Boston College
Lynch School of Education and Human Development

Department of
Counseling, Developmental, and Educational Psychology

Counseling Psychology Program

CONNECTING THE DOTS: ENHANCING OUTCOMES FOR STUDENTS WITH EMOTIONAL DISTURBANCE THROUGH INTEGRATED STUDENT SUPPORT

Dissertation
by

EVAN B. MICHEL

submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy

May 2021

Connecting the Dots: Enhancing Outcomes for Students with Emotional Disturbance through Integrated Student Support

Evan B. Michel

Mary E. Walsh, Chair

Out-of-school factors including poverty, mobility, and violence contribute to student learning and development where need often influences negative outcome gaps over time (Coalition for Community Schools, 2018; Mattison & Aber, 2007; Moore, 2014; Moore & Emig, 2014). A subset of students face these and additional challenges with emotional disturbance (ED). The ED designation is a strong predictor of poorer outcomes even with special education practice in place (de Voursney & Huang, 2016; IDEA, 2004; Lewis et al., 2017; Moore et al., 2017; Olivier et al., 2018). These findings heighten calls to reform support systems around students, especially those students facing the most need.

Integrated Student Supports (ISS) emerged as a systemic approach to comprehensively service in and out-of-school needs (Moore, 2014; Moore & Emig, 2014; Lee-St. John et al., 2018; Moore et al., 2017). However, limited research exists on the impact of tandem ISS services on special education accommodation for students with ED. This study focused on an approach to ISS, City Connects, on academic and behavior outcomes for students with ED impairment. City Connects offers tailored support for the whole child and implementation has resulted in positive outcomes (City Connects, 2010, 2012, 2016, 2018, 2020; Walsh et al., 2014). The study had two aims. First, to determine if students with ED designation (N=4,427) scored lower on academic and thriving outcomes than students never in special education (N=14,475). The second was to assess if ever participating in City Connects (N=5,067) moderated the

relationship between ED impairment and outcomes. School-fixed effects regressions assessed these aims.

Results revealed that students with ED scored significantly lower across all outcomes. Analyses for the second study aim were variable. Math scores were significantly higher for City Connects students than children without these supports. Writing and MCAS-ELA scores did not significantly differ between the two groups. Reading and behavior marks were significantly lower for City Connects students. The predicted moderation of City Connects only met significance for reading scores. Findings partially support hypotheses and promote greater attention to investigations of subsets of students and the mechanisms behind the response to City Connects and ISS more broadly.

Acknowledgments

Many others contributed to this work being a possibility and helped my making it to the finish line. I would first like to thank my dissertation committee – Dr. Mary Walsh, Dr. Julie MacEvoy, and Dr. Eric Dearing – for patience and flexibility through my process. Your thoughtful contributions and words of encouragement made this research come to life.

To those on the City Connects team, your diligence and focus to such important work creates ripples in the lives of so many. A special thanks to Stacey Raczek, Jordan Lawson, Noman Khanani, and Terry Lee-St. John for many moments of consultation and shared wisdom. My appreciation for all that you did to support my success is endless.

To my family, friends, and colleagues, I cannot capture how grateful I am for the countless forms of support and love I received from you all. From laughs to brainstorms to consultation, it all brought me to this point and beyond. Craig, you are a compass. Jim, can feel the international hug. Zach, a sage backer. Bates crew, great day! Mom, Dad, Nate, Cait, and the boys, you knew what to say and do throughout it all to keep me determined. J, thank you for bringing clarity, kindness, and drive to my work, my goals, my days.

And to both the supports that I have lost on the way and the amazing families I've had the privilege to work with, you continue to guide how I see this world and what I want to contribute to it. This dissertation is dedicated to you.

TABLE OF CONTENTS

Chapter I: Introduction

Promoting student learning and development is the foundation for education. However, students face a number of factors that influence wellbeing and functioning. Elements of the school environment (i.e., resources, teachers, and climate) are impacted by more-than-schooling factors such as poverty, violence, and instability. While strengths in these areas move a student toward a path of positive adaptation over time, areas of risk can be a barrier to successful learning and development. For instance, a large body of evidence underscores that poverty contributes to negative academic, behavioral, and physical health scores (Dahl & Lochner, 2012; Dearing, McCartney, & Taylor, 2006; Halle et al., 2009: Rothstein, 2004). Early and consistent stressors are detrimental to cognition and achievement, behavior, and interpersonal interactions (AEI Brookings, 2015; Thompson & Haskins, 2014). Outcome gaps are consistently and increasingly identified between students facing these experiences and those students that do not (Coalition for Community Schools, 2018; Mattison & Aber, 2007; Moore, 2014; Moore & Emig, 2014). As a result, supporting students that face any number of risk factors is critical to ongoing and successful development.

Notably, service delivery in schools has been historically critiqued for being fragmented and ineffective (Adelman & Taylor, 2000; Adelman & Taylor, 2008; Harbin et al., 2004; Simpson & Yocom, 2005; Taylor & Adelman, 2000). One reason for this inefficiency was a lack of a sustainable delivery model that addressed individualized needs through a systematic and comprehensive approach (Bruder, 2010; Guralnick, 2011). Policies meant to attend to such gaps by simultaneously and comprehensively addressing academic and non-academic factors led to the formation and practice of what is known as “Integrated Student Support.”

Integrated Student Support (ISS)

Integrated Student Support (ISS) is a systemic, school-based approach to servicing the in and out-of-school needs of the whole child to enhance successful outcomes for all students within a school (Moore, 2014; Moore & Emig, 2014; Lee-St. John et al., 2018; Moore et al., 2017; Walsh et al., 2014; Walsh, Sibley, & Wasser Gish, 2018). The mission and practice of ISS expand traditional achievement-based supports to include elements that impact the whole child such as emotional, behavioral, and physical development among other domains (Moore, 2014; Moore & Emig, 2014; Moore et al., 2017; Walsh et al., 2014; Wasser Gish, 2019). Further, extension to the whole school and whole community permit the coordination of resources that can be directed at the level of the student. Since inception, federal recognition of ISS approaches in the 2015 reauthorization of the Every Student Succeeds Act (ESSA) has encouraged national implementation and expansion within schools (Moore et al., 2017).

The ISS approach brings together several components including needs assessments, school integration and partnerships, prevention and intervention support coordination, and progress monitoring (City Connects, 2018, 2020; Karatekin, Hong, Piescher, Uecker, & McDonald, 2014; Lee-St. John et al., 2018; Moore, 2014; Moore & Emig, 2014; Moore et al., 2017). Needs assessments at the community, school, and student-level determine areas of need and resources available to address factors that contribute to outcome gaps. Schools determine implementation plans based on these assessments which help facilitate ongoing communication and coordination from school and ISS personnel. Partnerships are established between varied stakeholders and systems (i.e., school and ISS staff, support providers, and families) with defined goals and responsibilities (Karatekin et al., 2014; Lee-St. John et al., 2018; Oakes et al., 2017). These partnerships adapt over time to meet the changing demands and needs found for individual

students and districts (Moore, 2014). Moreover, partnerships promote identification and use of available services to meet the needs faced by students and families. By supporting the whole child, services are tailored to meet the strengths and needs and intensity of these factors for each student (Bowden, Shand, Belfield, Wang, & Levin, 2017; Foley et al., 2015; Karatekin et al., 2014; Lee-St. John et al., 2018; Moore et al., 2017; Moore & Emig, 2014; Sibley et al., 2017; Walsh et al., 2017). A critical element of ISS practice includes data/progress monitoring of each student's strengths and needs, response to services, and adjustments to supports as needed (Moore, 2014; Walsh et al., 2017). The blend of these features contribute to ISS' success.

Several evaluations of ISS exemplars from peer-reviewed articles to reports and policy briefs have indicated positive outcomes across multiple areas when compared to students that did not receive such support. The outcomes include: better academic scores in ELA and math (City Connects, 2010, 2012, 2016, 2018, 2020; Dearing et al., 2016; Lawson et al., 2019; Moore et al., 2017; Moore & Emig, 2014; Walsh et al., 2014), improved behavioral scores (Castrechini & London, 2012; City Connects, 2010; Osher et al., 2016), and increased attendance, grade promotion, and graduation rates (City Connects, 2010, 2012, 2014, 2016; Lee-St. John et al., 2018; Moore & Emig, 2014; Sibley et al., 2017). While these outcomes have been noted in the general student body, investigations of the impacts of ISS on select student groups are also important. Limited research has considered the influence of ISS, specifically City Connects, on student subgroups (i.e., immigrant children, English language learners, Black and Latino students, and students receiving special education referrals), however a subgroup of students not specifically evaluated are children facing social-emotional-behavioral needs.

Social-Emotional-Behavioral (SEB) Impairment

Children arrive to the academic setting with diverse abilities that can positively or negatively influence opportunities to access educational material and to progress alongside peers. Varied impairments that are not specific to academics can become evident as students attempt to meet educational expectations; these include specific social, emotional, and behavioral (SEB) needs. Challenges in the SEB realms can contribute to difficulties engaging with classroom materials and cooperating with others. The pervasiveness of SEB impairments are far reaching, influencing student growth, classroom performance, and the functioning of the systems around the child (i.e., families, schools, communities). Notably, impairments with the SEB realms are recognized as one of the most challenging disability categories to address (Stoutjesdijk, Scholte, & Swaab 2012). Defined in the field of education as an emotional disturbance (ED), several students also have SEB needs that do not meet the definition of an ED disability. Both the number of children meeting the ED definition and those students with lower threshold SEB needs are rising (Chasson, Harris, & Neely, 2007; Chitiyo, 2014; Conyers, Reynolds, & Ou, 2003; de Voursney & Huang, 2016; Harbin et al., 2004; Kern et al., 2017). This rise is concerning especially due to the short and long-term outcomes found for this student population.

Special education services have been unsuccessful at consistently promoting development across academic and behavioral measures for these students. Outcomes for children with severe ED and with SEB needs include lower academic/behavioral scores, and higher rates of behavioral interventions, dropout, and post-schooling unemployment, mental health concerns, and homelessness (de Voursney & Huang, 2016; Lewis et al., 2017; Moore et al., 2017; Olivier et al., 2018). Inevitably, students are faced with a demanding/overwhelming path if respective SEB needs are not addressed (Gutman, Sameroff, & Cole, 2003; Rones & Hoagwood, 2000).

