesize or speculate about possible explanations for such differences. Given that both our study and Gurin et al. (2015) utilized similar measures for assessing participants' beliefs about poverty and structural racism, one possibility is that unobserved differences in these measures' framing of poverty and structural racism contributed to students responding differently to the two measures.

Another possible, albeit highly speculative, explanation for the positive relationship between adolescents' poverty beliefs and awareness of interpersonal racism (but not structural racism) may be the high salience of structural poverty and interpersonal racism in the lives of adolescents from racially and economically marginalized groups. As noted in the Introduction,

markers of wealth, poverty, and economic inequality are visible to children as young as four or five years old in their everyday lives (Chafel & Neitzel, 2005; Horwitz et al., 2014), and, with age, youth become increasingly attuned to the structural factors contributing to individuals' economic circumstances (Flanagan et al., 2014). Likewise, youth and adolescents of color report pervasive personal experiences with racial stereotyping, biases and discrimination from an early age, such that more than three fourths of African-American adolescents report having experienced interpersonal racism within the past three months (Seaton, 2010). Perhaps, then, the correlation between participants' structural beliefs about poverty and awareness of interpersonal racism was due, in part, to these social forces being forms of inequity informed by adolescents' everyday observations and lived experiences.

In contrast, structural forms of racism may be less evident to adolescents in their everyday lives (Pager & Shepherd, 2008), given that they are often embedded covertly within systems such as the educational system, criminal justice system, and housing market (Coates, 2014). Accordingly, several scholars emphasize that awareness of structural racism accrues primarily from explicit learning experiences about how racism can operate on social and systemic levels (e.g. Dupree, Spencer, & Fegley, 2007; Gurin et al., 2015; Lopez, Gurin & Nagda, 1998; Seaton, 2010). Perhaps, then, the substantive role of personal experience in youth's developing understandings of poverty and interpersonal racism may account for this study's findings of a significant relationship between poverty beliefs and interpersonal racism, but not structural racism. Testing these and other explanations of how adolescents are making sense of the intersection of these multiple systems of power is crucial, given that such beliefs inform adolescents' beliefs about their place in the world (Erikson, 1968), economic obstacles they will

encounter (Taylor & Graham, 2007), and expectations for the future (Savitz-Romer & Bouffard, 2012).

Poverty Beliefs and Progressive Schooling Models

Finally, this study also sought to contribute to the extant scholarship on adolescents' developing beliefs about poverty and economic inequality by considering contextual factors that might influence such development. As described in the Introduction, a growing body of scholarship suggests that educational practices associated with progressive schooling models contribute to adolescents' understanding of structural causes of poverty. These schooling practices include dialogic education (e.g., Nagda, Gurin & Lopez, 2003; Lopez et al., 1998), experiential learning (e.g., Duncan-Andrade & Morrell, 2008), and coursework focused on inequity and injustice (e.g., Cammarota & Romero, 2006). Examples of these practices at the progressive schools participating in this study included curricular units on the American labor movement and White supremacy, an emphasis on student-led dialogue through "Freire Culture Circles" and student-led community meetings, and experiential learning about social issues through "Be the Change" service days and semester-long "Community Improvement Projects" (Authors' Names Withheld, 2017).

In the present study, students attending no-excuses schools began the study at Time 1 with significantly higher initial levels of belief about the structural causes of poverty and racism, as well as in their awareness of interpersonal racism, than their peers at the progressive schools. The fact that no-excuses students had higher baseline scores on all three variables could be the result of unidentified differences in families who enroll their children in charter lotteries for no-excuses and progressive schools. We believe a more likely explanation is that the no-excuses students in our sample had attended "feeder" middle schools that were part of the same charter

networks as their respective high schools and featured a similar commitment to civic engagement as part of their mission. In contrast, the progressive high schools in the study were independent charter high schools (i.e. not part of a larger network) and drew their ninth graders from a more heterogeneous group of middle schools from the cities in which they were located. In short, then, the no-excuses schools had a three-year “head start” over the progressive schools in fostering their students’ understandings of these social inequalities. For this reason, our investigation of an association between schooling model and adolescents’ beliefs about poverty and racism focused on change over time (rather than simply Time 4 scores) in students’ beliefs about these social issues.

