MIDDLE SCHOOL CONDITIONS THAT PROMOTE EARLY ADOLESCENT THRIVING

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by

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This dissertation, "Middle School Conditions that Promote Early Adolescent Thriving," has been approved by the Graduate Faculty of the School of Education and Human Development in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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DEDICATION

For my Mom, who stood for equity and justice in every circumstance.

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To my future students, mentors, and family, we can do big things when we work hard and play hard together! We can transform education spaces to promote thriving for all people.

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Middle School Conditions That Promote Early Adolescent Thriving

"Everyone always says 'where there's a will, there's a way.' Sometimes you know the way, but you have to find the will."
– Suzanne Ward, 2021

"I had never wanted to surrender the conviction that one could teach without reinforcing existing systems of domination… Liberatory education connects the will to know with the will to become" – bell hooks, 1994

These quotes allude to a tension in education between *knowing the way/the will to know* and *finding the will/the will to become*. Knowing in this case represents academic skills, and finding the will to become represents the social emotional competencies that are needed to courageously apply knowledge to solve real-world problems. In schools, this tension emerges as a debate between solely focusing on academic skills (i.e., math and reading achievement scores) versus including social, emotional, and identity development (i.e., interpersonal skills, ethnic-racial identity, sociopolitical awareness). But this tension is a false dichotomy (Kochenderfer-Ladd & Ladd, 2016). Ideal education strikes a balance between enhancing youths' academic learning and their holistic development to become people who can apply their academic skills to real-world sociopolitical problems (i.e., finding the will or the will to become). Yet, schools are stretched thin and often unequipped to provide both high quality academic learning *and* support for social emotional development, which leaves students and educators caught between prioritizing one or the other, when the answer could be both.

Thriving includes healthy development in multiple domains (e.g., cognitive, social, emotional, identity). By definition, a thriving adolescent "is not only doing well across the

various dimensions of development, but also has the internal capacity and external resources they need to continue to do well" (YouthNex, 2023, p. 3). Developmental domains are interrelated and influenced by the surrounding context. Therefore, schools that support students' multifaceted and complex development may promote more flourishing and success across developmental domains, even more so than schools focused on a singular domain.

School conditions refer to the psychological environment and experiences including instructional practices, discipline policies, representation in curricula, social interactions, and emotional support from others—all of which can be encouraging, or obstructive, for holistic thriving. Positive school conditions can foster student engagement for optimal learning and development (Wang et al., 2019; Wang & Degol, 2016). On the other hand, poor school conditions can discourage engagement and therefore inhibit learning and thriving. Optimal schools have environments that meet youths' developmental needs and create just the right amount of academic challenge that leads to learning and development (Eccles & Roeser, 2009).

Creating engaging learning environments is essential for students from all backgrounds and are especially crucial to close opportunity gaps for marginalized students (e.g., Black, Latine, Indigenous). Systematic opportunity gaps exist such that marginalized students have fewer opportunities and resources to learn, leading to lower quality school conditions, and consequently lower academic achievement for Black and Latine students than their white peers (Assari et al., 2021; Carter & Welner, 2013; reardon et al., 2019). Moreover, school conditions are nested in the larger sociopolitical landscape, and therefore cannot be considered outside of racism and hegemonic white norms (Rogers et al., 2021). All the dynamics that make up school conditions contribute to students' experience of the environment as conducive for learning or not.

In this dissertation, I aim to identify school conditions (i.e., characteristics of the psychological and sociopolitical school environment) that support both academic success *and* social emotional development toward youth thriving. I acknowledge the primary aim of public education remains academic success, which is a crucial element of youth thriving. I also posit that social emotional wellbeing can enhance academic success, rather than detract from it. Social emotional wellbeing is operationalized here as including identity development (e.g., ethnic-racial identity), sociopolitical development (e.g., critical awareness of systemic power and oppression), purpose, and prosocial competencies (e.g., cultural respect; Jagers et al., 2019). I explore research questions united by a single theme: Social emotional development is synergistic with academic success, and school conditions that foster both, promote thriving youth.

Early Adolescence

Synergies between academic success and social emotional development are especially salient for early adolescents in middle school contexts. Early adolescence is a developmental stage marked by rapid changes in the brain, hormones, body, and social emotional capacities. Between ages of 10 and 14, youth become increasingly capable of abstract thought and critical thinking. At the same time, they become increasingly aware of social situations, their own complex emotions, and how they fit into a larger world around them, including how sociopolitical issues effect their lives (NASEM, 2019). Therefore, during early adolescence when young people are in a second window of opportunity given the nearly unparalleled rate of brain development (second only to early childhood; Dahl & Suleiman, 2017), middle school is a highly influential context toward young people's holistic thriving. Plus, all aspects of development are contextually dependent, meaning they are influenced by the surrounding environment including school, family, media exposure, and broader society (Bronfenbrenner, 1994; Garcia Coll et al.,

1996; Spencer et al., 1997). For optimal student engagement, the school context needs to match students' holistic developmental needs, such as aligning with aspects of identity, prosocial, and sociopolitical development (Eccles et al., 1993).

The domains of development are inter-related. For example, changes in cognitive development can play out in social development when students' increased abstract thinking is applied to their friendships and can result in over-analyzing situations with peers that effect social status. For over a decade educators and teacher educators have emphasized the need to integrate inter-related aspects of development for student success (Kochenderfer-Ladd & Ladd, 2016; Snyder & Lit, 2010). The inter-relation among developmental domains and the importance of social context have implications for the false dichotomy (i.e., academic versus social emotional competencies) because identity and prosocial development are inseparable from academic learning in context. In other words, cognitive development does not happen in isolation, as the false dichotomy entails. Rather cognitive development happens in tandem with early adolescents' identity, prosocial, and sociopolitical development.

The False Dichotomy is a Current Real-World Issue

Nowhere is the false dichotomy debate more present than the movement to separate diversity, equity, inclusion and Critical Race Theory (CRT) from schools, known as anti-CRT. CRT is a legal theory by Derrick Bell (1987) that describes how race and racism are widely at play in law and public policy. This theory has been applied to education to explain how systemic inequities have created racial opportunity gaps (Ladson-Billings, 1995). Even though CRT is a legal and academic concept not taught in primary schooling, it has been politicized as existing in K-12 public education. This misnomer has taken hold as a political and social galvanizing tool to oppose teaching about race, identity, and social emotional skills more broadly (Bertrand et al.,

2024). The anti-CRT movement aims to ban curriculum and books that acknowledge race and racism (or marginalized identities and systems of oppression more broadly, e.g., “don’t say gay” legislation; Alexander et al., 2023). Policy change has followed suit with over 500 anti-CRT measures introduced in 2021-2022 (Alexander et al., 2023) and growing public support (Bertrand et al., 2024). They go so far as to try to eliminate social emotional learning (SEL) programs from schools because SEL includes aspects of identity and awareness (Anderson, 2022; Tawa & Bunts, 2022).

Yet, what the anti-CRT movement misses is that education without attention to development does a disservice to students because meeting youth social, emotional, and identity needs leads to academic growth (Cipriano et al., 2023). These debates constrain school conditions such that teachers are restricted from talking about certain topics and as a result, youth are unable to show up as their full selves. For example, in Virginia new legislation says schools cannot “affirm, adopt, or adhere to inherently divisive concepts,” which includes “race, skin color, ethnicity, sex or faith,” (Youngkin, 2022). This directly counters evidence that school conditions which reflect students’ cultural identities and acknowledge lived experiences of race and racism support their ability to be their authentic, true self—to thrive (Byrd, 2016; Byrd & Legette, 2021; Hammond, 2015; Ladson-Billings, 1995; Miller-Cotto & Byrnes, 2016). For example, inclusive libraries, resources, and curricula is backed by what we know in education psychology and developmental science—that learning about diversity, identity and social emotional skills is inextricably connected to academic engagement, sense of purpose, and long-term positive outcomes (e.g., life satisfaction; Farrington, 2020; Wanless & Barnes, 2020).

The anti-CRT movement is one current example of how the false dichotomy is a relevant concern plaguing our schools. Students and educators may suffer because they are limited in the

academic topics and social emotional competencies they are allowed or comfortable teaching without fearing retribution (Bertrand et al., 2024). Yet, there is no evidence to back up the "anti-CRT" movement— meaning there is no evidence that school conditions that exclude social and emotional development (i.e., focus solely on academic success) are better for student achievement (Korchenderfer-Ladd & Ladd, 2016). Rather, this dissertation examines evidence that school conditions that integrate social emotional development and academic success are holistically beneficial for youth.

Problem Statement

Based on decades of research, we know a lot about the science of how to teach reading, science, and math, (i.e., good pedagogical instruction; Adamson & Darling-Hammond, 2012). Yet, despite knowing how to teach and how students learn, there remains a crisis of under achievement in academic outcomes (Lewis & Kuhfeld, 2024). Moreover, the opportunity gap is widening such that Black and Latine students continue to experience fewer of the conditions that correlate with academic achievement (e.g., high quality teachers, rigorous curriculum, student engagement, belonging, and school culture that fosters high expectations; Fahle et al., 2024; Robinson et al., 2024). One way to address opportunity gaps is to examine the disparities in school conditions that can improve the experiences of marginalized students. I posit that improving school conditions that support all youths' social, emotional, and sociopolitical development fosters a commitment to social justice, which in turn may help mitigate systemic inequities that contribute to the racial opportunity gaps in and outside of schools.

If what we know about good pedagogy and instruction was enough to improve learning outcomes, we would not expect to see these achievement crises. This is indicative that there is another crucial factor for closing achievement gaps and improving learning outcomes for all: the

school conditions. For students to be getting the most out of good instruction, they must be engaged in learning *and* provided with opportunities to develop social emotional competencies (e.g., identity, prosocial, sociopolitical development). In this case, the false dichotomy about what is included in good education is not the right debate. What youth truly need to thrive are learning conditions that integrate their social and emotional needs with their academic needs toward developing the ability to take action to solve meaningful problems in the world. As bell hooks (1994) reminds us, education is not only about the "will to know" but about having the "will to become," to enact that knowledge and incorporate it into one's identity and purpose. That which she calls liberatory education includes prosocial and sociopolitical development so that students can use their academic knowledge to make the world a better place. bell hooks' perspective raises a more important question that asks how to embed identity, prosocial and sociopolitical competencies in schools so that educational contexts support academic success and social emotional development for holistic thriving.

Because early adolescence is a crucial period of development (NASEM, 2019), I focus specifically on middle school conditions. Early adolescence is understudied (NASEM, 2019), and this dissertation stands to add important knowledge about how middle school conditions can promote early adolescent thriving. I acknowledge that there are many factors outside of school conditions that lead to the systemic opportunity gaps mentioned above. Yet, some of those factors are within school conditions that we can change when we focus on the right questions—not limiting what we teach to a dichotomy of academic versus social emotional competencies, rather expanding inclusive school conditions in which all students can thrive.

We do not know how to create and maintain those inclusive school conditions nor the mechanisms of how they support positive outcomes from the perspectives of youth. Moreover,

we know less about equity-oriented school experiences and the school conditions that support youth of color (Byrd, 2019; Wang & Degol, 2016). Equity-oriented school experiences are those that acknowledge the broader sociopolitical landscape and address systemic opportunity gaps. Equity-oriented school experiences may aid in reducing opportunity gaps by improving relationships, engagement, and achievement for students of color. Furthermore, equity-oriented school experiences may also support white students' social emotional development by increasing critical awareness and efficacy for addressing social injustice.

Present Study

My focal question asks: What are the school conditions that foster academic success alongside social emotional development for early adolescent thriving? To pursue this question, I explored a range of school conditions, some that existed because an intervention was in place and others that reflect natural variation that exists in middle schools. In the first paper, I examined two school conditions, namely EL Education and comparison schools to understand if and how they differ in providing meaningful learning experiences, especially for Black and Latine students. In Paper 2, I studied students' perception of teacher caring and school belonging to examine how those experiences contributed to growth in prosocial competencies over two years. In Paper 3, I examined Black students' perceptions of equitable school climate and the extent to which those perceptions influenced the relationship between racial identity beliefs and academic engagement. Taken together, these studies shed light on school conditions to support thriving youth and to mitigate systemic opportunity gaps, such as gaps in meaningful learning experiences and engagement.

I studied multiple aspects of school conditions by investigating early adolescent perspectives on meaningful learning, teacher caring, belonging, discrimination experiences, and

perceptions of fairness and equity. Teacher caring (Audley & Ginsburg, 2019; Gasser et al., 2018; Roorda et al., 2011) and belonging (Allen et al., 2018; Gray et al., 2018; Korpershoek et al., 2020) are well established indicators of academic success and psychological wellbeing. Beyond these two aspects of school conditions, I include equity-oriented school experiences, which are often left out of school climate literature (Byrd, 2019; Roeser et al., 2000; Wang & Degol, 2016). For instance, experiences of discrimination from peers and teachers are frequently overlooked in school climate research broadly, though they are all-too-common experiences that influence students' thriving (e.g., discrimination and *un*fairness have negative outcomes; Civitillo et al., 2023). Therefore, this dissertation research will contribute to understanding multifaceted, complex school conditions, including school and classroom interactions (e.g., teacher caring and belonging) and broadening the scope to include sociopolitical contexts (e.g., meaningful education about real world issues that contribute to sociopolitical development, experiences of discrimination from peers and teachers, perceptions of fairness, equitable treatment in learning opportunities and discipline practices).

Theoretical Framework

The unifying framework in this dissertation is the Portrait of a Thriving Youth (Figure 1). The Portrait of a Thriving Youth is an organizational framework that outlines six interrelated domains of adolescent development that work in concert to contribute to healthy and holistic thriving in young people (Youth-Nex, 2023). The three papers in this dissertation are also guided by the Stage-Environment Fit theory (Eccles et al., 1993), which describes the importance of alignment between developmental stage and the surrounding environment, such as school conditions, and the Phenomenological Variant of Ecological Systems Theory (PVEST; Spencer et al., 1997), which is a culturally-relevant approach to ecological systems that describes how

young people interpret their environment based on their identities (e.g., race, gender). Together, these theories inform the conceptualization of this dissertation and its implications for meaningful application in the field. Grounded in the understanding that unjust systems of oppression (e.g., racism) influence how individuals experience their surroundings (PVEST), I consider the school conditions that align with students' developmental needs (Stage-Environment Fit) to support optimal development in interrelated developmental domains (Portrait of a Thriving Youth). My goal with this work is to understand middle school conditions from students' perspectives and consider how those conditions support the duality, rather than dichotomy, of academic success and social emotional development.

Portrait of a Thriving Youth

Youth-Nex's Portrait of a Thriving Youth (Youth-Nex, 2023) describes the unique period of development in adolescence when young people go through dramatic growth in multiple domains. Namely, physical and mental health, cognition, identity, meaning and purpose, emotion, and social domains are intricately linked parts of development during adolescence (Figure 1). The Youth-Nex Portrait explicitly states that thriving in all aspects of development depends on settings and systems (e.g., schools, neighborhoods, structural inequities). Authors emphasize that youth have agency in their development and bring their own strengths and assets as young people to these contexts. Still, the surrounding environment, which can be a wide array of family, peers, educators, community leaders, and care providers, must work together to provide appropriate conditions for optimal development.

Thriving is defined as "holistic and dynamic, including the interconnected social, emotional, cognitive, and behavioral dimensions that interact over time and is a marker of not only one's present state, but also the trajectory one is on" (Youth-Nex, 2023, p. 3). Notably,

thriving can be different for different youth, and there is no single indicator of thriving. Thriving is a multifaceted, complex idea of success that includes adolescents' current "doing well" and their competencies and resources (e.g., supportive relationships), to continue to do well into adulthood. The Portrait reminds us that sociopolitical contexts make it so that people experience the world differently due to race, gender, socioeconomic status and other identity markers of privilege or marginalization. Due to those differences, thriving may also require different supports for different students. Personal attributes, such as race, gender, learning abilities, emotional affect, behavioral patterns, and social preferences influence how adolescents interpret their school environment (Spencer et al., 1997). For example, being represented in the curriculum is beneficial for all students (i.e., seeing people with similar identities or personal attributes as yourself), but may be more important for a student who is racially marginalized because they are underrepresented in curricula, literature, and media due to racism.

This dissertation specifically aligns to the Youth-Nex Portrait of a Thriving Adolescent by investigating the school conditions that support early adolescents in multiple domains of development. Paper 1 identifies school conditions that promote a sense of meaning and purpose. Paper 2 addresses school conditions that promote social and emotional domains of development. Paper 3 explores school conditions that relate to students' identity and cognitive (i.e., cognitive and behavioral engagement) domains.

Overview of the Three-Paper Dissertation

This dissertation stands to add valuable knowledge to the field and practical implications for school leaders, educators, and middle school students and families. Each paper focuses on student perspectives of their experience in middle school, and each paper offers a different method of inquiry. The first paper used a sequential exploratory mixed methods design to

investigate what makes school meaningful and for whom. The second paper used multilevel longitudinal change models to analyze students' development of prosocial competencies and to understand the influence of teacher caring and belonging on those competencies. The third paper used latent profile analysis and regression models to consider patterns of Black students' perceptions of the equitable school environment and determine the influence on their academic engagement.

Paper 1

In paper 1, titled *What Is Meaningful Schoolwork? Adolescent Perspectives from a Mixed Methods Quasi Experimental Design*, I used mixed methods to examine students' experiences of meaningful schoolwork and their descriptions of what is meaningful at school. Sociopolitical development theory guided this work (Hope et al., 2023; Watts et al., 2003). Students' experiences at EL Education schools were more meaningful than their counterparts at comparison middle schools, and this was especially true for Black and Latine students. Students in both school conditions described meaningful schoolwork that is engaging, future-oriented, and most notably, that which is related to the content and process of sociopolitical development. Specifically, students said that addressing real world issues (e.g., racism, environmentalism) was what made schoolwork meaningful to them. Furthermore, students who mentioned real world issues connected their learning to developing an awareness of injustice, agency for social change, and taking action for the greater good (i.e., the processes of sociopolitical development). Notably, more EL Education students described their sociopolitical education experiences than students in comparison schools.

This paper elevates students' perspectives, builds new knowledge in education psychology, and has practical implications for middle school educators. Early adolescents find

school meaningful when real world issues are addressed. For students from various backgrounds, discussing issues such as the Black Lives Matter Movement was meaningful and engaging. Moreover, emerging awareness, efficacy, and action about social justice aligned with students' interest and engagement in school. These findings have direct implications for value of middle school conditions that embrace learning about real world issues to foster sociopolitical development and academic engagement.

Paper 2

In paper 2, titled *Belonging Contributes to Compassion: A Longitudinal Study of Middle School Students' Prosocial Competencies*, I used longitudinal multilevel growth models to investigate the development of prosocial competencies in the first two years of middle school and how that growth related to school conditions, specifically teacher caring and belonging. This study was guided by the Stage-Environment Fit model (Eccles et al., 1993). Teacher caring related to students' initial cultural respect, empathy and integrity, but not the rate of development over two years. Students' sense of belonging in the school community related to their initial empathy and integrity, as well as the rate of development of compassion. Specifically, middle school students who reported high sense of belonging showed increasing rates of growth in compassion across two years of middle school. On the other hand, students who had low sense of belonging showed decline in their rate of growth of compassion.

By focusing on school experiences that influence prosocial competency development, this paper adds nuance to burgeoning research on prosocial development in early adolescence (e.g., Ross et al., 2019). This study also underscores literature about belonging in school that is associated with many positive outcomes (Goetz & Simon-Thomas, 2017), and adds to the

literature that belonging can be a catalyst for development of prosocial skills such as compassion, which relates to a commitment to shared humanity (Roeser et al., 2018).

Paper 3

In paper 3, titled *Equity-Oriented School Climate Experience Profiles in Early Adolescence and Academic Engagement*, I used a person-centered approach to understand how Black students' perceptions of equitable school climate relate to academic engagement (i.e., behavioral and cognitive engagement). This study was guided by the development-in-sociocultural-context model for children's engagement in learning (Wang et al., 2019) by investigating patterns of how middle school students interpret their surroundings at school including teacher caring, fairness, and discrimination from peers and teachers. Including these indicators in a person-centered analysis of equity-oriented school climate experience profiles resulted in 5 distinct profiles. Further, this study investigated how those latent profiles of school experience influenced the relationship between students' racial identity beliefs (i.e., centrality, private regard, public regard) and their behavioral or cognitive engagement in school.

By focusing on Black students' experiences of equitable school climate related to academic engagement, this paper stands to contribute to important unanswered questions about how school climate may influence the relationship between Black racial identity and academic engagement (e.g., Byrd & Hope, 2020; Chavous et al., 2008; Del Toro & Wang, 2021).

Significance

All together, these studies provide new evidence from students' perspectives about their experiences in school that contribute to meaningful learning, prosocial competencies, and academic engagement. This dissertation sheds light on holistic thriving in early adolescence from the perspective of students in middle schools. Though not nationally representative, the middle

school students featured in this dissertation are from racially, ethnically, and socioeconomically diverse middle schools in rural, suburban, and urban areas across the Northeast and Midwest U.S.. From students in EL Education middle schools, we learned that learning is meaningful when it is based in real world issues and grappling with how to make the world a better place—not only learning academic skills, but also finding the will to put them to use in real-world scenarios. In EL Education and comparison middle schools, we learned that students who experience a school community characterized by belonging (i.e., helping others, genuine caring, and respect towards others in the school) also develop more compassion over two years. Among Black early adolescents in racially diverse suburban middle schools, we learned that there are profiles of equity-oriented school climate experiences that are associated with behavioral and cognitive engagement, bringing nuanced understanding to characteristics of the school environment that play out in different ways for different students. For example, while most students experienced very little racial discrimination at school, about 18% reported high racial discrimination from teachers, and among them were some students who reported that their teachers were caring overall, and still they were experiencing very high levels of racial discrimination from their caring teachers. Findings together emphasize the importance of the school conditions that support students academic and social emotional wellbeing.

I started this document with a quote from my mom, Suzanne Ward, about not only knowing the way, but having the will to do courageous hard work to make the world a better place. In other words, academic knowledge and skills may not be enough; students also need social emotional competencies in order to apply those skills in courageous ways to challenge real-world problems. In the pursuit of social justice, youth need social emotional competencies alongside their academic learning and school conditions that support both. Liberatory education,

as bell hooks defined, supports students in holistic development—in the duality, not dichotomy, of academic learning and social emotional development. To support both, we must know more about optimal school conditions that integrate meaningful learning with sociopolitical development, identity, and prosocial competencies. Understanding and creating school conditions that support early adolescent thriving is a crucial factor of progress toward a just and equitable society where individuals thrive and have the competencies to advocate for a society where all can thrive!

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Figure 1

Youth-Nex's Portrait of a Thriving Youth (Youth-Nex, 2023)

Examples Of Domain-Specific Knowledge, Skills & Competencies

Adolescent thriving within each domain requires access to opportunities to develop the kinds of knowledge, skills, and competencies listed on this chart. No one program, setting, or system can (or should) be responsible for all these aspects of thriving but in each adolescent's ecosystem, opportunities to cultivate this set of knowledge, skills, and competencies should be available.

Domain		Examples of Developing Knowledge, Skills, & Competencies
Health: Mental	*Establishing healthy physical behaviors*	▶ Learn what the body needs and how it will change throughout puberty ▶ Move and exercise in healthy ways ▶ Practice healthy diet and eating habits ▶ Ensure one gets enough sleep and rest ▶ Understand and establish self-care and personal hygiene practices ▶ Learn how to manage one's own health conditions and monitor health risks
Health: Physical	*Developing psychological & social well-being*	▶ Positive sense of self-worth ▶ Develop and maintain healthy relationships and support ▶ Ability to recognize and manage stress and anxiety ▶ Strategies for coping with stress, challenges, and setbacks
Cognition	*Acquiring the skills, knowledge, & abilities to achieve goals & objectives*	▶ Learn how to learn ▶ Foster curiosity and critical thinking ▶ Apply learning/transfer to new settings ▶ Ability to make healthy and safe decisions ▶ Build capacity for self-reflection ▶ Increase executive functioning skills
Identity	*Exploring identities and figuring out who they are now & who they want to be*	▶ Explore and reflect on one's sense of self as an individual ▶ Explore and reflect on how collective identities fit into one's sense of self ▶ Establish a sense of self-worth and positive self-image
Meaning & Purpose	*Exploring how to meaningfully connect &contribute to the world around them*	▶ Seek diversity of perspectives ▶ Increase civic consciousness and a broad world view ▶ Explore personal interests ▶ Tap into personal agency and autonomy ▶ Develop character traits and tap into a moral compass ▶ Explore one's own values and beliefs
Emotion	*Identifying emotions & how to manage them in positive ways*	▶ Understand and practice empathy ▶ Ability to self-regulate ▶ Know when to practice humility ▶ Learn to be pragmatic and adapt when needed ▶ Ability to express emotions that are relevant to the setting/experience
Social	*Developing trusting & reliable relationships & navigating diverse social contexts*	▶ Knowledge of social norms and the skills to address them ▶ Respect and appreciation for self and others ▶ Versatile communication skills ▶ Knowledge of, engagement with, and safe navigation of social media technologies ▶ Develop conflict resolution skills ▶ Demonstrate respect and appreciation for self and others ▶ See others' points of view

PAPER 1

Schoolwork with Purpose: A Mixed Methods Study on Youths' Perspective of What Makes Learning Meaningful

Abstract

Making school meaningful is a widely accepted goal in education, yet what is considered meaningful, meaningful to whom, and why, leaves room for interrogation. This sequential explanatory mixed methods study aims to understand: (1) The extent to which students experience meaningful education at EL Education schools compared to comparison schools, and (2) How adolescents describe meaningful schoolwork. Survey responses were gathered from 258 students at nine middle schools (five EL Education, four comparison). Participants self-identified as 49% male, 47% female, 2% gender non-binary, 41% Black, 40% Latine, 33% White, 16% Multiracial, 1% Asian, and 31% low-income. Controlling for demographic characteristics, EL Education students reported statistically significantly more meaningful school experiences than comparison school students. Subsample analyses showed substantially greater meaningfulness at EL Education than comparison schools for Black ($n = 107$; $p < .01$) and Latine students ($n = 40$; $p < .001$). Interviews from 32 students and grounded theory analysis revealed that meaningful schoolwork focuses on: (a) Learning about and addressing “real-world problems” (e.g., racism, environmentalism, sociopolitical development), (b) Engaging content that was personally relevant, hands-on, and socially interactive, and (c) Future-oriented academic or social skills. Findings point to promising practices at EL Education schools and implications are discussed.

Schoolwork with Purpose: A Mixed Methods Study on Youths' Perspective of What Makes Learning Meaningful

Making school meaningful is a widely accepted goal in education, yet it is a topic that is relatively under studied in research (Reber, 2019). Basic science in learning tells us that students learn better when they are engaged, process information deeply, and link information to what they already know (National Academies of Sciences, Engineering, and Medicine [NASEM], 2018). However, accountability and funding pressures create constraints that can result in the prioritization of tested material over the interests of learners themselves. These practices have contributed to documented boredom (Pekrun et al., 2010), lack of interest (Frenzel et al., 2010), and decline in engagement in school during adolescence (Eccles & Roeser, 2009; Hughes et al., 2015) – findings that underscore the importance of investigating educational contexts and practices that promote meaningful learning.

Early adolescence is a crucial time to investigate what youth find meaningful in school. In this developmentally sensitive period, youth are primed to explore their own identities, understand who they are in relation to peers, and size up ways that they can make the world a better place (Lerner et al., 2021; NASEM, 2019; Steger et al., 2021). Early adolescents (i.e., age 10-14) develop an increased sensitivity to rewards, greater social perspective-taking, increased ability to understand nuance and complexity in social issues, and a proclivity to contribute to the world (Fuligni, 2019). Also, because adolescents are especially attuned to the behaviors and attitudes of the adults around them, experiences including discrimination, microaggressions and bias become amplified and can lead to anxiety, depression, and other adverse outcomes (NASEM, 2019). Decades of evidence point to racial and ethnic disparities in students' school experiences, in essence, opportunity gaps such that students of color are afforded lower quality

teachers, school funding, school climate, and more harsh discipline than White students (Carter & Welner, 2013; Darling-Hammond, 2015; Huang, 2020; Skiba et al., 2014). Given the context of racism in the U.S., this is an especially crucial time for early adolescents of color. As they become increasingly aware of and affected by racial injustice they can develop sociocultural skills to navigate and/or dismantle it (Watts et al., 2011). At this moment in development, meaningful middle school experiences can play a crucial role engaging every student in learning, shaping early adolescents' understanding of themselves, and shedding light on how they can take action to create a better society.

The present study uses a sequential explanatory mixed method design to explore what makes learning meaningful and how school contexts promote meaningful learning, especially for students of color. We address these questions by tapping into adolescents' perspectives of meaningful school experiences and comparing two types of public middle schools: schools employing the EL Education model versus typical public middle schools in the same city. EL Education (formerly known as Expeditionary Learning) offers "proven instructional practices, high-quality curriculum, and aligned professional learning" (ELEducation.org). We used Sociopolitical Development Theory (Watts & Flanagan, 2007) to frame our research questions and analyzed student survey and interview data about their meaningful school experiences and descriptions of meaningful schoolwork.

Defining Meaningful Learning in Adolescence

Existing research suggests that youth find learning meaningful when the classroom experience includes relevant content, favorable conditions for learning, and positive social interactions (Bergmark & Kostenius, 2018; Morse et al., 2019). Content is deemed relevant when it relates to students' interests (Wentzel, 1996), experiences, identity, and culture (Ladson-

Billings, 1995). Favorable conditions for learning refer to a classroom environment in which a teacher fosters respect, fairness, and various learning methods (Bergmark & Kostenius, 2018). Positive interactions that make learning meaningful include supportive social interactions with peers (Wang & Eccles, 2012; Williams & Hamm, 2018) and positive relationships with teachers (Yu et al., 2018). These conditions for meaningful learning are also conducive to academic engagement and development of a sense of purpose (Bronk, 2014).