These outcomes highlight needed reviews of support systems around children, especially those students facing SEB needs among other concerns. The ISS approach appreciates that cognitive abilities, social-emotional behavior, and out-of-school factors are not separate influencers, but interrelated and equally important for all student learning (Moore et al., 2017). The best prospect to address concerns of the current system for those students in need is held by ISS. This point is underscored by looking closer at City Connects which returns the most consistent positive outcomes of all the ISS approaches.

City Connects – Optimized Student Support

City Connects is founded on principles from developmental orientations to address out of school factors that impact learning and growth. City Connects approaches support by leveraging students' strengths and addressing need with multitiered, coordinated efforts of preventions to intensive interventions across settings and time (City Connects, 2018, 2020; Walsh & Backe, 2013; Walsh & Brabeck, 2006; Walsh et al., 2014). Coordinators collaborate with educators, school team members, and families to assess all students within the school. Whole-class evaluations and individual-student reviews (as needed) identify areas of strengths and needs within varied domains (academic, social-emotional-behavioral, family, and physical health/medical). Students are subsequently offered an individualized plan of tiered services including prevention and enrichment, early intervention, and intensive/crisis intervention across systems (individual, family, school, and community). Participation and response to such supports are closely recorded to support student reviews, appropriate allocation of services, and progress monitoring (City Connects, 2018).

The continued assessment of City Connects has returned robust positive results across short and long-term outcomes (City Connects, 2010, 2012, 2016, 2018, 2020; Walsh et al., 2014).

Students receiving City Connects supports score higher within individual subjects, grade point average, and standardized testing (City Connects, 2010, 2012, 2016, 2018, 2020; Lawson et al., 2019; Walsh & Backe, 2013; Walsh et al., 2014). Moreover, lower rates of absenteeism, retention, and drop out are all found when the City Connects intervention is present within a school (City Connects, 2010, 2012, 2014, 2016; Walsh & Backe, 2013; Walsh et al., 2014). The intervention is also cost-effective for schools to implement (Bowden et al., 2015; City Connects, 2016). Multifaceted in scope, the program has multilevel benefits for communities, schools, and importantly students and families. These beneficial outcomes emerge secondary to City Connects' strong foundation in developmental theory, which is described in the next section.

Theoretical Tenets in Child Development

With a focus on understanding factors that influence adjustment, developmental and ecological theorists have established an encompassing science of the processes involved in typical growth and the emergence of psychopathology (Cummings, Davies & Campbell, 2000). This approach to human development is multifaceted as it: (a) involves bio-psycho-social levels, (b) includes strengths and deficits, (c) is affected by context, and (d) occurs over the lifespan (Walsh, Galassi, Murphy, & Park-Taylor, 2002).

Developmental psychology is person-centered, focused on understanding the biological, psychological, and social characteristics that impact functioning for each child including those students with special needs (Bulotsky-Shearer, Fantuzzo, & McDermott, 2010). These factors interact throughout development in ways that can promote or hinder growth. Individual qualities of children that are emphasized by developmentalists are similarly embraced by the "whole-child" approach of ISS. Focused on tailoring support to each student's unique combination of strengths and needs, ISS monitors student progress as each domain transforms over time.

Expanding from the child, the developmental lens incorporates contextual elements into the formulation of risk and preventative support. That is, a child's bio-psycho-social qualities are embedded within her or his social environments which can also have positive and negative impacts on development (Cicchetti & Sroufe, 2000).

Integrating supports through this approach follows key lessons from developmental theory. Understanding the potential for both positive and negative trajectories over time, preventions and interventions can promote development and thriving for anyone, especially those children facing severe risk/need. Early supports have been shown to positively influence academic and psychosocial outcomes (Barnett, 1995, 2011; Berrueta-Clement, 1984; Katsiyannis et al., 2012; Phillips & Meloy, 2012). Researchers have found that the primary school years are an integral period to implement prevention and intervention services to address initial concerns and reduce the impact of issues in the future (Davidson, Waldo, & Adams, 2006). Schools are essential in offering such supports and, when delivered in a comprehensive and tailored fashion, can shape a child's path towards wellbeing and thriving. However, the results of traditional services including special education have returned inconsistent findings and calls for continued investigation of supports (such as ISS) and outcomes for students in general and subgroups of students.

Rationale for the Study

Despite the promise of special education, children with ED face negative outcome trajectories across the primary and secondary school years and into adulthood. Comprehensively targeting individual student qualities (i.e., emotionality, social skills, behaviors, etc.) and non-academic barriers to learning (i.e., violence, instability, poverty, etc.), as demonstrated through ISS, can enhance the developmental pathways ahead of these students. Varied approaches to ISS

have developed to enhance growth over time by meeting the diverse needs and strengths of the whole child. Yet, limited research exists on the impact of ISS in adjunct to special educational services on students with ED. The current study aims to fill this gap by investigating the relationship between ED special education status, City Connects, and developmental outcomes.

Several evaluations of City Connects have demonstrated the robust beneficial impacts the optimized student support has on short-term and long-term academic, behavioral, and thriving outcomes. This study attempts to expand the examination of City Connects to students receiving special education for ED. This analysis will determine if the outcomes found in the existing ISS literature are true for this specific sample of students. As students with ED special education needs commonly perform lower than students without these needs, it is expected that students ever in special education will score lower than students never in special education on all Math, ELA, and the Behavioral Thriving measure. However, when the positive outcomes related to City Connects are examined in a special education population with ED, it is proposed that there will be a City Connects effect. That is, students in City Connects who ever had an ED disability will score higher on outcomes (Math, ELA, Behavioral Thriving) than students who ever had an ED disability never in City Connects. Hypotheses will further account for outcomes between students ever having an ED disability and receiving City Connects and those students never having such designation or support. Specifically, there will not be a significant difference between students in City Connects who ever had an ED disability and students never in City Connects and never in special education on these outcomes.

Proposed Study

The proposed study aims to assess if the effects of a unique model of ISS – City Connects – impacts students that qualify for special education on the basis of an ED disability. This study

examines the relationship between students, special education designation for ED, City Connects treatment, and academic and behavioral outcomes. Specifically, the following questions will be targeted in the proposed dissertation:

1.) Do students with an officially designated ED disability score lower on academic and thriving outcomes than students never in special education?
2.) Does ever participating in City Connects interact with ED disability on academic and thriving outcomes?

Chapter II: Literature Review

Development is a dynamic, ever-evolving process varying from individual to individual. The interplay between fundamental levels of genetic makeup/predispositions and higher levels of processing such as cognition, learning, and emotion contribute to unfolding patterns of adaptation and maladaptation (Cicchetti & Sroufe, 2000, U.S. Department of Health and Human Services, 1999). Accounting for these elements, contemporary developmental theorists have integrated a transactional model that combines growth, context, and pathways across the lifespan (Cicchetti & Sroufe, 2000; Walsh et al., 2002). By emphasizing multifactorial causation, developmental theory provides the foundation to identify the processes underlying mental disturbance and wellbeing (Cummings et al., 2000; Cicchetti & Toth, 2006).

This understanding suggests that growth cannot be viewed in a linear fashion. Due to the continued interactions between risk and protective factors, developmentalists assess the trajectories that lead different beginnings to manifest in similar or varied outcomes (Cicchetti & Sroufe, 2000). Furthermore, using this perspective offers a renewed interest in the importance and possibility of change during the varying phases of development (Sroufe, 1990). Theorists attempt to bridge the gap between theory and practice by informing preventative treatments and interventions (Cicchetti & Toth, 2006). Cicchetti and Sroufe (2000) assert that the consequences of bio-psycho-social factors are embedded in the developmental context. Therefore, the services that one chooses to utilize can, and should, be directed beyond the individual to family, school, and community levels. By taking a systemic approach to preventive techniques and intervention, the dynamic individual, in relation to his or her context, is seen as a whole. The relationship between all of these elements are most clearly witnessed during the school years.

Students arrive to school each day facing varied factors that impact functioning. Academic achievement, social interactions, and behavior are influenced by everything occurring within the school walls and outside those walls as well. Some students have varied resources advantageous to development such as neighborhood safety, parental involvement, social connections, and school engagement (Bowen, Rose, Powers, & Glennie, 2008). Yet many situations including homelessness, conflictual family systems, and parental mental health challenges place students at risk of negative outcomes from an early age (Bruce, Bridgeland, Hornig Fox, & Balfanz, 2011; Thompson & Haskins, 2014). Experiencing these out-of-school factors can influence behaviors necessary throughout the school day and can be a barrier to learning and development (Crowder & South, 2003; Moore, 2014; Moore et al., 2017). Persistent and increasing gaps are found between students facing these experiences and those students that do not (Coalition for Community Schools, 2018; Mattison & Aber, 2007; Moore, 2014; Moore & Emig, 2014).

While several elements influence thriving, factors including socioeconomic status (SES), instability, and violence have been examined more closely due to the widespread ramifications for families and communities. Considering both broad and restricted classifications of low SES and poverty offers a lens into the stressors faced by many students (Magnuson, 2013). Limited income contributes to hardships that independently and collectively influence wellbeing (Dahl & Lochner, 2012; Thompson & Haskins, 2014). Poverty compromises and confines investments in child development that inevitably undermines child functioning and that of the systems around each child (Dearing et al., 2016). Children may be raised in less stimulating environments that include punitive, disengaged, and sometimes abusive/neglectful parenting (AEI Brookings, 2015). Subsequent responses can include disengagement from academics, behavioral dysregulation at school, and a failure to thrive. Familial income has been connected to negative

outcomes in math and reading (Dahl & Lochner, 2012; Rothstein, 2004), externalized behavior scores (Dearing et al., 2006), and physical health assessments (Halle et al., 2009). Disparities in ratings begin as early as infancy and can persist throughout childhood, adolescence, and adulthood (Blair & Raver, 2015; Halle et al., 2009). These results are even more alarming with research indicating that gaps are rising between students with accessible financial resources and those children living in poverty (AEI Brookings, 2015).

