Impacts of Teacher-Student Racial Mismatch and Environmental Factors on the Implementation of a Social-Emotional Learning Curriculum

Stephen A Ottinger

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Committee:

Janine Jones, Chair

Holly S Schindler

Jessica J Thompson

Kevin P Haggerty

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Abstract

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Stephen A Ottinger

Chair of the Supervisory Committee:

Janine Jones

College of Education

There is a significant drive in education to provide mental health supports in schools. One of the key approaches for this is through effective universal supports for students by implementing social and emotional learning (SEL). However, there has been little investigation of effective implementation accounting for the diversity of school environments. Through a secondary data analysis of an efficacy study for the *Second Step* curriculum, the current study assesses the role of environmental factors and the impact of student-teacher racial mismatch in implementation. The analysis uses a hierarchical linear modeling approach to assess both classroom and school level factors impact on effective implementation. The results demonstrate that environmental factors played little role in the effective implementation. Although mismatch did not impact the delivery of the curriculum, the results indicate significant difference in teachers' perception of students' engagement with the curriculum. Further analysis revealed interactional relationships with school level variables. Discussion of the implications of these findings along with future directions for research conclude this dissertation.

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Table of Contents

Chapter 1: Introduction

Background

The need for school mental health in supporting the nation's youth is indisputable. Recent figures estimate that between 20 and 38 percent of youth in the United States have struggled with mental health problems or are currently still struggling (Weist & Paternite, 2006). These figures become even starker for youth of color who are three times more likely to be diagnosed with a mental health disorder, and twice as likely to be labeled as having an emotional/behavioral disorder as their white peers (Cokley et al., 2014). The effects of these mental health problems are varied and problematic for youth, with impacts on academic performance, quality of life, and social and emotional health (Hoagwood et al., 2007). Yet, only a small number of these youth receive services to address the symptoms and effects of mental health problems (Stephan et al., 2012). Further, youth of color are estimated to receive mental health care only one-third to one-half as often as white youth, with disparities in both access to and quality of services (Holm-Hansen, 2006). Of youth that do receive services, schools are by far the most likely point of access, serving as many as 75% of youth who receive mental health services (Stephan et al., 2012). As a result, to expand accessibility, particularly for youth of color, schools have become a natural setting for providing mental health services, leading to the development and refinement of the discipline of school mental health.

One method for addressing this gap in service provision is through the use of social-emotional learning (SEL) curriculum within the schools. Multiple effective evidence-based SEL curriculum are available as preventive and promotional interventions across a variety of areas of social and emotional development. The use of SEL curriculum is strongly connected to improved outcomes for youth, across academic achievement, behavioral regulation, and overall well-being

(Durlak et al., 2011; Jones, Greenberg, & Crowley, 2015; Payton et al., 2008). Moreover, because SEL curricula are often easily integrated into the classroom and address common risk factors for numerous negative childhood outcomes, they provide teachers and schools a low-cost method for universal prevention (Elias & Weissberg, 2000). Use of specific evidence-based SEL curriculum has been shown to result in significant long-term financial benefits for both the individuals who are supported through high quality SEL programs and the community as a whole (Belfield et al., 2015; Washington State Institute for Public Policy, 2017). As a result, many schools and teachers have begun to include SEL curriculum into their approach to educating children.

Problem Identification

Though SEL curriculum are now widely used to address the gaps in supports for student behavioral, social, emotional, and mental health, there are potential risks to the effectiveness of SEL if the interventions are not in line with the characteristics and needs of those that are receiving the intervention. As researchers have begun to explore, even practices that are evidence-based for the general population are not always effective when applied in natural settings (Cabassa & Baumann, 2013; Domitrovich et al., 2016).

The consideration of the validity of an intervention to those receiving it is one aspect of what is more broadly addressed in the study of implementation. Ensuring high-quality implementation is a key factor for enhancing the likelihood of positive outcomes when using an evidence-based practice. Though implementation can be impacted by factors across all levels of the educational system, from district policy down to individual student characteristics, when focusing on classroom-based SEL curriculum, there are select factors that are particularly impactful.

However, the difficulty with addressing this in research is that each of these implementation factors, like fidelity or dosage, may consist of many facets (Proctor et al., 2011). Further, it can become increasingly difficult to parse the effects of each individual facet of implementation. One method to address this is to focus on the implementation outcomes that are most likely to represent the risks to high-quality implementation and effectiveness that exist for the program implemented. To this point, one benefit of using a manualized classroom-based SEL curriculum is that it is now commonplace for the development to include extensive research into the acceptability, feasibility, and scope of the curriculum before putting it into practice in the schools. Because these particular facets of implementation are addressed during the design stage of development, it is possible to consider them controlled when evaluating differential implementation across settings. This streamlines the extent to which different aspects of implementation must be considered.

For the purposes of evaluating a manualized curriculum, the focus on implementation quality narrows to the active delivery and reception of the curriculum in assessing why the same curriculum may not be effective, or appropriately implemented, across different schools or with diverse populations. Specific implementation quality measures can then be used to track the extent to which variables in the environment, including teacher or student characteristics, become detrimental to the effectiveness of the curriculum implementation. By assessing across multiple implementation outcomes including the teacher's adherence to the curriculum, their use of the curriculum's skills throughout the student's educational experience, and the students' engagement with the lessons, this investigation hopes to come to a better understanding of the way in which classroom-based SEL curriculum interacts with different student populations and classroom contexts to the benefit or detriment of high-quality SEL curriculum delivery.

Significance of the Current Investigation

Taken all together, there is an important tension between the appropriateness of intervention to those receiving the intervention and high-quality implementation to maintain fidelity to the intervention. While there has been some investigation into this area of study (see Cabassa & Baumann, 2013; Castro-Olivo & Merrell, 2012; Garner et al., 2014), there remains extensive concerns within the field of implementation regarding the transportability of well-known evidence-based practices into a diversity of contexts and with multiple populations.

There remain several questions within the literature regarding implementation of SEL curriculum in settings with diverse populations. Though there are many contextual, personal, and relationship based factors that exist within the classroom environment, research into the factors and characteristics that lead to successful implementation of SEL is still a growing field. Research has demonstrated that SEL suffers from many of the same barriers to implementation that typical curriculum does, including poor administrative support, lack of resources, and teacher beliefs (Elias, Zins, Graczyk, & Weissberg, 2003). Many studies have looked at the role of systemic and contextual factors that impact implementation; however, relatively few have focused more specifically on teacher characteristics in maintaining high quality implementation (Han & Weiss, 2005). Fewer still have evaluated the interaction effects of the student population within the classroom and teacher beliefs on teacher implementation of curriculum and classroom practice. Moreover, while there does exist limited literature on the impacts of such characteristics, like teacher-student racial mismatch, there has been little exploration into the effect that mismatch may have on the implementation quality of intervention.

The current study is designed to provide insight into the environmental factors that impact teachers' perception of implementation to begin to disentangle potential risks to high-quality SEL instruction, focusing particularly on the role of mismatch between teacher and student race in the classroom.

Research Questions

This study will use a quantitative approach using an existing data set to investigate the role of classroom and school level factors on teachers' implementation of a social-emotional learning curriculum. There are two primary questions of interest with three additional follow up questions if there are significant findings in the primary questions of interest:

1) Do classroom climate and administrative support, two important characteristics that have been typically related to the implementation quality of curriculum, significantly relate to the teacher's perception of implementation of a social-emotional learning curriculum?
2) To what extent does racial mismatch between the classroom teacher and the students in the classroom impact the teacher's perception of effective implementation of a social-emotional learning curriculum?
3) Does the overall diversity of the school context in which the teachers are implementing the curriculum impact the relationship between racial mismatch and teacher's perception of implementation?
4) Does the amount of poverty within the school population significantly impact the relationship between racial mismatch and teacher's perception of implementation?
5) Does implementation quality differ significantly based on the race most strongly represented within the classroom?

Chapter 2: Literature Review

This investigation seeks to explore one aspect of practice in the field of school mental health. To place this specific investigation into the greater context of the field, this chapter will first provide a background of the intersecting fields of research that inform the questions in this dissertation, including school mental health, the role of race in the educational experience of students, and theory surrounding high quality implementation of social-emotional learning curriculum at a classroom level.

The first field of research, school mental health, is a complex and wide ranging field including everything from systemic changes to support behavioral health to specialized one-on-one counseling supports. This review will briefly cover the way in which the spectrum of school mental health shapes concepts of wellness and success in education and emphasizes the benefits that mental health promotes for students' academic experience. Though there is a full range of delivery mechanisms, organizational frameworks, and components of comprehensive school mental health, this review narrows to the role of one particular approach which is the focus of this project: classroom-based social-emotional learning (SEL) curricula as a method for promoting positive social and academic behaviors, increasing emotional regulation, and reducing maladaptive behavior.

Though SEL is an important tool to support student behavioral and mental health, its effectiveness is characterized by the quality of implementation, which is the focus of this investigation. The following section will explore the role of race as an inescapable component of the school context in which implementation happens. The diversity of most schools and classrooms is an increasing reality for many classrooms in the United States. Importantly, the increase in diversity, or perhaps increase in the awareness and honoring of diversity in the

classroom, has created a more complex ecosystem of interests, needs, and experiences within the classroom, which has in turn complicated implementation and brought about new questions regarding quality and effectiveness. To provide a backdrop for these concerns, this chapter will continue its review by describing research into current theory and data around the importance of considering race as an integral component of the classroom experience.

The review will then explore specific topics regarding SEL implementation. The focus of this section will begin with general approaches to understanding implementation. The discussion in this section will provide an overview of the role of each level of the system, including the school context, the teacher who delivers the curriculum, and the curriculum itself, in improving the effectiveness of implementation. In line with the target of this investigation, the exploration will focus heavily into specific implementation factors-adherence to the curriculum, generalization of skills taught, and student engagement with instruction-which relate to teacher delivery and student reception of curriculum.

Integrating these areas, the final section of this chapter will overview the current research into SEL implementation and the interaction of student, teacher, and organization. In particular, this section will overview the research currently existing regarding the role of race, teacher characteristics and beliefs, and the intersection of the two in impacting effective implementation. The review will conclude with a brief summary of the chapter's review of the literature.

Supporting Student Outcomes through School Mental Health

The historical and ongoing stigmatization of mental illness, and by extension efforts to support mental health, provides the backdrop for much of contemporary debate around mental health efforts in the schools. Ongoing stigmatization has resulted in the marginalization of those

who struggle with mental health issues and increased resistance to providing services to support mental health in schools. This continues to be an issue today, with mental health rarely holding a significant role in policy decisions and the infrastructure of schools (Center for Mental Health in Schools, 2005). As a result, students who experience mental health problems are commonly addressed reactively, following the emergence of these problems. Unsurprisingly, this often exacerbates the perspective of mental health efforts as synonymous with addressing mental illness, and reinforcing the dichotomous understanding of mental health/mental illness, rather than perceiving it as a state of health that exists on a continuum (US DHHS, 1999). As a result, mental health remains a marginalized issue, though there are many working to reduce this dynamic, particularly in schools (Adelman and Taylor, 2009).

Regardless of the marginalized state of mental health, it remains an essential issue that critically impacts schools and students. Youth who struggle with mental health problems or mental illness carry these burdens into the classroom with them, with significant detriment to academic achievement, participation in classroom activities, social interactions and connections, and behavior in class (Brown et al., 2005; Kutash et al., 2011; Perfect and Morris, 2011). Moreover, modeling of financial costs for supporting students have suggested that mental health problems in students lead to increased costs of education and social services. Some estimates indicate costs of up to 15 times more than a typically developing peer (Robb et al., 2011). These concerns have informed the field, developing school mental health into a discipline to address the inefficiencies and inequities, to reduce financial burdens, and to establish effective practices to support youth development and school success.

In recent years, there has been a renewed focus in educational research exploring efficient mechanisms for delivering mental health services. Extensive resources have gone into

developing evidence for structures and practices that are most effective for addressing the mental health issues that afflict youth in the schools. There have been many innovations that have improved the level of support that schools can provide their students, from promotion of prosocial behaviors and protective factors to managing crises and mitigating their impacts on students. Further, the roles of school staff have taken on new aspects to include mental health promotion and support into everyday practice. One important piece of this developing perspective is more attention put towards supporting students not just in academic growth but across multiple domains of development.

Classroom-Based Social-Emotional Learning Curriculum

As the education system is currently organized, responsibility for caring for multiple forms of wellness often falls onto teachers, who may or may not have the expertise to address holistic wellness in students. Classroom-based SEL curricula have been introduced as the tool to support teachers in this work. While many tools focus on addressing existent problems to remediate students that are struggling to succeed in school, research has shown that programs that focus on universal strategies to promote student success and prevent common social or emotional problems prior to their occurrence are often more effective overall (Cook et al., 2015; Kramer et al., 2010). These universal supports are by their nature versatile tools that can be implemented across different classroom settings, leading to the opportunity for widespread use in schools. Further, the implementation of successful universal, preventative practices has been shown to decrease the need for later, costlier individual remediation or higher level intervention (Belfield et al., 2015; Horner et al., 2014).