Meaningful learning relates to interest, motivation, engagement, and purpose (Steger et al., 2021) and it seems important to describe how these constructs are similar and different. By definition, meaningful schoolwork is a specific form of learning that elicits interest (i.e., sparks curiosity and attention), captures students' motivation to learn (i.e., content has value or practical application for a personal goal; Wigfield & Eccles, 2000), *and* gives students a sense of purpose (i.e., both personally and more broadly important; Malin et al., 2017). For example, early adolescents may likely find video games interesting and motivating – they may experience a sense of belonging in games with peers. However, video games may not be meaningful to early adolescents because they do not connect to a broader goal that is valuable to society and thus, may not give a student a sense of purpose. On the other hand, learning fractions may be motivating to learn because students know they are relevant for one's future or life skills; however, fraction instruction may not be interesting to students and students may not see how they link to broader goals in the world so these lessons are not meaningful.

One argument for making school experiences meaningful is that students will be more engaged in learning, which in turn, leads to higher academic achievement (Martins et al., 2022), identity development, and wellbeing (Steger et al., 2021). Academic engagement is multifaceted (Fredricks et al., 2004; Morse et al., 2019) and tied to positive outcomes (Martins et al., 2022;

Symonds et al., 2023). For instance, students are more engaged and learn more from connecting new content to schema, or what they already know about the world and about themselves (Harackiewicz et al., 2016; NASEM, 2019b). Engagement is closely linked to motivation in learning, which describes students' self-perceptions, perceptions of a task, and expected value of the task (Wigfield & Eccles, 2000). Surprisingly, we know little about students' perceptions of meaningful learning and how that leads to engagement and motivation. There is especially little research from students' own perspectives in middle school when school motivation (Eccles & Roeser, 2009) and their sense of efficacy (omitted, 2024) tend to decline.

A second outcome related to meaningful school experience is developing a sense of purpose (UCLA, 2023). Developmental researchers define purpose as a life aim or pursuit toward a long-term goal that is both personally and broadly relevant (e.g., community or globally) and provides personal direction and motivation (Damon & Malin, 2020). A sense of purpose has been shown to indicate thriving and optimal development (Brassai et al., 2011; Bronk, 2014). By definition, youth with purpose follow through on long-term goals, engage in socially responsible behavior, show agency in identifying and acting on issues that concern them, and have an impact in the world (Malin et al., 2017). For example, in a study of over 2,000 adolescents, Yeager and colleagues (2014) found that those who had a self-transcendent (i.e., meaningful beyond oneself) sense of purpose in their learning showed greater short-term academic self-regulation and long-term academic persistence. In another large-scale study of adolescents, Seon and Smith-Adcock (2021) found that students' sense of meaning in life predicted fewer experiences of bullying victimization and higher subjective well-being. Developing a sense of purpose includes understanding that one's contributions and effort are meaningful on a personal level *and* broader community scope (Damon et al., 2003; Yeager &

Bundick, 2009). In turn, meaningful school experiences that are personally relevant and connected to a broader goal are key components for students to develop a sense of purpose and positive identity (i.e., a positive sense of self; Branje et al., 2021). This leads us to ask how schools can support meaningful learning.

School Conditions for Meaningful Learning

Despite evidence of important outcomes associated with meaningful learning experiences, research about the school conditions that make learning meaningful is scarce (Bergmark & Kostenius, 2018; Russo-Netzer, 2023). There is especially little research in the middle school years, a time when adolescents are primed for engaging learning that instills a sense of purpose. Two studies have examined school conditions that lead to meaningful learning in the elementary and high school years. Bergmark and Kostenius (2018) found that third grade students described meaningful learning as both having agency to participate and relating to one's wellbeing. Quinn and colleagues (2019) found that high school teachers and students described school conditions that promote developing a sense of purpose included connections to the real world, future relevance, and positive relationships. These limited findings suggest the need for further investigation in school settings with particular attention to the middle school years.

Meaningful School Experiences for All Students

It is well documented that enriching school conditions (e.g., highly trained teachers, school funding, access to engaging curriculum) are not available to all students (Adamson & Darling-Hammond, 2012) reflecting systemic inequities. Racism and systemic oppression segregates neighborhoods and schools and limits opportunities for students of historically marginalized identities (e.g., Black, Latine). As a result, students with racially marginalized identities have different school experiences and lower academic outcomes compared to their

privileged (e.g., White) peers, on average (Carter & Welner, 2013; reardon et al., 2021). Many of the factors that might promote meaningful education (e.g., engaging curricula, relevant content, relationships with highly trained teachers, well-funded schools) are unavailable to Black, Latine, low-income, and otherwise marginalized students (NASEM, 2019a). Racial disparities in school experiences in particular contribute to ubiquitous forms of oppression, such as the racial discipline gap that has been connected to the school to prison pipeline (Guerrero Jr., 2021; Riddle & Sinclair, 2019).

In an effort to address the inequity, many schools have placed meaningful work at the heart of their models, including Facing History and Ourselves (Domitrovich et al., 2022), Educating for Democracy (Nucci, 2016), and Morningside Center for Teaching Social Responsibility (Manassah et al., 2018). One such model, EL Education strives to cultivate students' meaningful school experiences and foster a sense of purpose through culturally relevant and asset-based approaches (https://eleducation.org/).

EL Education

EL Education is designed to develop a sense of agency, purpose, and belonging in youth and that raises questions about the extent to which it provides meaningful learning experiences, especially for students of color. EL Education offers curriculum, training, and credentialing for public, private, and public charter schools across the nation focused on skills, character, and high-quality student work. The EL Education theory of change states that when students "are engaged in work that is challenging, adventurous and *meaningful* [emphasis added], learning and achievement flourish" (Berger et al., 2020). It is this focus that makes EL Education an ideal setting to explore student experiences of meaningful schoolwork.

The EL Education Core Practices describe ways schools can create meaningful school experiences by: (a) engaging in authentic work that connects to real-world problems, (b) hands-on activities (e.g., fieldwork, service learning, and collaboration with experts) involving discover-based pedagogy, and (c) authentic learning experiences in the community (e.g., writing for a local newspaper, creating informative signage for a local stream restoration project). The EL Education theory of change shows ways that engaging in meaningful school experiences can lead to authentic engagement in school, achievement, character development, and dedication to being a lifelong learner.

Existing research on EL Education shows a positive impact on students' reading and math achievement (Nichols-Barrer & Haimson, 2013). Further, EL Education had similar positive effects for students regardless of ethnic racial identities, economic, and special education backgrounds. Although positive effects of EL Education were evident, these findings did not narrow the achievement gap because they were not greater in magnitude for students of marginalized than non-marginalized backgrounds (Nichols-Barrer & Haimson, 2013). One study compared the high school EL Education model as well as other progressive education models focused on collaborative community and social justice with "no-excuses" models of education focused on eliminating opportunity gaps through strict discipline and direct instruction (Seider et al., 2021). Seider and colleagues found that different school models facilitated different types of critical consciousness development among adolescents, including greater rates of growth in critical reflection (Seider et al., 2021) and sociopolitical development (Seider et al., 2020) among students in progressive schools (e.g., EL Education) compared to students at no-excuses schools. These findings raise questions about how students experience EL Education versus comparison

schools, especially in relation to meaningful learning. To our knowledge, this study is the first to examine meaningfulness in EL Education and comparison schools.

Meaningful Learning Supports Adolescent Development: Theoretical Framework

At the time of data collection, early adolescents were experiencing crucial developmental years amid the politically divisive early 2020s, involving book bans, a racial reckoning sparked by the murder of George Floyd, and a pandemic with a disproportionate negative impact on people of color. Yet, we saw youth advocating for their rights through organizations like the Black Lives Matter movement and protests like the March for Our Lives. Society witnessed youths' engagement in experiences that were meaningful to them. Youth advocacy reflected youths' awareness of societal problems, engagement in experiences that felt relevant and mattered to themselves and others, reflected youth's identity, and fostered a sense of purpose.

Given this context, the present study draws on sociopolitical development theory, which integrates positive identity development, critical consciousness, ethnic-racial identity, and Black liberatory psychology (Watts & Flanagan, 2007). Sociopolitical developmental processes include three key components: (a) awareness of sociopolitical issues (e.g., world problems such as racism and climate change), (b) sense of efficacy for changing issues in their community, and/or (c) taking action toward improving sociopolitical conditions (Watts & Flanagan, 2007). Specifically, opportunities to take social action and participate in civic learning in early adolescence are important experiences that support sociopolitical development (i.e., awareness of inequities) and later political action (i.e., voting; Watts & Flanagan, 2007). Scholars have documented that sociopolitical processes relate to wellness and serve as protective factors against psychological harms of racial discrimination and oppression (Hope et al., 2023). Sociopolitical development is closely related to critical consciousness (i.e., knowledge and analysis of systems

of oppression and a commitment to action for social justice; Watts et al., 2011) and positive ethnic-racial identity development (i.e., a lifespan process of awareness, affiliation, attitudes, behaviors, and knowledge associated with ones' intersecting socialized race and cultural identity; Williams et al., 2020).

Sociopolitical development is rooted in Black psychology and developed by Black scholars to support Black and other marginalized youth, yet there is a critical need to understand sociopolitical development in White youth (Hazelbaker et al., 2022; Moffitt & Rogers, 2022; Williams et al., 2020). Understanding how White youth and youth with other privileged identities develop critical consciousness is essential to dismantling systems of oppression because White people are a powerful part of upholding the unjust systems from which they (we) benefit. Furthermore, understanding sociopolitical development provides a path for people with privilege (i.e., White people) to end systemic inequities in education and beyond. More research is needed to understand sociopolitical development and critical consciousness among White youth, especially given the political rhetoric of guilt and shame that White youth may experience when grappling with racialized reality (Alexander et al., 2023).

Students' meaningful learning experiences are connected to their understanding of the broader world around them (e.g., systemic oppression, racism, housing segregation) and drive sociopolitical development. To date, developmentalists focus more on the micro context within schools but less on the macro level systemic oppression that permeates youth experiences and microlevel interactions (Rogers et al., 2021). Race is a part of daily interactions, experiences, relationships, and identity development, and therefore, studying school contexts needs to consider the broader societal context of systemic injustice within which schools operate.

The EL Education model connects the macro (e.g., broader world issues) to the micro system (e.g., students interpersonal exchanges including student-teacher relationships; identity development including a sense of agency) by explicitly recognizing that macro systems are influential, palpable, and important in youth lives. In this study, we investigate school conditions (i.e., EL Education) that promote meaningful learning for all students. In addition, we focus specifically on exploring the school conditions that promote meaningful learning for Black and Latine youth by analyzing experiences within subgroups. This work gives insights about what type of school experiences may be meaningful to youth and calls attention to the sociopolitical aspects of adolescent development.

Study Objectives

The goal of the present study was to examine adolescents' perspectives of meaningful school experiences in middle schools that employ EL Education versus typical middle schools that do not. This study is part of a larger, two-year longitudinal, quasi-experimental study of character development comparing EL Education and comparison schools. In this sequential explanatory (quant□ QUAL) mixed methods study (Creswell & Plano Clark, 2017), we sought complementarity (Greene et al., 1989) to answer two broad research questions and then examine those questions with greater specificity in subgroups of students of color.

1. (a) To what extent do students at EL Education middle schools experience school as more or less meaningful than students at comparison schools? (b) Is this difference present for Black and Latine youth? Based on knowledge of early adolescence, sociopolitical development theory, and the design of EL Education we expect greater meaningfulness at EL Education than comparison students for the full group of students as well as the subgroups of students of color.

2. (a) How do middle school students describe meaningful school experiences? Do these definitions differ between EL Education and comparison schools? (b) Do these definitions differ for students from historically marginalized ethnic-racial backgrounds (e.g., Black, Latine)? The goal with this question was to fully understand meaningful learning from the point of view of youth.

Methods

We used a sequential explanatory mixed methods design in which initial survey data collection in year 1 with 258 students was followed up with interview data collection in year 2 with 32 students. In year 1, students responded to survey questions about the extent to which their school experiences were meaningful to them. Preliminary analysis of survey responses prompted the research team to ask open-ended questions about what students perceived as meaningful schoolwork. In year 2, students engaged in interviews about what they found meaningful in school and why. The protocols were approved by an Institutional Review Board.

Quantitative Study Participants

Participants were adolescents entering their first year of middle school in nine schools. The schools in the study were five EL Education credentialed schools in four cities in the U.S. and four comparison middle schools, one in each city corresponding with an EL Education school. Comparison schools were invited to participate based on meeting three criteria: 1) similar student demographics, 2) a commitment to SEL, and 3) advisory in place. Families were invited to participate in each of the nine participating schools via in-person recruitment at parent nights. Family consent was obtained for each participant at the beginning of the study.

Of the 258 students, 107 were enrolled in EL Education schools and 151 were enrolled in comparison middle schools. None of the students attended EL Education schools prior to middle

school. Chi-squared and t-tests were conducted to examine demographic differences between EL Education and comparison schools. Students were well-matched in the EL Education and comparison schools on gender, emergent bilingual status, and special education status. There were four significant differences between the two groups. EL Education schools had fewer Black students, more White students, more students from low-income families, and slightly younger students than comparison schools. See Table 1 for participant demographic information. The year 1 data collection occurred during the onset of the COVID-19 pandemic and so we gathered information about the timing of that data collection and compared the EL Education and comparison schools on whether students completed the survey before schools transitioned to remote learning. There were no differences in survey timing between the EL Education and comparison schools.

Quantitative Data Collection

Students reported on their school experiences between January-March, 2020 of their first year of middle school. Student assent was gathered at the beginning of the survey.

Meaningfulness of School Experiences

Meaningfulness of school was measured using a sub-scale of students' sense of purpose at school from the Revised Youth Purpose Survey (Bundick et al., 2006). The Revised Youth Purpose Survey was designed to measure various aspects of purpose, including meaningfulness at school, with youth aged 11-23. Students rated four items on a Likert scale from 1 (*not meaningful at all*) to 5 (*extremely meaningful*). Four items asked students to rate how *meaningful* they found *participating in class, working with others at school, studying/doing homework for class,* and *doing a project at school*. The four items were averaged to create a mean score for students' sense of meaningfulness, which showed strong internal consistency ($\alpha = .97$).

Independent Variables and Covariates

The key independent variable was school condition (EL Education versus comparison). Race/ethnicity was used to identify subgroup status. Covariates included demographic variables (i.e., gender, emergent bilingual, special education, family low income, and age), and post-COVID (because the data collection was conducted around the time of the school shutdowns). The school condition variable was a binary indicator of whether students attended EL Education schools or comparison schools. For COVID timing, each student was coded 0 if the survey was completed before March 13, 2020 and 1 if not. Demographic information was collected from student self-report (gender, race/ethnicity, age) and school record data (free and reduced price lunch as a proxy for family income, emergent bilingual status, special education status). The race/ethnicity variable was a mutually exclusive categorical variable in which students self-identified as Multiracial, Native American, Asian, Hispanic, Black, or White. Students also self-identified gender as male, female, or non-binary and their birthday, which was used to calculate age. Demographic data from school administrators was used to identify emergent bilingual students, special education services (i.e., students who had an individualized education plan or 504 plan), and students from families with low-income status.

Quantitative Data Analysis

Data analyses were conducted in Stata version 17 (StataCorp, 2021). To address the first research question, we ran a structural equation model (SEM; following Soland & Sandilos, 2021). Running regression through a structural equation framework can account for survey measurement error and missing data using full information maximum likelihood (FIML; StataCorp, 2021). All estimations used FIML to estimate relationships between variables and include participants with missing data (Allison, 2009). The SEM was estimated using only

observed variables. Students' self-report of meaningfulness at school was the single continuous outcome variable, and school condition (EL Education vs. comparison) was the primary predictor while also controlling for race/ethnicity, low-income (1 = yes; 0 = no), gender (1 = female; 0 = male or non-binary), language (1 = emergent bilingual; 0 = non-emergent bilingual), special education (1 = yes; 0 = no), age, and post-COVID. Because the student sample is not representative of the schools (students were recruited to participate at each school during open houses but not randomly selected), we accounted for students nested in schools using a school level cluster to predict standard errors instead of a multilevel model (O'Connell et al., 2022). The SEM was estimated as a fully saturated model (i.e., the model fully reproduced all observed means, variances, and covariances; Masyn, 2013; Navarro, 2015). A fully saturated model results in perfect fit (e.g., SRMR = 0.00), so the analytic output did not produce fit statistics.

To address research question 1b, we compared students' meaningful school experiences between EL Education and comparison schools within ethnic-racial subgroups, rather than comparing across ethnic-racial subgroups. This a priori analytic decision was intentional. Many studies analyze the racial gap (i.e., condition X race/ethnicity interactions), but this approach promulgates the problematic idea that the White experience is the norm (Toldson, 2019). To compare school conditions for the Black and Latine subsamples, we ran separate regression models; one with only Black students and one with only Latine students. Again, each model was fully saturated and therefore no fit statistics were produced. Because this is not yet the standard approach, we conducted sensitivity analyses testing condition X race/ethnicity, as described below. Other ethnic-racial subgroups were too small for further analysis.

Qualitative Study Participants

Students were purposefully selected from the full sample to participate in follow-up qualitative interviews. The purposeful sampling was intended to get a range of outcomes on two questions related to prosocial development in the original study (omitted, 2024). We over-sampled Black students to ensure a racially diverse subsample. This research leveraged the same subsample. Interviews were conducted over the phone in spring of 2021 with 32 students when students were in their second year of middle school (March-July, 2021). The subsample included 20 EL Education students and 12 comparison school students, there were fewer comparison school students due to recruitment challenges. Students in the subsample described themselves as 16% girls, 44% boys, 6% gender non-binary, 44% Black, 47% White, 6% Latine, and 3% multi-racial. Based on school administrative data, the sample included 6% emergent bilingual students, 16% students with special education services, and 31% low-income students.

Qualitative Data Collection

Interviews were audio recorded and transcribed for data analysis. A member of the research team who conducted the interviews also manually checked the transcriptions for accuracy. Typically interviews lasted 20-40 minutes and followed a semi-structured interview protocol. Students were asked if they found school meaningful and to provide an example of meaningful schoolwork. Specifically, interview questions were as follows: *Think about work that you do at your school. Does it feel meaningful and important to you? Can you give an example of work that you have done at your school that is meaningful and important to you? Tell me more about that work and why it felt meaningful and important to you. Could you see the purpose of that work?* Interview transcripts were de-identified for the analyses, meaning researchers were unable see students' identity and school condition while analyzing student responses.

Qualitative Data Analysis

The analytic approach broadly followed a descriptive-interpretive approach, and more specifically a thematic, consensual qualitative design (Elliott & Timulak, 2021; Saldaña, 2014) involving reflective memos and discussion between four research team members to collaboratively develop a codebook that emerged from the participants' words. Four coders conducted initial coding of interview excerpts specifically about meaningfulness at school to become aware of categories grounded within the students' words (Saldaña, 2014). Through focused coding we refined emerging categories, which included clustering ideas. Finally, theoretical coding enabled a shift into the analytical and interpretive, allowing for theories around experience, condition, and identity to emerge.

All data were deidentified by removing school names and reporting pseudonyms. Condition was masked for all coding. Data were analyzed in Dedoose version 9 (Dedoose, 2024) through a process of consensus coding. Each week, each research team member coded a section of the data, and the team met to discuss discrepancies to reach 100% agreement. This was repeated until all the data was coded, meaning 100% of the data were individually coded and discussed for agreement. Interview data excerpts were multiply-coded to capture dynamic student responses. The analysis team participated in weekly discussion meetings, including consensus coding, memo writing, explanations, reflections, and links to existing literature (Henwood & Pidgeon, 2003). Initial codes came from students' words, and themes arose from similar codes. During the coding, the team observed how well the codes mapped onto issues and processes in sociopolitical development theory. Labels were then assigned to themes in ways that aligned with theory.

Following the final round of coding, each team member wrote memos to observe patterns within each code in the fully coded dataset. Data were compared across school condition (i.e., EL

Education versus comparison students), and data from the sub-sample of students of color were compared across school condition (i.e., Black and Latine students in EL Education versus Black and Latine student in comparison schools). All memos were cross-read by other team members for another round of analytic consensus. The analysis team exercised weekly thorough reflexivity discussions to interrupt bias and challenge status-quo thinking. Iterative rounds of consensus coding and regular internal and external audits enhanced rigor. Credibility was established through constructivist grounded theory guidelines (Charmaz, 2006), including reflexivity (e.g., engaging in regular conversations about our own positionality), maintaining an audit trail to document coding decisions, and prolonged engagement in the data (e.g., each coding team member visited at least one school in the study).

To complete the analysis, we organized the subgroups of students by race/ethnicity. Because the interview sample of students who identify as Black (n = 14), Latine (n = 2), and Multiracial was small (n = 1), we aggregated across the three groups with the goal of understanding what students of color considered to be meaningful work.

Reflexivity

We recognize that study design, data collection, and decisions during data analysis are dependent upon our, the researchers' perspectives (Castillo & Gilborn, 2022). Throughout the data analysis and dissemination of findings, we aimed to consciously raise and consistently re-examine our positionality as individuals and the research team. The quantitative analysis team consisted of the first and third authors. The qualitative research team consisted of the first author and three graduate students in a large, public university in the Mid-Atlantic region. The first author is a doctoral student who identifies as a White, cisgender woman and a former classroom teacher. The second team-member is an advanced doctoral student who identifies as a White,

cisgender female from a low-income, rural background with experience as a teacher and college advisor for first-generation students. The third team-member identifies as Arab and Latina, and as a cisgender female who was a teaching assistant in multiple school settings. The fourth team-member identifies as a White, cisgender female with teaching experience in a predominately low-income area. Our varied experiences as teachers in different contexts contributed to our analysis of meaningfulness at school, especially in our interpretation of students' descriptions of meaningful schoolwork. On the other hand, we recognize our disparate perspectives from students in the study regarding age and ethnic-racial identities. Self-examining our own backgrounds and biases and reflecting on how they influence our interpretation of students' responses was a consistent and helpful process.

Results

Quantitative Findings

Descriptive statistics of students' meaningfulness at school are presented in Table 2a. On average, EL Education students reported their school experiences as meaningful at 3.12 on a scale of 1 to 5 (SD = 1.25), while comparison students reported 2.9 out of 5 (SD = 1.25), thus, on average students are reporting somewhat above the midpoint of the scale. This is also the case for the subgroups (Black, Latine). Table 2b shows correlations between meaningfulness and the independent variables and covariates.

Research Question 1a. Meaningfulness at EL Education versus Comparison Middle Schools

The regression analysis revealed that students in EL Education schools reported significantly more meaningfulness at school than students at comparison schools (b = 0.26; SE = .12; $p < .05$). Covariates showed that race/ethnicity, post-COVID, and age were significant predictors of students' meaningfulness at school, as described in Table 3.

Research Question 1b. Meaningfulness Among Black and Latine Students

We ran two subgroup analyses to examine if students of color differed in their experiences of meaningfulness at EL Education versus comparison schools. The two subgroup analyses were among Black students (Model 2), and Latine students (Model 3). Among Black students (n = 107), those in EL Education schools reported significantly more meaningful school experiences than their Black peers in comparison schools (b = 0.83; SE = .27; $p < .05$). Similarly, among Latine students (n = 34), those in EL Education schools report significantly more meaningful school experiences than their Latine peers in comparison schools (b = 0.84; SE = .14; $p < .05$; Table 3).

We ran two robustness checks to confirm the subgroup findings. First, we conducted t-tests comparing mean differences of Black students' (Model 2) or Latine students' (Model 3) between school conditions (EL Education or comparison). Findings confirmed that among Black and Latine youth, EL Education students reported more meaningful school experiences than comparison students. As mentioned earlier, we compared EL Education and comparison schools within subgroups to avoid the racial gap comparison that often assumes that White is the norm. However, as a second robustness check, we conducted a moderation analysis (condition X race/ethnicity) in the full sample. This analysis showed a racial gap in meaningfulness in comparison middle schools (i.e., Black and Latine students report lower meaningfulness at school than their White peers), but no racial gap in EL Education schools (i.e., equally high self-report of meaningful learning across racial subgroups).

Overall, students at EL Education schools report more meaningful school experiences than their counterparts at comparison middle schools. This finding was also evident in Black and Latine students thus leading us to want to better understand what may be occurring in EL

Education schools that led to more meaningful experiences among students of color. It seemed essential to understand the content and processes of instruction that were meaningful to early adolescents. The next step in the sequential explanatory study design was to further elaborate what makes schoolwork meaningful from early adolescents' perspectives.

Qualitative Findings

Research Question 2a. Student Descriptions of Meaningful Schoolwork

We found three themes in early adolescents' descriptions of meaningful schoolwork, which included sociopolitical development (including the topics of real-world issues and the developmental processes), engaging schoolwork (i.e., the content was personally relevant, hands-on, or socially interactive), and/or future-oriented (i.e., teaching academic skills, social-emotional skills, goal-oriented skills; see Table 4). The next section describes the findings within each theme, provides results comparing the two school conditions (i.e., EL Education and comparison schools; see Table 5), and delves into more details about how students of color define meaningful schoolwork.

Sociopolitical Development: Real-World Issues. Students often used the phrase "real-world problems" to describe schoolwork that "informs us, basically, of what is actually happening in the world, but also learning from it" (Teri, Black female EL Education student). Examples from students included racism (e.g., Black Lives Matter movement, Anti AAPI hate), environmentalism (e.g., pollution, saving energy, climate change), and feminism (e.g., gender equality). Almost a third of the sample (31%, n = 10) described meaningful schoolwork as activities that address real-world issues. This theme was more prevalent among EL Education students (45%, n = 9) than comparison students (8%, n = 1). For example, Nora said,

> We're reading a book called ‘Watch Her Rise’ and it's about feminism and activism and sticking up for women because they're treated unfairly. And this is one thing that means a lot to me. It's like something I can not only relate to, but it means something, I know it’s meaningful, like we're going to use what we've learned in our futures. (Nora, White female EL Education)

Nora’s response highlights the salience of learning about gender inequality because it is a salient real-world issue that affects her and other people more broadly.

Several students mentioned learning about current events, in particular the Black Lives Matter movement, as an example of meaningful schoolwork. One student described the importance of learning about the Black Lives Matter movement as “really wonderful because [she is] also Black, so to learn that in school means that they actually care about [her]” (Valorie, Black female EL Education). One student in a comparison school associated current real-world issues with learning about the Black Lives Matter protests in school, and she described it as meaningful schoolwork because “It all connects to what our life is like right now” (Edie, White female Comparison). Another EL Education student described the importance of learning about the Black Lives Matter movement as it related to current events and “rights for everyone” (Tammy, White non-binary EL Education); they continued to say, “We need to get everyone to be cool if we all want to live in the same world,” highlighting their social awareness about racial conflict in current events. Yet another EL Education student described “some” schoolwork as meaningful, and she elaborated that meaningful work included “learning about really tough topics, like manifest destiny, the Breonna Taylor thing, Nat Turner. Right now we're learning about Frederick Douglas” (Ellie, White female EL Education). She mentioned racism in U.S.

history, racial violence in current events, and two important social justice leaders who organized and advocated for the end of slavery in the 1800s.

Some students in EL Education schools mentioned learning about gentrification as meaningful. One student identified learning about gentrification as relevant given the connection to their own community, saying they "learned about all the problems and what's happening around the world, and how you can relate to it because we live in DC. That's a big problem" (Teri, Black female EL Education). Teri's emphasis that gentrification is a big problem, and her engagement is at least partly due to her relating to the problem in her own city and understanding that gentrification is happening around the world.

Students at EL Education schools also discussed environmentalism as meaningful schoolwork. Fred said, "creating a video about why we should stop spreading pollution… was very important to me because pollution is a very big issue" (Fred, White male EL Education). Another student described a trash pick-up project near their school that was "helping our environment because at [this school], we also try to be eco-friendly" (Aman, Black male EL Education). These young people's prioritization of learning experiences about pollution and being eco-friendly as a school community reflect their engagement in meaningful learning experiences that stem from their understanding and commitment to addressing a real world issue, in this case environmentalism.

Only one student at a comparison school mentioned real-world issues as meaningful (Edie, quoted above). Thus, the prevalence of student responses describing real world issues as meaningful schoolwork in EL Education schools was higher than in comparison schools, which may suggest that EL Education schools are discussing real-world issues often and/or with emphasis. Though we cannot determine from this qualitative data if EL Education schools are

discussing real-world issues more often or differently than comparison schools, we do observe that adolescents in both school conditions find world issues meaningful.

Sociopolitical Development: Process. Students who described real-world issues as meaningful topics of schoolwork also described the processes of becoming aware of injustice and taking action for change. For this reason, we created an etic code (i.e., from theory) to analyze students' sociopolitical development. Variations within this theme reflected the three components of sociopolitical development (i.e., awareness, efficacy, and action) and were not mutually exclusive. Notably, all students who described real-world issues as meaningful schoolwork also mentioned a sociopolitical development process (31%, $n = 10$), predominately from EL Education schools (45%, $n = 9$) compared to comparison schools (8%, $n = 1$).

Specifically, most of the students who discussed world issues as meaningful showed developing awareness about social injustice (e.g., nine out of ten students). Furthermore, six out of nine students who expressed sociopolitical awareness also mentioned some sociopolitical efficacy or action. For example, Henry (Black male EL Education) described sociopolitical awareness and efficacy toward improving social justice, when he said meaningful schoolwork was "the humanities work about racism and how we can change it". Teri elaborated about the connection between meaningful schoolwork that relates to sociopolitical awareness and efficacy:

> The work informs us, basically, of what is actually happening in the world, but also learning from it. And when you know and you can relate to that, it makes you remember. It's in your head forever, and it's just staying there. And then you can use it to make a difference in the world. (Black female EL Education)

Teri's explicit description of relatable schoolwork about real-world events that fosters a commitment to make a difference in the world could not be a better explanation of meaningful

schoolwork that relates to sociopolitical efficacy. In addition, Veronica explained that "Talking about protests, and how you could protest and fix one of the world problems" (Black female EL Education) was meaningful indicating her sense of efficacy in fixing world problems.