Related to or distinct from poverty, instability and violence also influence student outcomes. Sudden changes can have harmful impacts on development (Moore et al., 2017; Sandstrom & Huerta, 2013). Cavanagh and Huston (2008) found that instability contributes to poorer classroom behaviors and overall social adjustment relative to students without similar changes. Various uncertainties can add to violence at home, school, or in the community. Exposure to violence across contexts has been linked to negative IQ and standardized testing outcomes during childhood (Berliner, 2009; Delaney-Black et al., 2002). Both instability and violence among other factors lead to unpredictable lives and contribute to developmental challenges. Consideration of these and other areas has increased as providers have become increasingly aware of the unique and cumulative effects out-of-school factors have on student growth.

Early and chronic adversities can strain both student functioning and the settings around each child. Stressors impact developing minds which contribute to difficulty managing behavioral and academic demands (AEI Brookings, 2015; Thompson & Haskins, 2014). These impacts are frequently recorded in achievement and behavioral measures (AEI Brookings, 2015; Blair & Raver, 2015; Magnuson, 2013; Sandstrom & Huerta, 2013). The combined influence of out-of-school factors and poor outcomes can create a climate that exacerbates disadvantage. In part, the climate shapes students' motivation for academics, perceived fairness between students, and

enthusiasm from educators (Ander, Guryan, & Ludwig, 2016; Mattison & Aber, 2007). Pessimism filters into the academic setting and pervasively into children's learning (Ander et al., 2016). Such a climate is shaped in large part by the low number of interventions shown to address stressors and benefit developmental outcomes (Ander et al., 2016).

Despite potential resiliencies, many students and schools will be overwhelmed without supports meant to address the multitude of out-of-school factors impacting development (AEI Brookings, 2015). Supporting the myriad of student abilities and "more-than-schooling" attributes is crucial for promoting growth in its many forms (Dixon-Roman & Nyame-Mensah, 2017; Markowitz, 2017; Moore, Lippman, & Ryberg, 2015; Oakes, Maier, & Daniel, 2017). More focus has been directed towards servicing non-academic barriers that maintain/worsen gaps between students (AEI Brookings, 2015; Moore et al., 2017). This attention to non-academic challenges to learning, informed by lessons from developmental theory the literature on effective approaches in special education, has led to the formation of an approach to schooling called "Integrated Student Support."

What is Integrated Student Support (ISS)?

Urges from school and community providers, national and local policy, and financial investments contributed to the creation and practice of Integrated Student Supports (ISS; Moore, 2014; Moore et al., 2017; Walsh & Wasser Gish, 2017; Wasser Gish, 2019). Integrated Student Supports are a systemic, school-based approach to enhancing all students' success through coordinated services directed toward the whole child by addressing in and out-of-school factors shaping functioning (Moore, 2014; Moore & Emig, 2014; Lee-St. John et al., 2018; Moore et al., 2017; Walsh et al., 2014; Walsh et al., 2018). Expanding on elements from earlier approaches to accommodation (i.e., systems of care, wraparound supports, etc.), the terminology of ISS

originated in Moore and Emig's (2014) report on existing evidence from the field that provided the research basis for ISS. Initiatives consistent with ISS have since been federally recognized in the 2015 reauthorization of the Every Student Succeeds Act (ESSA) which encouraged implementation nationally and resulted in continued expansion of approaches and use within schools (Moore et al., 2017).

Moving from a narrower focus on achievement, ISS broadens educational accommodation through a more holistic approach to support. Approaches claiming to be consistent with ISS (i.e., City Connects, Communities in School, Community Schools, etc.) hold that student potential is influenced by both academic and non-academic needs and, when unmet, influence all developmental areas (Moore, 2014; Moore & Emig, 2014; Moore et al., 2017; Walsh et al., 2014; Wasser Gish, 2019). Comprehensively assessing and servicing the level of the student, ISS distinguishes itself from other forms of support by using this whole child view.

The whole child lens extends to the whole school and whole community as resources and influences between systems are leveraged to promote cognitive, emotional, physical, and social development at the student-level (Lewallen, Hunt, Potts-Datema, Zaza, & Giles, 2015; Raspberry, Slade, Lohrmann, & Valois, 2015; Sibley et al., 2017). Several elements are consistent across ISS approaches that establish an "integrative" nature: needs assessments, incorporation within the school, partnerships, support coordination, and data/progress monitoring (City Connects, 2018; Karatekin et al., 2014; Lee-St. John et al., 2018; Moore, 2014; Moore & Emig, 2014; Moore et al., 2017).

Needs Assessments

Needs assessments are essential for ISS implementation. School personnel and ISS staff work to identify areas of need and strengths within the community, school, and for students.

Assessments of the school and broader community help identify gaps in each system and determine accessible supports (City Connects, 2018; Moore, 2014; Moore & Emig, 2014). This systematic evaluation leads to a better understanding of the context around a student and planning for ways of addressing areas of need at the student-level (Raspberry et al., 2015). The ISS approach also incorporates general to more intensive assessment of individual students to detect areas of risk and strength (i.e., attendance, behavior, performance, health, etc.) thus aligning with the framework of multi-tiered systems of support (MTSS; Lewis, McIntosh, Simonsen, Mitchell, & Hatton, 2017; Moore et al., 2017; Sibley et al., 2017). Such assessment spreads the ISS evaluation to all students and not just those students facing acute need; a characteristic unique to ISS from other support approaches (Bowden et al., 2017). Findings from both student-level and system-level assessments permit the tailoring of services to students, families, and schools by highlighting specific areas within/across systems that could benefit from support. Reports highlight that assessments of the entire student body allow for variability across settings as each student, school, district, and community differ (Moore et al., 2017). These latitudes offer opportunities for greater integration within each setting where ISS is employed.

Incorporation within the School

From the student, school, and community-based needs assessments mentioned above, ISS staff and educators determine feasibility of implementation for each school by identifying, organizing, and delegating responsibilities and resources to address school-level service gaps. Moore et al. (2017) indicate these assessments help identify the types of available services to the school relative to assessed student needs. Relationships held between school leadership and ISS members increase opportunities for success and effectiveness (Moore & Emig, 2014). The

"what" and "how" of ISS are brought together as strategies form to roll out school and student-level programming and organize staffing, money, and agendas (Castillo, Arroyo-Plaza, Tan, Sabnis, & Mattison, 2017; Oakes et al., 2017). Coordination between personnel provide space to create a cohesive whole that balances attention to student, school, and community-level priorities. A school's ability to meet student-level need across domains is enhanced by such incorporation (Reese, Richards-Tutor, Hansuyandha, Pavri, & Xu, 2018). Staff from ISS become an important part of school and district and form needed partnerships within and outside of the school.

Partnerships

Through ISS, school personnel, community providers, and families establish partnerships with shared objectives and responsibilities (Karatekin et al., 2014; Lee-St. John et al., 2018; Oakes et al., 2017). Collaboration among systems create learning and thriving opportunities driven by support of the whole child. That is, services are offered at the level of the student that appreciate successful learning as much more than cognitive ability/achievement and includes student safety, physical and emotional health, and social engagement and behavior (Coalition for Community Schools, 2017; DeNike & Ohlson, 2013; Moore, 2014; Raspberry et al., 2015; Walsh et al., 2014). Even prior to ISS' inception, there was a growing awareness that opportunities to support the whole child are made possible by leveraging and coordinating expertise and resources of each system to direct school-level and, importantly, student-level supports to enhance academic and psychosocial outcomes for every student within the school (DeNike & Ohlson, 2013). Differing options for support are enriched by such connections and foster accessibility as new resources emerge. Integrated initiatives enhance equity between stakeholders to make student-level supports available to a diverse student population (Blank,

2015). Moore (2014) notes that relationships generated by ISS complement school and student-level supports previously offered in the academic setting. Further, ISS-established partnerships are adaptable as relationships shift to better attune to the changing needs identified for students and districts over time (Moore, 2014).

Coordination of Supports

Partnerships formed through ISS are essential to servicing the needs faced by students and families. Providers within and outside of schools are connected to the academic setting and organized by a school coordinator (Moore et al., 2017; Oakes et al., 2017; Sibley et al., 2017; Somers & Haider, 2017; Walsh et al., 2017). The ISS approach stresses the delivery of evidence-based, developmentally and community appropriate supports that are broad in scale – both in expansiveness across systems and service type (Manekin, 2016). Specifically, ISS comprehensively directs resources towards a community, school, or most importantly, at the level of the child, distinguishing ISS from other support approaches (Walsh et al., 2014). Services range from academic supports, physical and mental health services, public assistance, parenting and engagement, and professional development among others (Foley, Theodorakakis, Walsh, DiNatale, & Raczek, 2015; Lawson et al., 2019; Moore, 2014; Moore et al., 2017; Sibley et al., 2017). Through ISS, these previously fragmented services are brought together at the level of the child with a similar focus: promoting student functioning (Karatekin et al., 2014; Moore & Emig, 2014).

The whole child approach of ISS assures every child is connected to services that are: *tailored* to specific strengths and needs, that *match* the level of intensity of these factors, and that *mutually reinforce* one another (Bowden et al., 2017; Foley et al., 2015; Karatekin et al., 2014; Lee-St. John et al., 2018; Moore et al., 2017; Moore & Emig, 2014; Sibley et al., 2017; Walsh et

al., 2017). These three qualities will be elaborated on across the following paragraphs. First, supports move beyond traditional practices and are personalized to each student. Determining the factors experienced by each student enhances access to and delivery of necessary supports. A similar concept has previously been promoted within the field of special education. As Hauser-Cram et al. (2001) note with respect to children, especially youth that are most vulnerable, "in an equitable system, not everyone would or should receive the same services" (p.5). Special educators organized individualized plans to provide wraparound supports – a range of coordinated services directed across systems – for students with severe emotional challenges (Chitiyo, 2014). Tailored accommodations are extended to all students through ISS. Researchers and educators have insisted that supports must appreciate every child's unique set of abilities and experiences to enhance development (Osher et al., 2016). Notably, ISS services are directed towards the student, family, school, and community systems (Moore, 2014; Moore & Emig, 2014). Simultaneously providing supports for the family and school enhance a child's potential by addressing risk and leveraging strengths from the differing milieus around the student (Moore, 2014; Moore et al., 2017).