With regard to such change over time, adolescents attending progressive schools demonstrated significantly higher rates of change over time in comparison to their peers at the no-excuses schools in their awareness of both interpersonal and structural racism, but not in their beliefs about the structural causes of poverty. One possible interpretation of these results is that the educational practices described above *are* effective tools for fostering students’ awareness of oppressive social forces, but that the progressive schools in the present study— serving almost entirely students of color— focused these educational practices primarily on issues of racial inequality rather than economic inequality.

Given that the adolescents in this study began high school just a month after the start of the Black Lives Matter movement, it seems reasonable to speculate that the progressive schools in our study may have chosen during this time-period to focus on issues of racial inequality rather than economic inequality. Ethnographic data collected from these schools as part of the larger research study— and reported on elsewhere— support this interpretation of the present results (see Authors’ Names Withheld, 2017). That said, more research is needed to investigate

schooling practices (and their interaction with other contextual factors) that are associated with positive change over time in adolescents' understanding of structural causes of poverty.

Limitations & Future Research

One limitation to the present study is that the sample was comprised of Black and Latinx adolescents from (predominantly) low-income families attending urban secondary schools in northeastern cities. As a result, findings from this study may not be generalizable to adolescents from other racial and socioeconomic groups, or from other geographic regions and types of communities. At the same time, adolescents from these marginalized racial and economic groups have received relatively little attention in the extant literature (e.g. Skafte, 1989; Goodman et al., 2001). Given a growing body of research that suggests there may be differences in poverty beliefs between adolescents from different racial and economic groups (Flanagan & Tucker, 1999; Flanagan et al., 2014; Woods et al., 2005), we believe investigating the developing poverty beliefs of Black and Latinx adolescents from low-SES households offers a useful contribution to the extant literature.

A second limitation is that a sample drawn from secondary schools articulating an explicit commitment to civic engagement may limit the generalizability of these findings to adolescents attending traditional secondary schools. Moreover, there exists the possibility that the change over time in these adolescents' beliefs about the structural causes of poverty is attributable to their time in schools with civic engagement goals rather than their increasing age and cognitive sophistication. That said, given that public education in the United States was founded to prepare citizens to fulfill their civic responsibilities (Levinson, 2012) and that 40 states require adolescents to take stand-alone courses in civics or government (Moskowitz, 2017), it also seems reasonable to suggest that virtually all public secondary schools in the

United States possess explicit or implicit goals around fostering their students' civic engagement. Perhaps a related, broader limitation, then, is that adolescents' beliefs about poverty are undoubtedly shaped by multiple contexts they inhabit (e.g., home, school, church, etc.), yet this study's design could not identify the relative influence of each of these different contexts upon adolescents' beliefs.

Third, while participating adolescents demonstrated significant positive change over time in their beliefs about the causes of poverty and awareness of racism, the descriptive statistics for all three measures make evident that adolescents' change over time on these measures was, on average, relatively small (0.25-0.50 of a scale point). While of course these results may be due to adolescents having genuinely only made relatively small shifts in their beliefs about poverty and awareness of racism over their first three years of high school, future research with more change-sensitive measures might capture greater shifts in adolescents' understandings of these forces. Another limitation related to the measurement of these variables is that we did not conduct measurement invariance testing to examine whether the study measures were invariant across groups, as we felt it was beyond the scope of this study. It is possible not only that Black and Latinx adolescents interpret the experiences of racial marginalization differently but also that they respond to the measures of these constructs differently, which would subsequently impact what any observed group differences represent.

Finally, while this study focused on adolescents' beliefs about the causes of poverty, we did not assess participating adolescents' knowledge about poverty and inequality in the contemporary United States; whether such knowledge increased over their first three years of high school; or whether such knowledge related significantly to their beliefs about the causes of

poverty. Future research should investigate this relationship between adolescents' beliefs about poverty and their knowledge of the topic.

Conclusion

Poverty and economic inequality remain pernicious problems in the United States that disproportionately impact Black and Latinx Americans (DeNavas-Walt & Proctor, 2014). Importantly, a growing body of scholarship suggests that understanding the systems and structures that contribute to poverty and racism can serve as a protective factor for adolescents marginalized by these inequities (Diemer et al., 2016). Specifically, understanding these social forces can alleviate adolescents' guilt and self-blame for challenges they encounter related to these inequities (Diemer et al., 2016) and simultaneously strengthen their sense of agency and engagement in a collective effort to challenge these inequities (Ginwright, 2011).