Outcomes of social-emotional learning practices. The use of SEL practices has demonstrated significant results in improving not only behavioral outcomes in school aged

children, but in academic factors as well, such as engagement and time on-task (Cook et al., 2015; Durlak et al., 2011). The focus of an SEL approach looks to address core social and emotional competencies which in turn support students' abilities to perform academically in the classroom (Collaborative for Academic, Social, and Emotional Learning, 2017a). These competencies can range from understanding and interpreting one's own and others' emotions to the skills that are necessary to socially interact with others who have a variety of backgrounds. By applying these competencies, school aged children are better able to adjust to the expectations of daily life and can apply their learned skills to find more success socially, emotionally, and academically (Collaborative for Academic, Social, and Emotional Learning, 2017b; Durlak et al., 2011).

One of the most common methods for delivering SEL instruction is through a classroom-based intervention that promotes positive skill development and prevents the onset of problem behaviors. This type of approach has gained traction in schools because it usually requires minimal resources to implement and often does not require additional educational staff, as teachers are often able to integrate opportunities for SEL into their daily instruction. A typical classroom-based SEL curricula includes a brief lesson or focus for the week that a teacher will introduce early in the week. The students are then encouraged to apply this lesson in their daily classroom work and interactions at school throughout the rest of the week with teacher support and the use of included resources. The general acceptability of this approach has resulted in the creation of many new SEL curricula addressing a wide range of promotional and preventative topics, from anti-bullying to decision-making skills (see Collaborative for Academic, Social, and Emotional Learning, 2017c).

The outcomes for SEL programs indicate positive effects across multiple domains, including behavioral, academic, and mental health. A meta-analysis of the effects of universal social-emotional development programs revealed significant impacts on behavior, both increasing prosocial behavior and reducing conduct problems and internalizing problems, on academic achievement, including a 11 percent gain in academic performance across programs, and a large effect on social-emotional skill performance reflecting the extent to which those participating learned the skills presented through the SEL programs (Durlak et al., 2011).

The Second Step curriculum. The current investigation is based on the implementation of the *Second Step* curriculum (Committee for Children, 2017), a classroom-based SEL curriculum that focuses on the development of prosocial behavior, emotional awareness, and problem solving skills to promote positive social development and academic outcomes. The *Second Step* curriculum is based on the premise that providing students with direct instruction in social-emotional skills along with multiple opportunities across the school day to apply these skills with feedback impacts their development of social-emotional mastery. The developers theorize that this mastery then leads to a variety of positive effects across behavioral, academic, social, emotional, and mental health outcomes (Committee for Children, 2011).

Second Step represents a prime example of the application of SEL competencies to classroom instruction. The curriculum relies on teacher instruction and generalization of the skills. The *Second Step* curriculum contains four distinct units with 22 total lessons. The units include (1) Skills for Learning, (2) Empathy, (3) Emotion Management, and (4) Problem Solving, which attempt to build a range of skills for students to become more successful learners (Committee for Children, 2017). Each lesson includes direct instruction on a specific skill with additional activities suggested throughout the week for students to practice the skills with teacher

support and at-home books or other resources to attempt to link the skills across settings. The formation of the curriculum to mirror typical classroom instruction and integration into the daily classroom routine fit a model which is commonly applied throughout the United States.

The developers of *Second Step,* Committee for Children, were first established with the goal to address child sexual abuse and other forms of abuse through educational programs in schools. Their initial programs, such as *Talking About Touching,* focused on these goals. However, with *Second Step,* they broadened their scope to include instruction of key social and behavioral skills. The first edition of *Second Step* was created in the mid-1980s as a primary prevention program targeting school aged children. As focus in education began to highlight emotions and social interaction in the 1990s, *Second Step* began to gain major traction across the United States, in large part due to Committee for Children's effort to provide an easy to access curriculum for building social and emotional skills (Committee for Children, 2018a). Since then, Committee for Children has implemented multiple revisions of the *Second Step* program. These revisions targeted the key underlying foundations for the program including building an overarching curriculum that can address a diversity of needs, providing tools to teach key social and emotional competencies to improve student outcomes, and supporting an environment for learning (Committee for Children, 2018b).

Evaluations of previous editions of the *Second Step* curriculum have revealed positive effects. Evaluations demonstrated significant effects including decreases in physical aggression and increases in social skills (Grossman et al. 1997; Holsen, Iversen, & Smith, 2009). The data set that is used in this investigation is from a randomized trial with the kindergarten to 2nd grade curriculum from the current edition (*Second Step* Curriculum, 4th edition). The primary results from this trial, as summarized in Low and colleagues (2015), indicate that the current edition of

Second Step has shown significant effects on teacher-rated behavioral outcomes and social-emotional skills, particularly for students who were previously low performing in these areas.

Though the universal approach has increased the inclusion of SEL skills in the classroom experience of many students, it has brought additional concerns including quality of implementation. *Second Step* attempts to address this particular issue through streamlining the ease of use and through training available online. Specifically, each lesson is contained on a single poster, with a picture prompt on the front for engaging the class and instructions with scripting on the back. Using these posters, teachers are able to deliver each *Second Step* lesson with minimal preparation outside of class. Each lesson comes with multiple activities and resources for generalizing the lesson across the rest of the school week as well. Additionally, Committee for Children provides a free online training for teachers to access prior to delivering *Second Step* to attempt to increase teacher familiarity with materials and implementation fidelity. Finally, additional tools are available, including a kit for administrators to be able to support teacher implementation and reinforcers to support schoolwide implementation.

Application of SEL curriculum, like *Second Step*, in a universal approach brings about another crucial concern which this investigation seeks to explore: the appropriateness of the intervention to the actual population that is receiving the intervention. Garner and colleagues (2014) highlight the importance of ensuring that curriculum fits the social and cultural realities to which the students receiving the curriculum relate. Without understanding the role of forms of identity, such as race or SES, curriculum such as *Second Step* run the risk of losing effectiveness because they lack relatability and interest for segments of the classroom population. To fill out the importance of these concerns, this review will first need to explore current theory into the ways in which race impacts the educational experience of students.

The Role of Race in Education

There is little question that race holds a critical role in the fabric of American culture. This holds equally true for education in the US. Since the grounding of multicultural education as a crucial discipline in the field of education, policy makers and scholars have attempted to propose explanatory theories for the existence of discrepancies between outcomes for white students and students of color. One of these approaches, Critical Race Theory (CRT), provides a theoretical framework that gives an explanatory mechanism and critique for the historical reforms and current policies that address issues of race and ethnicity in the United States (Parker, 2015).

Critical Race Theory in Education. CRT first began as an objection to positivist approaches to legal discourses that attempted to oversimplify necessarily complex issues of race and ethnicity (Ladson-Billings, 1998). In its first application in the field of education by scholars Ladson-Billings and Tate (1995), CRT was introduced with a similar goal, namely to disrupt the underlying issues that still obstructed the educational progress of students of color. In their foundational text, Ladson-Billings and Tate introduce three concepts, based upon features of CRT, as essential to understanding race in the education system: (1) racism as a fact of life in United States society, (2) the necessity of a realistic understanding of the actual outcomes of civil rights law, and (3) the centrality of voice and "naming one's own reality" in scholarship and practice (Ladson-Billings & Tate, 1995, p. 56). In addition, understanding race as a form of property plays a central role in CRT. Based in the democratic and capitalistic roots of United States society, the authors argue that culture is inescapably tied to the concept of property rights. Within education, the right to ownership of a specific academic identity, the level of achievable education, the quality of education, intellectual ability, and more are all intimately tied to race

within the eyes of society. Moreover, the physical reproductions of this ownership, such as the availability of resources and quality of schools, reflect the lack of "property rights" for many students of color.

These concepts formed the foundation of what would later become the main tenets of CRT, which Delgado (2012) summarizes. First, Delgado explains that racism is a normal aspect of United States society to the point of appearing natural to those who exist in the culture. Moreover, due to the impossibility of truly eliminating racism, it has become an *ordinary* part of life within society. Second, the system of racism exists because it has a purpose within the culture, to maintain a specific social order to the benefit of the dominant group. For example, psychologically, the dominant groups' lived reality mirrors their own experience, limiting the amount in which they must engage with experiences that devalue their lived experiences. This is commonly termed "privilege" (McIntosh, 1990). One implication of this tenet is the necessity for establishing "interest convergence" (Bell, 1980) in any attempt to make societal change. Interest convergence suggests that change efforts that would benefit people of color must also be of mutual benefit for white people. This is necessary because racism as a system benefits the dominant group, and so those in the dominant group inherently have no direct reason to change the system. Interest convergence suggest that a reason must be supplied in the proposed change for the change to be successful. In response to the social role of racism, a third tenet of CRT holds that race is a socially constructed concept and the underlying assumption of a dominant race should be challenged. Race is not an "objective, inherent, or fixed" (Delgado, 2012, p. 3) characteristic that adheres to a specific biological reality related to other traits, characteristics, or behavioral norms. Instead, race as a characteristic is differentiated and changeable dependent on the context and needs of the dominant group, such as the fulfilment of the needs of the labor

market, marking the fourth tenet of CRT. An example of this is the evolution of the racialized characterization of Japanese Americans before (agricultural workers), during (internment camps), and after (model minority) World War 2. Finally, to address the hierarchical suppression established through racism, the voice of students and teachers of color is essential to develop a full analytical understanding of race in education and society, which stands as the fifth tenet of CRT. This is most clearly demonstrated through counternarratives, or the stories of the experiences of the oppressed (Ladson-Billings & Tate, 1995). This is based in the understanding that different histories and perspectives come from these voices than the histories and perspectives that the dominant group are typically aware of. Looking back to privilege, the white experience typically matches with the narratives, educational texts, and media that is encountered in daily life, and as a result, white people tend to be unaware of life experiences that do not mirror their own. The purpose of this emphasis on voice is to bring to light the alternative histories and experiences and give them the same exposure that traditional narratives hold.

These tenets serve to provide a basis for understanding the necessary components for creating a field in which racial issues in the United States education system may begin to be addressed. As CRT has become a driving theory in education, numerous scholars have begun to connect the tenets, social critiques, and concepts of CRT to the potential of practices applied in schools, indicating that not only should race be an important point of consideration in implementing practices in schools, but that an understanding of how race affects every step of the school experience is integral to ensuring that practices truly are both valid and effective.

Disproportionality in the educational experience. Critical Race Theory is such an important consideration because the facts deliver an inequitable story. Looking at data from special education provides a window into the differential experience of students of color.

Disproportionality in education has long been a known reality. Special education provides one stark example of the extent to which race interacts with educational opportunity, with clear evidence of the disproportional representation of students of color (Harry & Klingner, 2006; Losen & Orfield, 2002). In a mapping of service qualification across disability categories, Samuels (2007) found that, when compared to national population figures within the same age group, Black students were twice as likely to be categorized as Emotionally Disabled (ED) as their white peers, Latino/a students had a higher risk of being categorized as Learning Disabled (LD), and Native American students were nearly twice as likely to be categorized as LD or ED. Perhaps just as notable, Asian students were underrepresented across these same categories, between 2-4 times *less* likely to be categorized as ED or LD as their white peers.

Perhaps more importantly to the current investigation, the interactional effects of race and negative outcomes for youth do not end with special education. When considering mental health, Black youth are nearly three times more likely to be diagnosed with a mental health disorder as their white peers (Cokley et al., 2014), while Native American youth are at much higher risk for alcoholism, mental health disorders, and suicide than their white peers (Borowsky et al., 1999). Further, research has demonstrated less explicit links between subjective categorization as impaired and race. One study reported that black students are more likely to have misbehavior attributed to aggression and personality problems rather than the context in which the behavior occurs than their white peers (Cokley et al., 2014). Skiba and colleagues (2006) found that school professionals see a range of sociodemographic factors playing a role in disproportional representation. Specifically, it is not just race that is connected to overrepresentation of disability, but a host of further factors that are endemic to racial disparities: higher risk of

poverty, cultural mismatch in expectations, and the necessity of navigating a system that is not common to youth of color's other lived experience (e.g. code-switching) (Skiba et al., 2006).

There have been many additional theories presented to attempt to explain some or all of the phenomena of disproportionality. Some researchers point to the role of teachers in referral and ratings of student behaviors and abilities as a factor in disproportionate representation (Cullinan & Kauffman, 2005; Yeager et al., 2014). However, the research in this area remains mixed, with some indications of implicit or explicit biases (Downey & Pribesh, 2004; Rong, 1996), but as yet no consistent trends (Peters et al., 2014).

Most in line with the perspective of CRT, other researchers suggest that systemic problems underlie the phenomenon, as indicated by the significant connection of disproportionality in high racial minority enrollment schools (Sullivan & Artiles, 2011). These studies suggest that structural inequities and system-wide mechanisms of oppression are the explanation for disproportionality, which is a method to replicate "racial stratification" as "educational stratification" (Sullivan & Artiles, 2011, p. 1529). Salend and Duhaney (2005) indicate a number of ways in which systemic structures support this stratification, including the use of biased assessments or curriculum, a lack of cultural awareness and practice, failure to appropriately track data and identify trends of bias, and differential beliefs about behavior across race. This research suggests that race continues to be a pervasive contextual factor in the experience of students in schools. More narrowly specific to the current investigation, school curriculum, including SEL curriculum, exists within this context, indicating a necessity to explore the way race impacts the experience of learning about social and emotional skills and development.