Second, interventions are brought together to form a continuum of services meant to accommodate the range of factors held within a student body. Expanding on service approaches previously utilized within special education (Atkins et al., 2015; Hoagwood & Erwin, 1997; Hunter-Carsch, Tiknaz, Cooper, & Sage, 2006; Walker et al., 1996; Weare, 2010), ISS designates supports through tiers. These accommodations include preventive techniques, early interventions, and intensive services or treatments that can be offered to all students including children in need of emotional support (City Connects, 2018; Moore et al., 2017). The tiers acknowledge differences across preventative intervention types from "whole school" (available

potentially to all students) to more targeted to individual students as needs are identified, maintain, or worsen (Moore et al., 2017; Somers & Haider, 2017). By joining a network of similar and disparate supports – in type and intensity – the academic and out-of-school barriers to achievement and thriving can be addressed.

Third, supports can enhance the efficacy of other preventions and interventions being provided. For instance, outpatient behavioral health supports can lead to management skills used within the school, greater attendance at school, and regulated affect during tutoring sessions also tailored to the student. The ability for supports to build on one another elevates the integrated nature of ISS and fosters opportunities to create a unified system with other frameworks in the school (Moore et al., 2017). Additionally, data can be collected and shared across systems to assess outcomes and to make modifications to plans and services used.

Data and Progress Monitoring

Exploring the response of students and families to supports is integral to ISS. Advocates maintain that supports and services will have a greater impact for all students, either in general or special education, when providers share responsibility for measuring use and progress beyond service referral (Giangreco, 2001; Hughes, 2012; Lawson & Sailor, 2000; Meyers & Hickey, 2014; Moore & Emig, 2014; Weare, 2010). Services can be modified as a student progresses through schooling if no longer deemed necessary or if the student does not respond to the support. Data tracking aids identification to the varied barriers to learning, guiding the delivery of support that benefits achievement and thriving outcomes (Moore, 2014; Walsh et al., 2017). Moreover, this information can be used to investigate short and long-term outcomes associated with ISS implementation. Walsh et al. (2017) note that the initial/ongoing assessments, tracking,

and monitoring allow for easy expansion and sustainability of ISS across schools and communities.

The combination of these elements – needs assessments, supports, partnerships, integration, and progress monitoring – make the success of ISS possible. Many exemplars of the ISS approach have been implemented in schools and findings are uplifting for schools and students when assessing the varied approaches. Many reports, briefs, and peer-reviewed articles have indicated that ELA measures, math scores, and overall grade point averages improved when ISS was used (City Connects, 2010, 2012, 2016, 2018, 2020; Dearing et al., 2016; Lawson et al., 2019; Moore et al., 2017; Moore & Emig, 2014; Walsh et al., 2014). Both peer-reviewed studies and accessible reports indicate that students in general education receiving ISS earn better behavior ratings than students in schools without ISS (Castrechini & London, 2012; City Connects, 2010; Osher et al., 2016). Studies and reports found that ISS contributes to improved attendance, grade promotion, and graduation rates (City Connects, 2010, 2012, 2014, 2016; Lee-St. John et al., 2018; Moore & Emig, 2014; Sibley et al., 2017). Long-term investigations indicate a favorable cost-benefit ratio towards use with minimal, if any, negative effects for students (Moore et al., 2017). One such report suggests that offering supports to all students in under-resourced schools can produce long-term savings for families and communities (DeNike & Ohlson, 2013). Moreover, data demonstrates a beneficial economic return for every dollar invested in ISS implementation (Bowden et al., 2015; City Connects, 2016; DeNike & Ohlson, 2013; EMSI, 2012; Walsh et al., 2014).

The outcomes noted above have been found in the general student body in schools where ISS is being practiced. However, varied outcomes might be found while looking more closely at subgroups of students. A limited amount of research has looked at the influence of ISS for select

student groups, specifically immigrant children, English language learners, Black and Latino students, and students receiving special education referrals. Dearing et al. (2016) found that City Connects interventions benefitted reading and math scores for first-generation immigrant students; these findings were especially true for students with English as a second language. Also, the longer the student spent receiving the intervention resulted in greater gains in achievement scores (Dearing et al., 2016). Examining the potential impacts of ISS on two other subgroups of students – Black and Latino males – evaluators found that similar to overall findings, dropout rates were significantly reduced if these students received ISS (i.e., City Connects) in elementary school versus comparison students (Walsh et al., 2017). Another report considered the impact of ISS on referral accuracy for special education. Results indicated that referrals for special education resulted in more likelihood of identifying a disability in schools with City Connects in contrast to comparison schools (Boston College Center for Optimized Student Support, 2010). These outcomes are promising and warrant greater attention to expand the body of literature assessing ISS and outcomes across and within the student population. Notably, a subgroup of students that has not been examined in terms of specific outcomes are students with social-emotional-behavioral (SEB) challenges.

Social-Emotional-Behavioral Skills and Impairment

The social, emotional, and behavioral (SEB) domain includes those skills, attitudes, and capacities developed across situations to process and respond in interpersonal experiences (Roy & Giraldo-Garcia, 2018). It has been argued that these skills are shaped by and shape one's cognitive abilities (Jones, Greenberg, & Crowley, 2015). Affect regulation, internalized experiences, and interpersonal actions are all elements of a child's SEB skillset (AEI Brookings, 2015; Bridgeland, Bruce, & Hariharan, 2013; Duncan & Magnuson, 2011; Jones et al., 2015;

Olivier, Archambault, & Dupere, 2018; Osher et al., 2016). Aptitudes within the SEB domains begin to crystallize and shape one another as children transition into school (Cavanagh & Huston, 2006; Olivier et al., 2018). These abilities are used to reach a number of goals and enhance events in and out of the school (McKown, 2017). Skills influence how the student interacts with peers and educators, manages the classroom environment, and behaves with varied expectations. A child with SEB talents can navigate diverse experiences, managing emotional tensions/impulses. Challenges in these areas such as anxiety or acting out can contribute to difficulties engaging with classroom materials and cooperating with others. While many successfully navigate demands during development, a growing number of children have SEB needs and challenges.

Varied definitions of SEB challenges exist between the fields that support child development. Traditionally psychology has considered serious impairments in the social, emotional, and behavioral realms as mental health disorders. Psychology defines many SEB problems through the diagnostic and statistical manual including conduct disorder, depression, and anxiety among others (Duncan & Magnuson, 2011). The field of education, and more specifically special education law, views serious SEB challenges as a disability labeled "emotional disturbance" (ED; Fain, 2019; IDEA, 2004). An emotional disturbance is defined as one or more symptoms displayed over an extended period of time and that influence educational performance, including:

- Being unable to learn outside of intellectual, sensory, or health factors.
- Maladaptive behaviors/feelings under normal situations.
- Generally persistent unhappiness or depression.
- Developing physical symptoms or fears connected to personal/school-based problem (IDEA, 2004).

Students meeting criteria for ED make up approximately 5-9% of the students identified within special education (OSERS, 2014; NCES, 2017; Wolanin & Steele, 2004). However,

several other students present with varied SEB needs that do not meet the official definition of a disability, but nonetheless present challenges to accessing instruction (i.e., low motivation/willingness, distorting social cues, irritability, etc.). These impairments will be described as SEB needs hereafter. Both the number of students offered special education accommodations (Chasson et al., 2007; Conyers et al., 2003) for ED and the rate of children with SEB needs generally are rising nationally (Chitiyo, 2014; de Voursney & Huang, 2016; Harbin et al., 2004; Kern et al., 2017). Increases are concerning in light of the consequences for the students and the impact on schools. Reviews have found that the characteristics of both severe ED and lower intensity SEB needs now make up a majority of the top ranked factors influencing learning (Greenberg et al., 2003). A recent research poll of school principals indicates that ED and SEB needs rank as the biggest concern for schools (NAESP, 2018). Concerns relate to the far reaching impacts that SEB functioning has on student growth, classroom performance, and the functioning of spaces around the child.

Researchers have frequently investigated the impacts that SEB needs to ED disabilities have on academic and developmental outcomes. There has been a strong association between child SEB skills and learning (Hughes, Minke, & Sansosti, 2017; Markowitz, 2017; McCormick, Cappella, O'Connor, & McClowry, 2015; Moore et al., 2017). Unsuccessful outcomes associated with the spectrum of childhood SEB needs and ED include lower academic/behavioral scores, and higher behavioral interventions, dropout, and post-schooling rates of unemployment, ongoing mental health concerns, and homelessness (de Voursney & Huang, 2016; Lewis et al., 2017; Moore et al., 2017; Olivier et al., 2018). Focusing on students with SEB needs not identified with ED, data consistently indicate lower academic and standardized testing results across all content areas compared to students without such need (Asarnow et al., 2005; Garner &

Waajid, 2012; Landrum, Katsiyannis, & Archwamety, 2004; Ursache, Blair, & Raver, 2012). These students are also subject to higher disciplinary rates (Lopes, Mestre, Guil, Krementizer, & Salovey, 2012) and grade retention – with up to 20% retained at least once during schooling (Durlak, 1995; Roeser, Eccles, & Strobel, 1998). Additionally, students with SEB needs that did not receive special education have poorer adult outcomes including lower employment rates and higher rates of criminality, incarceration, and ongoing mental health concerns (Jones et al., 2015; Landrum et al., 2004; Lane et al., 2013; Murray, 2003). Notably, these outcomes persist for students with ED disabilities despite receiving special education services.

While federal policy requires accommodations for students identified with ED, evidence predominantly suggests that current supports and special education services are not leading to reliable positive outcomes. Students qualifying for special education with ED have similar undesirable outcomes as those found for students with subthreshold SEB needs noted above (Duchnowski et al., 2013; Katsiyannis, Losinski, & Prince, 2012). Extensive research reveals that students with ED receive lower academic marks and standardized test scores in all subjects (Atkins, Hoagwood, Kutash, & Seidman, 2010; Asarnow et al., 2005; Giota, Lundborg, & Emanuelsson, 2009; Green, Terry, & Gallagher, 2014; Hanson, Austin, & Lee-Bayha, 2004; Katsiyannis et al., 2012; Landrum, Katsiyannis, & Archwamety, 2004; Stiefel, Shiferaw, Schwartz, & Gottfried, 2017; Stoutjesdijk et al., 2012). Students in special education for ED receive higher rates of disciplinary reprimands, suspensions, and expulsions (Atkins et al., 2002; Bowman-Perrott et al., 2011; Hayden, 1994; Katsiyannis et al., 2012).