Other students mentioned their sociopolitical awareness alongside some form of action they were taking to educate others, such as "Creat[ing] a video about why we should stop spreading pollution. That was very important to me because pollution is a very big issue" (Fred, White male EL Education). Advocacy for a clean environment has been connected to a broader social justice agenda because climate change disproportionately affects people of color and low-income communities globally (Mohai et al., 2009). Another student, Tammy described learning about the Black Lives Matter movement as meaningful especially because they disseminated the information they learned in a podcast to promote racial tolerance. They said, "We had to pull together some information about like Black Lives Matter and rights, rights for everyone. And I think that was really meaningful to me, because you know how a lot of things happened last year and [are] happening" (Tammy, White non-binary EL Education). Tammy continued to describe disseminating information about the Black Lives Matter movement "to get everyone to be cool if we all want to live in the same world and keep together." Her budding understanding of ongoing racism, the importance of advocating for human rights, and spreading information to get on the same page signifies early sociopolitical awareness and aligned action. These examples of sociopolitical awareness also signal students' ethnic-racial identity development in the form of exploration (e.g., Tammy and Ellie, two White students grappling with their anti-racist White identity) and identity affirmations (e.g., Valorie and Teri discussing historic and current civil rights advocates as role models).

Engaging Schoolwork. Over half of the sample (56%, *n* = 18) described meaningful schoolwork as activities and assignments that they found engaging because the content was personally relevant (25%, *n* = 8; i.e., related to their identity), hands-on (22%, *n* = 7; i.e., interactive, fun, creative), or socially interactive (13%, *n* = 4; i.e., collaborative or involving friends). Notably, engaging schoolwork was more prevalent among EL Education students (75%, *n* = 15) than comparison school students (25%, *n* = 3). Moreover, EL Education students made up all those who described personally-relevant and socially-interactive schoolwork.

Personally-relevant schoolwork among EL Education students included activities that reflected or uplifted their identity. Nora's (White female EL Education, quoted above) response about feminism and activism highlighted the connection between schoolwork that is both engaging because it is personally relevant and related to social justice. Another EL Education student, Valorie (Black female EL Education, quoted above), described her personal connection to the Black Lives Matter movement that made learning about it in school not only engaging but also valuable because she felt recognized.

One interesting finding related to students' descriptions of personally-relevant schoolwork was that students described activities related to their own identities as well as their peers' identities that were different than their own. Ellie (White female EL Education) exemplified the sentiment that meaningful work can be different for everybody and still important for everyone when she said "We've learned a lot in humanities about racism and gentrification and …it's good that they're teaching us this kind of stuff. I feel that the work isn't exactly meaningful [personally relevant], it's more academic for me, but for others, it could be [personally relevant]… It's different for everybody." Tammy (White non-binary EL Education) also highlighted the personalized nature of meaningful schoolwork. They said, "There's several

life lessons you learn in this school. Like in some classes, it gets personal, but it's just pretty much cool." Their explanation of life lessons that can get personal also indicated Tammy's perception of meaningful schoolwork that may be personally challenging at times and yet still cool or important.

Students' descriptions of engaging schoolwork also included hands-on assignments (n = 7). For example, Noah emphasized his "favorite was when we got to create a big map of [his state]" because he "got to kind of express [his] art designs in the drawing (Noah, White male EL Education). Like Noah, multiple students mentioned art and humanities projects that were meaningful because they were creative activities. Another student described meaningful schoolwork that was personally-relevant (e.g., connected to inspirational figures) and hands-on (e.g., interactive and creative):

> When we did a Ruth Bader Ginsburg topic, some students made posters for her, some students made a slideshow about her. And we also did another "inspirational topics" where we picked an inspirational person and then connected it to how we find it inspirational…So, you could either do a slideshow or a poster or a diagram, or a hanger diagram. (Edie, White female comparison school)

Students also mentioned engaging schoolwork that was socially interactive, or involved learning with their friends or working on projects together (n = 4). Grace (Latina female EL Education) found a particular morning meeting meaningful "Because [she] got to talk in front of the whole middle school." Genny (Latina female EL Education) emphasized social interaction and social skills as meaningful when she said, "Focusing on the community commitments I'd say is meaningful because they make me and a lot of other people feel safe in our learning environment." Not only did students' descriptions of meaningful schoolwork include engaging

work that was personally relevant, hands-on, and socially interactive, their descriptions were also often overlapping with meaningful work related to real-world problems.

Future Orientation. Almost half of the sample (47%, *n* = 15) described meaningful schoolwork as directly related to skills that would be useful in their future. Variations in future orientation included academic skills (e.g., math for taxes, science, reading, writing), social emotional skills (e.g., relationships, respect, empathy, friends), or goal-oriented skills (e.g., necessary for a specific future endeavor or goal such as good grades to get into college or a specific career). Students in EL Education and comparison middle schools described meaningful schoolwork that is related to their future academic, social emotional, and goal-oriented skills in similar ways (45%, *n* = 9 in EL Education; 50%, *n* = 6 in comparison).

Most future-orientation descriptions were related to academic skills (*n* = 8), such as "math, like calculations of equations and angles, because it could help me in the real world someday" (Shane, Black male EL Education). Another student explained "In math, we learned about taxes, like how people deduct taxes, what the process is. I felt like I always hear my parents talk about taxes, and when we go shopping, I see they plus this and plus that" (Peter, Black male Comparison). Peter elaborated that meaningful schoolwork related to skills that are applicable in real life when he described learning about taxes from his dad and wondering "Well, are we ever going learn that in school? Then a couple weeks later, we learned that, learned about taxes." Other students' descriptions of future-oriented academic skills included other subject areas as well, such as writing or science.

Several students (16%, *n* = 5) described meaningful schoolwork as future goal-oriented. In other words, some students found schoolwork meaningful as a means-to-an-end in their path toward a specific career or higher education. For example, Aman encapsulated this idea by

describing “it is meaningful because what we learn in our school is teaching us or getting us ready for what we're going to learn for the next level. It was basically like elementary school prepares you for middle school, which middle school prepares you for high school, which high school prepares you for college, and college prepares you for life” (Aman, Black male EL Education). Alternatively, two students in comparison schools justified their answer that school was not meaningful by describing their goal-oriented, means-to-an-end perspective. One student described homework as more meaningful than schoolwork, saying “I don't really feel like school's important. But when I get home and do my homework, [my mom] talks to me about school and college stuff, and that makes me feel like school is very important” (Kathy, Black female Comparison). Another comparison school student, Ike said:

> Ehh (sound of indifference)... in a way [schoolwork] is important but at the same time is boring. But it has to be done if I'm going to be able to go to college. And then I'll be able to get a proper education to become a chemist… Like it's all technically meaningful, since… I need to be able to go to a good college or university, and be able to graduate, and be able to go and pursue my dream job. (Ike, White male Comparison)

Aman, Kathy, and Ike exemplified this small but relevant theme that schoolwork was sometimes less meaningful for students in the present, though meaningful as a means-to-an-end toward their future goals.

Social emotional skills was a small but salient variation among students who described meaningful schoolwork as related to their future. Two students (6%), one EL Education student and one comparison student, described meaningful schoolwork as developing intrapersonal or interpersonal skills such as self-awareness and relationship building skills. For example, Kate

emphasized that kindness is an important skill, and she explained an activity that promoted students' empathy by learning about what their peers value:

> It's just good to have like a wide variety of things that you know you can do for the future. And if we're learning about kindness then it's good to just be kind… Some work that we did was these little …thinking bubbles and then we filled it with things that matter to us. Everyone in the school did it, and they have it on these big poster boards, and it's really cool to see what different people like and how it varies from person to person. (Kate, White female EL Education)

Another student, Mykeem emphasized that practicing specific interpersonal character skills during advisory was important for his future. He said: "Advisory felt meaningful because respect, kindness, and empathy is something that you'll need throughout your life, so that was a good thing to learn" (Mykeem, Black male Comparison). Though a relatively small portion of the sample explicitly described social emotional skills as meaningful schoolwork for their futures, this variation was relevant.

Research Question 2b. Perspectives of Students of Color

Three themes were represented at similar rates among students of color as among the full sample. Additionally, the subgroup analysis of specifically students of color's perspectives revealed nuance within the themes that help explain why students of color had significantly more meaningful school experiences at EL Education than comparison schools. For example, EL Education students of color highlighted the connections between personally-relevant, meaningful education and their sense of teacher caring (e.g., Valorie, Black female EL Education).

It is noteworthy that five out of ten EL Education students of color (50%) described real-world issues as meaningful, while none of the seven students of color (0%) at comparison middle

schools mentioned real-world issues. Students of color at EL Education schools discussed a range of world problems including some related to race and some that were not. For example, Valorie explained how talking about racism contributed to her sense of feeling seen and cared about by her teacher, and Teri described learning about gentrification in her local context. Furthermore, Veronica's (Black female EL Education) meaningful schoolwork included history and sociopolitical action through "documentary day that was also talking about like protests, and how you could protest and fix one of the world problems." For those who mentioned meaningful schoolwork related to race, they described positive ethnic-racial identity exploration and commitment. For example, learning about historic and current civil rights advocates as role models was meaningful identity association for Valorie and Teri.

Students of color in EL Education schools mentioned engaging schoolwork (80%, $n = 8$) more often than students of color in comparison schools (14%, $n = 1$). This may indicate that EL Education schools were providing more engaging schoolwork especially for students of color, including that which is personally relevant, hands-on, and socially interactive. Within engaging schoolwork, students of color emphasized the relational and community connections that made schoolwork meaningful. The example of Valorie saying teachers "actually care" about her exemplifies this point. Although we cannot draw conclusions about opportunity versus experience (i.e., whether students in EL Education or comparison schools had opportunities to discuss real-world problems), the prevalence of EL Education students of color who described real-world problems and engaging schoolwork helps explain the significantly higher meaningful school experiences reported by EL Education students of color.

Discussion

Five findings emerged to explain early adolescents' experiences of meaningful schoolwork. First, students at EL Education schools found school significantly more meaningful on average than students at comparison schools. Second, Black students and Latine students reported significantly more meaningful learning at EL Education than comparison schools. Third, youth from both EL Education and comparison schools perceived sociopolitical development (including real-world issues and process), engaging schoolwork, and future-oriented schoolwork as meaningful. Fourth, two of the three meaningfulness themes were more prevalent among EL Education than comparison students, namely, sociopolitical development (including real-world issues and process) and engaging schoolwork. Fifth, students of color gave descriptions of meaningful schoolwork that emphasized caring connections with teachers and the school community.

Meaningful education can have benefits for early adolescents. Educators struggle with how to get and keep middle school students engaged in school (Wang & Eccles, 2012), and creating meaningful, relevant learning experiences may be key to addressing this challenge. Additionally, meaningful learning experiences can promote early adolescent wellbeing by cultivating a sense of purpose (Yeager et al., 2014), supporting strong connections with teachers and peers (Quinn et al., 2019), and contributing to identity and sociopolitical development (Branje et al., 2021; Watts & Flanagan, 2007). Findings from this study provide insight into how this can occur and show the promise of EL Education as one approach to enhance meaningful learning experiences in school. By leaning into sociopolitical developmental processes and real-world issues (Hope et al., 2023), meaningful schoolwork may tap into early adolescents' proclivity for contribution to the world (Fuligni, 2019).

What is Meaningful Schoolwork to Middle School Students?

Building upon nascent research about school conditions that promote meaningful learning experiences (Harackiewicz et al., 2016; Reber, 2019; Russo-Netzer, 2023), this study provides evidence for more meaningful learning experiences in EL Education than comparison schools. Examining within racial subgroups provided useful insights. Namely, among Black and Latine students, those at EL Education had more meaningful experience at school than students at comparison schools. EL Education is designed to build student agency, purpose, and belonging in a culture of high-quality student work, and in doing so, the practices appear to be enhancing meaningful learning, especially across racial/ethnic lines.

When asked about meaningful school experiences, students talked about real-world issues and discussed school experiences that had personal relevance to their identities and, in many cases, their future goals for justice. For example, students mentioned aspects of sociopolitical development including awareness of injustice and efficacy or action to create change. Students also described meaningful schoolwork as engaging because of its personal relevance, hands-on, or socially-interactive qualities. Finally, schoolwork that supported students' future academic and social goals was also meaningful. These findings align with prior research indicating connections to the real world and students' future goals promotes engaging education and the development of a sense of purpose (Quinn et al., 2019).

Grappling with real-world issues appears to be meaningful to students because it relates to their current and future lives. In most students' descriptions, students described topics and psychological processes that connected to their sociopolitical development. For instance, when students mentioned feminism, gentrification, and Black Lives Matter, they also described becoming increasingly aware of inequities in the world and reflected on their efficacy to create change and what actions they could take. For educators concerned that focusing on real world

issues may take time away from traditional instruction, the quotes from students suggest that real-world issues were embedded into the academic goals of the classroom and bolstered engagement in learning. Further, we saw connection to early adolescents' sociopolitical development and sense of purpose, both of which support a positive sense of sociopolitical identity and wellbeing (Bronk, 2014; Hope et al., 2023). The results showed no sign that meaningful learning (e.g., discussing real world issues) distracts from traditional academics. Rather, adolescents recognized that math, science, and literacy skills were important for their future goals and called attention to academic learning as meaningful when it aligned with their goals of making the world a better place. This fits within a larger movement in education to use project-based learning (Condliffe et al., 2017) and embed real world issues in math (Berry et al., 2020), science (Dimick, 2012), and literacy (Muhammad & Love, 2020).

Students from all ethnic-racial backgrounds raised the point that world problems were meaningful to them. In fact these were exactly the content and experiences that contributed to their sociopolitical development (Watts & Flanagan, 2007). Awareness of world problems, such as racism and environmentalism, was foundational in the majority of students' explanations of their sense of efficacy or taking action to address injustice. School experiences that contribute to youth sociopolitical development are meaningful by connecting to their ethnic-racial identity development (Branje et al., 2021) and sense of purpose (Russo-Netzer, 2023).

The results show that students of *all* ethnic-racial backgrounds described their sociopolitical awareness as meaningful. For example, of the ten students who brought up real-world issues, such as the Black Lives Matter movement, half of the students were White, six were not financially marginalized, and three were male-identifying; in other words they were a diverse range of students including those with privileged identities. Although we did not set out

to specifically analyze White students' sociopolitical development, those students with privilege also found sociopolitical world issues and processes meaningful and engaging, which is the opposite of describing guilt, fear, or shame, as suggested by some counterfactual campaigns (Alexander et al., 2023). In fact, sociopolitical development has been linked to protective factors for students of color (e.g., buffering against school disengagement and psychological harm due to racism, Hope et al., 2023). Aligned with sociopolitical development acting as a protective factor, youth of color in EL Education schools described their sense of awareness and efficacy for addressing systemic injustice in their explanations of meaningful learning experiences. Our study adds to findings of sociopolitical development for youth of color as well as the more nascent field of sociopolitical development among White youth (Hazelbaker et al., 2022; Moffitt & Rogers, 2022; Williams et al., 2020).

Engaging schoolwork includes behavioral, affective, and cognitive forms of engagement, each of which has distinct associations with higher academic achievement (Fredricks et al., 2004). Corresponding to these three facets of engagement, students described that meaningful schoolwork was engaging because it was personally relevant (i.e., cognitively engaging), hands-on (i.e., behaviorally engaging), and/or socially interactive (i.e., affectively engaging drawing on relationships to peers or the teacher). Three-quarters of EL Education students, but only one-quarter of students in comparison schools mentioned that schoolwork was meaningful because it was personally relevant. At its core, learning involves building from prior experience to build new knowledge and EL Education appears to leverage that reality.

Students at both EL Ed and comparison schools identified schoolwork that is meaningful because it is a means-to-an-end for their future career goals or that they knew schoolwork was important to learn applicable life skills, like math to do taxes. Learning experiences for early

adolescents should incorporate connections to future goals, including practical life skills such as taxes and college-acceptance, but also incorporate goals related to social emotional skills such as respect, kindness, and empathy. Furthermore, future-oriented learning can also incorporate sociopolitical development such as awareness and action for social justice. A central task of early adolescence is developing a sense of meaning and purpose in the world (NASEM, 2019). Therefore, middle school students are primed to think about issues related to themselves and the broader society (Bronk, 2014). Early adolescents in this study confirmed that discussing real-world problems was meaningful because they could engage in making the world a better place in their current and future actions. Nora's (White EL Education) response captures this sentiment when she described reading about feminism and activism by saying "I know it's meaningful. Like we're going to use what we've learned in our futures."

School Conditions that Promote Meaningful Schoolwork for Students of Color

Taken together, the quantitative findings showing EL Education students report more meaningful school experiences overall, and the frequency of real-world problems in EL Education students' interview responses indicated that discussions of real-world issues were a prevalent experience that made EL Education schools meaningful. Those discussions likely contributed to our finding that students in EL Education reported more meaningful school experiences than their peers at comparison middle schools. Black and Latine students at EL Education schools reported nearly 1 point higher on a scale of 1 to 5 than students at comparison schools. Students of color emphasized the meaningfulness of learning about world problems and engaging schoolwork that is personally relevant and draws on strong relationships and community commitments. This has practical significance given existing racial gaps in discipline and academic outcomes, which are based on unequal educational opportunities (e.g., disparate

school funding, Carter & Welner, 2013; Gregory et al., 2010; Reardon et al., 2021). This study suggests that EL education may provide an educational context in which Black and Latine students experience more meaningful learning, which could lead to narrowing racial gaps in discipline and academic outcomes.

Implications

The work described in this paper broadens the conceptualization of what constitutes meaningful work in several ways. The most basic conceptualizations of meaningful middle school learning focus on future-oriented needs and engaging classroom activities that are motivating and interesting to youth (Wigfield & Eccles, 2000). Yet, youth want to work on important, relevant problems in the real world. They are aware of real-world issues and eager to learn more and take action. Early adolescents are exquisitely sensitive to issues of status and inequity in their immediate environment and the world around them. Meaningful learning for middle school students can be theorized beyond engaging and future-oriented schoolwork, to include sociopolitical real-world issues and processes. This would align with what we know about early adolescent development by connecting learning to aspects of identity and a sense of meaning and purpose—two cornerstones of early adolescence—through sociopolitical development.

Another practical implication from this study relates to policy and practice. Rather than limiting discussions about real-world issues, policy makers and practitioners should be encouraging meaningful, educational discussions about these topics (e.g., racism, climate change, social justice). Some counterfactual news headlines suggest that talking about racism, climate change, or social justice with children may be harmful to youth, especially White youth (Alexander et al., 2023). However, we found that students from diverse backgrounds (i.e.,

different race/ethnicity, different socioeconomic status, even from different cities) described those very topics as meaningful. Moreover, these aspects of sociopolitical development act as protective factors for Black and Latine youth (Bañales et al., 2020; Hope et al., 2023), and may support healthy identity development for White youth (Hazelbaker et al., 2022). In fact, opportunities to disagree on topics in respectful ways can lead to healthy discourse skills (omitted, 2024).

It is important to consider the school environments where students described feeling supported, rather than alienated or tokenized, in meaningful conversations about world problems. Students themselves brought up the macro level context (e.g., racism) in their micro level personal interactions (e.g., developing awareness of social injustice) and school experiences (e.g., class discussions and projects), highlighting school conditions that are conducive for the sociopolitical developmental process (Hope et al., 2023; Rogers et al., 2021; Watts & Flanagan, 2007). Students of color, in particular, highlighted the supportive relationships with teachers and peers that made this possible. Adolescents need an opportunity to make sense of these tough but real challenges and still have a sense of their own bright future.

Study Limitations and Strengths

A few limitations require mention. First, we acknowledge the limited sample size. Although these findings cannot be generalized, they may contribute to theoretical understandings of what makes learning meaningful for middle school students and may be transferable to other, similar middle school contexts. Second, although all of the EL Education schools earned the EL Education Credential, indicating a high level of fidelity of implementation, the project team did not gather data in classrooms while students were engaged in meaningful (or unmeaningful) learning. We cannot confirm whether the differences in students' meaningful experiences at EL

Education and comparison schools was due to higher frequency of lessons about world-problems and engaging schoolwork or something else about the context in which those lessons were happening. In addition, this study investigated schoolwork or "work at school" as stated in the interview questions, thus focusing on the academic side of school. School is much more than just academic, especially for early adolescents who are highly focused on social experiences at school. Future work could pursue this idea. Finally, despite best efforts, the school demographics were not precisely matched and we had more White students and students from low-income families in the EL Education than comparison condition. In the qualitative sample, the EL Education group and comparison group were not equal size due to recruitment challenges, an issue that we addressed by comparing the percentages of EL Education and Comparison students within each theme instead of the number of students. Findings need to be interpreted with these limitations in mind.

Conclusion

This study investigated the extent to which adolescents find middle school meaningful and why. We found that students in EL Education schools, particularly Black and Latine students, reported more meaningful school experiences than students at comparison schools. We could not say it any better than in the words of the youth. To sum it up in Teri's words, adolescents find school meaningful when **"**The work informs us, basically, of what is actually happening in the world, but also learning from it. And when you know and you can relate to that, it makes you remember. It's in your head forever, and it's just staying there. And then you can use it to make a difference in the world. Because I feel like [our school] is all about making a difference in the world. We are big on that. So yeah," (Teri, Black female EL Education).

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Table 1

Demographic Characteristics of Student Participants in the Full Sample (N = 258)

Student characteristics		*n*	Percent (*N*=258)	EL Ed (*n*=107)	Comparison (*n*=151)	Chi^2 (*p*)
Gender	Girl	122	47%	50	72	.02 *(0.89)*
	Boy	127	49%	54	73	
	Non-binary	6	2%	3	3	
	Missing	3	1%			
Race/Ethnicity	Black	107	41%	34 (32%)	73 (48%)	8.98 *(.003)**
	White	84	33%	46 (43%)	38 (25%)	7.60 *(.006)**
	Latine	40	16%	19	21	0.46 *(.50)*
	Multi-racial	16	6%	7	9	0.01 *(.93)*
	Asian	3	1%	1	2	0.11 *(.74)*
	Native American	1	0.4%	0	1	0.75 *(.39)*
	Missing	7	3%			
Emergent bilingual (EB)	Non-EB	216	84%	96	120	1.75 *(.19)*
	EB	34	13%	11	23	
	Missing	8	3%			
Special Education Services (IEP)	No IEP	222	86%	90	132	2.80 *(.094)*
	IEP	28	11%	16	12	
	Missing	8	3%			
Low income/ economically-marginalized	low-income	79	31%	48 (45%)	31 (21%)	10.19 *(.001)**
	Not low income	136	53%	52 (49%)	84 (56%)	
	Missing	43	17%	7 (7%)	36 (24%)	
Age in years	*Mean (SD)*					t-test (*df*), *p*
	10.91 (.55)			10.81(.62)	10.97(.49)	*t*(255) = 2.34; *p* = *.02**

Note. **p* < .05

Table 2a

Descriptive Statistics for Outcome Variable by Treatment Condition and Ethnic-Racial Group

Outcome Variable	Full sample *M (SD)*	Black Students *M (SD)*	Latine Students *M (SD)*
Meaningfulness at School			
Both conditions	2.90 (1.25)	2.56 (1.23)	3.77 (0.83)
EL Education	3.12 (1.25)	3.30 (1.35)	4.00 (0.61)
Comparison	2.71 (1.22)	2.22 (1.02)	3.58 (0.97)

Note. Other ethnic-racial subgroups had too small of a sample for analysis.

Table 2b

Correlations for Meaningfulness, Demographic Variables, and Covariates, N = 258

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Meaningfulness (1)	-							
Condition (2)	.16*	-						
Gender (3)	.19*	-.003	-					
Race/ethnicity (4)	.11	.06	-.02	-				
EB (6)	-.19*	-.08	-.08	-.10	-			
IEP (7)	-.03	.11	.02	.10	.09	-		
LIEM (5)	.08	.22*	-.28*	-.01	.19*	.12	-	
Age (9)	-.28*	-.15*	.12	-.06	-.08	.03	.02	-
Post-COVID (8)	.48*	.02	-.06	.17*	.08	-.21*	.08	-.31*

Note. *$p < .05$. EB = emergent bilingual. IEP = students identified as having an individualized education plan, i.e., special education services. LIEM = Low income/economically marginalized. Post-COVID = indicator variable of students' survey responses gathered before March 13, 2020 or after March 13, 2020.

Table 3

Regression Analysis Examining EL Education and Comparison Students' Sense of Meaningfulness at School

Predictors	Model 1: Full sample (N = 258)		Model 2: Black subsample (n = 107)		Model 3: Latine subsample (n = 40)[a]	
	b	SE	*b*	SE	*b*	SE
EL Education	**0.26***	.12	**0.83***	.27	**0.84***	.14
Female	0.22	.14	0.18	.15	-0.001	.29
Race/ethnicity	**0.15***	.07				
EB	-0.26	.21	-0.32	.20	[a]	
IEP	-0.31	.23	0.17	.41	[a]	
LIEM	0.17	.23	-0.17	.15	0.18	1.07
Age	-0.31*	.15	-0.36	.31	-0.91	0.13
Post-COVID	1.07*	.10	0.63	.44	0.83	0.25

Note. *$p < .05$. [a] convergence not achieved in the Latine sample (n = 40). Female = students self-identified as female compared to students self-identified as male or non-binary. EB = students identified as emergent bilingual. IEP = students identified as having an individualized education plan, i.e., special education services. LIEM = Low income/economically marginalized. Post-COVID = indicator variable of students' survey responses gathered before March 13, 2020 or after March 13, 2020.

Table 4

Meaningful Schoolwork Themes and Examples

Theme	Description	Representative Quotes
Sociopolitical Development: Real-World Issues	Student described real-world problems, current or historic events, including an orientation toward justice or empowerment for solving world issues; subthemes include racism (e.g., Black Lives Matter movement, Black History Month, Anti AAPI hate), environmentalism (e.g., pollution, saving energy, climate change), feminism (e.g., sticking up for women because they're treated unfairly).	*"Because I feel like, how do I say this, they try to connect it with real problems in the world. Because the other day, I think last quarter, we were learning about gentrification. And we learned about all the problems and what's happening around the world, and how you can relate to it because we live in DC. That's a big problem. So yeah. The work informs us, basically, of what is actually happening in the world, but also learning from it. And when you know and you can relate to that, it makes you remember. And how we could make a difference in the world and all that stuff. And yeah."* (Teri, EL Education) *"We're doing right now in ELA, we're doing this activism and we're reading a book called 'Watch Her Rise' and it's about feminism and activism and sticking up for women because they're treated unfairly. And this is one thing that means a lot to me. It's like something I can, I can not only relate to, but it means something, I know it's meaningful. Like we're going to use what we've learned in our futures."* (Nora, EL Education)
Sociopolitical Development: Process	Student mentioned sociopolitical development in their developing understanding of injustice, sense of efficacy or agency to affect change, and/or commitment to take action for social justice; subthemes include awareness/reflection, efficacy/agency, action/activism.	*"It all connects to, what's our life like right now… in social studies, when the #BLM protests were happening, we were learning about that. When Ruth Bader Ginsburg died, we were learning about her… some students made posters for her, some students made a slideshow about her and we also did another 'inspirational topics.' We picked an inspirational person and then connected it to how we find it inspirational."* (Edie, Comparison) *"We had a like a documentary day that was also talking about like protests, and how you could protest and fix one of the world problems. Because there's a lot of unnecessary problems in this world, so I thought that was meaningful."* (Veronica, EL Education)
Engaging Schoolwork	Student described schoolwork that they experienced as engaging or interesting; the work was personally relevant (i.e., related to one's identity or interests), hands-on (i.e., creative, interactive, making something, fun), or socially interactive (i.e., mentions peers, friends, or team/partner work).	*"Okay, it was like the beginning of our podcast and we had to pull together some information about like Black lives matter and rights, rights for everyone. And I think that was really meaningful to me, because you know how a lot of things happened last year and happening. And everyone—we need to get everyone to be cool if we all want to live in the same world and keep together, keep everyone happy."* (Tammy, EL Education) "*Maybe a project that they had us do around the #BlackLivesMatter movement- And it was really wonderful because I'm also Black. So to learn that in school, that means that they actually care."* (Valorie, EL Education)
Future-Orientation	Student described schoolwork that was directly related to skills that they thought would be useful in their future; subthemes include academic skills (e.g., math for taxes, science, reading, writing for real life), social emotional skills (e.g., relationships, respect, empathy, friends), or goal-oriented (e.g., necessary for a specific future endeavor/goal such as good grades to get into college or a specific career). Student's response mentioned that they would use what they learn/do at school in real life, now or future related life-skills.	*"Ehh* (sound of indifference)*... in a way it's important but at the same time is boring, but it has to be done. If I'm going to be able to go to college and then I'll be able to get a proper education to become a chemist. It's important in that way."* (Ike, Comparison) *"I mean it's important that we're learning this stuff because, like we learn multiple things, so it's just good to have like a wide variety of things that you know you can do for the future. And if we're learning about kindness then it's good to just be kind."* (Kate, EL Education) *"In math, we learned about taxes. Yeah, like how people deduct taxes, what the process is. I felt like I always hear my parents talk about taxes, and when we go shopping, I see they plus this and plus that. I'm like, "Why is that? Why do I have to add these things?" My dad explained it to me, so I was like, "Okay. Well, are we ever going learn that in school?" Then a couple of weeks later, we learned that, learned about taxes."* (Peter, Comparison)

Table 5

Prevalence Table of Student Descriptions of Meaningful Schoolwork

	EL Education (*n* = 20)	**Comparison (*n* = 12)**	**Difference by Condition**
Sociopolitical development: Real-world Issues	**9 (45%)**	**1 (8%)**	**+37%**
Racism	5 (25%)	1 (8%)	+17%
Environmentalism	2 (10%)	0 (0%)	+10%
Gentrification	2 (10%)	0 (0%)	+10%
Feminism	1 (5%)	0 (0%)	+5%
Human Rights	3 (15%)	1 (8%)	+7%
Historical Events	3 (15%)	1 (8%)	+7%
Sociopolitical development: Process	**9 (45%)**	**1 (8%)**	**+37%**
Awareness/reflection	8 (40%)	1 (8%)	+32%
Efficacy	4 (20%)	0 (0%)	+20%
Action/activism	3 (15%)	0 (0%)	+15%
Engaging Schoolwork	**15 (75%)**	**3 (25%)**	**+25%**
Personally-relevant	8 (40%)	0 (0%)	+40%
Hands-on	5 (25%)	2 (17%)	+8%
Socially-interactive	4 (20%)	0 (0%)	+ 20%
Future Orientation	**9 (45%)**	**6 (50%)**	**-5%**
Academic life skills	6 (30%)	2 (17%)	+13%
Social Emotional skills	1 (5%)	1 (8%)	-3%
Goal-oriented	2 (10%)	3 (25%)	-15%

Note. Codes were applied only once per student, meaning each *n* is the total number of students in that theme (not multiple mentions from the same student). Variations within the themes were not mutually exclusive, meaning the percentage of each variation may not add up to the total number of students represented in each theme.