Student race in social-emotional learning. As with academic curriculum and general classroom practices, a SEL curriculum is only effective when it is engaging and motivating to students. Therefore, when considering the construction of SEL for diverse students, accessibility plays a significant role. In studying the availability of accessible SEL programs, Garner and colleagues (2014) offer an important linkage to practice for "socioculturally-grounded SEL programs" (167). They define these programs as ones that take into account multiple individual, social, and cultural factors as well as the interactions among the various factors. This approach to teaching SEL assumes that race and culture play an integral role in the experiences of students in and out of the classroom. Garner and colleagues indicate that outcomes from SEL programs improve when they are matched with the sociocultural characteristics and needs of those receiving the program. Conversely, student engagement with curriculum suffers when there is little linking their own experience with the content that is taught.

Additionally, research suggests that the most successful curriculum working with diverse populations fully integrate cultural content (Castro-Olivo & Merrell, 2012; Garner et al., 2014). To maintain treatment fidelity, many SEL programs come as one-size-fits-all manualized interventions. Unfortunately, this often fails to integrate the experiences and needs of diverse students. This is an important clarification as research has shown that students from diverse backgrounds do not just bring diverse needs but in fact experience struggles in different ways than those from different backgrounds (Choi, Meininger, & Roberts, 2006). Thus, when the content does not reflect the *experiences*, not just the appearance, of diverse students, the effectiveness of the curriculum can suffer.

The experiences of students of color demonstrates the importance considering the tenets of CRT. Students with diverse backgrounds are often encumbered with having learn in an

environment that prioritizes dominant cultural approaches in communication, pedagogy, and learning (Heath, 1982). As some studies indicate, the inequity of the educational environment is exacerbated further by overt and covert bias that suggest students from non-dominant groups are less capable, behaviorally more problematic, or less likely to succeed (Chhuon & Hudley, 2010; Thompson, 2014; Yeager et al., 2014). When implementing SEL curriculum which directly address some of these topics—appropriate behavior in the classroom, social norms, methods for communicating needs—not prioritizing engaging students as they are or attempting to fit them into the one-size-fits-all approach can lead to significant difficulties in implementation.

Forming a beneficial experience for students lies heavily within the methods in which implementation responds to the needs of those in the classroom. Moreover, these methods cover a range of levels within schools, from student engagement and acceptance of curriculum through to systematic inclusion of certain curriculum over others (Bunger et al., 2017; Proctor et al., 2011). To parse how implementation as an aspect of curricular delivery and effectiveness, the review will now move into theory regarding high-quality implementation and the way in which this interacts with appropriate adaptation to fit classroom and student characteristics and needs.

Implementation of SEL Curriculum in the Classroom

Research into the implementation of classroom curriculum and interventions is an essential part of the development and promulgation of evidence-based practices in the field of education. Developing tools and resources to evaluate and support the transition of curriculum from efficacy trials to effective practice in natural, school-based settings is key to ensuring that interventions are ready for wider release (Proctor et al., 2011). Research has provided significant support for the importance of implementation in ensuring positive outcomes for school-based interventions (Durlak & Weissburg, 2005).

One framework, by Durlak and Dupre (2008), separates out the facets of implementation that can impact classroom-based curriculum into three general categories, which they term community factors, provider characteristics, and innovation characteristics. This is a particularly apt way to perceive interventions within schools given that there are multiple levels within the school context that impact the uptake, delivery, and reception of a given practice or curriculum. In translating this to the implementation of classroom-based curriculum, these can be seen as school factors (community), teacher characteristics (provider), and features of the intervention (innovation).

Within this framework, school factors refer to the culture and support of the overarching environment. In the case of classroom-based curriculum, these factors would refer to school culture and administrative support, or alternatively wider community beliefs regarding the information and practices included in the curriculum. By their nature, schools provide appropriate contexts for implementation of mental health services for students due to the ease of access that this provides to students and for families that may not have a way to access services otherwise (Farmer et al., 2003). Within schools, the availability of school resources and administrative support in particular have been documented to have a strong impact on teachers' implementation (McKenna, Flower, and Ciullo, 2014). Access to school resources, including money for trainings or materials and access to tools or professional coaching, can ease educators' burdens and nurture a positive work environment. Conversely, a lack of these resources can lead to heightened teacher stress, lessened teacher effectiveness, and burnout (Skaalvik and Skaalvik, 2009).

Teacher characteristics corresponds to the beliefs and capacity of the driver of the intervention. In the case of a classroom-based social-emotional learning curriculum, teachers

drive the delivery. Teacher beliefs can play an important role in the implementation of practices within the classroom to support students. Research shows that when teacher beliefs or expectations are not in line with the theoretical perspective associated with the intervention, effective delivery can suffer (Anyon, Nicotera, and Veeh, 2016; Beets et al., 2008; Kisa and Correnti, 2015). This can include beliefs about the value of the practices (e.g. compatibility of practices to classroom culture, effectiveness of practice) and beliefs of one's ability to implement the practice (e.g. confidence, time available). Teacher characteristics, particularly their motivation or belief in self-efficacy, can be impactful in the current climate of education, in which teachers are asked to take on new practices almost yearly.

One additional threat to implementation at the provider level is not just the teacher characteristics in isolation, but the interaction between the teacher characteristics and the students served within their classrooms. Students populations are not monolithic, and, as a result, teachers often differentiate their approach depending on student characteristics (Hitchcock, Meyer, Rose, & Jackson, 2002; Tomlinson, 2000). While on the whole this can be beneficial to students, with teachers modifying instruction to fit individual student need, this can also become harmful to appropriate implementation in some situations as it adversely impacts student reception of the curriculum. As Chhuon and Hudley (2010) point out, teacher perceptions of their students can impact the quality of instruction and effort that teachers put forth, particularly when they perceive students as unable to achieve. Yeager and colleagues (2014) highlighted a similar problem regarding the role of high expectations on student engagement, another aspect of implementation quality. Thus, tied into the role of provider characteristics is also the role of teacher perceptions of their students and the ways in which this can alter their implementation of

curriculum. It is from this perspective that the relative importance of engagement as a measure and aspect of implementation becomes clear.

The third category, intervention characteristics, references the characteristics of the practice itself. Primarily, the complexity of the intervention can create a roadblock for many teachers, reducing the likelihood of buy-in or lowering adherence to implementation (McKenna et al., 2014; Ringwalt et al., 2003; Pankratz, Hallfors, & Cho, 2002). Intervention characteristics can also include the cost of the intervention, which may limit its availability to meet the needs of the providers. In sum, when interventions match with beliefs and mindsets of those implementing, require less resources, and come with administrative support, it is reasonable to expect more successful implementation.

The impacts on implementation that these factors can have can lead to poor outcomes and a reduced likelihood of sustainable practice (Domitrovich et al., 2008). Effecting change in schools typically requires long-term effort, which makes consistent and reliable implementation that much more important (Horner et al., 2014). As a result, measuring the quality of implementation can often provide important feedback to explain, at least in part, the success or failure of an evidence-based intervention. This feedback in turn can be used to guide alterations to the intervention or funnel resources towards implementation areas of concern.

While implementation science has developed numerous components of high quality implementation, measurement of these components often falls under a few specific categories. Proctor and colleagues (2011), proposed eight key outcome measures: acceptability, adoption, appropriateness, feasibility, fidelity, implementation cost, penetration, and sustainability. Some of these measures, such as acceptability, adoption, appropriateness, feasibility, and cost, are ones

that are measurable at the outset and thus do not typically factor into large scale research of implementation quality. The remaining measures form the foundation of many studies of implementation quality. Fidelity, often termed adherence, refers to how well a program is administered compared to the original design intentions of the program authors (O'Donnell, 2008). High adherence to the program ensures that the intended information and skills are taught and delivered as intended. Sustainability is the extent to which the practices and perspective of the program is integrated into the intervention setting. When measuring intervention in educational settings, this is often referred to as generalization, or the extent to which program skills are encouraged across settings and situations. This ensures that the skills are not used just during intervention instructional time, but actually applied across student experience. Finally, penetration is the "reach" of the intervention, or the extent to which it is used by those to whom it is delivered. This final concept is particularly important as it expands the measure of high quality implementation to not just provider characteristics but also the *reception* of the intervention. While high quality delivery of an intervention is necessary for implementation quality, if it does not penetrate to students, the intervention fails to be effective. In education, the penetration of a program is often sought through measures of student engagement with curriculum or teacher instruction. Each of these measures provide an important facet of high quality implementation which must be addressed to ensure the effectiveness of an intervention.

Prior research on schoolwide SEL implementation has demonstrated the incremental effects of better implementation on program outcomes for students (Low et al., 2014). This is particularly significant when looking at the role of student engagement on the effect of a preventative schoolwide SEL curriculum. However, as this study demonstrated, delineating the effects of student, staff, school, and community level factors is difficult, particularly given the

interactional relationships between each level. While they found a significant negative effect from school level poverty on student engagement, they concluded that it is a challenge to isolate the specific mechanism—student disengagement, lack of resources, community factors, or another factor—leading to this effect. Low and her colleagues (2014) demonstrated the importance of considering the full range of factors, from student demographics to school climate, in understanding what makes effective intervention.

Implementation in highly diverse classrooms. As Low and colleagues demonstrated, the concerns regarding implementation and effectiveness become particularly impactful in schools that serve students from diverse backgrounds. Careful implementation is often at odds with the cultural appropriateness of an intervention, requiring educators and others implementing interventions to take into account the unique characteristics of the population—across racial, cultural, and other socially constructed forms of identity—with each new application of an intervention (Cabassa & Baumann, 2013). A number of models for adapting evidence-based practices have been proposed to address these concerns (Bernal, Jiménez-Chafey, & Domenech-Rodríguez, 2009; Castro, Barrera, & Steiker, 2010). While there do exist programs and interventions that explicitly build in these processes (e.g. McDonald et al., 1997), there is still debate on when cultural adaptation of an evidence-based practice is appropriate, if ever (Lau, 2006). Furthermore, the role of teacher perceptions of their students, including any implicit or explicit bias that may exist, plays an even more important part in highly diverse classrooms and schools. Understanding the interplay of designed curriculum with the experience of students of color in the classroom is essential to ground appropriate implementation in classrooms that often reflect a range of learners.

The implications of the systemic disproportional treatment of students of color, along with the integration CRT, leads to an important complication to the implementation of school-based interventions: implementing effective practice while honoring the variability of student characteristics and need. Race plays multiple roles in the direct implementation of classroom curriculum. Educators must consider student factors that may impact the reception of instruction, such as the validity of the curriculum for the range of students receiving the curriculum and the extent to which the curriculum engages the students by accessing their lived experience. Additionally, perceptions of their students and their needs can impact the fidelity with which a teacher implements, or does not implement, a curriculum as it is designed to be implemented. Moreover, each of these levels must be considered in the context of the school environment and, more broadly, the context of existing racial differences in the achievement gap and disciplinary practices at a systemic level (Cokley et al., 2014; Skiba et al., 2011). When taking into account all of these factors, it is easy to understand the importance of race when evaluating implementation.

Racial match and educational outcomes. There has been a wealth of research into the role of racial/ethnic matching between teachers and students as a factor in the classroom experience of students of color, behavioral and academic outcomes of students, and teacher perceptions and expectations for their student (Goldhaber, Theobald, & Tien, 2015). This same concept has been labeled variously as racial or ethnic match/mismatch, racial or ethnic congruence/incongruence, demographic match, interaction of student race and teacher race in the literature, though outcomes have generally demonstrated the same patterns. Evidence has shown that students who racially match with their teacher show modest improvements in academic outcomes across math and reading (Egalite et al., 2015). Moreover, similar results have been

found in other measures, including expectations for educational success (Gershenson et al., 2016), subjective behavioral rating (Dee, 2005), and evaluation of students across high to low performing students (Irizarry, 2015). Conversely, mismatch has been shown to lead to altered teacher perceptions of students' performance on the basis of bias, stereotypic understandings, or overgeneralized expectations (Oates, 2003; Pigott & Cowen, 2000).

Theory regarding the role of racial match in student academic outcomes suggests three rationales (Goldhaber et al., 2015). The first is that higher match means that students have more access to relatable role models, which then creates concrete examples for students to envision their own futures. The second rationale is that minority teachers will hold higher expectations for minority students, setting these students up to rise to the occasion. Research suggests that high expectations are, in fact, an important component of improving student outcomes, though this is something that is not reliant on racial match to be effective (Yeager et al., 2014). However, the validity of this rationale is unclear, as there is some evidence that minority teachers are in fact just as likely to attribute student behavior differently depending on the student's race (e.g., Salend & Duhaney, 2005). The final rationale attributes the role of racial match to cultural differences in instructional approach, meaning that the instruction itself, rather than the instructor, is more relatable for students. This then leads to improved educational experiences and improved outcomes. This rationale is most in line with culturally responsive teaching approaches which are based in the perspective that community, high expectations, and student voice is key to improved outcomes (Gay, 2002; Ladson-Billings, 2014). While pedagogical approaches such as this, along with training in cultural awareness and competency, have helped the field moved toward increased recognition of the importance of culture, race and match remain significant factors in student outcomes.