Outcomes persist from primary into secondary school years and beyond. Children with ED have higher rates of retention (Reschly & Christenson, 2006) and school dropout when compared to typically developing peers (Atkins et al., 2010; Cratty, 2012; Duchnowski et al., 2013;

Katsiyannis et al., 2012; Reschly & Christenson, 2006; Vanderslice, 2004; Wolanin & Steele, 2004). While some children with ED disabilities plan to attend college, attendance rates are significantly lower than peers without these challenges (Wilson, Kim, & Michaels, 2011). Students with ED have worse outcomes than peers into adulthood (i.e., low employment, greater rates of incarceration, and mental health concerns; Duchnowski et al., 2013; Katsiyannis et al., 2012; Landrum et al., 2004; Lane et al., 2013; Murray, 2003; Vanderslice, 2004). Not surprisingly, ED is among the most costly challenges to respond to over time (de Voursney & Huang, 2016). The combination of this evidence predominantly suggests that even with special education in place, these practices alone are not leading to consistent positive outcomes.

The existing outcomes from traditional supports are alarming and heighten calls for reform. Several critics argue that support delivery within the majority of schools continues to be fragmented and inefficient (Adelman & Taylor, 2000; Adelman & Taylor, 2008; Guralnick, 2011; Harbin et al., 2004; Simpson & Yocom, 2005; Taylor & Adelman, 2000; Zins & Elias, 2007). Student and community characteristics, service location, and the coordination of and communication between supports contribute to disparities in allocation. Despite the growing emphasis on enriching developmental paths, reactive interventions are currently more widely accepted and resource-rich (Osher et al., 2016). Schools and policies also continue to emphasize achievement despite an expanding appreciation for diverse developmental domains. Paradoxically policy requirements meant to enhance student aid can actually impede fulfilling these policies, limit the types of services offered and used, and reduce the possible benefits the supports were initially meant to offer (Gallagher & Desmione, 1995; Huefner, 2000).

The outlined challenges highlight needed reviews of support systems around children, especially those students facing SEB needs among other concerns. The ISS approach appreciates

that cognitive abilities, social-emotional behavior, and out-of-school factors are not separate influences, but interrelated and equally important for all student learning (Moore et al., 2017). Opportunities to identify and provide services for out-of-school challenges, SEB abilities and needs, and academic (i.e., math, ELA, etc.) domains are created through ISS (Coalition for Community Schools, 2018; Moore & Emig, 2014; Moore et al., 2017). Further, by supporting the intersection of student-level and systemic (i.e., family, school, and community) factors, ISS has the potential to close outcome gaps often found within the entire student cohort (AEI Brookings, 2015; Moore & Emig, 2014; Moore et al., 2017). Integrated Student Supports appear to hold the best prospect to address concerns of the current system. This promise is demonstrated by looking closer at the ISS approach with the most robust and consistent outcome findings: *City Connects*.

City Connects

City Connects is an optimized support program that provides services to all students through a whole-school approach. Rooted in developmental orientations, it is a method of coordinating supports for students in a personalized and ongoing way (City Connects, 2016, 2018; Walsh & Backe, 2013; Walsh & Brabeck, 2006; Walsh et al., 2014). This undertaking is met by linking students to preventative interventions and enrichment resources accessible within the school and community (City Connects, 2014, 2018; Lawson et al., 2019; Walsh & Backe, 2013; Walsh, Kenny, Wieneke, & Harrington, 2008; Walsh et al., 2014; Walsh et al., 2017).

The City Connects team first works with schools to assess the assets and needs of current support approaches; this assessment informs a school's decision whether to move forward with implementation. City Connects subsequently becomes a core element of the school's structure, functioning, and mission (City Connects, 2016). This integration is best outlined by the five

components of the City Connects approach: *School Site Coordinators (SSCs), Whole-Class Review (WCR), Individual Student Review (ISR), partnerships,* and *progress monitoring and follow-up* (City Connects, 2018). The SSC has varied responsibilities ensuring fidelity to the approach. Working with school personnel to assess all students, the SSC creates an individualized support plan for each child (City Connects, 2018; Foley et al., 2015; Lee-St. John et al., 2018; Walsh & Backe, 2013). This WCR process helps identify each student's strengths and needs across *academic, family, social-emotional-behavioral*, and *physical health* domains. A smaller number of students receive an ISR based on the intensity of her or his needs. The ISR process is an intensive review of the student's unique profile and differs from a special education evaluation (Sibley et al., 2017; Walsh et al., 2014). The combination of WCR and ISR processes recognize the whole child by accounting for a broader exploration of strengths and needs beyond the narrow focus on achievement. These processes further allow the assignment of tiers: Tier 1 (strengths; no outstanding need), Tier 2a (strengths; mild needs), Tier 2b (strengths; moderate needs), or Tier 3 (strengths; intensive needs). This method matches the best services to promote thriving for each child (City Connects, 2014; 2018; Walsh et al., 2014).

Coordinators also form collaborative relationships with community agencies to offer needed supports (Foley et al., 2015; Walsh & Backe, 2013). The established database of these resources enhances matching between needs and strengths and appropriate services (City Connects, 2018). Students and families are connected to a personalized set of supports across the continuum of *prevention and enrichment, early intervention,* and *intensive/crisis intervention*. Support services are optimized in several ways: tailored to specific strengths/needs, service several domains in a culturally-minded way, coordinated across systems to leverage available resources, and reduce costs (City Connects, 2010; Walsh & Backe, 2013). Progress monitoring is an

essential task confirming employment and service efficacy. Participation and response to the supports are closely monitored and tracked electronically (City Connects, 2018). Continued insights increase accountability and adjustments to supports as needed (City Connects, 2018; Walsh, Lee-St. John, Raczek, Foley, & Madaus, 2014). As such, City Connects reflects the best practices of ISS while simultaneously helping shape these practices moving forward.

Several evaluations, reports, and presentations have demonstrated the beneficial impacts of City Connects across short and long-term outcomes. Measured against statistically-comparable peers, students receiving City Connects perform higher on math and ELA measures throughout primary and secondary school (City Connects, 2010, 2012, 2016, 2018; Lawson et al., 2019; Walsh & Backe, 2013; Walsh et al., 2014). Progress reports and studies indicate that City Connects students perform similar to statewide averages on standardized testing during elementary school and outpaced comparison students during the secondary school years (City Connects, 2014, 2016, 2018; Walsh et al., 2014). City Connects is efficacious beyond academic outcomes. Comparisons of thriving indices (e.g., behavior, effort, work habits) demonstrated that City Connects students score higher than students in schools without such support (City Connects, 2010). Results have also indicated that students have a lower likelihood of being chronically absent and retained across all school years (City Connects, 2010, 2012, 2014, 2016; Walsh & Backe, 2013). All of these findings contribute to students' school year promotion and earning a diploma. Comparison students drop out of school at higher rates than students that have been supported by City Connects (City Connects, 2012, 2014; Lawson et al., 2019; Lee-St. John et al., 2018; Walsh et al., 2014; Walsh et al., 2017).

Cumulative progress reports indicate that these outcomes are consistent across methods, samples, and sites, underscoring the utility of City Connects generating positive student growth

(City Connects, 2016, 2018). At the system level, qualitative analyses indicate a benefit to classroom and school climate as teachers cite improved understanding of students and greater ability to manage student behaviors (Sibley et al., 2017). Cost assessments associated with operating City Connects have also proven advantageous for schools and districts. The benefits of City Connects outweigh associated costs even with conservative assumptions (Bowden et al., 2015; City Connects, 2016; Walsh et al., 2014). Taken together, these combined outcomes are energizing while not surprising. City Connects, and ISS more generally, has firm roots in the varied definitions of and goals for support founded in developmental theory. Looking closer at this theoretical orientation outlines the origins of ISS, and the promise that such services can offer to students. Following a review of the developmental literature, calls for ongoing evaluation of ISS approaches will be highlighted alongside the current study's research questions and hypotheses.

Student Growth and Preventative Interventions: Developmental Theories

Contemporary developmental psychology brings together features from developmental, educational, and clinical psychology to better understand the developmental process and, in turn, the evolving child (Cicchetti, 1984). Developmental psychopathology, a rapidly growing field that blends developmental and clinical psychology, aims to achieve a science that untangles the dynamic course underlying typical development and maladjustment (Cummings et al., 2000). This lens provides a holistic view of each child by offering insights into the elements that promote or limit growth (Bruder, 2010; Cicchetti, 1990; Cicchetti & Toth, 2006; Frankel & Gold, 2007; Guralnick, 2011; Hauser-Cram et al., 2001). The sub-field of "Integrated Student Supports" is grounded in some of the basic principles of human development insofar as it: (a)

involves bio-psycho-social levels, (b) includes strengths and deficits, (c) is affected by context, and (d) occurs over the lifespan (Walsh et al., 2002). Each of these areas are expanded on below.

Bio-Psycho-Social Elements and Development

Bronfenbrenner proposed that "throughout the life course, human development takes place through processes of progressively more complex reciprocal interaction between an active, evolving biopsychological human organism and the persons, objects, and symbols in its immediate environment" (Bronfenbrenner & Evans, 2000, p. 620). Biological factors (genes, internal structures) interact with psychological elements (emotions, cognitions, and actions) and interpersonal experiences throughout development (Moore & Emig, 2014; U.S. Department of Health and Human Services, 1999). More intricate interactions emerge as a child leaves home to enter varied settings including the school. Adjustment to these situations are in part shaped by personal skills, behaviors, and abilities (Moore, 2014). It is often noted throughout these changes where students may struggle and impairments are identified.