PAPER 2

Abstract

Crucial skills for early adolescents to develop include respecting people from different backgrounds, showing empathy and compassion, and making ethical decisions in challenging situations. This exploratory study aims to understand the extent to which *students' perceptions of teacher caring or belonging related to changes in their self-reported prosocial competencies (i.e., cultural respect, empathy, compassion, integrity)?* We conducted a multilevel longitudinal analysis with diverse sample of early adolescents from nine schools in four U.S. cities in their first two years of middle school (n = 186; M_{age} = 10.91 years). Results indicate that school experiences are correlated with prosocial competencies at the beginning of middle school. Yet only sense of belonging in the school community was positively associated with the rate of development of compassion over two years of middle school. Implications for promoting school conditions that support students' development of prosocial competencies are discussed.

Belonging Contributes to Compassion:

A Longitudinal Study of Middle School Students' Prosocial Competencies

A crucial developmental task in early adolescence is that of prosocial competencies that support wellbeing, academic engagement, and a sense of identity and purpose (NASEM, 2019). Yet, these years can be a challenging time for students as they navigate the transition to middle school (Eccles & Roeser, 2011; Wang & Degol, 2016). In this developmentally sensitive period, early adolescents are primed to explore their own identities and understand who they are in relation to peers, immediate environment, and society (Branje et al., 2021). In fact, early adolescence is a developmental period specifically marked by the importance of peer relationships making it all the more important to study prosocial development among middle school-age students (Fuligni, 2019).

Middle school is a crucial context that may support or thwart the development of prosocial competencies. Unfortunately, middle school environments do not always match early adolescent developmental needs, which can lead to lower motivation and achievement (Eccles & Roeser, 2009; Wigfield & Eccles, 2000); however, middle school contexts can be supportive environments for students to develop crucial prosocial competencies when the school climate promotes positive social interactions and relationships (Rudasill et al., 2018). Students' perspectives of their middle school environment are positively associated with their education experiences (Gietz & McIntosh, 2014; Korpershoek et al., 2020), yet we know less about the connection to crucial prosocial competencies, such as respecting people from different cultures, empathy, compassion, and integrity. Moreover, we know even less about the influence of the school environment on early adolescent development over time.

Cultural respect, empathy, compassion, and integrity are foundational competencies for promoting understanding across difference and creating a just and equitable society (Nucci, 2024). Prosocial competencies are foundational for promoting equity (Williams & Graham, 2019) because they are crucial for intergroup cooperation, perspective taking, cross-racial interactions and decreasing bias (Curenton et al., 2022; Killen et al., 2022; Spinrad et al., 2023; Xiao et al., 2024). Though we recognize prosocial competencies are not alone sufficient to remedy inequity, they are building blocks for individuals to develop a commitment to social justice and therefore part of a larger solution (Carlo et al., 2022; Hazelbaker et al., 2022). Most research on prosocial development focuses on outcomes associated with prosocial competencies (Brass et al., 2022; Memmott-Elison et al., 2020) or development in early childhood (Spinrad et al., 2023). Still, there remains a need for more research on the contextual factors that contribute to the development of prosocial competencies, especially in middle school contexts (Crone & Achterberg, 2022). This aim of this study is to contribute knowledge about middle school settings that support early adolescents' development of prosocial outcomes. The long-term goal is promoting students' prosocial development and holistic wellbeing in middle school settings.

Theoretical Background

The stage-environmental fit theory (Eccles et al., 1993) posits that youth optimal development depends on the match between key developmental tasks and the environmental context. Eccles et al. (1993) emphasize the importance of providing appropriate opportunities and supports for social interaction, autonomy, and agency during the transition to middle school at the precise time when early adolescents think more abstractly and are developmentally primed to prioritize peer relationships and seek meaningful, identity-defining opportunities. By fostering a sense of belonging, providing opportunities for student voice, and offering diverse avenues for

social interaction, middle schools can create ideal conditions for prosocial development. Such environments can encourage empathy, cooperation, and civic engagement by matching students' developmental stage and providing supportive structures for practicing these skills. Furthermore, Nucci (2024) describes affective climate, including belonging, as a key part of the school environment that can foster students' character (i.e., prosocial competencies), which is an essential part of moral development that includes a commitment to social justice.

What is unique about studying stage-environment fit is that at its core, it is a psychologically-based question about whether youth are experiencing fit that will lead to optimal or suboptimal development. To tap into students' perceptions of fit, it is essential to rely on student-reported measures of their behaviors, beliefs, and perceptions of the environment. This creates both opportunities and challenges in that students' self-report includes their self-perceived competencies, their perception of their competencies compared to others, as well as their perceptions of the conditions around them. By using student report data, we keep youth perspectives in the foreground in understanding development and the contribution of experiences during this period.

Prosocial Competencies

Prosocial behaviors are defined as voluntary actions that benefit others (Carlo & Padilla-Walker, 2020; Spinrad & Eisenberg, 2014). Slightly different than prosocial *behaviors* (i.e. helping, sharing), we focus specifically on prosocial *competencies*, that reflect underlying beliefs, knowledge, values, character, and moral principles that lead to prosocial behaviors (Eisenberg et al., 2010; Killen et al., 2022; Nucci, 2024). We examine four prosocial competencies: respect across differences (i.e., cultural respect), alleviating the suffering of others (i.e., compassion), empathy, and belief in doing the right thing (i.e., integrity). These prosocial competencies are

behavioral reflections of deeper experiences of moral development and character education (Berkowitz & Bier, 2004), which can include an explicit commitment to social justice (Killen et al., 2022; Nucci, 2024). In this paper we refer to behaviors that reflect these internal moral principles related to prosocial behaviors, specifically cultural respect, compassion, empathy, and integrity, as prosocial competencies.

Numerous studies indicate the importance of prosocial behaviors and competencies for school engagement (Brass et al., 2022), academic success (Jeynes, 2019; Oberle et al., 2014), identity development (Spinrad & Eisenberg, 2014), and wellbeing (Hui et al., 2020; Sancassiani et al., 2015). Recently, scholars have begun to connect prosocial competencies, specifically cultural respect, empathy, compassion, and integrity to developing a commitment to social justice (Carlo et al., 2022; Cooper et al., 2022; Fuligni, 2019; Spinrad et al., 2023). This study answers the call for needed research on the development of these competencies among early adolescents and the contributing factors in middle school settings (Carlo & Padilla-Walker, 2020; Crone & Achterberg, 2022).

Cultural Respect

The Organization for Economic Cooperation Development (OECD) emphasized the importance of respect as a crucial skill for young people to develop global competence (referred to as cultural respect; OECD, 2018). The OECD defines respect as "Understanding and appreciating the perspectives and world views of others" (2018, p. 11). Cultural respect is purportedly related to students' awareness and understanding of their own identity along with their relationships with others who are different from them. Early adolescent development is defined in part by increasing importance of peer relationships, social status, and abstract thinking, making this a time when

youth can internalize ethical reasoning and equality in complex social situations (Krettenauer et al., 2014; Malti et al., 2020).

Broadly in education, mutual respect among peers and between peers and teachers is not only central to character education (Lickona, 2014; Seider, 2013), but it is also incorporated into a variety of school climate initiatives, social-emotional learning policy and programs (Elias et al., 2018; Jagers et al., 2019), and anti-bullying curricula (Langdon & Preble, 2008). Studies in middle school contexts have found that mutual respect between students and teachers related to Black and Latino adolescent boys' positive school experiences and academic motivation (Liang et al., 2020). Furthermore, Audley & Ginsburg (2019) posit that school is an important developmental context of respect, specifically when teacher caring emphasizes self-reflection and validates student voice instead of institutional authority.

Empathy

Empathy is a two-part skill involving both cognitive and affective components (Van Noorden et al., 2015). As a whole, empathy has been studied as an important skill related to reducing bullying (Walters & Espelage, 2018), positive peer relationships (Portt et al., 2020), and promotive of prosocial behavior, such as sharing and helping others (Domitrovich et al., 2022; Malti, Chaparro, et al., 2016). Moreover, scholars posit that empathy is a key skill for motivating critical awareness and a commitment to social justice (Goodman, 2000; Mirra, 2018). Recently empathy has been studied as a specific prosocial competency that may lead to anti-racist development (Domitrovich et al., 2022; Kokka, 2020; Spinrad et al., 2023).

School-based interventions to promote empathy in childhood through early adolescence have shown positive effects, although programs in early childhood were more effective than early adolescence (Malti et al., 2016), which could be due in part to the fewer number of evidence-based

interventions in middle grades compared to younger grades (Domitrovich et al., 2022). Malti and colleagues (2016) recommend developmentally tailored interventions, such as cooperative learning in small groups to compliment the priority of peer-interactions in early adolescence. Some middle school-based interventions or programming have been found to increase empathy in early adolescents, such as Facing History and Ourselves (Domitrovich et al., 2022), EL Education (Pfister et al., 2024), and multiculturalism (Chang & Le, 2010). Specifically, Pfister et al., (2024) found that EL Education middle school teachers and students more often defined empathy as prosocial responding than teachers and students in comparison middle schools. In addition, Chang and Le (2010) found that Asian American and Latine students' perceptions of multiculturalism were positively related to ethnocultural empathy, and predictive of academic achievement for Latine students in particular. These studies about school-based initiatives that promote empathy provide a foundation for our hypothesis that school contexts may support empathy development.

Compassion

Compassion for others includes recognition of suffering, understanding universality of human sorrow, empathy, tolerating uncomfortable feelings in response to suffering, *and* motivation to act to alleviate suffering (Strauss et al., 2016). Compassion resembles affective empathy because both involve awareness of others' feelings, also known as empathic concern or sympathy (Spinrad & Eisenberg, 2017). However, compassion is unique because it includes being compelled to action to relieve suffering (Goetz & Simon-Thomas, 2017). Practicing compassion has also been linked to overcoming stereotypes and biases through extending empathic care for others beyond one's social circle to those from different social backgrounds (Roeser et al., 2018). Roeser and colleagues (2018) emphasize the importance of cultivating compassion among children and young adolescents by teaching awareness of diversity *and* shared humanity.

Though compassion for others is increasingly accepted as a unique and beneficial prosocial behavior, we know very little about what school experiences influence its development (Roeser et al., 2018; Spinrad & Eisenberg, 2017). One recent study found that the development of compassion among older adolescents (M = 16.3 years) was influenced by students' perceptions of receiving compassion at the beginning of the year and mediated by an increased sense of relatedness in the middle of a school year (Colaianne et al., 2023). This noteworthy study of compassion in older adolescents implies that compassion does indeed develop over time relative to school conditions. Colaianne et al. (2023) also acknowledge the need for more research to understand the development of compassion, especially during early adolescence.

Integrity

Killen and Dahl define integrity as "An unequivocal assertion about the necessity to correct an injustice" (2021, p.1216). Integrity has many definitions including honesty, responsibility, self-control, and truthfulness toward self and others (Ji et al., 2013; Lickona, 2014). Scholars purport that integrity is integral to higher order constructs including moral development and self-esteem (Davidson et al., 2008; Goodman, 2000; Ji et al., 2013; Lickona, 2014). There is evidence of integrity and moral development at all stages of development, yet it is especially pertinent during early adolescence given the increasing cognitive capacity to interpret complex social situations and balance fairness with justice (Fuligni, 2019; Nucci & Turiel, 2009). Though early adolescence tends to be a low point in self-reported self and social awareness (i.e., ability to listen to other people's points of view; Rimm-Kaufman et al., 2024), scholars posit that as youth develop, they become less rule-bound and more aware of social inequities around them, which may contribute to more nuanced understanding and therefore, lower self-ratings of integrity and moral reasoning skills (Nucci & Turiel, 2009).

Research about the development of integrity in schools is sparse; much of the research focuses on academic integrity (e.g., not cheating on a test, e.g., Dahl et al., 2024). Rather, we are interested in the development of integrity as honesty (e.g., telling the truth, doing the right thing, standing up against injustice). Nucci and Turiel (2009) suggested that education for moral reasoning includes applied practice of aligning integrity in decision-making with the complex understanding of social inequities and competing priorities. Furthermore, Goodman (2000) suggested that multicultural education can promote moral integrity that goes beyond feelings about injustice and leads toward actions. Actions may include standing up to social injustice in the form of challenging unfair practices or pushing back on stereotypic statements among friends (Killen & Dahl, 2021). Aligned with our measurement of integrity as honesty, one recent study of high school students in Ghana found that students defined moral integrity and honesty as solidarity (Appiah et al., 2022). Cultivating integrity in the form of moral reasoning is the root skill of addressing social injustice (Killen & Dahl, 2021), and schools can promote early adolescent moral integrity (Nucci & Turiel, 2009). In this study, we focus on moral integrity actions in the form of telling the truth and owning up to mistakes.

The Contribution of School Context on Prosocial Competencies

School contexts have an influential role in shaping adolescents' understanding of themselves, how they fit into their microsystem school community, and how they fit into the broader macrosystem society (Eccles & Roeser, 2009). Yet research has yet to identify what qualities of the school context specifically support students' prosocial development (Berkowitz & Bier, 2004; Nucci, 2024). For example, social contexts in school likely contribute to prosocial development (Silke et al., 2018), and there is amplified need for more research after the COVID-19 pandemic disrupted typical social interactions in schools (Crone & Achterberg, 2022). We

apply the stage-environment fit theory to examine key social processes hypothesized to be important in supporting students' prosocial development.

Teacher Caring

An established body of work shows that caring student-teacher relationships contribute to a range of positive student outcomes (Pianta et al., 2012; Roorda et al., 2011; Scales et al., 2020). Caring student-teacher relationships are characterized by high support (e.g., relational, warmth, appropriate personalized scaffolding for new learning) and high expectations (e.g., believing in and creating environments for academic achievement and behavioral success for all students; Pianta et al., 2012). In a meta-analysis, Roorda et al., (2011) found overall student teacher relationships had positive effect sizes on student engagement and academic achievement. Though more studies have been conducted in primary grades, Roorda et al. also found that the effect sizes were stronger in secondary grades including middle school. Furthermore, Scales et al. (2020) found that positive student-teacher relationships in middle school predicted higher academic motivation and indirectly positively influenced students' grades.

Teacher caring is one important dimension of positive student-teacher relationships (Kincade et al., 2020). More specifically among middle school students, perceptions of teacher caring were associated with motivation, and were described as democratic interactions and caring for all students regardless of identity (Wentzel, 1997). Given existing ethnic-racial and socioeconomic disparities in education outcomes (Darling-Hammond et al., 2023), researchers have also investigated the protective benefit of caring teacher relationships for Black (Backes et al., 2022), Latine (Gallagher et al., 2019), and low-socioeconomic middle school students (Scales 2020). Caring student teacher relationships are widely accepted as beneficial for student outcomes,

yet there is little evidence of teacher caring influencing prosocial competencies, which this study aims to address.

Sense of Belonging in the School Community

Experiencing a sense of belonging is important for positive academic and psychological outcomes (Wang & Holcombe, 2010). By definition, youth feel a sense of belonging at school when they experience acceptance, inclusion, and communal caring within the school community, which includes students (i.e., peer to peer) and teachers (Allen et al., 2018; Gray et al., 2018). Students' perceptions of belonging in the school community relate to academic motivation and achievement (Goodenow, 1993; Hughes et al., 2015), wellbeing (Seon & Smith-Adcock, 2021), and lower misconduct (Demanet & Van Houtte, 2012). Among early adolescents, studies have shown belonging positively related to academic motivation and achievement (Goodenow, 1993).

Furthermore, belonging in the school community may relate to the development of prosocial competencies based on limited prior research. For example, Battistich et al. (1997) found that elementary students' sense of belonging in a caring school community was positively associated with prosocial and moral reasoning. Colaianne et al. (2023) found that high school students who experienced more belonging in the middle of the school year also reported more compassion toward others at the end of the year. What is missing is evidence of belonging and prosocial competencies in early adolescence.

Notably, research has shown a decline in school belonging during early adolescence (Hughes et al., 2015) and a decline in prosocial skills during early adolescence (Carlo & Padilla-Walker, 2020). Gray and colleagues (2018) point out the link to stage-environment fit such that during the transition to middle school, early adolescents' developmental needs for meaningful social connections and avenues to explore ethnic-racial and cultural identity are not often reflected

in instructional practice and institutional policy. This can create othering experiences, counter to belonging, especially for Black and Brown students.

Purpose of the Current Study

This exploratory study aims to answer two research questions:

(1) Do student's prosocial competencies (i.e., cultural respect, empathy, compassion, integrity) change during the first two years of middle school?

(2) Are students' perceptions of school conditions (i.e., teacher caring or belonging in the school community) related to changes in prosocial competencies?

Although our examination was exploratory in nature, it is informed by previous literature which suggests the following. First, we anticipated that students' self-report of their prosocial competencies may decline over the first two years of middle school based on other studies that have shown a decline in early adolescence before these competencies increase again in middle adolescence (e.g., Ross et al., 2019). Second, we anticipated that students' perceptions of teacher caring and belonging would positively influence the trajectory of development of prosocial competencies in middle school. Given the stage-environment fit theory, school contexts that match the developmental tasks of early adolescence (e.g., experiencing support from adults, fitting in with peers) would be conducive to positive prosocial growth.

Positionality

We include researcher positionality to represent our perspective in designing the study and interpreting the findings (de los Ríos & Patel, 2023). The first author identifies as a White woman, and she designed the research questions from a strengths-based orientation valuing cultural respect, empathy, compassion, and integrity as a necessary skill for all students to develop. As a former educator in ethnic-racially, linguistically, and socioeconomically diverse school contexts,

the research questions were born from the first author's experience that prosocial competencies are invaluable for students yet undervalued in typical measures of student performance. Moreover, she witnessed the growth of students' cultural respect, empathy, compassion, and integrity in classrooms, and how these prosocial competencies supported early adolescents' academic development and engagement in the classroom in various ways.

Methods

Participants

The data were gathered through a two-year study (2019-2021) of a whole-school model of character development called EL Education (formerly, Expeditionary Learning; Berger et al., 2020; EL Education, 2023). The larger study explored differences in character outcomes between students in EL Education and comparison schools, as described elsewhere (Omitted for review). Nine middle schools were recruited to participate in four U.S. cities, resulting in a racially and economically diverse student sample, as described in Tables 1a and 1b. In the current study, we examine data from the sample of students over a two-year period (students' first two years in middle school) to explore developmental patterns of prosocial competencies and the extent to which teacher caring and sense of belonging contribute to those competencies.

All students entering their first year of middle school in each of the nine schools were invited to participate in the study. Research team members traveled to each school to recruit families in person (e.g., back-to-school events), and consent forms were sent home with every student. Recruitment materials were in multiple languages to increase access. Parental consent was obtained for all participants, and students assented to participate at the beginning of each survey (n = 258; M = 24 students in each school, min = 6, max = 45). Most middle schools in the sample began in 6th grade, and three schools began with 5th grade, resulting in an average student age at

baseline of 10.9 years (*SD* = 0.56). The analytic sample was limited to students who answered at least two timepoints of the outcome variables (cultural respect, empathy, compassion, integrity) and one timepoint of the time-varying moderator variables (teacher caring, belonging; *n* = 186).

Procedures

Students participated in surveys during the fall, winter, and spring of their first two years of middle school between 2019 and 2021. Students' self-report of prosocial competencies (i.e., cultural respect, empathy, compassion, integrity) were collected at four timepoints corresponding to the fall and spring of their first two years of middle school. School climate measures were collected once per year between January and March of 2019 and 2020. Notably, this study was conducted amid the COVID-19 pandemic, and students were responding to surveys during the months before and after schools were shut down in response to the global health pandemic.

Measures

All constructs were measured via self-report survey scales. Surveys were administered at school in 2019 and early 2020 using Qualtrics and sent home to be completed via Qualtrics or paper after March 2020. Sum scores of each scale were treated as continuous variables in the analysis.

Prosocial Competencies Measures

Cultural respect. We measured cultural respect using the PISA OECD Global Competency for an Inclusive World survey (e.g., *I respect the values of people from different cultures*; PISA, 2018). Cultural respect was measured via five self-reported items on a scale 1 = *Not at all like me* to 5 = *Very much like me* (time0 α = .83; time1 α = .89; time2; α = .81; time3 α = .84).

Empathy. Empathy was measured using the Holistic Student Assessment Measure of Social Emotional Development (Malti et al., 2018). Students self-reported empathy via four items (e.g., *I feel bad for other kids who are sad or have problems*) on a scale of 1 = *Not at all* to 4 = *Almost always* (time0 α = .74; time1 α = .81; time2 α = .78; time3 α = .86).

Compassion. Compassion was measured using the Student Questionnaire of the Child Development Project (Developmental Studies Center, 2005). Students self-reported compassion via ten items (e.g., *When I see someone having a problem, I want to help)* on a scale of 1 = *Disagree a lot* to 5 = *Agree a lot* (time0 α = .68; time1 α = .78; time2 α = .79; time3 α = .86).

Integrity. We measured integrity based on the prosocial character definition of honesty as truthfulness toward self and others (Lerner et al., 2005). Students' self-report of integrity was measured using the Social-Emotional and Character Development Scale (e.g., *I apologize when I have done something wrong*, and *I admit to my mistakes*; Ji et al., 2013). Integrity was measured via five items on a scale 1 = *No!* to 5 = *Yes!* (time0 α = .86; time1 α = .77; time2 α = .75; time3 α = .83).

School Climate Measures

Teacher caring. We operationalized students' experiences of school climate to include sense of teacher-caring (e.g., *The teacher in this class encourages me to do my best).* Teacher caring was measured using the teacher-caring scale (Ferguson, 2008), which consisted of 7 items on a Likert scale of 1 = *No, never* to 5 = *Yes, always* (year1 α = .86; year2 α = .90).

Sense of belonging in the school community. To assess a sense of belonging in the school community (e.g., *Students at this school really care about each other*), we used a scale from the Child Development Project (Developmental Studies Center, 2005). The 14 items in this scale all refer to a sense of belonging among students and/or teachers in the overall school.

Response categories ranged from 1 = *Disagree a lot* to 5 = *Agree a lot* (year1 α = .89; year2 α = .90).

Missing Data

Attrition is common in longitudinal studies and in this study, it is possible that attrition was higher because of COVID-19. For example, cultural respect included n = 215 student responses at the beginning of the study, Fall 2019, then n = 137, n = 136, and n = 131 in following timepoints (Spring 2020, Fall 2020, Spring 2021 respectively). Other outcome variables had similar patterns of attrition. Given longitudinal change model parameters, students missing three or more timepoints of the outcome variable or missing both timepoints of the time-varying covariate were excluded from the analysis. The analytic sample was slightly different than the full sample in race, income, and age (Table 1a).

Analysis Plan

This study was a non-experimental, correlational research design. We employed a longitudinal multilevel model, which allowed for repeated measures over time to be nested within individuals (i.e., each prosocial outcome measured at four timepoints within individual students) and a random slope for time (i.e., the developmental trajectory of each prosocial outcome can vary between different students). Analyses were conducted in Stata version 18.0 using the *xtmixed* command with the unstructured variance/covariance option. We tested assumptions of linearity, homogeneity of variance, and normality. We graphically plotted the residuals for each outcome variable of interest. Variance of residuals between individuals appeared homogenous and residuals appeared normally distributed.

We computed means, standard deviations, and correlations between all variables of interest (Tables 2 and 3). To address the primary research questions, we ran a two-level longitudinal model

of adolescents' development of prosocial competencies over four timepoints, thus modeling repeated measures over time (level 1) within students (level 2). Because the number of schools (n = 9) was not sufficient to include as another level in the model, we accounted for students nested in schools (lack of independence) by controlling for school as a fixed effect. School level fixed effects also controlled for possible school level differences yielded from the intervention (that was part of the primary research study where these data were drawn from) as well as any other school-based factors.

Models were estimated using maximum likelihood (ML). Time was included as a random effect in the model. The independent variables in question (i.e., teacher caring and sense of belonging) are considered time-varying covariates because they were collected in each school year (i.e., two timepoints). Given students' different experiences with different classroom teachers and classmates each year, it makes sense that students' perceptions of teacher-caring and belonging vary over time. Thus, they are treated as time-varying covariates and were grand mean centered over time (McCoach et al., 2022). Because school climate variables were collected once per year in the winter, or middle of the school year, we used the same school climate (teacher caring, belonging) value for each students' fall (i.e., beginning of year) and spring (i.e., end of year) values. Students' demographic characteristics (e.g., race, gender) were not included as controls in the analysis based on QuantCrit principles (Castillo & Gilborn, 2022). For example, there is no theory nor argument that youth develop prosocial competencies differently based on race or socioeconomic status. Therefore, simply controlling for race without critical interpretation of why racialized categories matter in this analysis does not improve the quality of the research. Furthermore, we did run a sensitivity analysis by including race, gender, and economic status in the final models, and the results did not change.

The following model building process was generated for each outcome variable (i.e., cultural respect in Model 1, Table 4; empathy in Model 2, Table 5; compassion in Model 3, Table 6; integrity in Model 4, Table 7). First, we plotted the data of each outcome variable to visually assess the change pattern. Then we ran the unconditional model to understand how much variability in the outcome was attributed to differences between students, calculating the ICC. Building onto the unconditional model, we included the time variable to predict the rate of change in the outcome variable. Then we included time-squared in the model to predict a quadratic, or curvilinear, change pattern. Using the linear and quadratic change models, we compared model fit statistics to assess which was a better fitting model (i.e., lower AIC, BIC, and log likelihood ratio test). The quadratic model was a better fit for cultural respect, empathy, and compassion, and the linear model was a better fit for integrity. Next, we ran Model A that built on the time-squared model (or time model for integrity) to include student level predictors (i.e., teacher caring, belonging). Next, we ran Models B and C, that added the interaction terms individually to analyze the extent to which experiences of school climate (i.e., sense of teacher caring in Model B, sense of belonging in the school community in Model C) moderated adolescents' development of prosocial competencies. As a representative example, the combined equation for cultural respect, Model 1B, is shown below:

$$
\begin{aligned}
&CulturalRespect \\
&\quad = \beta_{00} + \beta_{01}(TCaring_i) + \beta_{02}(Community_i) + \beta_{10}(Time_{ti}) + \beta_{20}(TimeSq_{ti}) \\
&\quad + \beta_{11}(Time_{ti} * TCaring_i) + \beta_{21}(TimeSq_{ti} * TCaring_i) + \beta_{03}(SchoolID_i) \\
&\quad + \mu_{1i}(Time_{ti}) + \mu_{2i}(TimeSq_{ti}) + \mu_{0i} + e_{ti}
\end{aligned}
$$

Log likelihood ratio tests, AIC, and BIC were used to determine the best fitting model with lower values indicating a better fitting model. We used alpha of .05 to determine statistical significance of parameter estimates. Model results for each outcome are presented in Tables 4-7.

Results

Descriptive statistics are presented in Table 2. Outcome variables were moderately correlated with each other ($r < .50$) with the exception of respect and empathy, which were strongly correlated ($r = .53$). School experience variables (teacher caring and sense of belonging) were moderately correlated ($r = .49$). Means of all variables were above the middle of the scale. Means of the cultural respect variable over time were approaching the top of the scale, indicating a potential ceiling effect. On average students in the analytic sample had data for 2.6 out of 4 data collection time points for each outcome variable.

Tables 4-7 show results from the model building process for cultural respect, empathy, compassion, and integrity, respectively. In each outcome table, following the unconditional, linear, and quadratic model building process, Model A shows the main effect of change over time and the main effect of teacher-caring and belonging at baseline (i.e., the beginning of middle school), Model B shows the moderation effect of teacher-caring, and Model C shows the moderation effect of sense of belonging.

Cultural Respect

On average students' cultural respect increased over the first two years of middle school (b = 4.40, *SE* = 0.16; Table 4, Model 1A). Students' perceptions of teacher-caring but not belonging, were positively related to their cultural respect at baseline (b = 0.1; *SE* = .04, $p < .05$). Neither teacher-caring nor belonging were significantly related to the change in cultural respect over time.

Empathy

On average students' empathy increased over the first two years middle school (b = 3.00, *SE* = 0.17; Table 5, Model 2A). Students' perceptions of teacher-caring were positively related to empathy at baseline (b = 0.18; *SE* = .04, $p < .05$). Sense of belonging in the school community was also positively related to empathy at baseline (b = 0.12; *SE* = .05, $p < .05$). Neither teacher-caring nor belonging were significantly related to the change in empathy over time.