Summary of Previous Research

Schools have become an integral access point for mental health services for youth in the United States. Moreover, because of the extent to which schools can reach students, they have become an ideal place for delivering preventative and promotional services at a universal level to encourage healthy youth development and prevent many common behavioral, social, and emotional problems. One of the most effective methods that schools have used to promote healthy development and prevent negative outcomes for youth is the social-emotional learning (SEL) curriculum. Evidence-based SEL curriculum have been found to have extensive positive effects including not only behavioral and social-emotional effects, but academic outcomes as well. However, there are some important barriers that still exist to the fruitful and consistent integration of SEL curriculum into schools that must be considered.

Foremost is the problem of cultural adaptation. As research has shown, SEL, as with any other curriculum, is only effective when it connects with the students to whom it is delivered. Theory into the experiences of students of color suggest that the continued lack of meaningful cultural inclusion across the school experience is one of the key components to the inequities experienced by students of color and other marginalized populations. These inequities are not only in student achievement but in the disproportionate treatment of students of color and marginalized populations in discipline and identification for special education, while also maintaining the disparities in support services such as access to mental health professionals and school resources.

This issue of inequitable availability of resources is particularly problematic for SEL given that social, emotional, and behavioral expectations are often bound closely to cultural styles and expectations. Thus, though developers of SEL programs have invested resources to

attempt to address this barrier, they are often developed with the majority group as the initial target. As a result, many times adaptation becomes necessary to meet the needs of the unique population of each school, leading to a careful balance between cultural adaptation and manualized implementation. This balance can be particularly difficult given the complexity of high quality implementation. High quality implementation is not based just in the quality of the curriculum but also requires a supportive environment and an implementing provider who has positive beliefs towards both the curriculum and feels competent in delivering the curriculum. Without high quality implementation, even an evidence-based curriculum can fail to achieve positive outcomes.

Attempting to implement an SEL curriculum in natural settings with students from a range of backgrounds introduces a number of threats to implementation quality that must be considered. However, currently there exists important gaps in the literature regarding the natural setting implementation of SEL curricula, particularly in regards to the way that the student population affects teacher implementation. It is in these gaps that the current investigation hopes to add to the literature described within this chapter.

Chapter 3: Methods

Review of Original Research Study

The original study, as described in Low, Cook, Smolkowski, & Buntain-Ricklefs (2015), sought to assess the effects of *Second Step* a classroom-based SEL curriculum, on the academic, behavioral, social, and emotional outcomes for early elementary students. Data on classroom level and school level factors were collected as well. At the teacher level, the study recorded teachers' ratings of classroom climate and self-efficacy. Additionally, school liaisons provided ratings of administrative support, school-wide behavioral supports, and school level demographic information for each school. In the study, 7300 kindergarten through second grade students from 61 schools were randomly assigned by school to either a treatment or control group to investigate the effects of the SEL curriculum.

Based upon approved IRB protocols, students were included in the study through a passive consent process. This resulted in 224 teachers providing consent, with passive parental permission from 4891 students, in Washington state (41 schools) and 97 teachers, with passive parental permission from an additional 2409 students, in Arizona (20 schools). About 1% of parents chose to decline participation for their children (Low et al., 2015).

Schools were randomly assigned pairwise to treatment or delayed control conditions within each participating school district. After random assignment, there were 31 schools, 162 teachers, and 3,713 students to the experimental condition and 30 schools, 159 teachers, and 3,587 students assigned to the delayed control condition. The overall attrition rate for the course of the first year of the study was approximately 3% for students, with 6 teachers (4 experimental condition, 2 control condition) not completing the follow up assessments at the end of the study year.

Participants

The present study utilized a portion of the data from the Low et al. (2015) study. The data used to test the research questions in the present study was from the schools in the Washington state sample. Because the research questions of the current study include implementation of the SEL curriculum, only schools in the treatment condition are included. Data in the original data set included schools across 2 different geographic areas. However, due to a lack of access to specific variable information (school level population data), only the teacher and school level data from the experimental group in one geographic area was used, which reduced the end sample size. This resulted in a final sample of $N = 92$ teachers across $N = 20$ schools, equaling about 28.7% of the original sample. Across the teacher sample, the average age was $M = 44.58$ ($SD = 13.22$) and the average number of years teaching was $M = 15.53$ ($SD = 10.11$). The teacher sample comprised of nearly all white female teachers with a low percentage of teachers from ethnic or racial minority backgrounds. See table 1 for further teacher demographic information.

Measures

The standardized measures that were used in the current study were collected during the original study using the procedures of the research team, including demographic data on teachers and students. See the Appendix for complete measures and the items used to construct each measure.

Racial-mismatch in the classroom. Demographic data for teachers and students, including gender, race, ethnicity, and age, were collected in the original study. Student data was used to calculate the percentage of students per classroom who are minority status, with minority status defined as any race or ethnicity other than White non-Hispanic. The resulting percentages were combined with teacher demographic data to produce the independent

Table 1
Teacher demographic information

	M (SD)	***N***	***%***
Years teaching	15.53 (10.11)		
Age	44.58 (13.22)		
Female	98.9%		
Race/ethnicity			
White		80	87.0%
Hispanic/Latino		4	4.3%
Black		1	1.1%
Asian		4	4.3%
Native Hawaiian or other Asian/Pacific Islander		2	2.2%
American Indian or Alaska Native		0	0%
Multiracial		1	1.1%
Percentage of students who are minority status in the classroom	47.12 (27.12)		
Percentage of students that are racially mismatched to teacher	44.89 (26.72)		
Highest level of education			
Bachelor's degree		38	41.3%
Master's degree		50	54.3%
Professional degree		4	4.1%
Grade level taught			
Kindergarten		43	46.7%
Kindergarten/1st Grade split		1	1.1%
1st Grade		41	44.6%
1st Grade/2nd Grade split		2	2.2%
2nd Grade		5	5.4%

variable, *percentage of racial mismatch*, for each classroom. For example, in a classroom that was 72% minority students with a teacher who was not minority status, the resulting percentage of mismatch will be 72%. Conversely, if this same classroom had a teacher who was minority status, then the percentage of mismatch would be inverted to become 28%, to reflect the

mismatch between the minority status teacher and the percentage of students who were not minority status.

Site level data. Data regarding the student population at each school was obtained through publicly available data through the Office of the Superintendent of Public Instruction in Washington State (OSPI). Each school demographic analysis included measurements for the percentage of students at the school who received free or reduced lunch (FRL) and the percentage of students at the school who were racial minorities. Additional demographics provided for each school included statistics on the gender split of the student population, the percentage of students who received ELL services, and the percentage of students receiving special education services. See table 2 for school demographic information.

Table 2
School demographic information

	M (SD)
Race/ethnicity (%)	
White	43.00 (19.17)
Hispanic/Latino	21.61 (12.21)
Black	7.85 (7.46)
Asian	12.84 (8.67)
Native Hawaiian or other Asian/Pacific Islander	2.30 (2.75)
American Indian or Alaska Native	0.98 (2.24)
Multiracial	11.43 (3.63)
Gender (%)	
Male	51.33 (3.02)
Female	48.67 (3.02)
School Racial Minority (%)	57.00 (19.19)
School Free and Reduced Lunch (%)	49.73 (20.30)
School English Language Learner (%)	18.39 (11.90)
School Special Education (%)	13.19 (3.84)

Classroom climate. Classroom climate was measured by the My Classroom Inventory (MCI) measure. Teacher completed MCI at the near the beginning of the school year. MCI is a rating scale instrument that recorded teacher perceptions of positive and negative aspects of student interaction and classroom climate (Fraser, 1998; Sink & Spencer, 2007). Items were rated using a 5-point Likert style scale. MCI consists of 30 items resulting in 5 separate composite scales, each with a score range of 6 to 30: *Satisfaction* (6 items) representing the extent to which students felt satisfied in their classroom, *Cohesiveness* (6 items) indicating the amount of friendly behavior observed among students, *Friction* (6 items) providing a measure of the amount of tension or problems between students in the class, *Competitiveness* (6 items) explaining the amount of rivalry among students, and *Difficulty* (6 items) representing the level of academic challenge in the classroom (Sink & Spencer, 2007). Higher scores indicated that the teacher perceived higher levels of the construct the scale is measuring on both positive and negative scales. Reliability analysis resulted in low to moderate internal consistency for the scales (r = .83 for Satisfaction, r = .79 for Cohesiveness, r = .73 for Friction, r = .57 for Competitiveness, r = .74 for Difficulty) (Sink & Spencer, 2007).

Implementation variables. The original study administered an implementation survey that provided measures for teacher adherence to the manualized curriculum, student engagement during provision of the curriculum, and generalization of the curriculum (Low et al., 2015). *Adherence* measured the level to which teachers stayed true to the manualized instructions of the lessons as described in the curriculum when implementing each lesson in the classroom. The measurement was attained by combining two variables to attempt to create a highly accurate measure of adherence. The first took the sum of 4 items that measured the degree to which the curriculum was changed, meaning that higher scores are equated to less adherence. This first

variable was then transformed into a percentage of adherence by dividing the score by the total possible sum of the 4 items. Finally, the percentage was reverse scored to result in an initial 0 – 100% measure of adherence (due to the reverse scoring, higher = adhered more). The second variable was the percentage of components from the lesson included. These two percentages were then added, resulting in a final adherence score. *Engagement* provided an estimate of the extent to which students remained engaged during the social-emotional skill instruction. This was measured by taking the sum of 3 items that measured the degree to which the teacher perceived students to be engaged in the SEL lesson. *Generalization* provided a measure of the extent to which teachers attempted to integrate each lesson into other academic instruction across the school week. This was measured by taking the sum of 5 items that measured the extent to which teachers attempted to reinforce the SEL lesson content outside of the lesson's instructional time. A composite score for each scale (*adherence*, *engagement*, *generalization*) for each teacher was calculated by taking the mean of every rating that teacher completed of the corresponding scale (e.g. per lesson) across the entire delivery of the SEL curriculum. For example, if a teacher completed 10 lessons, then the *adherence* composite score would be the mean of their *adherence* scale scores for each of the 10 lessons. The resulting composites were recorded as the final implementation score totals across each of the three variables for each teacher.

Teachers self-rated themselves for the implementation surveys following the delivery of each lesson. Thus, the measure is best understood as a measure of teacher perception of their own implementation (*adherence* and *generalization*) and teacher perception of student interest and involvement in the lesson (e*ngagement*). According to Low and colleagues (2015), across one month, the researchers found that stability estimates (intra-rater reliability) were 0.92 for adherence, 0.88 for engagement, and 0.94 for generalization, suggesting that the reliability of

these scales across time were acceptable and representative of each teacher's perceived implementation.

Administrative support. The school liaison, typically the school counselor, completed an administrative support questionnaire which provided estimates of the extent of administrative support for social-emotional curriculum implementation in the school. The construct was formed from 6 items that included belief in the importance of SEL curriculum, integration into school-level practice, support for professionals in the school with dedicated time towards SEL, and visibility of SEL in administrative communication. There are currently no psychometric properties available for this measure. Calculation of Cronbach's alpha reveals a high level of reliability within the current data set ($\alpha = 0.886$).

Data Analysis Plan

Preliminary analysis of the data, including descriptive statistics, bivariate correlations, distributions, and review of the data set for missing data, was completed to assess that all assumptions were met prior to further investigation. Due to the nested nature of the data, a multilevel (hierarchical) modeling approach was indicated for testing the research questions. *HLM7* software was used to complete any multilevel analyses (Raudenbush, Byrk, & Congdon, 2004).

Research Question 1. The first research question sought to reconfirm the relationship of school and classroom characteristics commonly related to implementation quality for the implementation of an SEL curriculum. This included a measure of positive classroom climate, as represented by the Cohesiveness scale of the MCI at the classroom level, and the extent of Administrative Support at the school level. Because both characteristics are commonly

associated with improved implementation but typically understood as impacting implementation separately, the analysis for main effects was combined into a single model. To assess the contribution of these school and classroom characteristics, models were analyzed for the investigated main effects for each outcome variable: implementation adherence, implementation generalization, and implementation engagement.

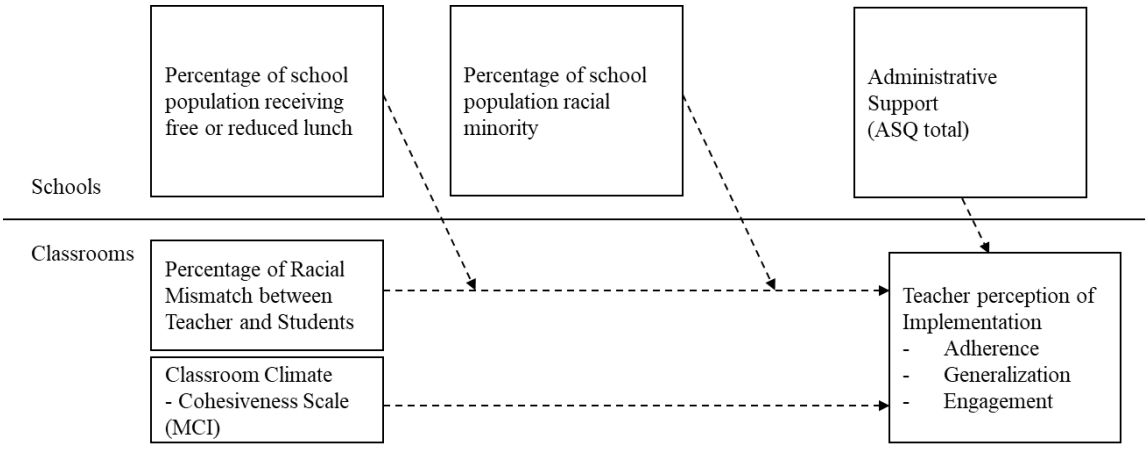
Research Question 2. The second research question investigated the relationship between racial mismatch in the classroom between students and the teacher and the teacher's perception of implementation. To assess the contribution of racial mismatch to teacher's implementation, models were evaluated to seek main effects for each outcome variable: implementation adherence, implementation generalization, and implementation engagement.