Endowments and experiences carry into the educational setting and shape academic performance, social interactions, etc. (Duncan & Magnuson, 2011; Moore et al., 2015; Moore et al., 2017). Individual qualities of each student appreciated by the developmental lens are similarly embraced by the "whole-child" approach of ISS. Approaches of ISS hold a broad definition of successful learning that appreciates knowledge, physical/emotional health, engagement and self-sufficiency that emerge, in part, from bio-psycho-social elements (Moore, 2014; Moore et al., 2017; Raspberry et al., 2015). Appreciating every student, in and out-of-school factors are considered alongside cognitive and non-cognitive abilities to enhance thriving (AEI Brookings, 2015; Lewallen et al., 2015). Moore et al. (2017) emphasize that investigating

these multidimensional factors is essential to fully support children. Notably, the bio-psycho-social components influence children in ways that are beneficial or detrimental to development.

Understanding the circumstances that move children away from or towards wellbeing is a primary consideration of developmental psychology. Exploring these risk and protective factors, and the interactions between, help capture the process of development (Cicchetti & Sroufe, 2000). Risk factors direct children towards disorder and are associated with adverse outcomes over time (Cicchetti, 2006; Rutter & Sroufe, 2000). Diverse in nature, these elements range from historic experiences to features close in relation to challenge onset (Severson, Walker, Hope-Doolittle, Kratochwill, & Gresham, 2007). Data indicate the combination of elements, beyond any one risk factor, can result in impairment and need for support (Acker, 2007; Chitiyo, 2014; Flouri, Hickey, Mavroveli, & Hurry, 2011). However, forecasting outcomes solely on risk is challenged by elements that can attenuate need (Murray, 2003). Protective and promotive factors contributing to positive outcomes must also be considered (Cicchetti, 2006; Rutter & Sroufe, 2000; Sroufe, 1990). Gutman et al. (2003) differentiate that promotive factors have a positive impact on adjustment without a direct interaction on risk, whereas protective variables attenuate risk. Developmental psychologists formulate risk and resilience through a constellation of these factors and relationships shaped by one another (Fraser, Thompson, Day, & Macy, 2014; Walsh & Wasser Gish, 2017). This understanding is embodied within the child-centered mission of ISS. Focused on supporting each student's unique profile, ISS monitors student progress to service needs and enrich strengths as each transform over time. Moreover, ISS and developmental psychology appreciate that student-level endowments and experiences including SEB abilities are influenced by many contextual factors.

Context and Development

Where children develop has a strong impact on maladjustment and success (Moore, 2014). Interacting bio-psycho-social factors are embedded within the person's social landscape (Burns, Schenwald, Burchard, Faw, & Santos, 2000; Cicchetti & Sroufe, 2000; McCormick et al., 2015; Osher et al., 2016). Proximal (family, peers) and distal (school, neighborhood, community, etc.) systems are important influencers in student functioning (Blair & Raver, 2015; Bowen et al., 2008; Moore, 2014; Moore et al., 2017). Expectations from systems at the micro, meso, exo, and macro levels bring resources and pressures that influence performance and behavior (Bronfenbrenner, 1994; Burns, 2011; Osher et al., 2016; Turner, Powell, Langhinrichsen-Rohling, & Carson, 2009). Contextual elements can have positive and negative consequences similar to individual characteristics. Noted previously, SES, violence, and instability often place students at risk of negative outcomes whereas other elements (engagement, support) can benefit development. The overall impact of system-level protective and risk factors varies as systems interact. For instance, the effects of a stressful, unsafe neighborhood can differ based on qualities of the home and classroom environment (Moore & Emig, 2014).

Developmental psychology advances the exploration of this variability and attempts to determine where maladjustments emerge across and between systems (Bulotsky-Shearer et al., 2010). Similarly, ISS appreciates the potential challenges and promise evoked by contextual interactions. Elements supporting ISS approaches hold that challenge for any student can partly emerge and intensify from systems that fail to meet such need (Burns, 2011; Guralnick, 2011; Wolanin & Steele, 2004). However, ISS places the child at the center of an ever-evolving system and supports the potential benefits of relationships formed between families, schools, and communities (Moore & Emig, 2014; Moore et al., 2017; Walsh et al., 2018). The ISS approaches strengthen relationships by increasing communication, collaboration, and

accountability of the varied systems around the student. Strengths within and between systems can be leveraged to address need to promote development over time, the next tenet of developmental psychology.

Transactions, Trajectories, and Development

Factors impacting a person's development interact from childhood through adolescence into adulthood. Developmental psychologists draw attention to the progression of changing patterns across the lifespan (Cicchetti & Sroufe, 2000). Explorations include relationships between risk and protective factors lead to similar (equifinality) or alternative ends (multifinality; Cicchetti & Sroufe, 2000; Lerner, 2011; Sameroff, 2000). Findings often indicate that disproportionate exposure to risk strengthens paths towards maladjustment (Fraser et al., 2014; Rutter, 1979; Rutter, 2001). Research also indicates that certain risk factors are highly related, impacting childhood, adolescent, and adult outcomes if not addressed (Dishion, Veronneau, & Myers, 2010; Dodge et al., 2003; Fraser et al., 2014). While the presence of need enhances the prospect of challenge, it does not ensure such outcomes will occur as many developmental routes exist (Jimerson, Egeland, & Teo, 1999; Masten & Cicchetti, 2010; Williams & Portman, 2014).

Examining these pathways commonly draws attention to "tipping points" or "cascades" that emerge during development. Adaptation does not happen in isolation and often triggers change in other domains (Moore, 2014; Sandstrom & Huerta, 2013). Varied factors and the timing of these elements can shift paths towards or away from risk. Early experiences are often found to influence development later in life (Moore, 2014; Moore et al., 2017). Both developmental psychology and ISS stress that, despite facing varied risks, adaptation is not fixed and accommodation can benefit one's trajectory. This potential for change promotes the exploration of preventative supports and interventions.

Prevention, Intervention, and Development

Developmental psychology informs preventions and interventions to enhance wellbeing and thriving for all (Cicchetti, 1990; Cicchetti & Toth, 2006; Hauser-Cram et al., 2001). A consistent message is that these services should be delivered early – ideally at the start of schooling – where the prevention of initial concerns could attenuate the emergence/impact of future issues (Davidson et al., 2006; Dion, Brodeur, Gosselin, & Campeau, 2010; Fields, 2012; Haight, Kayama, Kincaid, Evans, & Kim, 2013; Kern et al., 2017; Landrum, Tamkersley, & Kauffman, 2003; Lewis et al., 2017; Magnuson, 2013; Walker et al., 1996). Studies have found that early services can positively impact academic and psychosocial outcomes (Barnett, 1995, 2011; Berrueta-Clement, 1984; Katsiyannis et al., 2012; Phillips & Meloy, 2012). Varied supports in primary school result in greater achievement (Duchnowski et al., 2013; Frankel & Gold, 2007), fewer behavioral concerns (Duchnowski et al., 2013), reduced time in special education (Conyers et al., 2003), and greater graduation rates (Barnett, 2011; Heckman, 2011). Such outcomes have reinforced developmental practitioners and educators promotion of ISS' delivery of preventative interventions to students.

Approximately 95% of youth five years or older are in the K-12 academic setting (Brault, 2012; de Voursney & Huang 2016; Hughes et al., 2017). Schools are one of the most dynamic and predictable systems around children and families (Walker et al., 1996). Attending to all developmental areas, schools play an integral role in offering enrichments and interventions that may prevent or attenuate the emergence and impact of impairment. Schools commonly become a hub for supports offered to students and families (AEI Brookings, 2015; Kern et al., 2017; Langer et al., 2015; Rones & Hoagwood, 2000). In order to offer supports, schools must form collaborative partnerships across systems to offer organized services earlier to enhance success

(Bruce et al., 2011; Bruder, 2010; Karatekin et al., 2014; Reese et al., 2018; Somers & Haider, 2017; Walsh & Backe, 2013). Tiered supports tailored to each unique student and family reduce the impacts of micro/macro-level factors adding to disparities in service access (Meyers & Hickey, 2014; McCormick et al., 2015; Moore & Emig, 2014; Moore et al., 2017). As Moore et al. (2017) stress, everything from child developmental research backs ISS for all areas of a child's life and development. To validate this sponsorship, continued investigations of the outcomes from ISS implementation are necessary. This research can expand on existing findings while looking closer at specific students that might respond to ISS where other accommodations have been inconsistent.

Calls for Comprehensive Care and Evaluation

Data supporting ISS use must continue to grow as schools are progressively moving towards greater incorporation of ISS. Adelman and Taylor (2011a,b) urge that more focus be directed at demonstrating the tailored nature of support interventions, specifically the coordination, coherence, and flexibility of resources provided to students and families. These investigations are especially important for students with the most need: children facing identified impairment among other risk factors. Children with SEB needs and ED disabilities, as many in the school population, are also severely challenged by harmful out-of-school factors. In many ways the combination of these experiences, without appropriate supports, maintain the negative outcome trajectories highlighted earlier. Stress from the collection of varied risk factors can be deleterious and exacerbate SEB needs and ED (Dearing et al., 2006). However, coordinating IEP supports (i.e., specifically accommodating a designated disability) with ISS services that include and go beyond a student's defined impairment(s) can promote thriving, offer opportunities similar to same-aged peers, and enhance inclusion.

Despite the overarching positive findings associated with ISS and City Connects more specifically, it is important for continued investigations to determine the longitudinal impacts across settings and students. City Connects evaluators are continually looking at the impact of the optimized supports on student outcomes in general, while also examining the effect on specific student populations. These pursuits have included past assessments of children being referred to special education with positive findings for referral accuracy over comparison students (Boston College Center for Optimized Student Support, 2010). However, the extant literature has not specifically evaluated ISS outcomes for students with ED disabilities above-and-beyond the services included within special education. Such assessment is essential to determine practices that enhance progress and development (Stiefel et al., 2017). Expanding on existing research, the purpose of this study is to explore whether the effects of City Connects extend to students with ED disabilities.