Compassion

On average students' empathy increased over the first two years middle school (b = 3.70, *SE* = 0.14; Table 6, Model 3C). As shown in Figure 1, students' sense of belonging moderated their growth in compassion across the first two years of middle school. During the fall semester of the first year of middle school, sense of belonging did not contribute to students' levels of compassion. However, over time, on average, students who reported feeling more connected to their school community reported higher levels of compassion whereas students who felt less connected to their school community reported lower levels of compassion across the first two years of middle school. Teacher caring was not related to students' compassion at baseline nor to their change in compassion over time.

Integrity

On average students' integrity decreased slightly over the first two years middle school (b = 3.95, *SE* = 0.16, Table 7). Students' perceptions of teacher-caring were positively related to integrity at baseline (b = 0.18; *SE* = .05, $p < .05$). Sense of belonging in the school community was also positively related to integrity at baseline (b = 0.13; *SE* = .05, $p < .05$). Neither teacher-caring nor belonging were significantly related to the change in empathy over time.

Discussion

Findings show that middle school students' perception of their cultural respect, empathy, and compassion grew, and their integrity declined slightly over two years of middle school, after accounting for school context. Students' experience of school positively related to their prosocial competencies in important, albeit some unexpected ways. Specifically, teacher caring was positively related to students' cultural respect, empathy, and integrity during the first year of middle school. However, teacher caring did not relate to the rate of change in any of the prosocial outcomes. Students' sense of belonging in the school community was positively related to students' empathy and integrity during the first year of middle school. Moreover, on average, those students who experienced a greater sense of belonging, also reported a higher rate of development in compassion across two years of middle school.

Prosocial competencies are crucial for adolescents to develop, not only toward long-term wellness, but especially toward becoming citizens who engage in a more socially just future (Carlo et al., 2022; Nucci, 2024; Spinrad et al., 2023; Williams & Graham, 2019). It is important to look at growth (or declines) in prosocial skills during a time when youth are constantly engaged in social comparison and are reflecting inward to size up how their skills and abilities measure up to their peers. Schools have become key sites of cultivating prosocial competencies through interaction with peers (Ramos et al., 2024; Williams & Hamm, 2018), specialized curriculum (Jones et al., 2011; Seider et al., 2023), and supplemented academic content (Condliffe et al., 2017). Given the importance of experiential factors matching maturation for optimal developmental conditions, as described in the stage-environment fit theory (Eccles et al., 1993), knowledge about how middle school environments can support prosocial competency development is an important consideration for wholistic thriving in early adolescence.

Prosocial Competencies Development in Middle School

Several new studies found general declines in early adolescents' self-report of prosocial behaviors (Carlo & Padilla-Walker, 2020; Malti, Averdijk, et al., 2016) and social emotional competencies (Omitted for peer review; Ross et al., 2019). In contrast, we found different outcomes during the same developmental span. Unexpectedly, we found that early adolescent students reported a slight increase in cultural respect, empathy, and compassion across two years of middle school. Though the sample is smaller than existing developmental studies of prosocial behaviors and social emotional skills, the sample is similarly diverse in ethnic-racial and socioeconomic composition. The sample also draws from several geographic settings (i.e., four U.S. States and nine different schools). However, other studies that found declines of prosocial behaviors and social emotional skills during middle school drew from larger samples (e.g., U.S. nationwide data, Ross et al., 2019; statewide data, omitted for peer review; a representative sample of a large metropolitan European city; Malti et al., 2016), which may explain differing results.

A likely reason for the counterintuitive results is that the specific measures of prosocial competencies differed from existing studies. For example, Malti et al (2016) found declines in general prosocial behaviors directed toward peers, such as sharing, among 8–12 year olds. This study did not measure sharing as a prosocial behavior, rather we measured empathy and compassion that may be foundational in promoting behaviors like prosocial sharing. Measures in this study captured the underlying beliefs, knowledge, and values (*competencies*) that undergird prosocial *behaviors* (e.g., Carlo-Walker et al., 2020). Further, Omitted assessed social awareness, which resembles prosocial competencies but is not the same. For example, cultural respect (i.e., valuing beliefs and traditions of people different than oneself) and empathy, in this study, are select subcomponents of social awareness.

The findings show declines for self-reported integrity during early adolescence. Pertaining to integrity, it is perplexing that youth would decline in truth telling and admitting mistakes. It is possible that declines in integrity align with increasing complex social awareness and protecting others' emotions and concern for social status (NASEM; 2019). This finding resembles work by Ross et al. (2019) that showed declines in integrity (i.e., responsible decision making, doing the right thing, admitting mistakes) among 10-13 year old youth in a nationwide sample. This illustrates an important nuance for educators who come to expect growth with maturation.

School Context Influence on Prosocial Skill Development

The hypotheses were partially confirmed that elements of the school context (i.e., teacher caring and belonging) were related to students' prosocial competencies during the first year of middle school. The correlation was apparent at the beginning of middle school, meaning students who experienced higher teacher caring also reported higher cultural respect, empathy, and integrity at the beginning of middle school. Similarly, those who experienced more belonging at the beginning of middle school, also reported higher empathy, compassion, and integrity during middle school. However, our hypothesis that school context would influence prosocial skill development was not confirmed in three out of four outcomes. Only sense of belonging influenced the development of compassion during middle school.

Teacher-caring positively related to initial levels of cultural respect, potentially through teachers modeling care and mutual respect toward students and their classmates (e.g., encouraging doing your best, giving time to explain ideas, noticing and addressing moments of sadness or anger; Audley & Ginsburg, 2019). The findings align with the stage-environment fit theory (Eccles et al., 1993), that early adolescents thrive in school environments (e.g., caring adult relationships exemplified by teachers asking students to explain their ideas, providing decision-

making agency in learning activities, and recognizing emotions) that match developmental needs (e.g., increased capacity for critical and abstract thinking, desire for autonomy, and complex emotions; NASEM, 2019).

Teacher caring and belonging in school are related. The transition to middle school often includes moving to a larger school building with different students and more teachers that students interact with every day, compared to their elementary school experience. At the exact time when youth give heightened attention to peers and social acceptance, having a teacher who models caring relationships through emotional support (e.g., "knows if something is bothering me" and "helps me feel better") may foster student-peer relationships and create a sense of belonging in the school environment full of many new people (Deutsch, 2022). Based on our findings, belonging in the school community can support students' sense of compassion, or caring for their peers.

Notably, both teacher caring and belonging positively contributed to initial levels of empathy and integrity, further emphasizing the stage-environment fit, such that school environments that match students' developmental prioritization of caring relationships and peer friendships also supported empathic responding (i.e., concern for others' emotions) and honesty in challenging situations (i.e., integrity). The positive influence of both teacher caring and belonging on students' integrity suggests youth may experience feeling psychologically safe and are therefore more likely to practice integrity.

Belonging Promoted Development of Compassion

Students who perceived a high sense of belonging in the school community developed compassion at a higher rate than their peers who perceived low sense of belonging in the school community. In fact, for those who experienced relatively low belonging in the school community, compassion declined. Notably, the data collection took place amid the COVID-19 pandemic when

schools shifted from in-person learning to remote learning. Even in these conditions involving social distancing and remote learning, the experience of belonging in middle school amplified early adolescents' growth of compassion—their sense of responsibility to act for collective wellbeing.

A crucial distinction between compassion and empathy is that compassion includes taking action to relieve suffering. What is it about sense of belonging that may be contributing to growth in compassion? When students experience that people care about each other at school "like a family" and that students work together to solve problems, they appear to develop a sense of care for others' wellbeing and are compelled to help people in need (Colaianne et al., 2023). These findings call attention to community-building practices that schools use to create a sense of belonging (Battistich et al., 1997).

Implications for Promoting Prosocial Skill Development in Middle School Settings

Adolescence is a unique period of development in which young people are particularly focused on their identity and relation to peers and adults around them. Though early adolescence is often a low point in self-reported prosocial competencies, it might be explained as a turning point when youth more deeply understand these concepts in relation to complex social settings (Nucci & Turiel, 2009; Rimm-Kaufman et al., 2024). Middle school is a time when youth's increased cognitive capacity and critical thinking skills enable them to begin to interrogate complex social inequities, navigate power dynamics, and weigh competing priorities. Deeper understanding of the complexity of these concepts may lead to youth self-assessing themselves lower in prosocial competencies during early adolescence. For example, students who critically self-assess their own cultural respect may understand the social injustice of different lived experiences of people from different cultural backgrounds based in history and current policy that perpetuate racial inequity.

Furthermore, empathy and compassion alike draw on a sense of collective humanity, that which underscores the need for social justice reform. Students who self-assess their sense of compassion specifically report on their self-efficacy for helping people who are marginalized by systemic oppression. Practicing these skills in supportive school environments with caring teacher relationships and belonging in the school community may therefore lead to youth who understand and take action for changing policies that maintain systemic privilege and marginalization.

Applications from these findings include promoting collective belonging in the school community, and especially promoting belonging in the diverse school community. Practices like advisory, restorative community-building circles, and advisory (Berger et al., 2021; Sandwick et al., 2019) can promote relationships between students and educators as well as among the student community. A sense of belonging can be fostered through facilitated conversations and exercises in which students discuss similar experiences and opinions. Furthermore, explicit conversations about identity and real-world issues can be meaningful to students and support sociopolitical development (Omitted for peer review). Further study is needed to investigate the influence of teacher caring, sense of belonging and other school experiences that promote early adolescent development of prosocial competencies. Further study should include larger sample sizes, conditions that interact with teacher caring or belonging, nuanced subgroup analysis of school experiences, and different perspectives of teacher caring and belonging, especially for marginalized communities. Mixed methods approaches may shed light on *how* these school experiences contribute to prosocial outcomes.

Constraints on Generality

Schools in this study were purposefully recruited for serving diverse student communities, which resulted in the sample of students that was both ethnically-racially, economically, and

linguistically diverse, as well as represented a range of academic dis/ability (similar to the national average of 15%, National Center for Education Statistics (NCES), 2020). This is part of a growing body of work that draws on self-report from ethnically and racially diverse samples as a way of gaining insights from the point of view of diverse youth about their experiences and perspectives. Though these findings cannot be generalized to the middle school population more broadly, the diverse representation from multiple schools in different cities in the U.S. makes this useful evidence for understanding the varied trajectories of prosocial skill development in middle school contexts.

Limitations and Next Steps

One limitation was the relatively small sample size in this study. With nine schools only, we were unable to analyze students nested in schools as a third level of the multilevel model. Adding schools as a third level may have allowed for more advanced analysis of school-level interactions, which is important in assessing teacher caring and belonging. In addition, a larger sample size would allow for three-way interactions, such as analyzing the moderating effect of gender or race on students' perceptions of teacher caring or belonging and their prosocial skill development. Furthermore, the timing of data collection amid the COVID-19 pandemic influenced attrition and students' responses. However, students who remained in the study were able to report on the school context and their prosocial competencies despite the shift from in-person to remote learning. Moreover, the height of the pandemic was a time when teachers and school leaders emphasized social connection and creating a caring community despite social distancing. The emphasis on connection and caring may have influenced students' growth in compassion.

Another limitation is having one measure per year of the time-variant school climate variables, teacher caring and sense of belonging. Because the school climate variables were

measured once per year and the outcome variables were measured at the beginning and end of each year, we extrapolated the climate measures to the beginning and end of year. While we believe this to be a valid extension of students' experiences of teacher caring and belonging, we recommend in future studies to collect measures of teacher caring and belonging throughout the year, as they may fluctuate.

Future research should continue to analyze the development of prosocial competencies in school contexts and extend this research by analyzing variation within prosocial development across contexts (e.g., school and after-school). Further research is also needed to understand how prosocial competencies can lead to a commitment to justice and dismantling racial inequity. For example, Spinrad et al. (2023) examined White students' empathy-related responding and prosocial behaviors toward Black and White peers. Specifically understanding prosocial competencies related to in-group (e.g., same race) or out-group peers may shed light on how these competencies facilitate anti-racist development.

Conclusion

These findings offer new knowledge about middle school contexts that promote prosocial competencies during a developmental stage marked by rapid change in physical, cognitive, social and emotional capacities. Though the only significant predictor of accelerated growth in prosocial competencies was students' sense of belonging in the school community that positively contributed to the development in compassion. Both teacher caring and belonging both positively influenced students' self-reported prosocial competencies in the first year of middle school. Overall, middle school environments characterized by teacher caring and belonging were associated with cultural respect, empathy, and integrity. However, for most prosocial outcomes in this study, understanding trajectories of growth in these competencies may reflect personal

attributes, students' own perception of themselves compared to others around them, and other processes not measured here. Compassion stands as an exception, and it appears that when students experience more belonging (friendliness, cooperation, communal care and respect for peers and teachers) they show more growth in compassion. More research is needed, such as person-centered approaches and qualitative study, in early adolescent contexts to understand nuance in the contextual factors that influence prosocial development.

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Table 1a

Student Characteristics at Baseline

Student Characteristics	Full Study Sample $N = 258$		Analytic Sample $n = 186$	
	n	Percent	*n*	Percent
Gender				
Male	127	50%	90	48%
Female	122	48%	92	49%
Non-binary	6	2%	3	2%
Race +				
Black	107	43%	80	43%
White	84	33%	71	38%
Latine	40	16%	19	10%
Multi-racial	16	6%	11	13%
Asian	3	1%	3	2%
Native American	1	<1%	0	0%
Low-income/ Economically marginalized (LIEM) +	79	37%	49	26%
Culturally Linguistically Diverse	34	14%	21	11%
Individualized Education Plan (IEP)	28	11%	20	11%
Age in years +	*Mean(SD)*	*Min, Max*	*Mean(SD)*	*Min, Max*
	10.91(.55)	9, 13	10.95(.56)	9, 13

Note. Totals may not add up to 100% giving missing data. + = statistically different in the full sample compared to the analytic sample.

Table 1b

Overall Demographics of Participating Schools (N = 9) in Year 1

School Characteristics	School 1	School 2	School 3	School 4	School 5	School 6	School 7	School 8	School 9
Student Enrollment (*n*)	80	20	50	100	180	165	70	100	25
Gender (%)									
Male	48%	52%	51%	51%	54%	55%	47%	45%	51%
Female	52%	48%	49%	49%	46%	45%	53%	55%	49%
Race (%)									
Black	30%	57%	65%	24%	33%	29%	89%	21%	51%
White	7%	26%	24%	17.5%	42%	54%	2%	12%	0.5%
Latine	59%	7%	1%	54%	15%	4%	5%	61%	45%
Multi-racial	3%	9%	8%	2%	3%	8%	1%	2%	2%
Asian	1%	1%	1%	2%	5%	4%	1%	4%	1%
Native American	0%	0%	1%	0.5%	1%	1%	0%	0%	0.5%
Students from Low-Income (%)	58%	37%	78%	55%	46%	40%	27%	67%	100%
Linguistically Diverse Students (%)	34%	3%	3%	5%	26%	30%	19%	6%	66%
Students with Individualized Education Plans (%)	17%	18%	28%	20%	17%	20%	13%	18%	12%

Note. School-level data were collected from participating schools in the original study

Table 2

Bivariate Correlations for Independent and Dependent Variables at Time 1

	Teacher Caring	Community/ Belonging	Respect	Empathy	Compassion
Teacher Caring	-				
Community/Belonging	.49*	-			
Cultural Respect	.23*	.24*	-		
Empathy	.39*	.27*	.53*	-	
Compassion	.05	-.04	.17*	.06	-
Integrity	.34*	.30*	.49*	.49*	.08

Note. *$p < .05$.

Table 3

Means for Outcome and Moderating Variables Over Time

	Min-Max	*Mean* (*SD*) Fall Year 1	Spring Year 1	Fall Year 2	Spring Year 2
Outcome Variables					
Cultural Respect	1-5	4.45 (0.69)	4.64 (0.66)	4.76 (0.48)	4.74 (0.47)
Empathy	1-4	3.24 (0.61)	3.37 (0.61)	3.25 (0.58)	3.13 (0.68)
Compassion	1-5	3.65 (0.31)	3.76 (0.64)	3.84 (0.65)	3.66 (0.69)
Integrity	1-5	3.99 (0.68)	4.02 (0.61)	3.94 (0.57)	3.86 (0.62)
Moderating Variables (i.e., school experiences)		Winter Year 1		Winter Year 2	
Teacher Caring	1-5	3.92 (0.78)		4.06 (0.78)	
Community/Belonging	1-5	3.39 (0.74)		3.58 (0.68)	

Note. *SD* = Standard deviation.

Table 4

*Results from Longitudinal Models of Cultural Respect Over First Two Years of Middle School (*n = *182)*

	Unconditional Model: Cultural Respect B (SE)	Linear Model: Cultural Respect	Quadratic Model: Cultural Respect	**Model 1A: Cultural Respect main effects**	Model 1B: Cultural Respect Teacher-Caring interaction	Model 1C: Cultural Respect Belonging interaction
Intercept	4.61 (0.04)	4.44 (0.16)	4.45 (0.16)	**4.40 (0.16)**	4.40 (.16)	4.40 (.16)
Level 1 variables						
Time		0.09 (0.02)*	0.25 (0.07)*	**0.24 (0.07)***	0.23 (.07)*	0.24 (.07)*
Time^2			-0.05 (0.02)*	**-0.05 (0.02)***	-0.05 (.02) *	-0.05 (.02)*
Level 2 variables						
Teacher Caring				**0.10 (0.04)***	0.11 (.07)	0.10 (.04)*
Belonging				**0.02 (0.05)**	0.02 (.05)	0.09 (.07)
Interactions						
Teacher Caring X time					0.11 (.10)	
Teacher Caring X time^2					-0.04 (.03)	
Belonging X time						-0.11 (.10)
Belonging X time^2						0.03 (.03)
Random effects						
Level 1 Residual	0.25	0.25	0.22	**0.23**	0.23	0.23
Level 2 Variance	0.14	0.11	0.20	**0.18**	0.18	0.18
Level 2 (time^2) Variance			<0.01	**<0.01**	<0.01	<0.01
Covariance (time, time^2)			-0.02	**-0.01**	-0.01	-0.01
Fit statistics						
AIC		859.51	845.09	**841.69**	843.31	844.15
BIC		909.77	907.92	**912.89**	922.88	923.72
Log likelihood		-417.75	-407.55	**-403.84**	-402.65	-403.07
LRT		37.00*	20.42*	**7.40***	2.38	1.54

Note. * = $p < .05$; Coefficients are unstandardized; Bold indicates the best fitting model for each outcome; Models adjusted for school level fixed effects; Respect was measured on a scale of 1-5, Model 1 Respect ICC = .352; Log-likelihood ratio tests (LRT) compare the model to the previous/nested model, and both interaction models B and C are compared to the main effects model.

Table 5

*Results from Longitudinal Models of Empathy Over First Two Years of Middle School (*n = *186)*

	Unconditional Model: Empathy B (SE)	Linear Model: Empathy	Quadratic Model: Empathy	**Model 2A: Empathy main effects**	Model 2B: Empathy Teacher-Caring interaction	Model 2C: Empathy Belonging interaction
Intercept	3.25 (0.04)	3.19 (0.18)	3.13 (0.18)	**3.00 (.17)**	3.00 (.17)	3.01 (.17)
Level 1 variables						
Time		-0.05 (0.02)*	0.12 (0.06)	**0.10 (.07)**	0.10 (.07)	0.10 (.07)
Time^2			-0.06 (0.02)*	**-0.06 (.02)***	-0.06 (.02)*	-0.06 (.02)*
Level 2 variables						
Teacher Caring				**0.18 (.04)***	0.23 (.06)*	0.18 (.04)*
Belonging				**0.12 (.05)***	0.12 (.05)*	0.12 (.06)
Interactions						
Teacher Caring X time					-0.06 (.09)	
Teacher Caring X time^2					0.01 (.03)	
Belonging X time						-0.12 (.09)
Belonging X time^2						0.05 (.03)
Random effects						
Level 1 Residual	0.23	0.22	0.20	**0.21**	0.21	0.21
Level 2 Variance	0.18	0.17	0.18	**0.12**	0.12	0.13
Level 2 (time^2) Variance			<.01	**<0.01**	<0.01	<0.01
Covariance (time, time^2)			<-0.01	**<-0.01**	<-0.01	<-0.01
Fit statistics						
AIC	897.60	903.61	900.52	**870.18**	872.54	869.91
BIC	910.28	954.35	963.95	**942.07**	952.88	950.25
Log likelihood	-445.80	-439.81	-435.26	**-418.09**	-417.27	-415.96
LRT		11.98	9.09*	**34.34***	1.65	4.27

Note. * = $p < .05$; Coefficients are unstandardized; Bold indicates the best fitting model for each outcome; School level fixed effects not shown; Empathy was measured on a scale of 1-4, Model 2 Empathy ICC = .445; Log-likelihood ratio tests (LRT) compare the model to the previous/nested model, and both interaction models B and C are compared to the main effects model.

Table 6

*Results from Longitudinal Change Models of Compassion Over Two Years of Middle School (*n = *186)*

	Unconditional Model: Compassion B (SE)	Linear Model: Compassion	Quadratic Model: Compassion	Model 3A: Compassion main effects	Model 3B: Compassion Teacher-Caring interaction	**Model 3C: Compassion Belonging interaction**
Intercept	3.73 (0.03)	3.82 (0.15)	3.75 (0.14)	3.69 (.14)	3.69 (.14)	**3.70 (.14)**
Level 1 variables						
Time		-0.01 (0.02)	0.23 (0.06)*	0.22 (.06)*	0.22 (.06)*	**0.23 (.06)***
Time^2			-0.08 (0.02)*	-0.08 (.02)*	-0.08 (.02) *	**-0.08 (.02)***
Level 2 variables						
Teacher Caring				0.04 (.040)	-0.03 (.05)	**0.04 (.034)**
Belonging				0.08 (.04)	0.07 (.04)	**-0.06 (.05)**
Interactions						
Teacher caring X time					0.19 (.09)*	
Teacher caring X time^2					-0.05 (.03)	
Belonging X time						**0.20 (.09)***
Belonging X time^2						**-0.03 (.03)**
Random effects						
Level 1 Residual	0.23	0.23	0.19	0.20	0.20	**0.19**
Level 2 Variance	0.09	0.09	0.03	0.03	0.03	**0.03**
Level 2 (time^2) Variance			<0.01	<0.01	<0.01	**<0.01**
Covariance (time, time^2)			0.01	0.01	0.01	**0.01**
Fit statistics						
AIC	825.60	831.96	796.22	793.37	791.52	**799.71**
BIC	838.27	882.64	859.56	865.15	871.75	**859.94**
Log likelihood	-409.80	-403.98	-383.11	-379.68	-376.76	**-370.86**
LRT		11.64	41.75*	6.85*	5.84	**17.66***

Note. * = $p < .05$; coefficients are unstandardized; Bold indicates the best fitting model for each outcome; School level fixed effects not shown; Compassion was measured on a scale of 1-5, Model 3 Compassion ICC = .291; Log-likelihood ratio tests (LRT) compare the model to the previous/nested model, and both interaction models B and C are compared to the main effects model.

Table 7

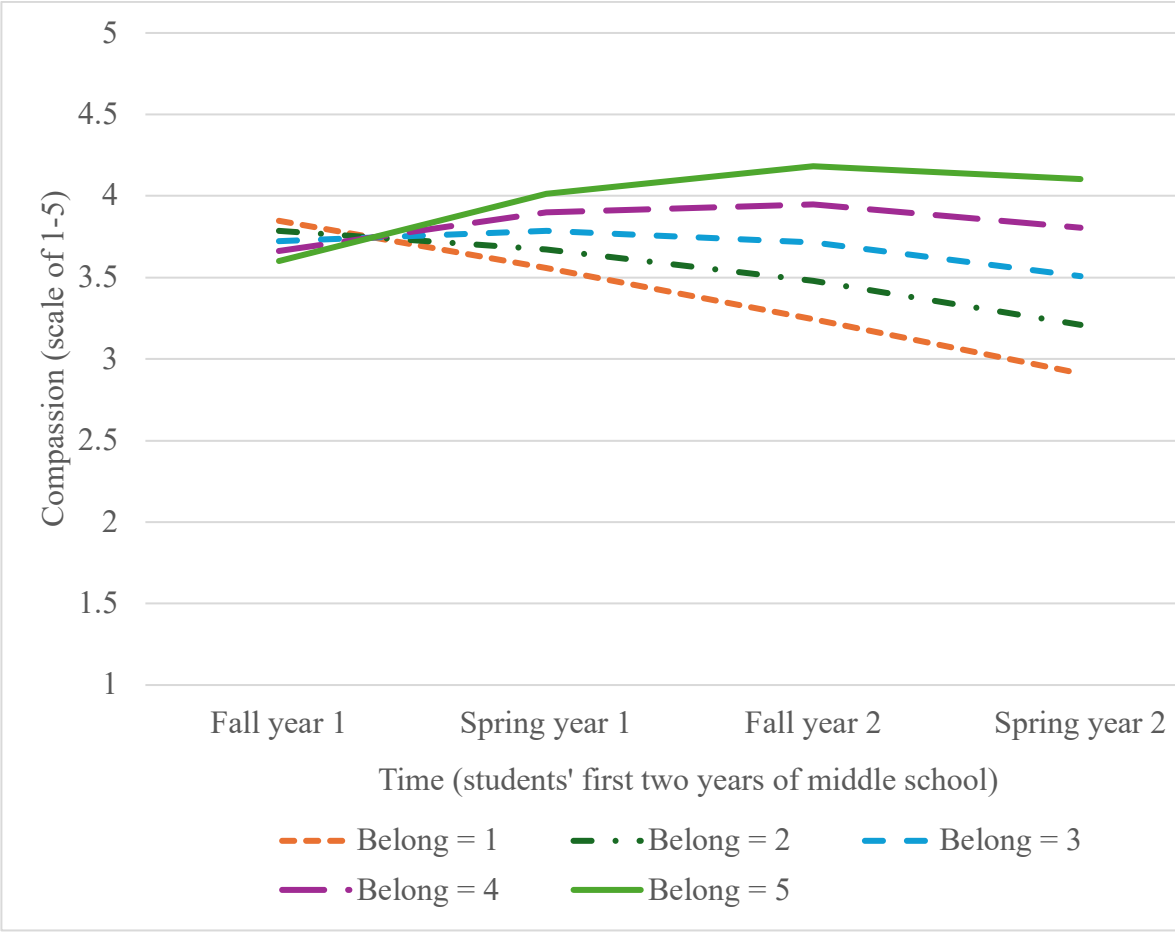
*Results from Longitudinal Change Models of Integrity Over Two Years of Middle School (*n = *182)*

	Unconditional Model: Integrity B (SE)	Linear Model: Integrity	Quadratic Model: Integrity	**Model 4A: Integrity main effects**	Model 4B: Integrity Teacher-Caring interaction	Model 4C: Integrity Belonging interaction
Intercept	3.98 (0.04)	4.06 (0.18)	4.04 (0.18)	**3.95 (.16)**	3.95 (.16)	3.95 (.16)
Level 1 variables						
Time		-0.05 (0.02)*	0.05 (0.06)	**-0.05 (.02)***	-0.05 (.02)*	-0.05 (.02)*
Time^2			-0.03 (0.02)	**--**	--	--
Level 2 variables						
Teacher Caring				**0.18 (.05)***	0.21 (.06)*	0.18 (.05)*
Belonging				**0.13 (.05)***	0.13 (.05)*	0.10 (.07)
Interactions						
Teacher caring X time					-0.02 (.03)	
Teacher caring X time^2					--	
Belonging X time						0.02 (.03)
Belonging X time^2						--
Random effects						
Level 1 Residual	0.21	0.21	0.16	**0.17**	0.17	0.16
Level 2 Variance	0.19	0.18	0.27	**0.25**	0.24	0.03
Level 2 (time^2) Variance			<0.01			
Covariance (time, time^2)			-0.02	**-0.06**	-0.06	-0.07
Fit statistics						
AIC	840.62	843.92	831.01	**802.19**	803.78	803.84
BIC	853.18	894.16	893.80	**869.16**	874.94	875.00
Log likelihood	-417.31	-409.96	-400.50	**-385.09**	-384.89	-384.92
LRT		14.70	18.92*	**30.82***	0.41	0.35

Note. * = $p < .05$; coefficients are unstandardized; Bold indicates the best fitting model for each outcome; School level fixed effects not shown; Integrity was measured on a scale of 1-5, Model 4 Integrity ICC = .472; Log-likelihood ratio tests (LRT) compare the model to the previous/nested model, and both interaction models B and C are compared to the main effects model.

Figure 1

Student Compassion as a Function of Belonging During First 2 Years in Middle School (*n* = 186)



PAPER 3

Abstract

Middle school students' experiences of their school environment influence their learning behaviors and attitudes toward school. Furthermore, early adolescence, when youth are typically in middle school, is a critical time of identity and social development. This study investigates the relationship between racial identity and school experiences that predict students behavioral and cognitive engagement. This study draws on student survey data from 305 Black 6th grade students (*Mage* = 11.12, *SD* = 0.41; 49% female) in suburban middle schools in the Midwest United States. Latent profiles of equity-oriented school experience were explored based on four indicators (teacher caring, school fairness, school-based discrimination from teachers and from peers). A five-profile solution included *Average Equitable* (*n* = 183; 60.00%); *Average Inequitable* (*n* = 55; 18.03%); *High Teacher Discrimination* (*n* = 32; 10.49%); *Caring But Very Inequitable* (*n* = 22; 7.21%); and *Low Caring Fairness & Discrimination* (*n* = 13; 4.26%). Although equity-oriented profiles did not change the relationship between racial identity beliefs and engagement, profiles did directly relate to engagement. Students in the *Average Inequitable* and *Low Caring Fairness & Discrimination* profiles reported lower behavioral engagement compared to the *Average Equitable* profile. Students in the *High Teacher Discrimination* profile reported lower cognitive engagement than their *Average Equitable* peers. Notably, students in the *Caring But Very Inequitable* profile reported lower behavioral and cognitive engagement. Implications for equity-oriented middle school climate and Black early adolescent engagement are discussed.