Research Question 3 and 4. Research questions 3 and 4 were sub-questions of the second research question. Assuming that main effects were found in the second research question, the third and fourth research question sought to explore whether the school context impacted the relationship between racial mismatch and implementation. Specifically, the third research question explored if the relationship between racial mismatch and implementation was diminished when the overall racial diversity of the school increased, as represented by the overall percentage of racial minorities in the school. The fourth research question asked a similar question but instead investigated how the overall level of poverty, as represented by the percentage of students on free and reduced lunch, impacted the relationship between racial mismatch and implementation.

Representation of Full Model. In the case that each investigated variable was significant, the resulting final model with all independent variables included for each dependent

variable under investigation is represented below (see Figure 1). Racial mismatch (Level 1), the teacher's perception of student cohesiveness (Level 1), the extent of administrative support (Level 2), the interaction between racial mismatch in the classroom and overall percentage of students who were minority status in the school (cross-level), and the interaction between racial mismatch in the classroom and the percentage of students in the school receiving free and reduced lunch (cross-level) would be used to explain variation in teacher perception of implementation adherence, generalization, and engagement. In the case that earlier research questions demonstrated non-significant results, the related variables were removed from the model for the purpose of parsimony.

Figure 1. Visual Representation of the Full Model.



Research Question 5. If significant main effects were found on teacher perception of implementation in research question 2, ANOVA was used to further assess if the impacts were consistent across student race, or if there were significant differences depending on the student minority status race (Black, Hispanic/Latino, Asian, Native American/Other Pacific Islander, Multiracial) that was most represented in the classroom. If significant statistical differences were

found, then additional post hoc statistical analysis (Tukey) would have been used to evaluate which classroom makeups led to the strongest impacts on perception of implementation.

Because of the variation in social perceptions of individuals of different races, particularly regarding social, emotional, and behavioral characteristics, it was predicted that there would be significant differences in the teacher perception of implementation depending on the minority status race most represented within the classroom.

Chapter 4: Results

Implementation of SEL Curriculum across Diverse Classroom Settings

The analysis for this study was conducted using the data from teacher responses and demographic information across 92 teachers in 19 schools that participated in the Second Step efficacy study. The analysis began with a preliminary review of the data to assess assumptions, including descriptive statistics, correlational measures, and distributions. Next, analysis of the unconditional model for each outcome measure was conducted to establish whether a hierarchical model would be necessary for appropriate analysis. HLM analyses were then conducted individually to assess the role of classroom climate and administrative support on implementation in the current data set (Research Question 1). Following that, HLM analyses were conducted for the impact of racial mismatch on measures of implementation (Research Question 2). Finally, for significant findings in Research Question 2, additional HLM analysis was conducted using an expanded model to assess the impact of racial mismatch on measures of implementation when including variability of race at the school level (Research Question 3) and socio-economic status at the school level (Research Questions 4). Due to significant findings in the initial research questions, an analysis of variance (ANOVA) was conducted to assess for significant differences in implementation amongst classrooms categorized by the racial distribution within the classroom (Research Question 5).

Missing data. Missing data can bias the results of statistical analysis when greater than one tenth of the total data is missing (Bennett, 2001). The current data set did not have any level 1 variables with missing data greater than 10% (maximum: 3 out of 92 cases missing data on the same variable). These missing cases led to the elimination of one school from analysis at level 2.

Listwise deletion was used to account for missing data at level 1 resulting in a final count of 89 classrooms/teachers across 19 school used in the statistical analysis.

Model assumptions. Assumptions of linearity, normality, independence, multicollinearity, and homogeneity of variance were tested (Raudenbush & Bryk, 2002; Tabachnick and Fidell, 2007). Examination of box plots demonstrated a lack of extreme outliers. Extreme skew and kurtosis values revealed some non-normal distributions. All independent variables and the generalization and engagement dependent variables fell within the range of twice the standard error for both skewness and kurtosis, the acceptable limit. However, the adherence outcome variable fell outside this range for both skewness and kurtosis indicating that the values do not follow a normal distribution. Level 1 and level 2 residuals were examined to test HLM model assumptions of linearity and normality. Graphing and scatterplots of residuals demonstrated no extreme outliers and normal distributions, indicating that the assumptions of normality, linearity, and homoscedasticity were met. Additionally, all three tests of homogeneity of level 1 variance in the refined model were not significant: for adherence, χ^2 (18) = 2.33, p = >.500; for generalization, χ^2 (18) = 21.62, p = .249; and for engagement, χ^2 (18) = 10.02, p = >.500.

Bivariate correlation analyses were conducted to examine multicollinearity (see Table 3). At level 1, the correlation between variables were nonsignificant indicating that multicollinearity was not present at level 1. At level 2, the correlations between variables was large between percent of the students in the school that are of minority status and the percent of students in the school receiving free or reduced lunch (r = .82, p < .01). This high correlation is in line with previous research (Skiba et al., 2015). However, due to theorized differences in the impact of minority status and the

Table 3.

Correlations, means, and standard deviations of model variables

Measure	*M*	*(SD)*	Min/Max	1.	2.	3.	4.	5.	6.	7.	8.
Teachers/Classrooms											
1. Adherence	1.72	(0.23)	.6-2.0	--							
2. Engagement	7.20	(1.04)	4.2-9.0	-.04	--						
3. Generalization	8.78	(1.91)	4.2-13.4	.20	.40***	--					
4. Cohesiveness	21.11	(3.37)	15-30	-.07	.22 *	.16	--				
5. Racial Mismatch	44.89	(26.71)	0-95.5	.06	-.19	-.10	.09	--			
Schools											
6. Admin Support	13.60	(3.69)	4-18						--		
7. School Minority	56.99	(19.19)	22.8-89.1						-.19	--	
8. School FRL	49.72	(20.30)	.8-88.3						-.24	.82***	--

Note. *N* (Level 1) = 89 teachers/classrooms, and *N* (Level 2) = 19 schools. Racial Mismatch is the percentage o in the classroom who were not the same race and/or ethnicity as their teacher. School Minority is the percent of who are racial or ethnical minorities. School FRL is the percent of students in the school receiving free or reduc
* $p < .05$, ** $p < .01$, *** $p < .001$.

role of poverty, both variables were retained in the analysis, although this does limit the potential statistical outcomes as the variables because the variance that each accounts for would likely overlap reducing the likelihood of significance for each variable. Two of the dependent variables, Engagement and Generalization, demonstrated moderate positive correlation ($r = .40$, $p < .01$). This correlation aligns with the theoretical model which views engagement and generalization as separate but related components of implementation.

Unconditional models. To ensure that hierarchical modeling was the most appropriate approach to statistical analysis, the unconditional model for each outcome was analyzed to find

the intraclass correlation (ICC). The ICC gives a measure of the amount of school-based variance, as compared to variance between classrooms, and the necessity for a multi-level model (Raudenbush & Bryk, 2002). If the ICC indicated a significant amount of variance accounted for at the school level, then for each research question, a two-level model should be used to account for the nesting of teachers (Level 1, $n = 98$) within schools (Level 2, $n = 20$). If there was not a significant amount of variance accounted for at the school level, then linear regression methodologies could be considered as an effective alternative to assess the research questions using one-level models.

Assessment of the unconditional models demonstrated that hierarchical modeling would likely be the most appropriate approach for analysis. The null unconditional model for each dependent variable revealed significant effects at level-1 (see Table 4). Intraclass correlations (ICC) were demonstrated that there was significant variance at the school level for two of the outcome variables. Generalization demonstrated significant differences between schools, τ (18) = 0.68, p =0.005, with an ICC of 0.19. This indicates that 19% of the variance of the generalization variable was between schools and the remaining 81% of the variance was within schools. For Engagement, the ICC was .17, with significant differences between schools found in the unconditional model, τ (18) = 0.18, p =0.009. Based on these results, multi-level models are appropriate to use to account for the variation both between and within schools for the Generalization and Engagement outcomes.

The unconditional model for Adherence did not reveal significant differences between schools suggesting that little to no variation was explainable by differences between schools. However, a lack of significant differences between schools does not necessarily mean that there are no differences in the slopes of the predictors (Garson, 2012). Additionally, in order to capture

potential interactive effects of level-2 variables that may not be accounted for through the unconditional model, the HLM approach was retained as the primary method of analysis.

Table 4.
Results of Variance in Unconditional Models at Classroom and School Levels for Implementation Outcomes

	Adherence			
	Variance	*df*	Chi-Square	*p*-value
Intercept1, u_0	0.00	18	15.65	>0.500
level-1, *r*	0.06			
	Generalization			
Intercept1, u_0	0.68	18	37.33	0.005**
level-1, *r*	2.95			
	Engagement			
Intercept1, u_0	0.18	18	35.03	0.009**
level-1, *r*	0.90			

* $p < .05$, ** $p < .01$, *** $p < .001$.

Hierarchical linear models. Initial partial models were run to address the first two research questions. The first set of partial models investigated whether classroom climate (level 1), specifically the cohesiveness of students in the classroom, and administrative support (level 2) had significant relationships with implementation.

It was expected that schools with higher levels of Administrative support would reflect significantly higher levels of implementation adherence and generalization. However, because administrative support was not necessarily connected with student interest in curriculum, it was not expected that administrative support will be predictive of implementation engagement. Conversely, increases in Cohesiveness, as a measure of perceived student interaction and positive classroom climate, was expected to be predictive of higher implementation engagement.

Though the literature does not currently indicate a direct connection between perceptions of positive classroom climate and teacher implementation, positive connections have been found between school climate and teacher implementation. Therefore, it is hypothesized that increases in Cohesiveness, often a target of SEL curriculum, will predict positive change in implementation generalization and adherence due to the higher likelihood of a presence of a strong foundation for SEL in the classroom. Below is the partial model for cohesiveness and administrative support.

Level-1 Model

$$\text{Implementation Adh/Gen/Eng}_{ij} = \beta_{0j} + \beta_{1j} * \text{Cohesiveness}_{ij} + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * \text{Administrative Support}_{j}$$

$$\beta_{1j} = \gamma_{10}$$

Combined Model:

$$\text{Implementation Adh/Gen/Eng}_{ij} = \gamma_{00} + \gamma_{01} * \text{Administrative Support}_{j} + \gamma_{20} * \text{Cohesiveness}_{ij} + r_{ij}$$

Analysis of the HLM model provides coefficients of the intercept and the predictors included in the model. All variables were centered, meaning that the intercept should be interpreted as the average level of the indicated outcome when all included predictors at the teacher and school level are held at the average. Results of the partial models are displayed in Table 5 below. These results indicated that cohesiveness was not significantly associated with adherence ($\beta < 0.01$, $p = 0.836$), generalization ($\beta = 0.09$, $p = 0.130$), or student engagement ($\beta = 0.03$, $p = 0.452$). The relationship between administrative support and the implementation outcome variables was also nonsignificant for adherence ($\beta = 0.01$, $p = 0.366$), generalization ($\beta = 0.07$, $p = 0.381$), and

engagement (β = 0.03, p = 0.501). This indicates that none of these predictors accounted for a significant portion of the variance in any of the implementation outcomes.

Table 5.
HLM Results Testing Effects of Classroom Cohesiveness and Administrative Support on Implementation Outcomes

	Adherence				
	Coefficient	*SE*	*t* ratio	*p*-value	
Intercept1, β_0					
Intercept (γ_{00})	1.72	(0.03)	68.517	<.001	***
ASQ (γ_{01})	0.01	(0.01)	0.929	0.366	
MCI-C, β_1					
Intercept (γ_{10})	0.00	(0.01)	-0.207	0.836	
	Generalization				
	Coefficient	*SE*	*t* ratio	*p*-value	
Intercept1, β_0					
Intercept (γ_{00})	8.82	(0.27)	33.263	<.001	***
ASQ (γ_{01})	0.07	(0.07)	0.899	0.381	
MCI-C, β_1					
Intercept (γ_{10})	0.09	(0.06)	1.534	0.130	
	Engagement				
	Coefficient	*SE*	*t* ratio	*p*-value	
Intercept1, β_0					
Intercept (γ_{00})	7.22	(0.14)	50.765	<.001	***
ASQ (γ_{01})	0.03	(0.04)	0.687	0.501	
MCI-C, β_1					
Intercept (γ_{10})	0.03	(0.03)	0.757	0.452	

Note. N (Level 1) = 89 teachers, and N (Level 2) = 19 schools. The coefficient represents the amount to which the outcome measure increased with a one-point increase in that predictor. ASQ = Administrative Support Questionnaire; ASQ Grand mean centered. MCI-C = My Classroom Inventory, Cohesiveness Scale; MCI-C group mean centered.

* p < .05, ** p < .01, *** p < .001.