Current Study

The proposed study aims to assess if the effects of a unique model of ISS – City Connects – impacts students that qualify for special education on the basis of an emotional disturbance (ED) disability. This study examines the relationship between students, special education designation for ED, City Connects treatment, and academic and behavioral outcomes. Specifically, the following questions will be targeted in the proposed dissertation:

1.) ***Do students with an officially designated ED disability score lower on academic and thriving outcomes than students never in special education?***

Hypothesis 1a. Students who ever had an ED disability will score lower on Math outcomes (report cards, standardized tests) than students never in special education

Hypothesis 1b. Students who ever had an ED disability will score lower on ELA measures (report cards, standardized tests) than students never in special education

Hypothesis 1c. Students who ever had an ED disability will score lower on a Behavioral Thriving measure (behavior report card score) than students never in special education

Despite the promise of special education, children with ED face negative outcome trajectories. This analysis will determine if the outcomes found in the existing literature are true for this specific sample of students. As students with ED special education needs commonly perform lower than students without these needs, it is expected that students ever in special education will score lower than students never in special education on all Math, ELA, and the Behavioral Thriving measure.

2.) Does ever participating in City Connects interact with ED disability on academic and thriving outcomes?

Hypothesis 2a. Students in City Connects schools who ever had an ED disability will score higher on Math outcomes (report cards, standardized tests) than students who ever had an ED disability never in City Connects

i. *City Connects will moderate the relationship between ED and Math outcomes: differences in Math scores between students ever having an ED disability and students never having special education within City Connects schools will be smaller than the differences in Math scores between these two groups of students never in City Connects*

Hypothesis 2b. Students in City Connects schools who ever had an ED disability will score higher on ELA outcomes (report cards, standardized tests) than students who ever had an ED disability never in City Connects

i. *City Connects will moderate the relationship between ED and ELA outcomes: differences in ELA scores between students ever having an ED disability and students never having special education within City Connects schools will be smaller than the differences in ELA scores between these two groups of students never in City Connects*

Hypothesis 2c. Students in City Connects schools who ever had an ED disability will score higher on the Behavioral Thriving outcome than students who ever had ED disability never in City Connects

i. *City Connects will moderate the relationship between ED and Behavioral Thriving: differences in the Behavioral Thriving scores between students ever having an ED disability and students never having special education within City Connects schools will be smaller than the differences in Behavioral Thriving scores between these two groups of students never in City Connects*

Limited research exists of the impacts of ISS recommended beyond special education to students with ED outside of the previously referenced research on special education referral accuracy. Yet, several evaluations of City Connects have demonstrated the robust beneficial impacts the optimized student support has on short-term and long-term academic, behavioral, and thriving outcomes. The purpose of this analysis is to explore whether the effects of City Connects extend to students with ED special education needs.

When the positive outcomes related to City Connects are examined in a special education population with ED, it is proposed that there will be a City Connects effect. That is, students in City Connects who ever had an ED disability will score higher on outcomes (Math, ELA, Behavioral Thriving) than students who ever had an ED disability never in City Connects. Hypotheses will further account for outcomes between students ever having an ED disability and

receiving City Connects and those students never having such designation or support. It is proposed that City Connects will moderate the relationship between ED and the varied outcomes. That is, the outcome gap between students ever having ED and students never having special education in City Connects schools will be smaller than the outcome gap between these student groups never in City Connects.

Chapter 3: Method & Research Design

Method

This study seeks to understand the added impact of City Connects tailored supports above tandem special education services on the academic and behavioral outcomes of students identified with ED special needs.

Research Design

With City Connects pre-established in schools, student participants cannot be randomized to the intervention versus comparison schools. Subsequently, a quasi-experimental approach will be utilized to explore the noted factors and short and long-term outcomes. The quantitative between-groups design will specifically explore:

1.) Are special education designations for ED associated with lower academic achievement (Mathematics report card grades and MCAS scores; English Language Arts report card grades and MCAS scores) and thriving outcomes (Behavior scores), regardless of City Connects presence?

2.) Is there an impact of the City Connects student support intervention on the relationship between ED disability and academic achievement and thriving?

The current study's sample, variables, and measures used as well as the proposed plan for analysis is summarized below.

Sample/Participants

From pre-existing documented data, the sample for the current investigation will include 18,902 students within a large urban public school district. The diverse sample of students were members of the kindergarten through fifth grade classes during the academic school years of 2001 to 2013-14. Students were required to attend kindergarten in the district during or after the

2001-02 academic year; this is the year data were available to City Connects. Further, students needed to reach 5th grade by 2013-14 for outcome analyses. This restricted the analytic sample to kindergarten cohorts 2001-02 through 2008-09; presented in Table 1.

Table 1
Year of kindergarten entry and grade by school

	Cohort Year							
	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
School Year								
2001-02	K							
2002-03	1	K						
2003-04	2	1	K					
2004-05	3	2	1	K				
2005-06	4	3	2	1	K			
2006-07	5	4	3	2	1	K		
2007-08	6	5	4	3	2	1	K	
2008-09	7	6	5	4	3	2	1	K
2009-10	8	7	6	5	4	3	2	1
2010-11	9	8	7	6	5	4	3	2
2011-12	10	9	8	7	6	5	4	3
2012-13	11	10	9	8	7	6	5	4
2013-14		11	10	9	8	7	6	5

Measures

Data for the current investigation was accessed from two sources including a large, urban public school district on the east coast and the City Connects Student Support Information System (SSIS). Demographic information, special education designation, and outcome data (academic grades, standardized MCAS testing scores, and thriving measures) were supplied to City Connects staff by the school district. Additionally, data from the SSIS was used to determine City Connects status.

Demographics

Student characteristics will be included to explore the composition of the samples for the between-group comparisons and as covariates within considered models. Demographic data are

recorded and maintained by the school district and School Site Coordinators within the City Connects schools. The following characteristics will be included:

Gender. Student gender is coded into a dichotomous variable as female (0) or male (1).

Ethnicity. The parents/guardians of each child in the sample categorized the ethnic group best represented by the student including Asian, Black, Latino, Mixed Race, Native American, or White. Dummy coding was utilized for the purposes of including ethnicity as a covariate within the models assessed; White students will be the reference group.

Free/Reduced Lunch Qualification. Lunch status eligibility represents socio-economic status within the analyses and will be dichotomously coded for assessment as a covariate (Full-Price Lunch = 0, Free/Reduced Price Lunch = 1). Student eligibility for free/reduced price lunch is a commonly used proxy for socio-economic status, where students with family incomes between 130% and 185% of the poverty level qualifying for such meals (Cruse & Powers, 2006; United States Department of Agriculture Food and Nutrition Services, 2018).

English-Language Learner (ELL) Status. Students that are receiving secondary instruction in English language are coded as Non-ELL = 0 and ELL = 1.

Special Education Status. Data was analyzed to determine the special education status and designation for all students included in this study. The domain of special education accommodation was reviewed for disability categorization. Students receiving special education services for a primary emotional disturbance (ED) at any point during kindergarten through fifth grade determined grouping for analyses. Special education status was dichotomously coded (ever receiving special education for ED = 1 or never = 0).

**Students with comorbid disabilities/needs with the exceptions of an intellectual disability and autism were included in the ever ED category.*

***Students in special education for primary needs separate from ED disabilities were excluded as these needs are outside of the scope of the current study.*

****Students receiving special education services in an alternative school placement were excluded from the current investigation as these students do not receive the City Connects intervention offered within the mainstream school.*

Grade Level. Student grade level accounted for progression through schooling for grade-specific analysis. Grade (kindergarten through fifth grade) was included as an ordinal variable: Grade K = 0, Grade 1 = 1, Grade 2 = 2, Grade 3 = 3, Grade 4 = 4, Grade 5 = 5.

School Indicator. A school indicator variable was included for school-fixed effects analyses (elaborated on below); dummy coding indicated enrollment at specific schools during respective academic years.

City Connects Treatment Status. Records were reviewed to determine if each student has ever received the City Connects treatment during the K-5 school years. A City Connects treatment indictor was dummy coded where students were recorded as either City Connects or comparison (i.e., never in City Connects).

Special Education and City Connects. An interaction term between special education status and City Connects treatment status was created to determine the impact of the City Connects intervention on the relationship between ED disability and the outcome variables.

Student Outcome Measures

Previously noted, the current investigation explored the relationship between ED disability and City Connects intervention on student performance. Measures included report card grading, standardized measures, and thriving indicators.

Academic Report Card Grades. Student report card grades are assigned by educators across English-Language Arts (ELA; reading and writing) and Mathematics. Within and between-school scoring are grounded in standard assessment to facilitate consistency and reliability. The four-point scale outlines scoring as: 4 = exceeding standard, 3 = meeting standard, 2 = some indication of meeting standard, and 1 = little evidence the student is meeting standard. Scores are multi-item measures with the items combined into a single measure for ELA and a single measure for math. Conversion to z-scores was used for standardizing scores.

Behavioral Outcome. While thriving during development can capture many elements, educators frequently assess student functioning by rating behavioral components including work habits, effort, and behavior. Focus on the report card behavioral index was used for the current analyses. As with academic achievement grading, this index is recorded using a four-point scale with higher scores indicative of meeting and/or exceeding behavioral standards; scores were also standardized.

Massachusetts Comprehensive Assessment System (MCAS) Examination Scores. Students in the third grade or higher in Massachusetts complete the MCAS examination to assess student and school/district progress towards educational standards and achievement in various competencies including Mathematics and ELA. The Massachusetts Department of Elementary and Secondary Education (2018) indicates that the MCAS provides evaluation and accountability of schools' promotion of student success. Raw MCAS scores were standardized (z-scores).

Procedure

The proposed study used archival data from the larger City Connects evaluation. The implementation and assessment of the City Connects intervention was reviewed and approved by the Institutional Review Board at Boston College. To support participant confidentiality and to prevent information being connected to specific students/families, data was de-identified prior to entering, storing, and analyzing data as student data was entered with unique identification numbers to track information over time. For this investigation, a new file was created that included the above-mentioned variables.

Analysis

Preliminary Data Analyses

The first measures provided the descriptive statistics of predictor and dependent variables.

Demographics. The population of students included in the sample are outlined. These include the characteristics of the students (gender, ethnicity, ELL, lunch status) and number within each sample (City Connects vs comparison students; students in special education vs those not in special education).