Equity-Oriented School Climate Experience Profiles in Early Adolescence and Academic Engagement

School engagement is a crucial indicator of students' academic success; yet engagement tends to decline through early adolescence (Wigfield et al., 2015). Moreover, educators struggle to create engaging environments that meet the needs of marginalized students of color (Baysu et al., 2016; Bingham & Okagaki, 2012; Wang, Degol, et al., 2019). Engagement can promote students' academic achievement (Wang et al., 2019), student-teacher relationships (Quin, 2017), attendance (Byrd & Chavous, 2011; Van Eck et al., 2017), aspirations (Griffin et al., 2017), and attainment (Lawson & Masyn, 2015). Literature on academic engagement highlights multifaceted components including behavioral (i.e., participation) and cognitive engagement (i.e., mental persistence), which are highly dependent on contextual factors (Hofkens & Pianta, 2022). In other words, rather than a characteristic or trait of individuals, engagement is a state that changes based on the surrounding environment, which different students' experience differently (Fredricks et al., 2019). Therefore, interventions in the school environment that can support student engagement offer promise for promoting academic success.

The need to understand the nuances of student engagement is especially pertinent given racial opportunity gaps (i.e., Black students on average have fewer academic resources and opportunities than their white peers due to systemic racial and economic oppression, e.g., fewer highly qualified teachers, lower school funding; Carter & Welner, 2013). These disparities in school opportunities and experiences are rooted in racism and lead to lower average achievement among Black students compared to white students (reardon et al., 2022). Consistent with opportunity gap literature, marginalized (e.g., Black) students on average experience lower engagement than their privileged peers (i.e., white; Bingham & Okagaki, 2012; Galindo et al.,

2022). For this reason, work focusing on school engagement needs to consider a historical reality—typical school environments are based on standards to best educate white, middle/upper class, monolingual, neuro-typical children and reflect existing racism and racial discrimination (Bonilla-Silva, 2017; Lewis & Diamond, 2015). Therefore, understanding the ways in which Black youth perceive patterns of equity or inequity in their school and examining how this relates to their engagement can support academic success and address racial opportunity gaps.

Middle school is a particularly important time for focusing on engagement. As early adolescents transition from smaller elementary schools to larger middle schools where they rotate with departmentalized teachers, there is often a decline in academic engagement (Engels et al., 2019; Wigfield & Eccles, 2000). Supporting young people during this crucial developmental stage involves creating environments that match developmental needs (Eccles et al., 1993) and offer opportunities for youth to embrace their multifaceted, intersectional identities (Spencer et al., 1997). For example, the school environment is particularly influential during early adolescence when peers and social situations outside the family become more prominent (Aldana & Byrd, 2015) at the same time as the transition to middle school when youth typically interact with new peers and more teachers than they did in elementary school settings. In this regard, interactions with peers and teachers are important aspects of the school environment that influence engagement.

Another canonical aspect of early adolescence is identity development (NASEM, 2019), which includes ethnic-racial identity (e.g., centrality, private regard, public regard; Sellers et al., 1998; Umaña-Taylor et al., 2014). Early adolescents are developing an understanding of how their racial identity matters for their self-perception as well as how they experience school (e.g., racial disparities in discipline despite similar behaviors, Huang, 2020; racial gaps in academic

opportunities and supports at school, Duncan & Murnane, 2014)—all while they are increasingly capable of complex abstract thought and sophisticated perspective taking (Rivas-Drake et al., 2009; Umaña-Taylor et al., 2014).

School climate is a critical factor influencing educational opportunities and outcomes, and these experiences are often inequitable for Black students, including typical elements of school climate (e.g., teacher caring) and specific experiences less often studied in school climate literature (e.g., racial discrimination). Therefore, this study leverages self-report data from Black early adolescent students in suburban middle schools in the Midwest U.S. to investigate patterns of equity-oriented school climate experiences. The concept of equity-oriented school climate experience is a new, multifaceted way of evaluating school climate that includes perceptions of schoolwide physical and psychological safety, fairness, relationships, academic support, and emotional care as well as personal perceptions of racial discrimination from peers and teachers. Each of the dimensions are familiar aspects of school climate and racial identity literature (Byrd, 2017; Wang & Degol, 2016), however they have not been studied in tandem. Though these dimensions of school climate are distinct constructs, students experience all the dimensions concurrently. Because youth are developing their racial identity beliefs and developing their academic habits simultaneously in the context of equitable or inequitable schools (Lewis & Diamond, 2015; NASEM, 2019), it is important to consider these dimensions in tandem when understanding student engagement. For this reason, this study aims to investigate profiles of equity-oriented school climate experiences and how those profiles may alter the relationship between racial identity beliefs and early adolescent school engagement.

Theoretical Background of Equity-Oriented School Climate Experiences

In this study, we propose a new conception of students' experiences in the school environment, called equity-oriented school climate experiences. Understanding the ways in which youth perceive equity or inequity in their school environment is based on several aspects of schoolwide and personal experience. Some of these aspects are typically measured in school climate literature (e.g., teacher caring, fairness) and some are less common in school climate literature but more common in racial identity and equity literature (e.g., discrimination from teachers and peers). Although none of the aspects of school climate are novel, the concept of a cohesive equity-oriented school experience that reflects the combination of these aspects together is unique and person-centered statistical approaches (i.e., latent profile analyses) make it possible to investigate the theoretical concept of equity-oriented school experience with data.

The conceptualization of equity-oriented school climate experiences draws on Wang et al.'s (2019) development-in-sociocultural-context model for children's engagement in learning. Wang et al.'s (2019) integrative model describes personal, contextual, and sociocultural factors that influence students' behavioral, cognitive, and emotional engagement. Specifically, they articulate how a combination of external (e.g., cultural milieu, family, school, peers) and internal factors (e.g., developmental competencies, self-appraisal) influence students' multifaceted engagement (i.e., behavioral, cognitive, and emotional). This study focuses on multiple aspects within two external factors influencing engagement: racism and discrimination within the cultural milieu as well as teacher caring and fairness within the school context. Notably, Wang et al., (2019) call attention to the need for additional research investigating the intersection of racial identity beliefs and contextual factors that may influence engagement in different ways.

Elements of Equity-Oriented School Climate

Reviews of literature on school climate consistently emphasize the importance of a positive school environment for students' academic success (Thapa et al., 2013; Wang & Degol, 2016). Further, these reviews reveal that most work in this area focuses on academic (e.g., high expectations) and community (e.g., relationship quality) aspects, which generally show positive associations with students' academic engagement (Fatou & Kubiszewski, 2018; Konold et al., 2018). Other literature has focused on students', especially Black students', experience of racism and discrimination at school that dampen positive school experiences and contribute to racial opportunity gaps (Civitillo et al., 2023). Notably, Black students are simultaneously experiencing both the typically measured elements of school climate (e.g., relationships) and the less-often measured elements related to their racialize experience (e.g., discrimination). More recently, scholars have begun to incorporate elements of race, discrimination, and equity into the conceptualization and measurement of school climate (Byrd, 2017). Based on that research and the integrated model of engagement (Wang et al., 2019), I conceptualize the elements of equity-oriented school climate experiences as including teacher caring (i.e., perceptions of schoolwide support and academic expectations), school fairness (i.e., schoolwide structural elements such as fair policies and practices), and school-based racial discrimination from teachers and peers (i.e., personal experiences of sociocultural stressors in the school environment).

Teacher Caring

Decades of research has established the influence of teacher caring on students' academic and non-academic outcomes (Hofkens & Pianta, 2022; Roorda et al., 2011). In state-wide multi-year analysis, Backes et al., (2022) found that teacher practices, including teacher caring and cultural competence, contributed substantially to students' overall perception of school climate, which positively related to student achievement. Furthermore, Black students experienced worse

school climate than their white peers overall, even when compared in the same classroom. However, the effects of having a caring and culturally competent teacher were larger for Black students than for white students. This indicated that teacher caring had an especially important influence on Black students' school experience and academic outcomes, and that caring coupled with cultural competence was more meaningful for Black students than caring alone (Backes et al., 2022).

Perceptions of School Fairness

Fairness at school includes more than students' individual feelings of being treated the same as their peers. School fairness includes practices and policies that level the playing field for students on the basis of race, ethnicity, gender, disability and other forms of identity. Research on students' perceptions of fairness at school reflect similar patterns of marginalization, such that Black students often perceive less fairness than their white peers (Bottiani et al., 2016; Voight et al., 2015). Fairness can be measured in two ways: students' perceptions of how all students are treated fairly or unfairly in their school (e.g., *everyone is treated fairly at my school*; schoolwide fairness), or students' perceptions of their own fair or unfair experience (e.g., *I am treated fairly*). Studies of students' perceptions of schoolwide fairness in middle schools showed that even within the same school, individual students have different perceptions of how fair or unfair the school is overall (Debnam et al., 2021). In addition, students who perceived more schoolwide fairness also reported better student-teacher connectedness, belonging among peers, and academic engagement (i.e., combined cognitive and behavioral; Debnam et al., 2014, 2021).

Furthermore, there is some research investigating how Black students' racial identity beliefs come into play regarding their perceptions of fairness at school. For example, Byrd and Chavous (2011) found that in the context of school fairness from teachers and peers, Black

students with high private regard also reported positive emotional engagement (*n* = 359 Black high school students). Yet, when students experienced unfairness from teachers or peers, their private regard was not associated or negatively associated with engagement, respectively. Their findings point to a meaningful association between private regard and engagement when students were in equity-oriented school climates that affirmed their racial identity.

School-Based Racial Discrimination

School-based racial discrimination (SBRD) is generally thought to be negatively related to outcomes (Civitillo et al., 2023); however, nuanced evidence including the transmitter of SBRD (e.g., teacher or peer) and the school context more broadly (e.g., fairness, ethnic-racial composition) shows mixed results. In contrast to null findings from Byrd and Chavous (2011), Griffin et al. (2017) found students' experience of SBRD from peers had negative associations with behavioral and cognitive engagement. Although Griffin et al. did not find associations between teacher discrimination and engagement, other studies have found a negative association between discrimination from teachers and cognitive engagement among Black adolescents (Chavous et al., 2008; Smalls et al., 2007). In a study of Black ninth graders (*n* = 557; *M*age = 14.5), Gale and Dorsey (2020) found that in-school racial discrimination (not differentiated between peers and teachers) was negatively associated with cognitive engagement. Furthermore, school-based racial discrimination was not related to teacher caring indicating that students may distinguish between these two parts of their school climate experience (Gale & Dorsey, 2020). Therefore, latent profiles may expose differentiated patterns of school climate experience factors.

Person-Centered Analysis of School Climate

There remains a need to understand how various elements of school climate may coexist in patterns of equitable or inequitable experiences that contribute to engagement in potentially different ways (Galindo et al., 2022; Miller-Cotto & Byrnes, 2016). To date, no study that I am aware of has investigated combinations or profiles of equity-oriented school experiences. Nonetheless, scholars call for more research that integrates aspects of equity in school climate experiences (Byrd, 2017; Wang, Degol, et al., 2019; Wang & Degol, 2016). Therefore, this study provides a multifaceted, complex peek into students' perspectives of school climate by combining typical elements (e.g., teacher caring, fairness) with equity-oriented concepts that are often left out (e.g., school-based discrimination from peers and teachers).

Taking a person-centered approach to school climate, rather than a variable-centered approach, may uncover unique patterns in which students experience a mix of positive and negative school climate aspects at the same time. Typically, research has taken a variable-centered approach to school climate, which is based on average relationships between variables (i.e., averages by nature collapse high and low values, however there may not be students who actually exist in the middle "average" value or relationship) and defines consistent, or congruent, associations between variables in the population (i.e., does not capture multivariate patterns in which patterns of variables vary for different students). Person-centered approaches, such as latent profile analysis (LPA), define underlying groups in the population by identifying similar pattens among individuals on multiple constructs, which allows for heterogenous associations between variables for different people (Masyn, 2013; Weller et al., 2020). Based on prior literature and theory (Byrd, 2017; Byrd & Chavous, 2011), I hypothesized that LPA may detect mixed equity-oriented school experiences beyond overall favorable (all equitable) or consistently

negative experiences. For example, I anticipated a profile in which students experience high teacher caring and peer interactions, yet a poor equity-oriented climate regarding fairness in practices and policies (e.g., students of all racial groups are not treated equally). In this case, students may be experiencing interpersonal care, yet still experiencing institutional level racial discrimination at the school level. Another potential profile may indicate some students who experience high teacher caring and fairness in the school overall, but also frequent experiences of racial discrimination, indicating a surface-level generally positive school climate for students of all races yet disregard for Black students' experience of racial discrimination. This has unique implications for addressing racism that is deeply rooted in school practice, policy, and adults' deep socialization that may be masked by caring behaviors, as Dena Simmons (2021) describes as "white supremacy with a hug" (Simmons, 2021, p. 31).

Engagement Related to Racial Identity Beliefs and School Experiences

Academic engagement is a key indicator of success (Wang, Fredricks, et al., 2019) because engagement is a proximal marker of observable and unobservable participation in schoolwork that can lead to sustained involvement and motivation for long-term flourishing (Finn & Zimmer, 2012; Skinner et al., 2009). Engagement is multidimensional construct, which includes behavioral (i.e., participation through active involvement in learning activities), cognitive (i.e., metacognition about learning, perseverance through challenging tasks, self-regulated learning, motivation), social (i.e., collaboration, enjoyment of schoolwork with peers), and emotional engagement (i.e., positive affect, interest in school; (Wang, Fredricks, et al., 2019; Z. Y. Wong et al., 2024). This study investigates each type of engagement in isolation to understand potential differences between how students behave (i.e., behavioral engagement) or actively think about content (i.e., cognitive engagement in language arts, math, science) based on

their racial identity and school experience. For instance, based on their experience of school, students may exercise different types of engagement in the form of participating in school or not (i.e., behavioral) versus thinking about content or not (i.e., cognitive engagement) as a form of coping with the favorable or unfavorable environment. For instance, when students experience discrimination or distrust at school, they may maintain cognitive engagement (e.g., thinking about the content) based on outside motivation to learn and aspirations, but also may be behaviorally disengaged (e.g., not participating in class discussions) as an act of resistance.

The robust link between engagement and student success has been found for students of all racial backgrounds (Thapa et al., 2013; Z. Y. Wong et al., 2024), yet research has shown that Black students report systematically lower engagement than their white peers (Bottiani et al., 2016). Much like the literature documenting opportunity gaps that lead to disparate outcomes for marginalized youth, recent literature points to school experiences that contribute to racial disparities in engagement. Recent studies show that Black students' engagement is influenced by their school contexts, including experiences of discrimination (Thomas et al., 2025) and their teachers caring and treating them fairly (Bottiani et al., 2016). Given evidence of the school environment's influence on Black student engagement, there is a need to understand more from Black students' themselves about various aspects of school climate including aspects of the schoolwide climate for all students (e.g., teacher caring, fairness) as well as specific aspects of personal experience within the school climate (e.g., personal experiences of discrimination).

Current literature has demonstrated the importance of positive school and classroom environment for academic engagement (Galindo et al., 2022; Hofkens & Pianta, 2022) as well as the connection between racial identity beliefs and engagement (Miller-Cotto & Byrnes, 2016). However, few studies have investigated academic engagement as it relates to students' racial

identity and their experience at school (i.e., any aspect of equity-oriented school experience such as school-based racial discrimination or fairness, not to mention multiple aspects). Those relevant studies (e.g., Byrd & Chavous, 2011; Griffin et al., 2020; Leath et al., 2019) indicate that indeed there are meaningful interactions between racial identity beliefs and equity-oriented school experiences that are associated with behavioral and cognitive engagement. Yet, no studies have investigated unique patterns of equity-oriented school climate experiences by combining multiple aspects of caring, fairness, and discrimination (i.e., including mixed positive and negative experiences of caring, fairness, and discrimination). Additionally, by combining multiple aspects of students' perceptions of schoolwide climate (e.g., teacher caring, fairness) and their own personal experience within that climate (e.g., discrimination from peers and teachers) offers unique insight into students' perceptions of how they are treated within the equitable or inequitable school environment. Scholars call for more research in this area to understand the complexity of school experiences and associations with racial identity beliefs that can support student engagement (Bottiani et al., 2016; Saleem & Byrd, 2021; Thomas et al., 2025).

Racial Identity Beliefs and Engagement

Racial identity is multidimensional, and common definitions differentiate between process (e.g., exploration and commitment; Cross Jr., 1995; Phinney, 1993; Umaña-Taylor et al., 2014) and content (e.g., centrality, private regard, public regard; Sellers et al., 1998). This study focuses on racial identity content by examining the correlates of three dimensions of racial identity beliefs: centrality (the extent to which race is an important part of oneself), private regard (i.e., personal positive or negative affect about one's racial group), and public regard (i.e., beliefs about how others view their racial group positively or negatively; Sellers et al., 1998).

Research thus far has shown positive association between aspects of racial identity beliefs, particularly private regard, and academic success broadly defined (Rivas-Drake, Seaton, et al., 2014). Moreover, research shows that adolescents' racial identity beliefs, namely public regard, can be a protective factor that buffer against negative effects of discrimination and racism (Chavous et al., 2018; Sellers & Shelton, 2003). Still, literature and theory show complexity in how racial identity beliefs play out differently for different students in different school environments (Spencer et al., 1997). This has implications for how early adolescents interpret and cope in their middle school environments, making it necessary to study racial identity beliefs in relation to students' school experience and engagement. Notably, literature that investigates racial identity in school contexts related to engagement is nascent (Byrd, 2017), and existing studies typically conceptualize racial identity as the mechanism through which engagement may be buffered from negative school climate experiences.

Centrality

Centrality is the extent to which race (being Black) is relevant to one's identity, or how important race is to one's perception of themselves (Sellers et al., 1998). Centrality goes beyond a simple measure of racial category, which is itself uninformative about a person besides an indicator of the likelihood of experiencing oppression, by identifying how big of a role race plays in a person's life. For example, some Black people race is highly pertinent to their overall perception of themselves, though for other Black people race is less central, or relevant to their perceptions of themselves. Because race is a social construct (i.e., race is not biological, rather it is a fabricated classification used to categorize people for the maintenance of oppression and social hierarchy; Eberhardt & Randall, 1997), it is important to consider more than the oversimplified categorization of race (e.g., Black or white) and study how relevant race is to

one's identity (i.e., centrality). Said differently, studying racial identity beyond racial labels or racial identification deepens what these labels mean in young people's lives.

Most research shows that centrality is positively associated with attitudes that correlate with engagement such as academic efficacy, academic self-concept (Beasley & McClain, 2021), belonging (Boston & Warren, 2017), and school importance (Chavous et al., 2008). More specifically, racial centrality has been found to relate positively to engagement in specific school contexts (Beasley & McClain, 2021; Byrd & Chavous, 2011; Chavous et al., 2018). For example, Leath et al., (2019) analyzed how racial centrality moderated the relationship between racial discrimination at school and students' cognitive engagement (i.e., academic curiosity and persistence; n = 1,659 Black adolescents in middle and high school). They found that for boys, racial centrality buffered the deleterious effects of school based racial discrimination from peers and from teachers. This is similar to the buffering effect of private regard found in other literature (e.g., Griffin et al., 2020), implying that students with more positive views of their racial identity and/or importance of their racial identity are protected from negative experiences at school. However, Leath et al. found contrasting evidence for girls' centrality, meaning girls with high centrality reported lower cognitive engagement when they experienced discrimination from teachers or peers. Despite gender differences, school-based racial discrimination had an overall negative relationship with engagement. Still these findings suggest that students' racial centrality my influence how they interpret their school environments and have different associations with engagement in different circumstances. Though most studies have investigated single dimensions of equity-oriented school climate (e.g., discrimination), scholars recommend expanding research to more nuanced, multifaceted equity-oriented aspects (Griffin et al., 2022).

Private Regard

Private regard is often referred to as racial pride (Chavous et al., 2018) or positive racial affect (Rivas-Drake, Syed, et al., 2014) and is a common construct across multiple theories and studies of racial identity. In a meta-analysis of 25 studies, Rivas-Drake and colleagues (2014) found private regard (a.k.a., positive affect) was positively related to academic achievement and positive school attitudes among K-12 students. Miller-Cotto and Byrnes (2016) followed up the review with an additional meta-analytic review of racial identity constructs, including centrality and regard. They found that private regard was by far the most widely researched of all racial identity components when considering sample size. Moreover, private regard had the largest combined effect size ($r = 0.126$, *95% CI* [.062, .190]) on students' academic achievement from 47 studies of children to young adults (Miller-Cotto & Byrnes, 2016). Private regard is generally protective against the risk factors that stem from racism for positive academic achievement and psychological wellbeing (Miller-Cotto & Byrnes, 2016; Rivas-Drake et al., 2014).

Private regard has also been studied in relation to dimensions of engagement and school climate experiences. Griffin et al. (2020) investigated the moderating role of private regard on the relationship between school-based racial discrimination and behavioral, cognitive, and emotional engagement. In an analysis of 151 Black high school students, Griffin et al. found that students with high private regard were protected from deleterious effects of school-based racial discrimination experiences on their school engagement (i.e., behavioral, cognitive, emotional). That is, when students experienced racial discrimination from peers or teachers, those with low private regard reported less cognitive and emotional engagement than their peers with high private regard. For students with high private regard, there were no negative associations with engagement in conditions of higher school-based racial discrimination, meaning when there is racial discrimination at school, Black pride may be protective for engagement. Similar to

centrality, this suggests that some dimensions of equity-oriented school experiences (e.g., racial discrimination from peers and teachers) indeed relate to academic engagement in different ways depending on one's positive beliefs about being Black (i.e., private regard).

Public Regard

Public regard reflects an individual's beliefs about how others in the broader society view Black people positively or negatively (Sellers et al., 1998). Sellers and colleagues (1998) note that public regard is complicated because some scholars theorize that positive public regard (i.e., belief that others think highly of Black people) implicitly influences an individual's own evaluation of their group. On the other hand, other scholars posit that negative public regard reflects one's awareness of racism and its effects that continue to devalue Black people in society (Rivas-Drake et al., 2009; Sellers et al., 2006). In this way, some studies show that positive perceptions of racial group social status is a positive predictor of wellbeing (i.e., psychological functioning; Sellers et al., 2006) and academic motivation (Chavous et al., 2003). On the other hand, some studies show that positive perceptions of racial group social status is associated with experiences of discrimination from peers and adults (Rivas-Drake et al., 2009), meaning that students with high public regard experienced more negative racial messages, which are typically associated with negative psychological and academic outcomes (Anderson et al., 2024; Civitillo et al., 2023).

Mixed findings of the direct effects of public regard lead us to study more complex relationships about how public regard may show up differently in different scenarios. For example, Sellers and Shelton (2003) found that low public regard (i.e., belief that other groups perceive Black people negatively) was a buffer against experiences of discrimination on harmful psychological wellbeing. Similarly, Leath et al. (2019) also identified students' public regard as a

buffer of deleterious effects of school-based racial discrimination on engagement. In this case boys and girls with low public-regard also had high cognitive engagement despite the experience of school-based discrimination from teachers. Said differently, in the context of discrimination, public regard related positively to psychological wellbeing and academic engagement.

Together, this suggests a complex interplay of racial identity beliefs and equity-oriented school experiences that lead to different engagement outcomes. Specifically, students' racial identity beliefs are related to academic engagement in different ways depending on the school climate and potentially in different ways for different elements of equity-oriented school experience. This points to the need to study multiple elements of school climate as a cohesive experience. Moreover, racial identity beliefs likely influence how students interpret their school climate especially regarding racial discrimination and other equity-oriented elements (e.g., fairness). This suggests a need to include racial identity beliefs when studying school climate and engagement. This also suggests a need to study these racial identity beliefs in concert, as students are experiencing school through their integrated lens of multidimensional racial identity.

Current Study

This study presents a novel approach by investigating profiles of equity-oriented school climate experiences, which can shed light on the complex ways in which students interpret their school context and how that relates to engagement. I chose to use a person-centered approach because students interpret their school experience in unique patterns based on identity beliefs, and moreover those patterns reflect complex relationships. The current study offers several novel contributions to the nascent literature. First, school experience is complex and multifaceted; therefore, taking a person-centered rather than variable-oriented view shed new light on complex patterns of youth experiences at school. No study that I am aware of has incorporated equity-

oriented elements and standard elements of school climate to investigate profiles of students' school experiences.

Second, because individuals interpret their environment and surrounding experiences through their racial identity beliefs (Garcia Coll et al., 1996; Spencer et al., 1997), the relationship between students' racial identity beliefs and engagement may differ based on profiles of equity-oriented school climate. For example, prior literature demonstrated the importance of considering school climate in studying the relationship of racial identity beliefs and engagement, (e.g., centrality, public regard, Leath et al., 2019; private regard, Griffin et al., 2020). Yet neither considered all three constructs, which this study did. Third, many studies of racial identity beliefs sample high school-age adolescents. This study explores early adolescents because identity development is a primary task during this period and because educators struggle to align school context with youth development in the middle school years (Eccles et al., 1993; Wigfield & Eccles, 2000).

Another unique contribution from this study is that much of the extant literature on racial identity beliefs and school contexts focuses on racial identity beliefs as an individual marker of difference (i.e., a moderator that explains different experiences). Those studies are important to answer questions, such as *Do racial identity beliefs change the relationship between school conditions and engagement?* Yet, natural implications from this question imply the need to change attributes of students instead of the school conditions that contribute to racial opportunity gaps. In contrast, this study frames the question from a different angle that centers school climate as the point of intervention by asking, *Do school conditions change the relationship between racial identity beliefs and academic engagement?* In this case, the implications will inform interventions to change the school climate as a strategy to mitigate opportunity gaps and promote

student engagement for students with various racial identity beliefs (Beasley & McClain, 2021; Byrd & Chavous, 2011). In this investigation, I aim to answer the following research questions:

1. Do latent profiles of equity-oriented school experience emerge for Black 6th grade students based on four self-reported school climate indicators (i.e., teacher caring, fairness at school, school based racial discrimination from teachers and peers)?
2. Do equity-oriented school experience profiles moderate the relationship between racial identity (i.e., public regard, private regard, centrality) and academic engagement?

Methods

This study draws on data from The Parenting and African American STEM Success Study (PAASS), which is a longitudinal study following two cohorts of Black adolescents from 6th through 10th grade. The PAASS focused on adolescents' and their parents' racial beliefs, experiences and influences on education. Data were collected annually from 2014-2015 to 2018-2019 in the spring of each school year. All data were collected in the suburbs of a large metropolitan city in the Midwest United States.

Procedures

Seven schools were targeted for sample recruitment. They served between 30% and 68% Black student population, and between 51% and 92% of the school populations were eligible for free and reduced-price lunch. Students were eligible to participate if they identified as Black 6th graders in 2014-2015 (cohort 1) or 2015-2016 (cohort 2). Recruitment materials were sent home for parental consent and adolescents provided assent to participate in the survey study. Online surveys were administered at school or sent via email to participants in follow-up years. Data were collected from students during the spring of each school year, or the end of the academic year. Participants received $10 compensation for completing each survey. The full sample

included 398 6th graders in cohorts 1 and 2, who were then surveyed again each follow up year through 10th grade (*Mage* = 11.12, *SD* = 0.41; 50% female; 100% Black). This project was approved by the University of Michigan Institutional Review Board (IRB), and the current study, considered secondary data analysis, is approved by the University of Virginia IRB.

Participants

This study focuses on students in their 6th grade year. Data were analyzed from all 6th graders in the dataset, (i.e., both cohorts in their sixth-grade year). The analytic sample in this study included the early adolescents who answered at least nine out of nine variables of interest in 6th grade (*n* = 305; *Mage* = 11.12, *SD* = 0.41; 49% female). All participants self-identified as Black or multi-racial including Black (Table 1).

Measures

Profile Indicators of Equity-Oriented School Climate Experience

Teacher Caring. Teacher caring was operationalized as students' perceptions of the schoolwide sense of relationships among students and teachers, such as how teachers interact with students and show high support and high expectations. Notably, this scale measures students' perceptions of teacher caring in their school in general, not a specific teacher nor their personal relationship. Teacher caring was measured via six items (1 = *never*; 5 = *always*; *a* = .82; Table 2). For example, students were asked, "Teachers take a personal interest in students," and "If students want to talk about something, teachers will find time to do it."

School Fairness. School fairness was operationalized as a general impression of students' perceptions of racial and gender interactions and fair treatment from teachers, administrators, policies, and peers. School fairness was measured via 10 items (1 = *Not True*; 5 = *Very True; a* = .78; Table 2). For example, students were asked "Students of all racial groups are

treated equally at my school," and "Teachers at my school are fair to students of all racial groups."

School-Based Discrimination (SBRD) from Peers. SBRD from peers was measured using a subscale from the School Based Discrimination scale (Wong et al., 2003). The frequency of experiencing racial discrimination from peers was measured via three items including: "How often do you feel… kids do not want to hang out with you because you are Black;" "… you are not picked for certain teams or other school activities because you are Black;" and "…that kids do not want to hang out with you because you are Black?" (Wong et al., 2003; 1 = *never*; 5 = *almost every day*; *a* = .76).

SBRD from Teachers. SBRD from teachers was measured using another subscale from the School Based Discrimination scale (Wong et al., 2003). Frequency of racial discrimination experiences from teachers was measured via four items, such as "Teachers think you are less smart than you really are because you are Black;" "You get disciplined more harshly by teachers than other kids do because you are Black;" "Teachers call on you less often than they call on other kids because you are Black?;" and "Teachers grade you harder than they grade other kids because you are Black" (Wong et al., 2003; 1 = *never*; 5 = *almost every day*; *a* = .88).