The second set of partial models investigated whether there were any main effects from the percent of racial mismatch between the teacher and students in a classroom on implementation of an SEL curriculum. Variables for mismatch were included at both the classroom and school level (representing the average mismatch within each school) in order to parse variance at each level (see model below). Results from these models are shown in Table 6.

It was expected that racial mismatch in the classroom would have a significant and negative predictive relationship with implementation across all three outcomes. It was predicted that as the level of mismatch changed, teachers would be likely to alter the curriculum to fit perceived student need, which in turn would decrease the level of adherence to the manualized curriculum. Additionally, because classrooms with higher racial diversity also tend to include a wider range of cultural differences, it was hypothesized that teachers whose race does not match their students would be less likely to feel competent in generalizing skills in classrooms as the level of mismatch becomes higher, which would lead to decreases in generalization. Similarly, it was predicted that this same lack of racial and cultural connection would be mirrored on the student side with perceptions of engagement decreasing as the level of mismatch increased. The model used to analyze this research question is shown below

Level-1 Model

$$\text{Implementation Adh/Gen/Eng}_{ij} = \beta_{0j} + \beta_{1j} * (\text{Teacher-Student Minority Status Match}_{ij}) + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * (\text{School Mean Mismatch}) + u_{0j}$$

$$\beta_{1j} = \gamma_{10}$$

Combined Model:

$$\text{Implementation Adh/Gen/Eng}_{ij} = \gamma_{00} + \gamma_{01} * (\text{School Mean Mismatch}) + \gamma_{10} * \text{Teacher-Student Minority Status Match}_{ij} + u_{0j} + r_{ij}$$

Table 6.

HLM Results Testing Effects of Percent of Racial Mismatch in the Classroom and School's Percent of Racial Minority and Percent of Free or Reduced Lunch on Implementation Outcomes

	Adherence				
	Coefficient	*SE*	*t* ratio	*p*-value	
Intercept1, β_0					
Intercept (γ_{00})	1.72	(0.03)	68.205	<0.001	***
School Mean Mismatch (γ_{01})	-0.00	(0.00)	-0.421	0.679	
Percent Racial Mismatch, β_1					
Intercept (γ_{10})	-0.00	(0.00)	-0.093	0.926	
	Generalization				
Intercept1, β_0					
Intercept (γ_{00})	8.81	(0.27)	32.657	<0.001	***
School Mean Mismatch (γ_{01})	-0.01	(0.01)	-0.473	0.642	
Percent Racial Mismatch, β_1					
Intercept (γ_{10})	-0.01	(0.01)	-0.738	0.463	
	Engagement				
Intercept1, β_0					
Intercept (γ_{00})	7.21	(0.14)	49.906	<0.001	***
School Mean Mismatch (γ_{01})	0.00	(0.01)	0.001	1.000	
Percent Racial Mismatch, β_1					
Intercept (γ_{10})	-0.02	(0.00)	-3.640	<0.001	***

Note. N (Level 1) = 89 teachers, and N (Level 2) = 19 schools. The coefficient represents the amount to which the outcome measure increased with a one-point increase in that predictor. School Mean Mismatch entered as grand mean centered. Percent Racial Mismatch entered as group mean centered.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Results of the second set of partial models indicated that racial mismatch in the classroom was not significantly associated with adherence to the curriculum ($\beta < 0.01$, $p = 0.926$) or generalization of the curriculum ($\beta = -0.01$, $p = 0.463$). However, there was a significant and negative relationship between percent of racial mismatch between the teacher and students and teachers' perception of student engagement in the SEL curriculum ($\beta = -0.02$, $p < 0.001$).

Assessing interactional effects. Based on the lack of significant main effects in the adherence and generalization partial models, model assessing interactions of school level variables were only analyzed for the engagement outcome variable. Due to the lack of significance found in the partial model, cohesiveness of the students in the classroom (MCI-C) and administrative support (ASQ) were also removed from the model for parsimony. Although school level means of classroom mismatch was not found to be significant, inclusion in the model was retained, because this specified that the relationship under investigation varied due to mismatch between different classrooms rather than the one that would result from integrating both classroom and school level differences. These models were analyzed to determine whether significant effects of racial mismatch were unique effects and to what extent these effects are impacted by school level poverty and school level minority status.

It was expected that both investigated interactions, the percentage of students in the school who are minorities (school level minority) and the percentage of students in the school on

free or reduced lunch (school level poverty), would produce significant effects. Because of the nature of the modeling, this would mean that the impact of racial mismatch in the classroom on engagement would be affected (the slope of this effect would be altered).

As the school level minority increased, it was predicted that the school environment itself would be more conducive to exposure to the cultures and characteristics of students within the school. Through the awareness and competence that would likely grow in such a situation, it was predicted that any significant negative relationship between racial mismatch and implementation would be moderated to become less significant while any positive relationships would be moderated to become more significant.

For increases in the school level poverty, it was predicted that moderation effects would also be found, but instead would likely increase any negative relationship between racial mismatch and implementation. This prediction was based on the fact that schools with higher levels of student poverty are often under-resourced and, at the same time, have higher levels of need. Because of this, teachers in higher poverty schools are more likely to struggle to put into place additional practices such as SEL curriculum, which would likely result in negative moderation effects on the relationship between racial mismatch and implementation.

Level-1 Model

$$\text{Implementation Eng}_{ij} = \beta_{0j} + \beta_{1j} * (\text{Teacher-Student Minority Status Match}_{ij}) + r_{ij}$$

Level-2 Model

$$\beta_{0j} = \gamma_{00} + \gamma_{01} * (\text{School Mean Mismatch}) + u_{0j}$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11} * (\text{Percentage School Minority Status}_j) + \gamma_{12} * (\text{Percentage School FRL}_j)$$

Combined Model:

$$\text{Implementation Eng}_{ij} = \gamma_{00} + \gamma_{01} * (\text{School Mean Mismatch}) + \gamma_{10} * (\text{Teacher-Student Minority Status Match}_{ij}) + \gamma_{11} * (\text{Percentage School Minority Status}_j * \text{Teacher-Student Minority Status Match}_{ij}) + \gamma_{12} * (\text{Percentage School FRL}_j * \text{Teacher-Student Minority Status Match}_{ij}) + u_{0j} + r_{ij}$$

Results of the full model indicated that racial mismatch in the classroom continued to be significantly and negatively associated with teachers' perception of student engagement in the SEL curriculum (β = -0.03, $p < 0.001$). This indicates that as the percent of mismatch in the classroom increases, engagement with the SEL curriculum decreased by 0.027 rating points per percent racial mismatch based on the teachers' perception. This means that in a classroom that is fully mismatched (100% mismatch) versus a classroom that does not have any mismatch (0% mismatch), there would be a 2.7 point difference in teacher perception of engagement. The range from minimum score (4.2) to maximum score (9) on this scale was 4.8 scale points.

The full model included two additional school level variables interacting with the slope of the classroom level variable percent of racial mismatch. These variables are the percent of students in the school who are racial minorities (Research question 3) and the percent of students in the school who receive free or reduced lunch (Research question 4). For the purposes of modeling, each variable was entered independently to account for variance explained by the variable directly, then entered as interacting with the slope of the racial mismatch variable. When

modeling the interaction of each of these variables with racial mismatch in this way, independently the relationships were non-significant (see Tables 7 and 8).

In contrast, when the full model was analyzed, both interactions between school minority and the slope of racial mismatch and between free and reduced lunch and the slope of racial mismatch became significant. The percent of students in the school who are racial minorities had a significant and positive moderating effect on the slope of the racial mismatch predictor (β = 0.00, p = 0.041). This means that in schools with a higher percentage of students who are racial minorities, the negative relationship of racial mismatch in the classroom on teacher perception of student engagement with SEL curriculum is reduced as compared to schools with a lower

Table 7.
HLM Results of Racial Mismatch Interaction with School Percent Minority Model for Engagement Outcome

	Engagement				
	Coefficient	*SE*	*t* ratio	*p*-value	
Intercept1, β_0					
Intercept (γ_{00})	7.21	(0.15)	48.385	<0.001	***
Percent School Minority	-0.00	(0.01)	-0.059	0.953	
School Mean Mismatch	0.00	(0.01)	0.051	0.960	
Percent Racial Mismatch, β_1					
Intercept (γ_{10})	-0.02	(0.01)	-3.556	<0.001	***
Percent School Minority (γ_{11})	0.00	(0.00)	0.409	0.684	

Note. N (Level 1) = 89 teachers, and N (Level 2) = 19 schools. The coefficient represents the amount to which the outcome measure increased with a one-point increase in that predictor. Percent School Minority and School Mean Mismatch entered as grand mean centered. Percent Racial Mismatch entered as group-mean centered.
* $p < .05$, ** $p < .01$, *** $p < .001$.

Table 8.
HLM Results of Racial Mismatch Interaction with School Free and Reduced Lunch Model for Engagement Outcome

	Engagement				
	Coefficient	*SE*	*t* ratio	*p*-value	
Intercept1, β_0					
Intercept (γ_{00})	7.21	(0.15)	49.108	<0.001	***
Percent FRL	-0.01	(0.01)	-0.570	0.577	
School Mean Mismatch	0.00	(0.01)	0.358	0.725	
Percent Racial Mismatch, β_1					
Intercept (γ_{10})	-0.02	(0.01)	-3.444	<0.001	***
Percent FRL (γ_{11})	-0.00	(0.00)	-0.717	0.476	

Note. N (Level 1) = 89 teachers, and *N* (Level 2) = 19 schools. The coefficient represents the amount to which the outcome measure increased with a one-point increase in that predictor. FRL = Free or Reduced Lunch. School Mean Mismatch and Percent FRL entered as grand mean centered. Percent Racial Mismatch all entered as group-mean centered.
* $p < .05$, ** $p < .01$, *** $p < .001$.

percentage of students who are racial minorities. In other words, when there are more students of color in the school, teachers were less likely to interpret students as disengaged, even when mismatch was high. An opposite effect was found from the free and reduced lunch variable on racial mismatch, meaning that the higher the percent of students on free or reduced lunch, the more negative the impact of racial mismatch on teacher perception of student engagement (β = -0.00, p = 0.034). Stated in a different way, in schools with more students of color, teachers were more likely to interpret students as disengaged, particularly when mismatch was high. See Table 9 for the full statistical outcome of this model.

To provide a measure of effect size of racial mismatch on the Engagement variable, the amount of variance accounted for by the Level-1 predictors was calculated using the approach

proposed by Snijders and Bosker (1999). This approach provides approximations for the amount of variance accounted for by predictors at Level-1 and Level-2 in a two-level HLM. R_1^2 was only calculated for the teacher/classroom level. The result ($R_1^2 = 0.07$) indicates a small effect size. This indicates that though the percent of racial mismatch did have a significant effect on teachers' perception of student engagement with the SEL curriculum, the effect was small.

Table 9.

HLM Results of Full Model for Engagement Outcome

	Engagement				
	Coefficient	*SE*	*t* ratio	*p*-value	
Intercept1, β_0					
Intercept (γ_{00})	7.21	(0.15)	47.936	<0.001	***
Percent School Minority (γ_{11})	0.01	(0.02)	0.448	0.660	
Percent FRL (γ_{12})	-0.01	(0.01)	-0.701	0.494	
Mean School Mismatch	-0.00	(0.01)	-0.080	0.937	
Percent Racial Mismatch, β_1					
Intercept (γ_{10})	-0.02	(0.01)	-4.029	<0.001	***
Percent School Minority (γ_{11})	0.00	(0.00)	2.081	0.041	*
Percent FRL (γ_{12})	-0.00	(0.00)	-2.166	0.034	*
Model R_1^2	0.01				

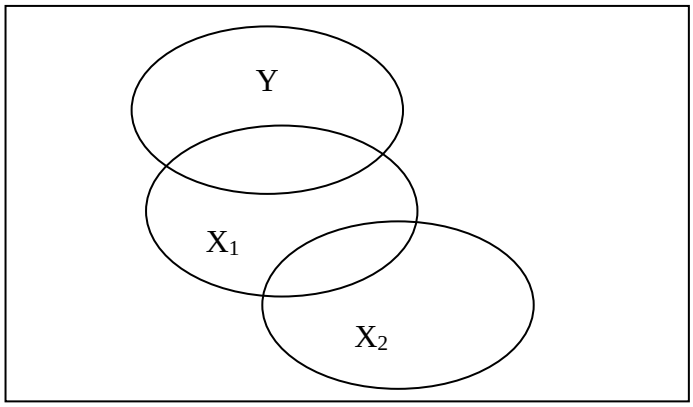
Note. N (Level 1) = 89 teachers, and *N* (Level 2) = 19 schools. The coefficient represents the amount to which the outcome measure increased with a one-point increase in that predictor. FRL = Free or Reduced Lunch. Percent School Minority, Percent FRL, and Mean School Mismatch entered as grand mean centered. Percent Racial Mismatch entered as group mean.