This study sought to contribute to a growing body of research on adolescents' understandings of poverty and economic inequality as well as the contextual factors associated with such understandings. Demonstrating that Black and Latinx adolescents report linear change over time in their beliefs about the structural causes of poverty clarifies the developmental trajectory of such adolescents' beliefs about this dimension of economic inequality. Moreover, identifying a significant correlation between such poverty beliefs and adolescents' awareness of interpersonal racism offers insight into a potential avenue for strengthening adolescents' understanding of the structural causes underlying poverty and inequality. Better understanding such avenues strengthens the capacity of scholars, educators, and parents committed to fostering the positive development of youth marginalized by inequities in race and economic status.

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Table 1. *Descriptions and demographics of participating schools (j = 6)*

School	n	Urban Context	Schooling Model	Black	Latinx	Multi-racial	F/R Lunch	Per Pupil Expenses	Mission, Philosophy or Core Values Incorporating Civic Engagement
Community Academy	41	Large northeastern city	Progressive	74%	5%	21%	75%	16,902	Philosophy: Develop in students the knowledge, skills and commitment to envision a better world and work toward achieving it.
Make the Road Academy	60	Midsized industrial city	Progressive	84%	4%	12%	76%	15,690	Mission: To offer students an education that strengthens our community by equipping them to address educational and social inequities.
Espiritu Academy	49	Midsized industrial city	Progressive	23%	61%	16%	78%	12,817	Mission: Community involvement and improvement are central goals at Espiritu Academy... Students engage in deep learning and reflection about their own experiences and relationships to others in our community.
Leadership Academy	82	Large northeastern city	No-excuses	57%	24%	18%	81%	15,957	Mission: To educate socially responsible students for a life of active and engaged citizenship.
One Vision High School	95	Midsized industrial city	No-excuses	71%	12%	16%	77%	16,878	Core Value: We work to improve our community and the world.
Freedom Preparatory Academy	130	Midsized industrial city	No-excuses	55%	25%	20%	73%	15,963	Mission: Freedom Prep graduates will possess the skills and drive to serve as the next generation of leaders of our community

Table 2. *Summary Statistics (Mean, Standard deviation, Correlations) of Participating Adolescents' Poverty Beliefs and Awareness of Racism (n = 457 students)*

Beliefs about the Causes of Poverty, *N* = 442

	Time	Mean (SD)	1.	2.	3.	4.
1.	1	3.35 (.65)	--	0.513	0.425	0.389
2.	2	3.37 (.73)		--	0.512	0.491
3.	3	3.52 (.74)			--	0.526
4.	4	3.61 (.75)				--

Awareness of Interpersonal Racism, *N* = 457

	Time	Mean (SD)	5.	6.	7.	8.
5.	1	3.39 (.99)	<i>0.145</i>	0.592	0.445	0.425
6.	2	3.46 (1.02)		<i>0.119</i>	0.580	0.547
7.	3	3.77 (.94)			<i>0.078</i>	0.600
8.	4	3.87 (.94)				<i>0.137</i>

Awareness of Structural Racism, *N* = 457

	Time	Mean (SD)	9.	10.	11.	12.
9.	1	3.51 (.71)	<i>-0.067</i>	0.577	0.414	0.330
10.	2	3.64 (.78)		<i>-0.080</i>	0.431	0.338
11.	3	3.69 (.72)			<i>-0.099</i>	0.450
12.	4	3.87 (.77)				<i>-0.013</i>

Note. The values presented in italics on the main diagonals for Awareness of Interpersonal Racism and Awareness of Structural racism are the within-time correlations between those variables and Beliefs about the Causes of Poverty

Table 3. *Fit Indices for Latent Growth Models*

Model	χ^2 (df)	CFI	RMSEA	SRMR	Standardized Mean Resids > 3	Standardized Cov Resids > 3
Model 1	6.093 (5)	0.996	0.019	0.048	0	0
Model 2	41.334 (38)	0.996	0.012	0.037	0	1
Model 3	44.528 (38)	0.990	0.017	0.031	0	0

Note. Model 1 is the linear LGM for beliefs about the causes of poverty. Model 2 is the conditional linear MLGM, simultaneously modeling beliefs about the causes of poverty and awareness of interpersonal racism. Model 3 is the conditional linear MLGM, simultaneously modeling beliefs about the causes of poverty and awareness of structural racism.