Predictor Variables

Racial beliefs (centrality, private and public regard) were collected based on Sellers et al., (1998) multidimensional model of racial identity (MMRI) using the Multidimensional Inventory of Black Identity-Short Teen scale (Scottham et al., 2008). All constructs were measured on a scale of 1 = *Really Disagree* to 5 = *Really Agree*. Although Cronbach's alphas for the subscales of racial identity beliefs are lower than the typically accepted threshold (i.e., above 0.70), the constructs are conceptually derived from theory (Sellers et al., 1998). Because they are derived

from theory as causal indicator models, not a composite indicator model where the items determine a latent construct, the low alphas are acceptable (Bollen & Bauldry, 2011). Furthermore, other studies have found low alphas for these constructs and maintained the utility of the measure (e.g., Banks & Kohn-Wood, 2007; Butler-Barnes et al., 2019; Seaton et al., 2009).

Centrality. Centrality is conceptualized as the extent to which being Black is an important, prominent aspect of one's identity. Centrality was measured via three items. Students were asked to what extent they agree "Being Black is an important part of my self-image," "Other Blacks are a good reflection of who I am," and "Being Black is not important to my sense of what kind of person I am" (a = .40).

Private Regard. Private regard is conceptualized as ethnic-racial pride or positive affect about being Black. Private regard was measured via four items. Students were asked to what extent they agree "I am proud to be Black," "I feel good about Black people," "I am glad to be Black," and "If I could choose my race, I would choose to be some other race instead of Black (reverse coded)" (a = .67).

Public Regard. Public regard is conceptualized as the perception of racial social status of Black people. Public regard was measured via four items. Students were asked to what extent they agree "Others respect Black people," "Blacks are considered good by others," "Others think that Black people are unworthy (reversed coded)," and "Most people consider Blacks to be less effective than other racial or ethnic groups (reverse coded)" (a = .44).

Outcome Variables

Academic Engagement was measured via three content-based sub-scales, each with eight similar items that measured engagement in math, science, and language arts (math a = .76; science a = .76; language arts a = .76; combined a = .90). Exploratory and confirmatory factor

analyses revealed two independent constructs: behavioral engagement and cognitive engagement. Constructs were created by combining items that measured behavioral engagement in math, science, and language arts, and similarly for cognitive engagement. Behavioral and cognitive constructs aligned with Wang et al.'s (2019) conceptualization of the sub constructs of school engagement.

Behavioral Engagement. Behavioral engagement is typically defined as participation in learning (Fredricks et al., 2019). Behavioral engagement was measured via 12 items, for example, "I work hard when we start something new in class" and "I participate when we discuss new material in class" (1 = *Not at All True* to 4 = *Very True*; *a* = .91).

Cognitive Engagement. Cognitive engagement is typically defined as students' use of intellectual processes for thinking and learning (Fredricks et al., 2019). Cognitive engagement was measured via 12 items, for example, "I never seem to pay attention when we begin a new subject in class (reversed)" and "My mind wanders when my teacher starts a new topic in class (reversed)" (1 = *Not at All True* to 4 = *Very True*; *a* = .89).

Covariates

All analyses controlled for gender because prior literature has found that gender influenced the relationship of racial identity and academic outcomes (Chavous et al., 2008; Cokley & Moore, 2007; Leath et al., 2019). Analyses of behavioral engagement controlled for cognitive engagement and vice versa to acquire greater precision in the models. In addition, I controlled for clustered data by including school as a covariate in the regression analyses.

Analytic Plan

This study used a latent-profile analysis (LPA), a person-centered analysis technique that uniquely categorizes individuals based on their responses to multiple variables about a

phenomenon (rather than focusing on variable averages; Weller et al., 2020). Though uncommon in school climate literature, this technique is appropriate to apply to analyze students' experiences of equity-oriented school climate because it considers multiple aspects of students' holistic experience at school. Alternatively, variable-centered approaches that investigate school climate typically omit other aspects of school climate or control for them. Although controlling for school climate variables is an appropriate way to isolate one aspect, our approach takes a more holistic approach to understand patterns between school climate experiences among students. Moreover, this person-centered approach is aligned with QuantCrit theory by avoiding "garbage can" modeling that includes all covariates without critical discretion of which covariates to include and why. Rather, taking a person-centered approach avoids "controlling away" aspects of school climate experience that may reflect experiences of racism (Castillo & Gilborn, 2022). Exploring profiles of equity-oriented school experiences then allowed for examining how the association between different school experience profiles moderated the relationship between students' racial identity beliefs and academic engagement.

First, I analyzed descriptive statistics to identify the means, standard deviations, and correlations of key study variables. I investigated assumptions and missingness in the data. All analyses were conducted in *Stata version 18*. To answer the first question, I conducted LPA to determine sub-groups of early adolescents with similar patterns of school experience based on four indicators: teacher caring, school fairness, school-based discrimination from peers, and school-based discrimination from teachers. Following standard LPA procedures, I ran a series of models starting with a single profile and increasing the number of profiles until I determined the best fitting model. Model fit was based on both commonly used fit indices and theoretical interpretation. Specifically, indices to test model fit included the Akaike information criterion

(AIC), the Bayesian information criterion (BIC), sample-size-adjusted BIC (ABIC), consistent Akaike information criterion (CAIC), the likelihood ratio test, and the Lo-Mendell-Rubin likelihood ratio test (LMR). I also examined the resulting profiles for entropy (e.g., testing distinctiveness of profiles), substantive meaning and parsimony. Primarily, models with lower AIC, BIC, ABIC, and CAIC are considered better fitting models (Nylund et al., 2007). I also used the LMR to compare each model with *k* profiles to the model with *k*-1 profiles. A non-significant ($p < .05$) LMR test suggests the model with *k*-1 classes is a better fitting model (Masyn, 2013). Entropy values provide information on the precision of classification of individuals in the sample into distinct profiles, with values of 0 being less precise (i.e., random classification of individuals in each profile) and 1 being perfectly precise (Masyn, 2013). Finally, I considered meaning and parsimony by examining the profile solutions in the best fitting models based on theory and meaningfulness of the profiles (e.g., profiles make substantive sense and are meaningfully distinct) and parsimony of profiles (e.g., checking that no profile has less than 1% of the sample; Spurk et al., 2020). Because there are no existing studies of equity-oriented school climate profiles to guide an estimate number of profiles, I examined the solutions with 1 through 7 profiles to determine the best fit (Nylund et al., 2007).

To answer question two, each participant's profile classification was entered in the dataset as a categorical variable (e.g., 1 through *k* for a *k*-profile solution). Then, I ran ordinary least squares (OLS) multiple linear regression models to explore the relationship between racial identity beliefs (private regard, public regard, centrality) and engagement (behavioral, cognitive) as well as the moderation effect of equity-oriented school experience profiles. All regression analyses accounted for students nested within schools by using a dummy coded variable for school membership. Because the literature suggests that racial identity beliefs may play out

differently for youth of different genders (e.g., (Chavous et al., 2008; Cokley & Moore, 2007; Leath et al., 2019), I included gender as a covariate.

I followed a model building process by first running the null model with the covariates and then adding the profiles in the main effects model (i.e., regression including predictors and covariates). Finally, I ran a model with the interaction term (i.e., including profile*racial identity belief, each racial identity was run in a separate interaction model). When analyzing the interaction models, a significant coefficient for the interaction term and an increase in R^2 values would indicate a better fitting model than the base model, and I interpreted the best fitting model. For example, the first model (Model 1a) tested the interaction between students' centrality and their school experience profile predicting behavioral engagement, controlling for private regard, public regard, school, gender, and cognitive engagement. All three racial identity belief variables were included in each model as the predictor or as covariates because prior literature suggests that different beliefs influence outcomes in different ways. Therefore, controlling for aspects of racial identity beliefs allowed me to investigate the influence of one racial identity belief at a time while accounting for other important racial identity beliefs. A sample equation for Model 1a with the interaction term is as follows:

$$Behavioral\ Engagement_i = \beta_0 + \beta_1 Centrality_i + \beta_2 Profile_i + \beta_3 Cent * Pro_i + \beta_4 PrvtRgrd_i + \beta_5 PblcRgrd_i + \beta_6 Gender_i + \beta_7 SchlD_i + \varepsilon_i$$

Next, Model 1b tested the interaction between students' centrality and their school experience profile predicting cognitive engagement, following the same model building process as Model 1a. The next set of models tested the interaction between students' private regard and their school experience profile predicting behavioral (Model 2a) and cognitive engagement

(Model 2b). The final set of models tested the interaction between students' public regard and school experience profile predicting behavioral (Model 3a) and cognitive engagement (Model 3b). All models followed the same model building process (null, main effects, then interaction model) and sample equation as described above and displayed in Figure 1. Any statistically significant interaction models were plotted for interpretation.

Results

Table 3 provides means, standard deviations, and correlations of key study variables. Missing data analysis showed that 4 out of 309 students who responded to the survey in 6th grade were missing data from one or more key study variables. Those students were excluded from analysis, meaning all students in the analytic sample were not missing any data and no missing data procedures were necessary. Descriptive analysis of key study variables showed that students, on average, reported relatively high behavioral engagement (3.39 on a scale of 1 to 4) and moderately high cognitive engagement (3.01 on a scale of 1 to 4). All key study variables showed acceptable skewness (less than 2) and kurtosis (less than 8). Correlations between behavioral and cognitive engagement were moderately positively correlated (r = .31). School-based racial discrimination (SBRD) from teachers showed a strong positive correlation with SBRD from peers (r = .71) and a strong negative correlation with school fairness (r = -.53).

Latent Profiles of Equity-Oriented School Experience

Results from the LPA suggested that a 5-profile solution was the best fitting solution for the data (Table 4). Notably, the log likelihood ratio, AIC, BIC, ABIC, and CAIC decreased steadily as the number of *k*-profile solutions increased in the models, until the 6-model solution, when the AIC, BIC, ABIC, and CAIC increased, indicating the 5-profile solution was the best fit. The LRT significance test and the LMR LRT were both significant for the 5-profile solution,

suggesting a better fit for the 5-profile solution than the 4-profile solution which is the model nested in the 5-profile solution. However, the LRT and LMR LRT were non-significant for the 6-profile solution, again suggesting the 5-profile solution as the best fitting model. Although two of the profiles are small (7% and 4%), they do not fall below the 1% threshold (Spurk et al., 2020), and they add substantive meaning to the results. Furthermore, the 5-profile solution had good entropy (.94) indicating distinctiveness in the profiles.

The 5 profiles were labeled based on unique characteristics. See Table 5 and Figure 2. We report the characteristics of each indicator in terms of standard deviations (*SD*) above or below the sample mean. Less than 1 *SD* above or below the mean was considered slightly high or slightly low; 1 – 1.5 *SD* above/below the mean was considered high/low; and greater than 1.5 *SD* above/below the mean was considered very high/very low. The largest profile was *Average Equitable* profile (*n* = 183; 60.00%) who reported slightly above average teacher caring and fairness and slightly below average SBRD from teachers and peers. The next largest group was *Average Inequitable* (*n* = 55; 18.03%) who reported slightly below average teacher caring and fairness and slightly above average SBRD from teachers and peers. The third largest group was *High Teacher Discrimination* (*n* = 32; 10.49%) who reported slightly below average teacher caring and fairness, very high SBRD from teachers and moderately high SBRD from peers. The *Caring But Very Inequitable* group (*n* = 22; 7.21%) were distinct because they were the only group to report teacher caring that was not significantly different than the full sample average, and they reported extremely high SBRD from teachers, very high SBRD from peers, and low fairness. The smallest group was *Low Caring Fairness & Discrimination* (*n* = 13; 4.26%) who were also distinct in that they reported low teacher caring and fairness and slightly below average SBRD from teachers and peers.

Regression Analyses to Test Main Effects and Moderation

My second question investigated how equity-oriented school climate profiles moderated the relationship between racial identity beliefs and behavioral or cognitive engagement. To answer this question, I ran one regression for each outcome. The *Average Equitable* group was the comparison group because it was the largest proportion of the sample. Students in the *Average Equitable* profile reported close to the sample average across profile indicators (hence the name), which is another reason it was used as the reference group for interpretability. Notably, the main effects model accounted for substantially more variance in each outcome (i.e., improvement in R^2) than the base model, meaning that adding school experience profiles to the model was a better fit than racial identities alone predicting behavioral or cognitive engagement. Variance inflation factor (VIF) values indicated no concerns regarding multicollinearity. Because none of the moderation analyses were significant, I interpret the main effects model as the best fit for predicting behavioral and cognitive engagement.

Main Effects on Behavioral Engagement

As shown in Table 6, students with higher private regard reported slightly higher behavioral engagement (b = 0.09; *SE* = .05; $p < .05$). Compared to students in the *Average Equitable* profile, students in the *Average Inequitable* profile reported lower behavioral engagement (b = -0.26; *SE* = .08; $p < .05$). Students in the *Caring But Very Inequitable* profile (b = -0.37; *SE* = .12; $p < .05$) and the *Low Caring Fairness & Discrimination* profile (b = -0.56; *SE* = .15; $p < .05$) also reported significantly lower behavioral engagement than those in the *Average Equitable* profile.

Main Effects on Cognitive Engagement

As shown in Table 7, no racial identity beliefs were significantly related to cognitive engagement. Two equity-oriented school experience profiles did show significant differences from the comparison group in cognitive engagement. Compared to students in the *Average Equitable* profile, students in the *High Teacher Discrimination* profile (b = -0.67; *SE* = .13; $p < .05$) and the *Caring But Very Inequitable* profile (b = -0.45; *SE* = .16; $p < .05$) reported significantly lower cognitive engagement.

Moderation Findings

Zero of the three interaction models were significant indicating that equity-oriented school experience profiles did not moderate the relation between racial identity beliefs (i.e., centrality, private regard, public regard tested in separate models) and engagement (i.e., behavioral and cognitive tested in separate models).

Discussion

This study sought to understand complex patterns of equity-oriented school climate experiences and the influence on Black students' behavioral and cognitive engagement. Early adolescents are continuously appraising their school environment as worthy or unworthy of their trust and engagement. Relationships with peers, interactions with teachers, the extent to which classroom practices align with their lived experiences, school policies (e.g., discipline), and observations of how others are treated all inform their perception of whether the school environment is equitable or not. These complex scenarios in schools play out in different ways for different students, and past literature shows that racial identity beliefs play an important role in youth's perception of racial discrimination (e.g., some students with high centrality tend to pick up on more racial discrimination from their teachers than those with low centrality; e.g., Leath et al., 2019). As early adolescents experience their school environment through the lens of

their racial identities, they are sizing up whether or not this is a place that recognizes their full humanity and is worthy to engage (Wang, Degol, et al., 2019). These internal processes are occurring at a crucial time to support student engagement because early adolescents are practicing thoughts and behaviors that become patterns and lead to long term outcomes. Prior literature documents middle school as a time when engagement typically declines for all students (Wigfield et al., 2015), an issue that seems particularly acute for Black students (Galindo et al., 2022). Taken together, understanding the ways in which youth perceive patterns of equity or inequity in their school environments and how that relates to their racial identity and engagement can help educators improve school conditions to meet the needs of more youth.

The findings offer a rich, descriptive view of the development-in-sociocultural-context model for children's engagement in learning by pointing to five distinct profiles of equity-oriented school experience based on personal, contextual, and sociocultural factors in the school environment. The most prevalent profiles show consistent (i.e., congruent; all indicators point in the same valence, positive or negative) favorable and unfavorable equity-oriented experiences, accounting for 78% of the sample. However, 22% of students belong to heterogeneous (i.e., mixed-response profiles) in which they experienced some equitable and some inequitable experiences. The main effects of racial identity beliefs and equity-oriented school experience profiles explained about a quarter of the variation in behavioral (R^2 = .24) and cognitive (R^2 = .22) engagement, an idea that requires interpretation. Thus, the findings show that although private regard was the only racial identity belief that significantly related to engagement (only behavioral) and no moderation effects were found, the substantial *R-squared* values indicate that equity-oriented school experiences were meaningful for students' engagement regardless of racial identity beliefs.

Five findings emerged from this study: (1) profiles of equity-oriented school experience offer greater clarity about students' experiences, (2) analyses of personal attributes (racial identity) and student experiences (equitable experience profiles) offered greater explanatory power in predicting engagement than examining only personal attributes, (3) private regard positively related to behavioral engagement, and three of the four equitable experience profiles, compared to the *Average Equitable* profile, were negatively related to behavioral engagement among Black early adolescents, (4) none of the racial identity beliefs were related to cognitive engagement, and two of the four equitable experience profiles, compared to *Average Equitable*, were negatively related to cognitive engagement, and (5) there were no moderation findings. Findings are described in relation to prior evidence.

Profiles of Equity-Oriented School Experience

Profiles of equity-oriented school experience offer greater clarity about students' experiences by integrating four different characteristics of students' experiences at school. Beyond a single indicator of teacher caring or school-based discrimination, which are important to study independently, this person-centered study builds on prior literature by incorporating those well-studied independent indicators to identify patterns of experience. Not only did this approach offer more clarity by including multiple indicators, but the latent profiles showed mixed-response patterns for nearly a quarter of students. A strength of this latent profile study is that the indicators of school-based racial discrimination were reported at the individual level (e.g., students reported about their individual, personal experience) and the caring and fairness indicators were reported at the school level (e.g., students reported their perception of schoolwide caring and fairness). Combining students' interpretations of their own individual

experience along with their perceptions of schoolwide or general, overall school climate offers a unique holistic view of how students experience school.

Equity-oriented school experience profiles resulted in some consistent patterns (i.e., *Average Equitable*, *Average Inequitable, High Teacher Discrimination*) and some less consistent, mixed-experience patterns (i.e., *Caring But Very Inequitable*; *Low Caring, Fairness, Discrimination*). Most of the sample were in the *Average Equitable* profile, which is likely the most adaptive of the five profiles. As we might expect, students in the other four distinct profiles reported lower behavioral and/or cognitive engagement than their peers in the *Average Equitable* profile. Another portion were in the *Average Inequitable* profile, which reflected inverse patterns than the *Average Equitable* profile, but still close to average experiences of teacher caring, fairness, and discrimination. Notably, the full sample averages on indicators of school experience were relatively advantageous (i.e., high caring, low discrimination), meaning students in both the *Average Equitable* and *Average Inequitable* profiles reported relatively adaptive conditions (i.e., close to average, which in this sample was relatively high caring and fairness and relatively low discrimination). Still, the *Average Inequitable* group might be thought of as students who feel invisible or overlooked because their experience is close to average though comparatively less fair and more discriminatory.

Together these two profiles represented 78% of the sample. It is noteworthy that the majority of students in this study reported little to no discrimination at school (less than "a couple times each year"). Because response patterns followed a consistent pattern of equitable or inequitable experiences, these two profiles are what we might expect to see from a variable centered analysis design. Furthermore, the equity-oriented school experience profiles were consistent with literature on teacher caring, school fairness, and discrimination from teachers and

peers, indicating that equitable experiences positively relate to academic outcomes, and inequitable or unfavorable experiences negatively relate to academic outcomes (Anderson et al., 2024; Backes et al., 2022; Byrd & Chavous, 2011; Civitillo et al., 2023; Roorda et al., 2011). This begs the question: What happens when students experience a mix of both favorable and unfavorable conditions?

The other 22% of the sample were in heterogeneous profiles that represent mixed-response patterns of school experiences that are more complex than the *Average Equitable* and *Average Inequitable* profiles. Based on these profiles it is apparent that some Black students experience complex patterns of both favorable and unfavorable conditions in their school. Among the mixed-experience profiles, three trends stand out related to the severity of teacher and peer discrimination, exacerbated low fairness, and caring yet discriminatory teachers.

Severity of Teacher and Peer Discrimination

In all profiles, teacher and peer discrimination were similar in the sense that they were either both above average or both below average. Still, findings showed two profiles with notable differences in the severity of discrimination between that from teachers and that from peers. Students in the *High Teacher Discrimination* and *Caring But Very Inequitable* profiles experienced more teacher than peer discrimination (by 0.41 and 0.77 standard deviations, respectively). Together, these students represent 18% of the sample who are having pernicious experiences given that extreme racial discrimination from their teachers has been established in the literature as a risk factor for engagement and overall academic outcomes (Civitillo et al., 2023; Thomas et al., 2025). On the flip side of this discrepancy, lower discrimination from peers than from teachers (despite being above average for the sample) may translate to better peer relationships than teacher relationships and school belonging among peers, which can act a

protective factor for academic and psychological wellbeing (Gray et al., 2020). For example, in the *High Teacher Discrimination* profile, discrimination from peers happens on average "a couple of times per year," whereas discrimination from teachers happens on average "a couple of times per month." It is possible that despite the strong correlation between teacher and peer discrimination, in some profiles, the practical interpretation of high teacher discrimination but slight peer discrimination matter for overall experiences and outcomes. In other words, it is problematic if teachers are discriminatory, but it may be the case that some of the negative sequalae are reduced if students experience lower discrimination from their peers than from their teachers.

Exacerbated Low Fairness

Another trend across profiles was exacerbated low fairness as the profiles became smaller and more complex. For example, students in the *High Teacher Discrimination* profile reported moderately low fairness (0.90 standard deviations below the average). They could be thought of as experiencing racial abuse considering the high racial discrimination and low fairness. In addition, students in the *Caring But Very Inequitable* profile reported even lower fairness (1.02 standard deviations below the average) than their *High Teacher Discrimination* peers. The combination of low fairness, extreme racial discrimination, and average teacher caring could be thought of as experiencing disguised abuse because their teachers exhibit caring behaviors toward students generally but also extreme racial harm personally. Though the *Low Caring Fairness & Discrimination* group was small (4% of the sample), they reported the lowest school fairness (1.37 standard deviations below the average), despite also experiencing among the lowest racial discrimination in the sample (similar to *Average Equitable*). This may represent students experiencing structural discrimination at their school rooted in the policies and practices

(i.e., measured by fairness), rather than interpersonal discrimination (e.g., discrimination from teachers and peers).

Students in the *Low Caring Fairness & Discrimination* profile presented an unexpected pattern, different than any other profile. Students reported feeling not cared for nor racially targeted at school, and they were the only profile in which fairness and discrimination were coupled, meaning both below average. One explanation is that these students may observe the low caring and unfairness for students in general at their school, yet they personally do not feel racially discriminated against. For example, imagine a student who really enjoys and is good at school—although they recognize the unfairness for themselves and their peers, they are not called on less often or targeted for discipline because they are the "top" student and potentially singled out as a token high-achieving Black student. Or they may have been experiencing disaffection with school, meaning boredom, apathy, or reduced participation (Skinner et al., 2009) because they reported low experiences all around. In other words, they may have experienced limited to no interactions with teachers and peers, which drives their low discrimination responses and also explains their low teacher caring. Students in this profile may not care about school given the experiences of unfairness and low teacher caring, yet for that reason they may also be tuned out, intentionally or unintentionally, to the uncaring environment around them. Their experience might be thought of as neglected at school such that they have little to no interaction with teachers and peers nor support from teachers.

Caring Yet Discriminatory Teachers

A third trend in the profiles was caring yet discriminatory teachers. On the surface, teacher caring and racial discrimination seem in opposition, and in fact, in this sample they are slightly, albeit significantly negatively correlated. However, students in the *Caring But Very*

Inequitable profile, over 7% of the sample, reported nearly average teacher caring (not different than the sample mean, which was relatively high), yet they still experienced very frequent racial discrimination from their teachers. In this scenario, students perceived that their teachers cared about students in their school in general, but those caring teachers also exercised extreme racial discrimination toward them on a personal level. Students in the *High Teacher Discrimination* profile similarly reported only slightly less than average teacher caring (0.55 standard deviations below the mean and above the scale median) and yet high discrimination from teachers. Together these two profiles make up nearly 18% of the sample. Whether students are picking up on their teachers' general caring toward everyone in school which exacerbates their feeling of being maltreated on the basis of race, or they are experiencing caring and support from the very same teachers who are mistreating them, the discrepancy between caring and discrimination is noteworthy. Given the sizeable portion of students experiencing caring yet discriminatory teachers, this phenomenon is not a one-off scenario nor a problem of individual teachers. It is likely a rooted in systems of an educator workforce that is predominately white (NCES, 2020) and societal norms that de-prioritize racial identity and critical consciousness development among the privileged class. While it is the responsibility of teachers to not racially discriminate against students, it is also the responsibility of teacher-training programs, school administrators, boards, district support staff and education professionals broadly to address the disconnect between caring student-teacher relationships and being racially non-discriminatory. As mentioned, this pattern may not have surfaced in a typical variable centered analysis of school climate reiterating the value of a person-centered approach.

Racial Identity and Profiles Related to Engagement

Similar to prior studies, this study showed private regard positively related to Black early adolescents' behavioral engagement, even when accounting for school experiences (Byrd & Chavous, 2011; Chavous et al., 2018; Griffin et al., 2020). However, this was the only racial identity belief that was significantly related to engagement in either outcome. Contrary to other literature, in this sample racial identity beliefs did not account for much of the variation in students' behavioral engagement and none of the variation in cognitive engagement.

Moreover, adding equity-oriented school climate profiles to the models predicting behavioral and cognitive engagement explained more of the variation than racial identity profiles alone. In other words, school experience profiles substantially improved the model fit, leading to a clearer picture of what is influencing engagement beyond the personal attributes, which included racial identity beliefs, gender, school cluster, and the other type of engagement in the base model. Using a person-by-experience approach improved accuracy of predicting engagement and understanding of students' engagement (Wang, Degol, et al., 2019). For a student to be engaged, the environment must offer something to engage in (Gray et al., 2020), and we have a lot to learn from profiles that show a mix of equitable and inequitable experiences.

Behavioral Engagement

The *Average Inequitable* (invisible), *Caring But Very Inequitable*, and *Low Caring Fairness & Discrimination* profiles reported lower participation and involvement in their classroom learning activities compared to the *Average Equitable* profile. The common element is that students in all the inequitable school experience profiles reported lower behavioral engagement than their peers in the average equitable profile. This suggests that inequitable school experiences, in various forms of inequity, are all negatively associated with behavioral engagement.

Students in the *Low Caring Fairness & Discrimination* profile reported the lowest behavioral engagement (largest negative coefficient) compared to the *Average Equitable* profile. It makes sense that feeling as if teachers do not care and are not fair but also experiencing very little discrimination leads to low participation. Students in this case might feel neglected or disaffection in school environments that disregard them. One explanation for these perplexing findings could be that students experiencing this disaffection may not participate in their unfair and not-caring environment, although they maintain cognitive engagement (e.g., paying attention and persisting through challenging academic tasks) to preserve their future academic aspirations or prioritization of their personal educational success. A different explanation could be that students in this profile experience low caring and fairness in their surrounding school environment, but they do not attribute it to personal experiences of racial discrimination. For example, it is possible that students in this profile feel that they are not personally racially discriminated against, despite the unfair and uncaring environment in their school in general. In either explanation, persistent cognitive engagement and low behavioral engagement in this profile may represent an act of resistance such that students maintain their learning (i.e., internal thinking, motivation, persistence in academic tasks) yet choose not to participate in an unfair and potentially neglectful environment that does not support Black students like them (Gray et al., 2020; Hope et al., 2015). Choosing not to participate might be a demonstration of discontent in an unfair environment or it may be an act of self-protection against an environment that degrades your peers or does not recognize your full humanity.

The takeaway here may be that there is not just one element of school experience that is contributing to low behavioral engagement. There were multiple patterns of inequitable student experiences that led to lower behavioral engagement, including those with relatively average

experiences (*Average Inequitable*), those experiencing caring and support from teachers yet extreme racial discrimination (*Caring But Very Inequitable*), and those who may feel neglected or disaffected at school (*Low Caring Fairness & Discrimination*).

Cognitive Engagement

Notably, cognitive engagement in this study was collectively low (M = 1.88 on a scale of 1 to 4; Wang et al., 2019). Moreover, the two profiles with high teacher discrimination (namely *High Teacher Discrimination* and *Caring But Very Inequitable*) were the biggest predictors of lower cognitive engagement compared to students in the *Average Equitable* profile. High teacher discrimination is the distinct element in these two profiles and may be driving the negative relation with cognitive engagement. Though peer and teacher discrimination generally move together, those who experience substantially higher teacher discrimination than peer discrimination are experiencing lower cognitive engagement. These findings are corroborated by extensive prior literature documenting racial discrimination experiences from teachers related to negative academic outcomes (Civitillo et al., 2023) and specifically lower cognitive engagement (Chavous et al., 2008; Smalls et al., 2007). Further evidence is that the *Caring But Very Inequitable* profile indicates that even students who experienced relatively high teacher caring still reported lower cognitive engagement than their *Average Equitable* peers. One prior study found similar outcomes among Black middle school students—teacher caring positively related to cognitive engagement, but only for those who experienced low discrimination from teachers (Gale, 2020). In other words, high teacher discrimination was associated with low cognitive engagement even when teachers where caring toward their Black middle school students overall.

Cognitive engagement was lower in the *High Teacher Discrimination* profile, yet this was the only group that did not report lower behavioral engagement than the *Average Equitable*

profile. It may be the case that experiencing extreme racial discrimination from their teachers (e.g., daily interactions of teachers having low expectations based on race; "thinking you are less smart than you are because you are Black") is negatively affecting their academic self-concept, which in turn can deflate academic persistence in difficult schoolwork and perseverance in challenging academic tasks (i.e., cognitive engagement; Banerjee et al., 2018; Civitillo et al., 2023; Gale & Dorsey, 2020). Yet, when it comes to behavioral engagement in class, it may be the case that students in the *High Teacher Discrimination* profile participated similarly to their *Average Equitable* peers because of their relatively fair and caring experience (slightly below average, and still above the median of the scale). Furthermore, behavioral and cognitive engagement are only moderately correlated in this study, suggesting it is possible to be cognitively disaffected and maintain behavioral engagement (i.e., going through the motions). Another possible protective factor of their behavioral engagement may be their lower peer discrimination experience relative to the *Caring But Very Inequitable* group (who did show low behavioral engagement). *High Teacher Discrimination* aligns with literature linking racial discrimination from teachers and negative cognitive engagement (Chavous et al., 2008; Smalls et al., 2007); yet their relatively lower peer discrimination (i.e., less than a standard deviation above the mean and lower than the scale median) may be a protective factor for their behavioral engagement such that they are still participating in classes and academic activities with their peers (Byrd & Chavous, 2011; Golden et al., 2018; Griffin et al., 2017).