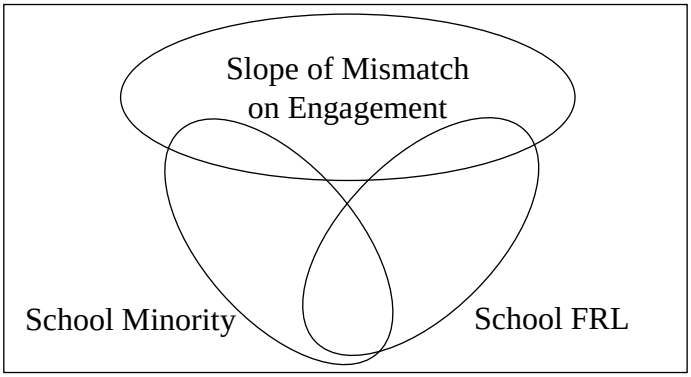
* $p < .05$, ** $p < .01$, *** $p < .001$.

This outcome suggests that percent of minorities within the school and percent of students receiving free or reduced lunch are acting as *suppressor* variables on each other. Suppressor variables are those which are highly correlated with existing predictors in the model, and whose inclusion in the model modifies the relationship of those predictors with the outcome.

This modification is due to a reduction of error variance in the predictor, or variance that is not related to the outcome, leading to a higher proportion of variance related to the outcome to error variance. The inclusion of a suppressor variable can result in a seemingly non-significant predictor becoming "purified" to be significantly related to the outcome due to removal of error variance (Darmawan and Keeves, 2006). It should be noted that the resulting "purified" predictor should not be considered the same variable, as it has had a specific portion of its variance removed, namely that portion shared with the suppressor variable. See figure 6 below for an example of this relationship, with Y as the outcome, X_1 as the predictor, and X_2 acting as a suppressor variable.

Figure 6. Visual of Suppression and Hypothesized Dual Suppression in Refined Model





Note: Visual example of suppression from Darmawan and Keeves, 2006. The circles represent the variance of each variable, with overlaps indicating where variance is related.

Figure 6 also includes a hypothesized visual of the dual suppression that is indicated in the refined model of the current analysis. Due to the high level of correlation between percent of minority students and percent of students receiving free and reduced lunch, their joint inclusion in the model appears to have reduced the amount of error variance for each of the interactions, as represented in the hypothesized model below. As a result, the amount of remaining error variance in each interaction was reduced, leading to significant relationships.

One important consideration regarding suppressor variables is their interpretability. Literature on the interpretation of suppressor variables highlights that existing theoretical basis to explain the resulting relationship is what makes the difference in a variable *being* a suppressor and *acting as* a suppressor variable. Thus, though the current study revealed a reciprocal suppression effect, it should be interpreted with caution through discussion of existing research.

ANOVA and Post-hoc analysis. An analysis of variance (ANOVA) test was completed comparing the significant implementation outcome (Engagement) by separating classrooms into seven groups by the most represented minority group in the classroom. Groupings were categorized as predominantly non-racial-minority classrooms (65% or higher white), classrooms with high representation of one racial group (over 25% of students of a specific racial minority group in the classroom), or racially diverse classrooms (less than 65% white but no racial group that is represented significantly more than others). ANOVA results demonstrated that there was no significant difference found for perception of student engagement during SEL instruction, $F(6, 82) = 1.567$, $p = 0.167$. Because of the lack of significance, no post-hoc analyses were conducted.

Chapter 5: Discussion

The current investigation aimed to extend the current research on the importance of considering race when implementing elementary classroom curriculum for develop social and emotional competency. The field of education has long identified a clear need for social, emotional, and mental health supports for students (Brown et al., 2005; Kutash et al., 2011; Perfect & Morris, 2011). One of the predominant forms for supporting student social and emotional health are through classroom-based social-emotional learning (SEL) curricula, delivered by teachers as a universal prevention intervention (Cook et al., 2015; Kramer et al., 2010).

While there have been clear benefits to classroom-based SEL approach (see Durlak et al., 2011), there remain concerns regarding the generalizability of manualized curriculum for students of color or other marginalized groups (Castro-Olivo & Merrell, 2012; Garner et al., 2014). Research has demonstrated that race can play a significant role in teacher-student relationships and performance with academic curriculum, including impacts from implicit bias, teacher expectations, and other factors (Banks, 2015; Beady & Hansell, 1981; Ogbu, 2004; Steele & Aronson, 1995; Villegas & Lucas, 2004). However, prior to the current investigation, less has been revealed on the extent to which the potential impacts of race on effective classroom instruction is true for implementing SEL curriculum. Moreover, the literature remains limited on the manner in which school population factors may interact with teacher implementation of SEL curriculum. The current study sought to provide insight into these questions using an existing data set evaluating the efficacy of *Second Step* in natural school settings.

Specific Findings

Environmental factors and SEL implementation. The first research question sought to re-confirm the relationship between environmental factors, specifically classroom cohesion and administrative support, and effective implementation of an SEL curriculum. In both cases, no main effects were found on implementation variables as a result of the assessed environmental factors. The results indicated that classroom cohesion and administrative support did not play a significant role in increasing or decreasing implementation. This conclusion is in contrast to findings in previous studies, which have found that both of these factors are important classroom and school characteristics for supporting high quality implementation (Elias et al., 2003; McKenna et al., 2014; Skaalvik & Skaalvik, 2009).

The non-significant finding with administrative support suggests, at least in the current study, that there may be important moderating or mediating factors that play a role in the previously established relationships that were not included in the current study. One of the key factors that has made *Second Step* such a popular curriculum for schools is the ease with which it can be adopted. Unlike other SEL curricula, there is limited training, few resources, and little preparation time necessary for teachers to implement the curriculum in their classrooms with fidelity. Thus, one potential factor that may have mediated any existing relationship between implementation and administrative support may be the ease with which *Second Step* can be picked up and used, eliminating the need for school level support. It should also be noted that the informants for administrative support were not the same staff members who completed the implementation measures. As a result, it is possible that differences in perspective regarding school supports may have been an unaccounted for confound in understanding the importance of administrative support for individual teachers within in the study.

Additionally, the acceptability of *Second Step* as a curriculum included in typical classroom instruction, which typically informs uptake by teachers and is often related environmental factors, may have been confounded based on school and teacher participation in the current study. Though teachers and schools were given opportunity to participate or not participate in the study without coercion, there are social and normative expectations that can influence the choice to participate when working within a school that has chosen to participate in a research study. Based on this, it is possible that the impact of environmental factors like administrative support or classroom climate played a much less significant role in implementation due to the underlying or implicit expectations that were established by participation in the research study.

Overall, the findings for the first research question suggest that when adoption and delivery of SEL is streamlined—less resources, less training, and less preparation time required—inclusion into typical instruction may be more reasonable for teachers to take on regardless of the presence or absence of environmental supports. The lack of significant findings suggests that further investigation is necessary. Given the intermediary factors discussed above, continued study of the impact of SEL curricular characteristics, teacher/classroom characteristics, and school factors on high quality implementation must be done before drawing further conclusions.

Relationship between racial mismatch and SEL implementation. The next research question sought to establish whether racial mismatch in the classroom is significantly connected to teacher perception of implementation of SEL curriculum. Teacher self-report of adherence (how well they stuck to the "script" of the SEL curriculum) and generalization (how much they used the SEL concepts across other parts of the school day) were both non-significant. This went

against the prediction of this study, though in line with prior research (Low et al., 2014). In the current study, the findings suggest that race did not play a significant role in the teacher's perception of their own delivery, either quality or broad use of the SEL curriculum in classroom instruction. In contrast, there was a significant negative connection between teacher perception of engagement (the students' reception of SEL instruction) and racial mismatch in the classroom. This confirmed the initial hypothesis that as racial mismatch in the classroom increased, engagement would decrease. This finding confirms a common thread in education: mismatch between teachers and students can lead to significant impacts on effective instruction. Previous studies have long established this relationship in academic instruction (Clewell & Villegas, 1998; Egalite, Kisida, & Winters, 2015). Moreover, there is little dispute that disparities in education exist between students of color and white students (Skiba et al., 2002). However, this finding further extends the relationship adding effective implementation of SEL, specifically perceptions of student engagement with SEL instruction, and further reinforcing the relevance of race and culture in education.

The current study sought to isolate a specific impact of racial mismatch in the classroom: teacher perception of implementation. It is an important distinction that the current study does not evaluate disparities in gains in social or emotional skills, but instead focuses on how implementation is carried out and received by students. However, the results revealed an interesting dichotomy. Teachers' ratings did not indicate any variation in their own delivery of the SEL curriculum dependent on match or mismatch to their students. However, teachers with greater mismatch to their students were more likely to rate their students as disengaged. Though explanation for this finding is limited to conjecture in the current study, there are important possibilities to consider based on existing literature.

One potential explanation for the dichotomy between perception of teachers' own delivery and perception of student reception may follow from the research on cultural adaptation of manualized interventions (Bernal, Jimenez-Chafey, & Domenech-Rodriguez, 2009; Castro-Olivo & Merrell, 2012). The approach of culturally adapting interventions is based in the understanding that racial differences are strongly connected to differences in cultural, social, emotional, and behavioral norms. By extension, if teachers are unable to access these norms or there is difficulty in students and teachers effectively interface across differences in perspective, then it is likely that the students will have difficulty engaging with instruction that may be unrelatable for them. Thus, even with full adherence and generalization of the curriculum, if the instruction itself fails to be meaningful to students based on instructional style, approach, use of language, or other factors, it is likely that student engagement will decrease. Based in the perspective of cultural adaptation of instruction, it is possible that the current results are demonstrating a need for further cultural adaptation of the SEL lessons to better bridge the divide between teacher and student cultural perspectives.

Another consideration may be drawn from Critical Race Theory. Approaches to classroom instruction based in CRT focus on the importance of student representation—the visibility of norms, perspectives, activities, language, and communication style that match with students' lived experience—as a necessary component of culturally relevant teaching (Ladson-Billings & Tate, 1995). However, some instructional styles depend on a more unidirectional approach, with knowledge flowing from teacher to students. While the *Second Step* curriculum, like many SEL curricula, does encourage student participation, the offset of providing an easy-to-implement curriculum is that it must be formulaic in order to reduce demand on teacher resources and time. This relies more highly on the use of these unidirectional, prescriptive

instructional styles. The reduced flexibility, both in the lesson content and delivery, can impact the inclusion of minority student representation or participation, or include it only in surface level forms (e.g. pre-scripted or guided responses). Thus, through a CRT lens, it is possible that student representation in the materials and by actively creating space for student voice in the instructional approach may be an important factor to consider for further investigation of effective SEL implementation.

The reality for why student engagement is impacted when teacher and student mismatch increases likely reflects a combination of the above factors. Research has indicated that it is not just social and emotional skills or problems related to social and emotional competency that are connected with culture, but the very experience of struggling through a social or emotionally related problem that may be different for individuals of differing backgrounds (Choi et al., 2006). A static curriculum, with standardized questions and answers, cannot address the nuance of a social or emotional experience as it may be experienced by different students; this can only be parsed and explored in the moment by those present. Instruction that does not actively include student experience in order to explore a situation from the *students'* lived experience will likely lead to higher rates of disengagement, regardless of the quality of intervention delivery.

Accordingly, one of the most important implications of this finding is the essential role that teachers play in SEL instruction. Prior evaluations of the *Second Step* curriculum have indicated that the curriculum can, overall, demonstrate positive effects in schools, even with widely diverse populations (Gulbrandson, 2012). However, there still exists a decrease in effective implementation as mismatch increased as demonstrated in the current study. This raises the point that SEL curriculum alone cannot bridge the gap between effective instruction and consistent reception by students. Teachers, their cultural awareness and their willingness to

engage with students' experience, remain the key in effective SEL instruction regardless of curriculum.

School level variables and the relationship of racial mismatch and implementation. **S**chool level characteristics of the student population were interestingly related to teacher mismatch and perception of student engagement. Racial makeup of the student body followed the study hypothesis which predicted that as schools become more diverse, the effect of mismatch reduced. On the other hand, poverty (as measured by percent of students qualified for free or reduced lunch) also had an effect, though unlike school minority status, poverty exacerbated the impact of mismatch on engagement. However, what made this particularly interesting was that these effects were only found concurrently. Thus, it should be noted that the interpretation of each finding that follows is exploratory in nature. Further validation through future research is necessary.

The implication that increasing school-level racial diversity was connected with reductions in the impact of racial mismatch on perception of engagement may provide more evidence for the situational factors that influence effective instruction in diverse classrooms. First, increased diversity means that there is, by definition, varying perspectives within the classroom. This is a key component of most models of culturally responsive instruction: increased voice of those who are typically marginalized (Delgado & Stefancic, 2012; Ladson-Billings & Tate, 1995). The findings here follow, suggesting that with increased representation at a school level, the experience of SEL instruction in the classroom will be more likely to be engaging to a higher proportion of those in the classroom regardless of the overall diversity of the classroom. This may be due to an overarching school culture that values diverse perspectives. Further, even if a teacher fails to incorporate the diverse perspectives in their particular

classroom, because there are more students who are representative of diverse perspectives in the classroom and wider school environment, the likelihood of questions, examples, and experiences that are relatable to these students arising during SEL instruction (thus, increasing engagement) may be higher.