Table 4. *Parameter Estimates for Unconditional Poverty Beliefs LGM*

Factor	Factor Mean (μ)	Factor Variance (ζ)	Factor Correlations	
			1.	2.
1. Intercept	3.311**	0.249**	---	---
2. Slope	0.088**	0.023*	-0.185	---

Setting Intercept to Each Time Point		
Time point	Intercept Factor Mean (μ)	Intercept Factor Variance (ζ)
Time 1	3.311*	0.249*
Time 2	3.398*	0.243*
Time 3	3.486*	0.283*
Time 4	3.573*	0.369*

* $p < 0.01$, ** $p < 0.001$

Table 5. *Parameter Estimates for Conditional MLGM – Poverty Beliefs & Awareness of Interpersonal Racism*

Factor means, variances, and correlations						
Factor	Factor Mean (μ)	Unexplained Factor Variance (ζ)	Factor Correlations			
			1.	2.	3.	4.
1. Poverty Beliefs Int	3.174**	0.237**	---			
2. Poverty Beliefs Slope	0.153**	0.022*	-0.166	---		
3. Awareness Interpersonal Int	3.227**	0.579**	0.185	-0.183	---	
4. Awareness Interpersonal Slope	0.257**	0.049*	0.088	0.163	-0.435**	---

Unstandardized Regression Coefficients (γ)				
	1. Belief Poverty Int	2. Belief Poverty Slope	3. Awareness Interpersonal Int	4. Awareness Interpersonal Slope
Male	-0.099	-0.007	-0.141	-0.043
Latino	-0.036	-0.022	-0.298*	-0.022
Multiracial	0.100	-0.057	-0.088	0.046
No-excuses	0.227**	-0.058	0.409**	-0.108*

Residual Correlations Between Beliefs about the Causes of Poverty and Awareness of Interpersonal Racism at each Time Point

Time	<i>r</i>	<i>p</i>
Time 1	0.185	0.014
Time 2	0.186	0.003
Time 3	0.185	0.003
Time 4	0.181	0.011

Note. Int = Intercepts. Coding for the covariates is as follows: Male (Male = 1, Female = 0), Latino (Latino = 1, Black = 0, Multiracial (Multiracial = 1, Black = 0), and No-excuses (No-excuses = 1, Progressive = 0). The factor means in the conditional model represent initial levels and rates of change for students with values of 0 for all covariates (i.e., Black females at Progressive schools).

* $p < 0.01$, ** $p < 0.001$

Table 6. Parameter Estimates for Conditional MLGM – Poverty Beliefs & Awareness of Structural Racism

Factor means, variances, and correlations						
Factor	Factor Mean (μ)	Unexplained Factor Variance (ζ)	Factor Correlations			
			1.	2.	3.	4.
1. Poverty Beliefs Int	3.171**	0.236**	---			
2. Poverty Beliefs Slope	0.156**	0.022**	-0.157	---		
3. Awareness Structural Int	3.350**	0.352**	-0.174	-0.050	---	
4. Awareness Structural Slope	0.193**	0.038**	0.246	-0.110	-0.554**	---

Unstandardized Regression Coefficients (γ)				
	1. Belief Poverty Int	2. Belief Poverty Slope	3. Awareness Structural Int	4. Awareness Structural Slope
Male	-0.099	-0.008	-0.011	-0.026
Latino	-0.038	-0.023	-0.113	0.036
Multiracial	0.099	-0.058	0.03	0.008
No-excuses	0.236**	-0.063	0.269**	-0.124**

Residual Correlations Between Poverty Beliefs and Awareness of Structural Racism at each Time Point

Time	<i>r</i>	<i>p</i>
Time 1	-0.157	0.284
Time 2	-0.139	0.034
Time 3	-0.096	0.180
Time 4	-0.066	0.452

Note. Int = Intercepts. Coding for the covariates is as follows: Male (Male = 1, Female = 0), Latino (Latino = 1, Black = 0), Multiracial (Multiracial = 1, Black = 0), and No-excuses (No-excuses = 1, Progressive = 0). The factor means in the conditional model represent initial levels and rates of change for students with values of 0 for all covariates (i.e., Black females at Progressive schools).