Both Behavioral and Cognitive Engagement

The *Caring But Very Inequitable* profile is the only profile who reported significantly lower behavioral and cognitive engagement than their *Average Equitable* peers. Despite ample evidence of the benefits of caring student-teacher relationships (Backes et al, 2022; Roorda et al.,

2011), these findings suggest that some students experience caring yet extremely racially discriminatory teachers, which resulted in negative associations with engagement. In this case, teacher discrimination seemed to overrule school-level teacher caring when it came to behavioral and cognitive engagement. Given that teacher caring is at the school level in this study, it could also be that the contradictions of experiencing personal discrimination in the context of teachers caring for everyone else may be perceived as especially negative. In other words, even when teachers care about students, in some cases they are still exercising racial discrimination almost daily toward their Black students—knowingly or unknowingly. This points to the distinction between caring (i.e., kind and supportive behaviors) and discrimination (i.e., biased or unfair treatment based on race). The two are not mutually exclusive, as the *Caring But Very Inequitable* profile shows. This further points to the harm of teacher racial discrimination, even when teachers are caring and supportive (Gale, 2020).

Equity-Oriented School Climate Profiles as a Moderator

Despite the interesting differences in engagement between students in different school experience profiles, results did not indicate any interaction effects such that profiles moderated the association between racial identity beliefs and engagement as hypothesized. Still for Black early adolescent students, the middle school climate may align or misalign with their racial identity beliefs (Chavous et al., 2008; Griffin et al., 2022). For example, though private regard related to behavioral engagement, the relationship of private regard and engagement did not depend on different school experience profiles, which contrasts with some prior findings (Chavous et al., 2018). One possible explanation is the small sample size in each profile was not enough to detect moderation effects. In addition, private regard was high among this sample (e.g., private regard $M = 4.56$ on a scale of 1 to 5) meaning there was less variation to detect a

potential moderation effect. Yet another possible explanation might be that for students in this sample, racial identity and school experience profiles relate to engagement in discrete or unrelated ways. More research may disclose how students' racial identity beliefs may predict which equity-oriented school profile students experience. Future research should investigate potential mediation effects of equity-oriented school climate profiles on the relationship between students' racial identity beliefs and engagement.

Implications

Despite persistent racial segregation in U.S. schools, our schools overall are trending toward more racially diverse student populations (McFarland et al., 2019). Suburban school contexts are especially serving more students of color; nearly a third of Black students attend suburban school contexts (Diamond & Posey-Maddox, 2020; Gordon, 2012). Because Black students generally report less engagement than their white peers (Bingham & Okagaki, 2012; Galindo et al., 2022), this study adds important insight from Black early adolescents' experiences of their school environments that support or thwart engagement.

In this study of Black suburban middle school students, nearly a quarter reported complex patterns of favorable and unfavorable school experiences. By looking at those profiles, we can understand what it means to experience teacher caring, and fairness or unfairness, coupled with racial discrimination or discrimination from teachers but less from peers. Furthermore, profiles of school experience significantly predicted students' behavioral and/or cognitive engagement, suggesting meaningful implications of addressing equity-oriented school climate that includes typical aspects of school climate (e.g., teacher caring) alongside school racial climate (e.g., discrimination). These findings are useful because they tap into students' view of their

experiences that relate to engagement and tend to become concretized coping mechanisms that contribute to identity development during the middle school years (Spencer et al., 1997).

School climate experiences are malleable, and that holds promise for future interventions. Current literature on interventions to promote cognitive engagement focus on student self-regulation and motivation (Reschly, 2020). Interventions to promote behavioral engagement focus on classroom management (e.g., supportive teacher-student relationships), instructional methods (e.g., tailoring to students' interests), and student self-monitoring (Reschly, 2020). Moreover, evidence-based engagement interventions have primarily focused on peer-tutoring, homework completion, and family involvement (Reschly, 2020). Implications from this study underscore the need to address racial discrimination from teachers and fairness in school experiences (e.g., discipline, classroom practices like grading and calling on students fairly, opportunities for agency and involvement) in efforts to improve cognitive and behavioral engagement.

One interesting profile was the *Caring But Very Inequitable* students who experienced average teacher caring yet extremely high racial discrimination from their teachers. Though this profile was a small proportion of the sample (7%), it represents poignant school experiences for Black students, and it is reasonable to assume that other Black students in U.S. schools more broadly are experiencing this combination of caring yet highly discriminatory teachers. This has important implications and raises questions about the extent to which the racial discrimination may be coming from white teachers, reflecting the landscape of predominately white teachers in U.S. schools (NCES, 2020). Although we do not know the racial composition of the teachers that these students were reporting on, we can speculate that teachers in these suburban schools likely reflected national trends of predominately white teachers. We also know that although racial

discrimination can happen from teachers of any race, prior studies found evidence of more racial discrimination in predominately white schools than predominately Black schools (Leath et al., 2019) and more positive experiences when Black students have Black teachers than when they have white teachers (Redding, 2019). Future work incorporating mixed methods approaches can be used to more fully understand the nature of these student experiences.

That said, implications for teacher preparation include improving awareness, recognition, and counter actions for racially discriminatory practices and policies. Just as evidence of the benefits of caring teacher relationships has been emphasized in teacher preparation, critical awareness of existing racial disparities and culturally relevant pedagogy are necessary in teacher preparation (Annamma & Winn, 2019; Berchini, 2017). Addressing racial discrimination in interpersonal interactions as well as macro-level school policies is essential for improving academic engagement for Black students (Galindo et al., 2022). Notably, scholars posit that improving equity-oriented school experiences for marginalized students is beneficial for all students, and scholars underscore the policies and practices that address opportunity gaps are the best practices for all students (Burns et al., 2019; Carter & Welner, 2013; Ladson-Billings, 1995). Findings from this study indicate that teacher caring alone is not enough when coupled with intentional or unintentional racial discrimination. Therefore, it is necessary to focus on preparing teachers to counter racial discrimination by developing their own critical consciousness and culturally relevant teaching (Annamma & Winn, 2019; Berchini, 2017; Gray et al., 2020).

Limitations and Next Steps

Four limitations require mention. First, this investigation was a cross-sectional analysis using data from a single time point. As such, we cannot determine causality nor directionality in

these findings, meaning it is possible that engagement influences equity-oriented school experiences in the opposite direction than proposed. Beyond the scope of this study, next steps include longitudinal analyses to examine potential mediation effects of equity-oriented school climate, which could answer to what extent equity-oriented school climate experience explains the relationship between racial identity beliefs and engagement. Additional next steps include longitudinal analyses of change in equity-oriented profiles over the course of middle school.

Another limitation was the sample size. Though the sample met theorized thresholds for latent profile analysis, it was on the small side of recommended sample size for this type of analysis (Weller et al., 2020). A larger sample may have produced similar profiles with more students in each profile, meaning the moderation analysis would have been better powered to detect effects. In addition, though using four indicators of LPA is sufficient, it is also possible that including more indicators of profiles of equity-oriented school experiences may improve accuracy of student experience profiles. Additional indicators may include personal perceptions of student-teacher relationships, belonging, and critical consciousness in the school climate. Yet, using the school experience data available in this dataset, I maintain that investigation provides insight into mixed response profiles of students' equity-oriented school experiences. Future investigations should confirm these with results with similar data and expand this idea with more indicators of equity-oriented school experiences. Finally, this study analyzed school experience profiles as moderators in the relationship between racial identity beliefs and engagement. However, primary investigation of these profiles is warranted to understand the demographic composition of equity-oriented school experience profiles and how racial identity beliefs might relate to profiles.

Existing research has focused on racial discrimination experiences has focused on peer discrimination (Anderson et al., 2024) or teacher discrimination (Civitillo et al., 2023), but rarely examines both sources of discrimination simultaneously by as separate, distinguishable constructs. These findings suggest nuance in the link between peer discrimination and behavioral engagement as well as the link between teacher discrimination and cognitive engagement. Future research should continue to distinguish between discrimination from peers versus teachers in the same model. Additionally, future research should further investigate the convergence of teachers caring but still exercising racial discrimination, which may particularly impair engagement.

Conclusion

We know academic opportunity gaps exist such that Black and marginalized youth do not have access to the same high-quality education as white youth (Carter & Welner, 2013; Diamond & Posey-Maddox, 2020; reardon et al., 2022). Understanding the multifaceted and complex patterns of Black students' school experiences that relate to their academic engagement is one element of addressing within-school academic opportunity gaps. This study identified five distinct latent profiles of equity-oriented school climate experience among Black students in suburban middle schools that significantly predicted behavioral and cognitive engagement. For example, teacher caring and teacher discrimination may seem like opposite experiences, but this study illustrated that they can occur together and result in lower behavioral and cognitive engagement. This work shows that caring is not enough to support students' engagement nor close opportunity gaps—racial discrimination may be preventing engagement and precipitating opportunity gaps.

Although this study found null moderation effects (i.e., equity-oriented school climate did not change the relationship with racial identity beliefs and engagement) there were direct effects,

suggesting equity-oriented school climate experience could be a meaningful intervention point. While racial identity remains a meaningful aspect of students' experiences, this study emphasizes that the school climate may be a more effective and appropriate point of intervention than intervening on students' racial identity beliefs. Prior literature establishes racial identity, especially private regard, as a buffer of negative or inequitable school experiences (Griffin et al., 2022; Rivas-Drake, Syed, et al., 2014). Yet a better solution could be to address the negative, inequitable school experiences in the first place. Interventions intended to improve equity-oriented school conditions by reducing discrimination from teachers (e.g., Garner et al., 2024; Legette et al., 2023) could promote a better learning environment for every student.

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Table 1

Participant Demographics in 6th Grade; n = 305

Student Characteristics	Analytic Sample	
	n	%
Gender		
Female	148	49%
Male	157	51%
Race		
Black/African American	269	88%
Multi-racial (including Black)	36	12%
Mother's Education		
Some High School or Less	18	6%
High School Diploma	31	10%
Some College	32	11%
College Degree	28	9%
Graduate School Degree	55	18%
Not sure	141	46%
Father's Education		
Some High School or Less	15	5%
High School Diploma	34	11%
Some College	28	9%
College Degree	27	9%
Graduate School Degree	39	13%
Not sure	159	53%
Age	*Min-Max*	*Mean (SD)*
	10-12	11.12 (.41)

Note. Data presented for the analytic sample only because demographic data are missing in the full sample; *SD* = standard deviation

Table 2

Measurement Constructs and Items for Teacher Caring and School Fairness

Construct	Scale Anchors and Items
Teacher Caring *a* = .82	1 = *never*; 5 = *always* 1. Teachers go out of their way to help students 2. If students want to talk about something, teachers will find time to do it 3. Teachers help students to organize their work 4. Students really enjoy their classes 5. Teachers take a personal interest in students 6. Teachers have high expectations of all students
School Fairness *a* = .78	1 = *Not True*; 5 = *Very True* 1. Students of all racial groups are treated equally at my school 2. Teachers at my school are fair to students of all racial groups 3. The principal and assistant principals treat students of all races fairly. 4. Some students at this school get more opportunities to do things because of their race 5. Students in my racial group are disciplined more harshly than students of other racial groups 6. Boys and girls are treated equally at my school 7. All students are disciplined fairly regardless of whether they are boys or girls 8. Students of different races don't have much to do with each other 9. Do students work together in class with others of different racial backgrounds 10. Do students sit in the cafeteria with others of different racial backgrounds

Table 3

Correlations and Descriptive Statistics of Primary Study Variables

Measure	1	2	3	4	5	6	7	8	9	10
1. Male										
2. Teacher Caring	.09									
3. School Fairness	-.03	.48*								
4. SBRD-Peers	.08	-.15*	-.44*							
5. SBRD-Teachers	.06	-.27*	-.53*	.71*						
6. Centrality	.19*	.01	-.01	.05	.02					
7. Private Regard	.02	.07	.11	-.06	-.02	.31*				
8. Public Regard	.01	.19*	.29*	-.26*	-.22*	.06	.20*			
9. Behavioral Engagement	-.04	.44*	.44*	-.26*	-.29*	.09	.19*	.17*		
10. Cognitive Engagement	-.06	.10	.36*	-.32*	-.34*	-.05	.08	.14*	.31*	
Mean		3.57	3.83	1.53	1.71	3.43	4.56	3.38	3.39	3.01
SD		0.91	0.79	0.92	1.09	0.91	0.66	0.79	0.55	0.73
Min, Max		1, 5	1, 5	1, 5	1, 5	1, 5	1, 5	1, 5	1, 4	1, 4
Cronbach's α		.82	.78	.76	.88	.40	.67	.44	.91	.89

Note. *$p < .05$; correlations and descriptive statistics do not account for the clustering of students in schools; SBRD = School-based racial discrimination; *SD* = standard deviation, Cron a = Cronbach's alpha

Table 4

Fit Indices for Equity-Oriented School Climate Latent Profile Models with 2–7 Profiles

Model	LL (*df*)	AIC	BIC	ABIC	CAIC	LRT *chi²*	LMR *p*	Entropy
1 profile	-1631.36 (8)	3278.72	3308.48	3282.60	3290.594			
2 profiles	-1401.29 (13)	2828.58	2876.95	2834.88	2847.876	<0.001	<0.001	.96
3 profiles	-1328.85 (18)	2693.71	2760.67	2702.42	2720.417	<0.001	<0.001	.94
4 profiles	-1272.64 (23)	2591.29	2672.85	2602.42	2625.419	<0.001	<0.001	.95
5 profiles	**-1249.18 (28)**	**2554.36**	**2658.53**	**2567.92**	**2595.920**	**<0.001**	**<0.001**	**.94**
6 profiles	-1247.05 (33)	2560.11	2682.88	2576.09	2609.082	0.51	0.91	.85
7 profiles	-1246.99 (38)	2569.99	2711.36	2588.39	2626.99	0.99	0.99	.75

Note. LL = log likelihood ratio; *df* = degrees of freedom; AIC = Akaike information criterion; BIC = Bayesian information criterion; ABIC = sample-size-adjusted BIC; CAIC = Consistent Akaike's Information Criterion; LRT = Likelihood ratio test; LMR = the Lo-Mendell-Rubin likelihood ratio test.

Table 5

Indicator Means of the Full Sample and Equity-Oriented School Experience Profiles

		Mean (z-score)	Est./*SE*	Variance	Var./*SE*	*p*-value
Full Sample			*sd*			
(*n* = 305; 100%)	Teacher caring	3.57	0.91			
	Fairness	3.83	0.79			
	SBRD- teachers	1.71	1.09			
	SBRD- peers	1.53	0.92			
Average Equitable						
(*n* = 183; 60.00%)	Teacher caring	3.89 (0.35)*	0.06	0.65	0.05	0.000
	Fairness	4.28 (0.57)*	0.05	0.30	0.03	0.000
	SBRD- teachers	1.07 (-0.59)*	0.02	0.06	0.01	0.000
	SBRD- peers	1.12 (-0.45)*	0.05	0.41	0.03	0.000
Average Inequitable						
(*n* = 55; 18.03%)	Teacher caring	3.22 (-0.39)	0.12	0.65	0.05	0.002
	Fairness	3.35 (-0.61)*	0.09	0.30	0.03	0.000
	SBRD- teachers	1.95 (0.21)*	0.05	0.06	0.01	0.000
	SBRD- peers	1.84 (0.33)	0.12	0.41	0.03	0.010
High Teacher Discrimination						
(*n* = 32; 10.49%)	Teacher caring	3.07 (-0.55)	0.15	0.65	0.05	0.001
	Fairness	3.13 (-0.90)*	0.10	0.30	0.03	0.000
	SBRD- teachers	3.17 (1.33)*	0.07	0.06	0.01	0.000
	SBRD- peers	2.38 (0.92)*	0.13	0.41	0.03	0.000
Caring But Very Inequitable						
(*n* = 22; 7.21%)	Teacher caring	3.33 (-0.27)	0.18	0.65	0.05	0.158
	Fairness	3.03 (-1.02)*	0.12	0.30	0.03	0.000
	SBRD- teachers	4.66 (2.69)*	0.06	0.06	0.01	0.000
	SBRD- peers	3.30 (1.92)*	0.15	0.41	0.03	0.000
Low Caring Fairness & Discrimination						
(*n* = 13; 4.26%)	Teacher caring	2.39 (-1.29)*	0.29	0.65	0.05	0.000
	Fairness	2.76 (-1.37)*	0.21	0.30	0.03	0.000
	SBRD- teachers	1.14 (-0.53)*	0.10	0.06	0.01	0.000
	SBRD- peers	1.05 (-0.53)	0.18	0.41	0.03	0.006

Note. Mean z-scores indicate how far each indicator deviates from the sample average in standard deviation deviations; * = *p*-value < 0.001 to account for lack of school clustering in LPA; SBRD = School-based racial discrimination

Table 6

*Behavioral Engagement Regressed on Racial Identity and Equity-Oriented School Experience Profiles Among Black 6th Graders (*n = *305)*

Behavioral Engagement	Base Model b (*SE*)	**Main Effects b (*SE*)**	Model 1a b (*SE*)	Model 2a b (*SE*)	Model 3a b (*SE*)
Intercept	2.20 (.27)	**2.52 (27)**	2.53 (.28)	2.56 (.30)	2.59 (.28)
Predictors					
Centrality	0.03 (.04)	**0.04 (.03)**	0.05 (.04)	0.04 (.03)	0.05 (.03)
Private regard	0.11 (.05)*	**0.09 (.05)***	0.09 (.05)	0.07 (.06)	0.09 (.05)*
Public regard	0.08 (.04)*	**0.06 (.04)**	0.06 (.04)	0.06 (.04)	0.03 (.05)
School experiences profiles (compared to Average Equitable)					
Average Inequitable		**-0.26 (.08)***	-0.01 (.31)	-1.02 (.53)	-0.59 (.41)
High Teacher SBRD		**-0.17 (.10)**	-0.10 (.36)	-0.17 (.17)	-0.15 (.44)
Caring But Very Inequitable		**-0.37 (.12)***	-0.86 (.50)	0.46 (.93)	-0.85 (.43)
Low Caring Fairness & Discrimination		**-0.56 (.15)***	-0.92 (.75)	0.23 (.20)	-0.96 (.69)
Interactions					
Cent X Avg Ineq			-0.07 (.09)		
Cent X Tchr SBRD			-0.02 (.10)		
Cent X Very Ineq			0.14 (.14)		
CentXLow Car/Fair/SBRD			0.10 (.21)		
Priv Reg X Avg Ineq				0.17 (.12)	
Priv Reg X Tchr SBRD				-0.17 (.17)	
Priv Reg X Very Ineq				-0.18 (.20)	
Priv Reg X Low Car/Fair				0.23 (.20)	
Pub Reg X Avg Ineq					0.10 (.12)
Pub Reg X Tchr SBRD					-0.01 (.14)
Pub Reg X Very Ineq					0.16 (.14)
Pub Reg X Low Car/Fair					0.12 (.20)
Controls					
Male	-0.04 (.06)	**-0.03 (.06)**	-0.04 (.06)	-0.02 (.06)	-0.04 (.06)
Cognitive engagement	0.21 (.04)*	**0.16 (.04)***	0.16 (.04)*	0.17 (.04)*	0.16 (.04)*
Model Fit					
R^2	.1636	**.2370**	.2432	.2524	.2425
Adjusted R^2	.1292	**.1946**	.1899	.1997	.1892

Note. * = $p < 0.05$; all models control for school fixed effects; SBRD = school-based racial discrimination; Cent = Centrality; Priv Reg = private regard; Pub Reg = public regard; Avg Ineq = Average Inequitable; Tchr SBRD = High Teacher School-Based Racial Discrimination; Very Ineq = Caring But Very Inequitable; Cent X Low Car/Fair/SBRD = Low Caring Fairness & Discrimination ; bold indicates the best fitting model.

Table 7

*Cognitive Engagement Regressed on Racial Identity and Equity-Oriented School Experience Profiles Among Black 6th Graders (*n = *305)*

Cognitive Engagement	Base Model b (*SE*)	**Main Effects b (*SE*)**	Model 1b b (*SE*)	Model 2b b (*SE*)	Model 3b b (*SE*)
Intercept	1.33 (.40)	**1.88 (.40)**	1.92 (.42)	1.75 (.44)	1.82 (.42)
Predictors					
Centrality	-0.06 (.05)	**-0.06 (.05)**	-0.08 (.06)	-0.06 (.05)	-0.06 (.05)
Private regard	0.03 (.07)	**0.04 (.06)**	0.04 (.06)	0.06 (.08)	0.04 (.06)
Public regard	0.06 (.05)	**0.01 (.05)**	0.01 (.05)	0.002(.05)	0.03 (.06)
School experiences profiles (compared to Average Equitable)					
Average Inequitable		**-0.20 (.11)**	-0.30 (.43)	0.66 (.72)	-0.09 (.56)
High Teacher SBRD		**-0.67 (.13)***	-1.03(.49)*	-1.37(1.03)	-0.68 (.60)
Caring But Very Inequitable		**-0.45 (.16)***	-0.42 (.68)	-1.67(1.25)	-0.13 (.19)
Low Caring Fairness & Discrimination		**-0.08 (.20)**	-0.35(1.49)	1.14(1.17)	0.26 (.94)
Interactions					
Centrality X Avg Ineq			0.03 (.12)		
Centrality X Tchr SBRD			0.11 (.14)		
Centrality X Very Ineq			-0.01 (.19)		
Cent X Low Car/Fair/SBRD			0.08 (.28)		
Priv Reg X Avg Ineq				-0.19 (.16)	
Priv Reg X Tchr SBRD				0.16 (.23)	
Priv Reg X Very Ineq				0.27 (.27)	
Priv Reg X Low Car/Fair				-0.28 (.27)	
Pub Reg X Avg Ineq					-0.03 (.56)
Pub Reg X Tchr SBRD					0.01 (.19)
Pub Reg X Very Ineq					-0.13 (.19)
Pub Reg X Low Car/Fair					-0.10 (.27)
Controls					
Male	-0.05 (.08)	**-0.05 (.08)**	-0.04 (.08)	-0.06 (.08)	-0.04 (.08)
Behavioral engagement	0.38 (.08)*	**0.29 (.08)***	0.29 (.08)*	0.30 (.08)*	0.29 (.08)*
Model Fit					
R^2	.1419	**.2221**	.2239	.2340	.2238
Adjusted R^2	.1067	**.1789**	.1692	.1801	.1692

Note. * = $p < 0.05$; all models control for school fixed effects; SBRD = school-based racial discrimination; Cent = Centrality; Priv Reg = private regard; Pub Reg = public regard; Avg Ineq = Average Inequitable; Tchr SBRD = High Teacher School-Based Racial Discrimination; Very Ineq = Caring But Very Inequitable; Cent X Low Car/Fair/SBRD = Low Caring Fairness & Discrimination; bold indicates the best fitting model.

Table 8

*Multinomial Logistic Regression and Odds Ratio Results of Demographic and Racial Identity Correlates of Equity-Oriented School Experience Profiles (*n = *305)*

		b	*p*-value	Odds Ratio	Confidence Interval
Average Inequitable					
(*n* = 55; 18.03%)	Centrality	0.19	0.363	1.21	[0.80 – 1.82]
	Private Regard	-0.07	0.817	0.93	[0.53 – 1.65]
	Public Regard	-0.36	0.110	0.70	[0.45 – 1.09]
	Male	-0.23	0.515	0.80	[0.40 – 1.58]
	Age	-0.06	0.897	0.94	[0.39 – 2.27]
	Multi-racial	0.35	0.484	1.42	[0.53 – 3.81]
	School ID	ns	ns	ns	ns
High Teacher Discrimination					
(*n* = 32; 10.49%)	Centrality	0.27	0.319	1.30	[0.77 – 2.20]
	Private Regard	-0.18	0.605	0.83	[0.42 – 1.66]
	Public Regard	-0.76	0.006*	0.47*	[0.27 – 0.80]
	Male	-0.54	0.230	0.58	[0.24 – 1.41]
	Age	0.43	0.441	1.53	[0.52 – 4.55]
	Multi-racial	0.09	0.886	1.10	[0.31 – 3.85]
	School ID	ns	ns	ns	ns
Caring But Very Inequitable					
(*n* = 22; 7.21%)	Centrality	0.01	0.977	1.01	[0.53 – 1.94]
	Private Regard	0.31	0.491	1.37	[0.56 – 3.35]
	Public Regard	-0.83	0.023*	0.44*	[0.21 – 0.89]
	Male	0.54	0.327	1.72	[0.58 – 5.09]
	Age	1.12	0.052	3.05	[0.99 – 9.41]
	Multi-racial	-0.34	0.703	0.71	[0.13 – 4.04]
	School ID	ns	ns	ns	ns
Low Caring Fairness & Discrimination					
(*n* = 13; 4.26%)	Centrality	0.26	0.512	1.30	[0.60 – 2.82]
	Private Regard	-0.74	0.120	0.48	[0.19 – 1.21]
	Public Regard	0.28	0.551	1.33	[0.52 – 3.35]
	Male	-0.26	0.686	0.77	[0.22 – 2.75]
	Age	0.24	0.753	1.27	[0.28 – 5.78]
	Multi-racial	-13.85	0.989	<0.001	na
	School ID	ns	ns	ns	ns

Note. * = $p < 0.05$; ns = not significant; Average Equitable is the reference group (*n* = 183; 60%); School ID were entered in the model as categorical, and none of the individual schools were significantly related to profiles, therefore they are reported together here for parsimony

Table 9

*Analysis of Variance (ANOVA) of Equity-Oriented School Experience Profile Correlates of Behavioral and Cognitive Engagement (*n = *305)*

	Behavioral Engagement			Cognitive Engagement		
	Partial SS	*F*	Margin [*CI*]	Partial SS	*F*	Margin [*CI*]
Average Equitable			2.38 [1.84-2.92]			2.01 [1.23-2.79]
Average Inequitable			2.08 [1.55-2.61]			1.74 [0.98-2.50]
High Teacher Discrimination			2.19 [1.67-2.72]			1.41 [0.64-2.17]
Caring But Very Inequitable			1.85 [1.30-2.41]			1.68 [0.90-2.45]
Low Caring Fairness & Discrimination			1.84 [1.26-2.41]			1.70 [0.89-2.50]
Profiles	7.46	8.13*		9.08	5.53*	
Centrality	0.35	1.52		1.30	3.17	
Private Regard	0.46	2.01		0.63	1.54	
Public Regard	0.47	2.04		0.18	0.44	
Male	0.35	0.76		0.28	0.34	
Age	0.52	1.14		0.28	0.34	
Multi-racial	0.32	1.38		0.20	0.50	
Behavioral engagement	-	-		4.63	11.29*	
Cognitive engagement	2.59	11.29*		-	-	
School ID	1.86	1.16		4.06	1.41	
R^2	0.2714			0.2471		
Adjusted R^2	0.2136			01874		

Note. * = $p < 0.05$; SS = sum of squared deviations; *CI* = unadjusted confidence interval; School ID were entered in the model as categorical, and none of the individual schools were significantly related to profiles, therefore they are reported together here for parsimony; Pairwise comparisons were conducted using Tukey's Honestly Significant Difference (HSD) method to determine which specific group means differed significantly following a significant ANOVA result.

Figure 1

Conceptual Model of Equitable School Climate Profiles Moderating Engagement

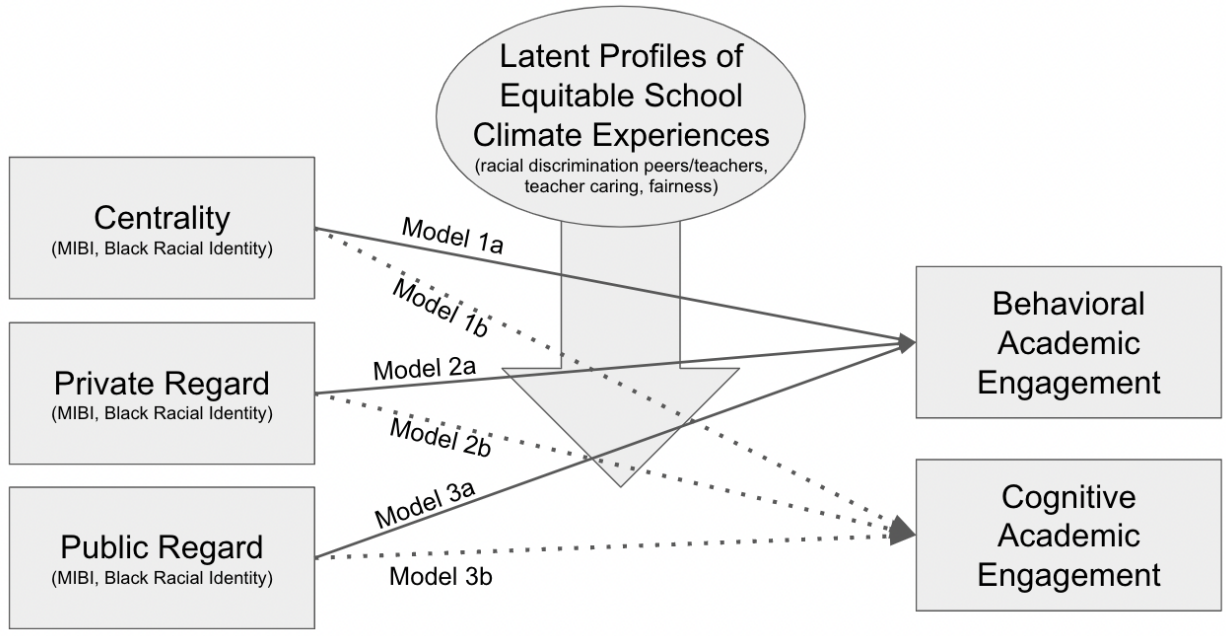

Figure 2

Plot of Equity-Oriented School Climate Experience Profiles of Black 6th Graders (n = 305)