An additional explanation for the finding that higher diversity within the school reduced the impact of racial mismatch on perception of student engagement is that the students themselves are simply already more prepared to build strong social and emotional competencies. One key area of social competencies is learning how to interact with others who have a variety of backgrounds that are *not the same as one's own* (CASEL, 2017b). Students who attend a school that has a higher level of diversity in the student body (and by extension the community) likely have already developed relatively sophisticated skills for interacting with others. Following this logic, it would not be surprising for these students to be better able to engage in an SEL curriculum. Moreover, they are likely more capable of "code switching" effectively, as students of marginalized backgrounds are often required to do so across multiple contexts in their day to day lives—including in school (Heath, 1982). Thus, they are more skillful in learning during instruction that may not perfectly reflect their own experience. Therefore, the case could be made that the increased engagement may have as much to do with student competency as teacher delivery.

The impact of racial mismatch on perception of engagement as school level poverty increases falls in line with prior research (see Low et al., 2014) and bears some consideration as well. Though further research will be needed to provide true interpretation of this finding, there are some potential reasons worth considering. Poverty is known to be a barrier to implementation alone (Elias et al., 2003). It is also known to be highly correlated with race (Skiba et al., 2012). It

may be that the increased pull on teachers' time and other resources due to increased poverty in the school and community (e.g. lack of teaching resources, poor school infrastructure, increased non-school related difficulties for students) leaves teachers unable to devote time or resources to implement SEL to engage a racially diverse classroom. On the other side, students may actually be less engaged due to the constellation of out-of-school difficulties they are more likely to be facing and which reduce their ability to engage with classroom instruction (Skiba, Shure, & Williams, 2012).

The impacts of school diversity and school level poverty on the relationship between racial mismatch and teacher perception of implementation demonstrated an interesting contrast. Though these factors are often connected in school populations with race and poverty tending to increase together, and were within the current study, school diversity and school level poverty actually had opposite effects on the mismatch to engagement relationship and only became impactful when both were taken into account jointly. One potential explanation for the contrast, and a limitation of the findings in general, is that race was defined as a binary based on minority status rather than breaking apart into different racial identities. Based on this approach, racial diversity in a school that is predominantly Asian would, within this study, appear the same as a school that is predominantly Black, even though the data on disparities in academics suggests that these two minority groups can be subject to very differently biases in academic contexts (Chhuon & Hudley, 2010; Samuels, 2007). Given usual distributions of income and race, it may be that poverty level in the schools actually stood in as a proxy for specific racial groups that tend to be more acutely affected by racial disparities in education. The final research question attempted to resolve this question.

Variation in implementation due to racial group representation in the classroom. Though the hypothesis was that there would be differences in implementation based on racial group representation, there was none found in the current study. A limitation to the analysis for this research question was the lack of a sizeable and evenly distributed sample. Though the original sample of classroom was large (89 classrooms), when split between the number of racial groups included within the sample the number of individual classrooms within each group for comparison was decidedly smaller. Further, the method used to categorize classrooms was potentially a limiting factor. Current research does not describe a cut-off point of percentage of students in a classroom that are minority status, after which that classroom should be considered "diverse." The decision process itself (e.g. 25% or higher of a racial group, 65% or higher of white students) may have reduced the size of the sample groups unnecessarily. It is possible that the resulting limited and unbalanced sample groups led to no findings when notable differences did exist but were not detectable in the current sample.

It has long been known that there are important nuanced differences in behavioral norms, social and emotional expectations, and communication styles among individuals of different races (Castro-Olivo & Merrell, 2012; Sue & Sue, 2012). Logically, it follows that the theoretical premise behind these differences likely also translates to variation in learning styles, response to specific methods of instruction, and the appearance or style of engagement in the classroom. Though the current study did not confirm this hypothesis, it seems possible that there may yet be more to discover in this research direction.

Study Limitations

There are a number of limitations to consider in the current study. First and foremost is that the current study only provides correlational evidence of the relationships described. As

such, it must be considered that other, unaccounted for variables may explain the relationships discussed in this study. These may include teacher experience which can play an important role in the ways in which they interact with students, teacher attitudes toward SEL instruction which could highly impact their implementation or engagement with students in general, or training which could impact their ability to meet students where they are. To better understand the relationships discussed in this study, it will be important for future research to attempt to replicate these findings with additional variables, such as those described above.

Because the original study from which the data was drawn was not originally conducted with implementation as a target outcome variable, the outcome variables themselves do not provide a thorough accounting of implementation. Most models of implementation include measurement of a wide variety of factors, ranging from initial uptake by the organization through the delivery and ongoing sustainability of the resulting practices (Proctor et al., 2011). Due to the available data, only factors related to one band of this process were assessed: teacher delivery (adherence and generalization) and initial student reception (engagement). Those factors that are typically related to the initial motivation and ability of teachers (e.g. interest, organizational structures, availability of resources) to implement were not assessed nor were long term maintenance of the tools (e.g. continued use 1 to 2 years later, reinforcement of learned skills in later grade levels). The initial uptake factors may have played a role which would have affected the implementation measures that were measured and thus should be included in future studies. Further, to understand fully the implementation effectiveness, long term follow-up should be assessed. Moreover, because of measurement tool limitations, a significant ceiling effect was found on the adherence variable, which placed limitations on the interpretability and detectability

of significant effects. While generalization and engagement provided more normal distributions, the constructs only provide a limited window into the full concept of implementation.

The measurement method for the implementation variables was another limitation of the current study. Teacher use of the SEL curriculum was likely higher than what would have happened in a non-experimental natural setting due to selection bias. Estimates of implementation were assessed through teacher self-report on Likert-style rating scales with high face validity. As a result, the possibility of responding because of social desirability is a potential confounder of the measured outcome variables. Though there were additional implementation fidelity checks completed in the original study by outside observers, these objective observations were not connected to the reporting or measure of the implementation outcomes and were unavailable for inclusion in the current study. Furthermore, because the current study required teachers who participated to implement the curriculum, there is likely at least a nominal impact on implementation, because teachers who actively chose to participate were inherently more likely to implement the curriculum effectively than those who would choose not to participate.

Power and sample size were another notable limitation due to the hierarchical nature of teachers within schools. Though a significant number of teachers participated in the study and completed the outcome variables (89 teachers), the fact that teachers were then spread across 20 schools the number of teachers per school was highly reduced, in some cases only including 2 or 3 teachers. This grouping approach, though necessary, led to a decrease in the likelihood of finding significant effects. This may have led to less significant findings in the outcome measures than what may have been found with a larger sample size. Similarly, when testing for variance between different classroom populations, uneven group sizes likely impacted the

outcomes. Replication would be an important step to either confirm or elaborate on the findings in this study.

Future Directions

The current study has demonstrated that racial mismatch plays a significant role in the implementation of an SEL curriculum. As with previous research into the role of racial mismatch in academic instruction, students are better able to engage when they can identify with the person that is teaching them (Goldhaber et al., 2015). However, the fact that exposure to higher diversity in the school community decreased the effect of racial mismatch in the reception of SEL instruction adds an important qualification that the impact of racial mismatch is changeable. This suggests that there are steps that should be identified to reduce this disparity in SEL implementation, including developing training to address engaging diverse students, establishing approaches for white teachers to engage with racially diverse student populations, and refocusing SEL curriculum and instruction to prioritize student and community representation and voice.

One primary future direction is the role of training in providing universally *engaging* SEL instruction. While *Second Step* is a model universal SEL curriculum, the current study demonstrates that intentional thought and interpretation during intervention remains necessary to ensure it is culturally relevant to students. As Garner and colleagues (2014) highlights, SEL by its very nature includes content that relies on an awareness and appreciation of cultural differences. Moreover, because of the array of nuances that may arise within SEL instruction in a diverse classroom, no curriculum alone can address the topics effectively without becoming either overly cumbersome or reducing cultural nuance into stereotypic or essentialized descriptions (Bernal et al., 2009). Instead, those who facilitate students' learning must be able to address the nuanced differences in how social or emotional interaction may look for those who

have been raised with different perspectives or expectations. Directed and effective training and ongoing support for both pre-service and in-service teachers will be a necessary component to continue improving SEL efforts. Research in the most effective methods for supporting teachers, particularly with racial mismatch in mind, will be an important next direction.

Education continues to be dominated by staff and teachers who are White. While the importance of diversifying the teaching workforce cannot be understated (Goldhaber et al., 2015), establishing how teachers who are White can provide more effective SEL support for students of color is critical. Borrowing from established research on culturally responsive teaching (see Gay, 2002; Ladson-Billings, 2014) and service delivery (see Zigarelli, Jones, Palomino, & Kawamura, 2016), a practical next step would be to seek out the translatability of these approaches to inform culturally responsive SEL instruction. Further examples in other areas of service delivery (e.g., Families and Schools Together, McDonald et al., 1997) and theory (e.g., Critical Race Theory, Ladson-Billings and Tate, 1995) suggest the importance of seeking community priorities; highlighting stakeholder voice and choice; and recognizing that racism, privilege, and other power dynamics are ordinary occurrences that must be acknowledged.

It is from this recognition that a final future direction for research and development, and a key aspect of these approaches comes. Any future development of a culturally-responsive SEL approach would need to prioritize student and community voice. The observed dichotomy between teacher delivery and student reception suggests that an important barrier may be the lack of relatability of SEL instruction to students' own lived experience. Addressing this requires reducing teacher voice or pre-produced problems to solve and increasing student and community voice. This can take many forms, such as asking students' families to discuss real life problems in the community, encouraging students to come up with their own solutions to problems, and

ensuring that instruction is not reliant on ending on a pre-determined “correct” answer to each question. Seeking ways to reduce the noise and create open space for student voice will be key to the ongoing development and implementation of high quality SEL instruction.

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Appendix

Complete Measures with Items

Table A1
Complete Items by Scale from My Classroom Inventory (MCI) Measure

Items by Scale	Content
Cohesiveness	
5	In the class everyone is friends.
11	There appears to be classroom cohesion between the students and me.
12	Students in the class have good buddies.
18	All students in my class get along well with each other.
24	All students in the class are fond of one another.
29	There is unity among the students in my class.
Satisfaction	
1	The students enjoy their schoolwork in their class.
6	Students seem to feel good about learning in my classroom.
7	Students are happy with the class.
13	Students seem to like the class.
19	Most students appreciate their learning experiences in the class.
25	The students see the class as fun.
Friction	
2 (reversed)	Students never fight with each other.
8	Some students in the class are mean.

14	Many students in the class provoke tension.
20	Certain students always want to have their own way.
26 (reversed)	Students in the class don't quarrel much with each other.
30 (reversed)	Students in the class care for each other as friends.
Difficulty	
4	In the class the work is hard to complete.
10	Most students cannot complete their assignments without a lot of help.
16	Only the brightest students can do all the work.
22	The school work is too complicated for the students.
23 (reversed)	In my class, learning seems less difficult for students.
28	Most students in the class don't know how to do their work very well.
Competitiveness	
3	Students often race to see who can finish their work first.
9	Most students want their work to be better than their friend's work.
15	Some students feel bad when they don't do as well as others.
17 (reversed)	The students tend to work cooperatively.
21	Some students always try to outperform their peers.
27 (reversed)	Only a few students in the class want to be the top scorers.

Note. Reversed items are inversely scored when calculating the composite scale scores. All items were rated on a 5-point Likert style scale with the following options: 1 (Strongly disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), 5 (Strongly agree).

Table A2.

Complete Items for Administrative Support Questionnaire (ASQ) Measure

Item Number	Item Content
1	To what extent does your site administration believe it is important to include social-emotional learning curriculum, like Second Step, in your school programming?
2	To what extent do you think your site administration will support continued implementation of Second Step after this study is over?
3	To what extent has your site administration been supportive of your role as the liaison?
4	To what extent has Second Step implementation been incorporated into your school's plan and vision for the year?
5	To what extent does your site administration make Second Step a topic for discussion during faculty meetings?
6	To what extent has your site administration let staff know it is important to implement the Second Step program fully and well?

Note. All items were rated on a 4 point Likert style scale with the following options: 0 (Not at all), 1 (Slightly), 2 (Moderately), and 3 (Very).

Table A3.

Complete Items by Scale for Implementation Survey Measure

Items by Scale	Content
Adherence	***Prompt:*** When teaching lessons, people sometimes skip or change parts of the lessons. To what extent did you do the following for Lesson __:
1 (reversed)	Leave out parts of the lesson
2 (reversed)	Skip parts of the lesson
3 (reversed)	Change the lesson **significantly** from the way it was written
4 (reversed)	Add new material to the lesson
Generalization	
1	To what extent did you do specific things to strengthen and reinforce your students' use of skills taught in the Second Step program during your academic lessons the week you taught **Lesson __**?
2	To what extent did you do specific things to strengthen and reinforce your students' use of skills taught in the Second Step program outside of your academic lessons the week you taught **Lesson __**?
3	During the week that I taught **Second Step Lesson __**, when my students exhibited a skill that was taught in **Lesson __**, I offered praise and recognition.
4	During the week that I taught **Second Step Lesson __**, my students used the skills they learned from **Lesson __** effectively *on their own*.
5	During the week that I taught **Second Step Lesson __**, my students used the skills they learned from **Lesson __** effectively *when prompted*.
Engagement	

1 (reversed)	To what extent were students distracting other students during **Lesson __**?
2	To what extent were you able to manage student behavior during **Lesson __**?
3	To what extent were your students following along with **Lesson __**?

Note. Reversed scores were inverted when calculating composite scales. All items were rated using a 4-point Likert style scale using the following ratings: 0 (Not at all), 1 (A little), 2 (Some), 3 (A lot).