* $p < 0.01$, ** $p < 0.001$

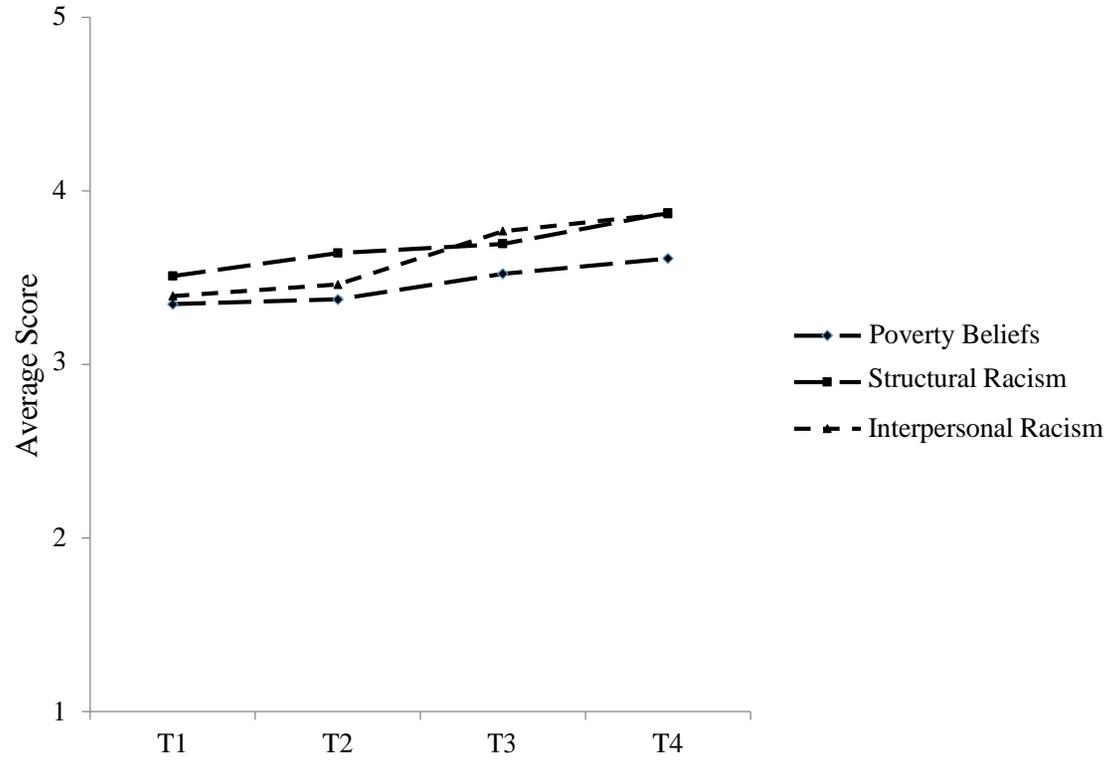


Figure 1. Plot of observed scores over time.

Appendix A

Table A1. *Survey Measures & Items*

Survey Measure	Adapted From	Items
Beliefs about the Causes of Poverty	Poverty in America Survey (NPR-Kaiser-Harvard, 2001)	<ol style="list-style-type: none"> 1. A shortage of jobs is a major cause of poverty. 2. Most poor people in America don't work. (Reversed) 3. Poor Americans are not doing enough to help themselves out of poverty. (Reversed) 4. Poor people today have it easy because they can get government benefits without doing anything in return. (Reversed) 5. Poor people lack talents and abilities. (Reversed) 6. Poor Americans do not actively seek to improve their lives. (Reversed)
Awareness of Interpersonal Racism	Racial-Ethnic Identity Scale: Awareness of Racism Sub-Scale (Oyserman, Gant & Ager, 1995)	<ol style="list-style-type: none"> 1. What is your racial/ethnic group (check all that apply)? <p>For questions 2-4, imagine the blank space is filled in with YOUR racial/ethnic group from question #1</p> <ol style="list-style-type: none"> 2. Some people will treat me differently because I am_____. 3. Things in the_____community are not as good as they could be because of lack of opportunity 4. People might have negative ideas about my abilities because I am an _____
Awareness of Structural Racism	Structural Thinking about Racial Inequality Scale (Lopez, Gurin & Nagda, 1998)	<ol style="list-style-type: none"> 1. Racism in the educational system limits the success of people of color. 2. Most people of color are no longer discriminated against in the United States (Reversed). 3. Many White people don't understand the problems of Black, Latino, and other racial minorities. 4. Many businesses intentionally keep many Black, Latino and other racial minorities from gaining positions of power. 5. Many White people discriminate against Black, Latino and other racial minorities.

Appendix B

Correlations Among Covariates

Table B1. *Correlations among covariates*

	Male	Latino	Multiracial	No- excuses
Male	--	0.045	-0.125*	0.045
Latino		--	-0.101	0.067
Multiracial			--	0.063
No-excuses				--

* $p < 0.01$, ** $p < 0.001$