Descriptives. Descriptive statistics including frequency, mean, standard deviation, range and distributions were assessed for the predictor and outcome variables. Chi-Square statistics were calculated to determine if specific sample characteristics (e.g., the demographic factors listed above) are connected to special education and City Connects status. Variable transformations were considered if criterion scores fell outside of the typically acceptable range for skewness and kurtosis of -1.0 to 1.0.

Independent Sample t-Tests. Preliminary t-tests were run to examine the relationships between the predictors (ED disability, City Connects status) and the continuous criterion variables to see if the samples differ prior to running the primary analyses.

One-Way Analysis of Variance (ANOVA). An ANOVA was used to assess the relationship between schools and the continuous outcomes to determine if there were school effects that needed to be accounted for within the model.

Primary Data Analyses

Several school-fixed effects and clustering models addressed the main research questions noted above following these preliminary analyses.

School-Fixed Effects Regression. School-fixed effects models were run to determine the relationship between special education status and academic outcomes while controlling for other demographic factors. The school-fixed effects approach accounts for observed and unobserved differences between schools used in the analyses. Dummy coding for each school was used as a covariate and standard errors in the models were adjusted by clustering at the school level. These models were also used to assess the suggested City Connects effect on the relationship between ED disability and academic outcomes by specifying interaction terms for these relationships. Specifically, these regressions were run to determine if City Connects students with ED special education supports were performing better on the academic and thriving outcomes than students with ED disability not receiving City Connects. Moreover, these analyses determined if the outcome differences between students in ED special education and students never receiving special education were smaller in City Connects schools than the outcome gaps between these groups never in City Connects. The analyses controlled for

demographic variables to explore the City Connects effect above characteristics within the sample.

Chapter IV: Results

This chapter will present the results of the analyses addressing the two research questions for this dissertation. Following a discussion of the steps to address missing data, preliminary analyses including demographics of the current sample, descriptive statistics, and analyses of the existing relationships between predictor variables are presented. The primary analyses of school-fixed effects regression are then shared including the findings for the main hypotheses of the study. A summary of each study target and results is followed by implications during the final chapter.

Missing Data

The previously mentioned inclusion and exclusion criteria returned an overall sample of 19,382 students. However, several student files were incomplete and lacked any of the outcome variables examined in this study ($N = 480$). Management of these missing items included first reviewing demographic characteristics of the groups to determine if deletion would affect student populations in an unbalanced way. Proportionate frequencies were observed across all demographic variables including both the ED special education and treatment groups. With the lower number of profiles missing full outcome data (2.5% of the original sample), a listwise deletion was used over imputation leaving a final sample of 18,902 children including 5,067 City Connects and 13,835 comparison students.

Complete case analysis was used for the remaining student records that held outcome data available for analyses; cases were excluded from the regressions where there was missing data. With the complete case analysis, group sizes varied marginally between the analyses of report card outcomes and MCAS math and ELA scores and are reflected in the analyses below.

Preliminary Analysis

Demographic Statistics. Table 2 presents the demographics for Aim 1 of this study, comparing those students in the ED special education designation and comparison students. Students in the ED special education sample included those children receiving special education accommodation for an ED disability at any point during the K-5 school years. The sample of 4,427 students was comprised of 34.8% female, 3.0% Asian, 41.5% Black, 42.3% Latino, 1.4% Mixed Race, 0.3% Native American, and 11.5 White students, 96.3% qualifying for free or reduced price lunch, and 18.1% English Language Learners.

Table 2
Student Demographics for Students with/without ED Disability and Overall Sample

	ED SPED N = 4,427	Never SPED N = 14,475	Total N = 18,902
Gender			
Female	34.8%	53.7%	49.3%
Male	65.2%	46.3%	50.7%
Ethnicity			
Asian	3.0%	10.7%	8.9%
Black	41.5%	34.6%	36.2%
Latino	42.3%	40.3%	40.8%
Mixed	1.4%	1.4%	1.4%
Native American	0.3%	0.4%	0.4%
White	11.5%	12.5%	12.3%
Free/Reduced Lunch			
F/R	96.3%	91.0%	92.3%
Full Price	3.6%	8.9%	7.7%
English-Language Learner			
ELL	18.1%	20.9%	20.2%
Non-ELL	81.9%	79.1%	79.8%

Children that did not receive special education support during the same timeframe were included in the never special education group. These 14,475 students included 53.7% females, 10.7% Asian, 34.6% Black, 40.3% Latino, 1.4% Mixed Race, 0.4% Native American, and 12.5% White students, 91.0% qualifying for free or reduced price lunch, and 20.9% English Language

Learners. It is apparent that several of the demographic categories are proportionate between students in the ED special education sample and those children without such accommodation. Greater variation exists across gender, ethnicity, and SES.

Between the two groups of students, a higher percentage of males is found in special education than comparison (65.2% and 46.3%, respectively). There is a greater percentage of Black students in the ED SPED sample (41.5%) than the Never SPED group (34.6%). The higher number of students of color in special education is uneven across ethnicity status. A smaller amount of the ED special education group (3.0%) is composed of Asian students vs the non-special education sample (10.7%). The high majority of students in both groups are from lower SES backgrounds as reflected by eligibility for free/reduced price lunch (96.3% ED SPED, 91.0% Never SPED). These relationships are further examined in the next analysis section.

Table 3
Student Demographics for City Connects Students, Comparison Students, and Overall Sample

	Ever City Connects N = 5,067	Comparison Students N = 13,835	Total N = 18,902
Gender			
Female	50.0%	49.0%	49.3%
Male	50.0%	51.0%	50.7%
Ethnicity			
Asian	15.8%	6.4%	8.9%
Black	30.3%	38.4%	36.2%
Latino	44.5%	39.4%	40.8%
Mixed	1.5%	1.4%	1.4%
Native American	0.3%	0.4%	0.4%
White	7.7%	14.0%	12.3%
Free/Reduced Lunch			
F/R	94.3%	91.5%	92.3%
Full Price	5.6%	8.5%	7.7%
English-Language Learner			
ELL	25.2%	18.4%	20.2%
Non-ELL	74.8%	81.6%	79.8%
Ever ED Special Education			
Ever ED SPED	26.0%	22.5%	23.4%
Never SPED	74.0%	77.5%	76.6%

Table 3 presents additional sample demographics for Aim 2 are including comparisons between students in City Connects and students never receiving the intervention. The amount of Asian, Latino, and ELL students is higher in the City Connects sample than the comparison. Lower percentages of Black and White students are found within the City Connects group than children that do not receive the intervention. Numbers of female and male, free and reduce price lunch, and ever receiving special education for ED appear to exist between samples and will be assessed further.

Descriptive Statistics. Preliminary analyses of the mean, standard deviation, minimum, maximum, and range of the six outcome variables are depicted in Table 4; all outcomes are standardized z-scores. Noted earlier, sample sizes vary as based on whether students had accessible data for the given outcome. Report card scores ranged from -2.45-1.72 for math, -3.32-1.64 for reading, -3.58-1.92 for writing, and -3.88-1.14 for behavior ($M = 0.000$, $SD = 1$). The MCAS ELA outcome had a range of -3.45-2.89 where Math MCAS scores ranged -2.74-1.75 ($M = 0.000$, $SD = 1$). Table 4 also presents the tests for skewness and kurtosis where all outcomes were within the acceptable limits and transformations were unnecessary.

Table 4
Descriptive Statistics of Criterion Variables, Skewness, and Kurtosis

	N	Mean	*SD*	Min	Max	Skewness	Kurtosis
Math Report Card	18,080	0	1	-2.45	1.72	0.15	0
Reading Report Card	18,045	0	1	-3.32	1.64	0	0
Writing Report Card	18,033	0	1	-3.58	1.92	0	0
Behavior Report Card	17,925	0	1	-3.66	1.14	0	0
MCAS ELA	18,593	0	1	-3.45	2.89	0	0
MCAS Math	18,537	0	1	-2.74	1.75	0	0

Note. All scores standardized.

Chi Square Analysis – Ever ED Special Education Status and Demographics. The associations between the ED predictor variable and covariates were assessed using Chi Square analysis. Demographic variables were contrasted between the "ever" and "never" ED special

education samples of Aim 1. Table 5 presents the respective frequencies, percentages, and Chi Square values with corresponding significance levels. There are marked differences based on gender and ED designation, χ^2 (1, N = 18,902) = 488.45, p < .001. Females are significantly less likely to ever receive ED categorization compared to male students. The relationship between ethnicity and ED designation was also significant, χ^2 (5, N = 18,902) = 277.32, p < .001. Black and Latino students were assigned to the ED disability category at higher rates. The ED special education designation is significantly less likely to be assigned to Asian students. Findings for the free/reduced lunch status were also significant, χ^2 (2, N = 18,902) = 150.90, p < .001. Students with higher SES are less likely to receive the ED designation than peers with greater financial disadvantage. Finally, ELL and ED status are significantly related where fewer ELL students were in special education than expected, χ^2 (1, N = 18,902) = 15.68, p < .001.

Table 5
Chi Square Analysis for ED Designation

		ED SPED		Never SPED		Chi Square
		N	%	N	%	Value
Gender	Female	1,539	34.8%	7,779	53.7%	488.45***
	Male	2,888	65.2%	6,696	46.3%	
Ethnicity	Asian	134	3.0%	1,548	10.7%	277.32***
	Black	1,838	41.5%	5,010	34.6%	
	Latino	1,874	42.3%	5,835	40.3%	
	Mixed/Other	60	1.4%	207	1.4%	
	Native American	12	0.3%	63	0.4%	
	White	509	11.5%	1,812	12.5%	
Lunch Status	Free/Reduced Price	4,264	96.3%	13,174	91.0%	150.90***
	Full Price	161	3.6%	1,296	8.9%	
ELL Status	ELL	803	18.1%	3,021	20.9%	15.68***
	Non-ELL	3,624	81.9%	11,454	79.1%	

*** p < .001

Table 6
Chi Square Analysis for City Connects Status

		Ever City Connects		Comparison		Chi Square
		N	%	N	%	Value
Gender	Female	2,532	50.0%	6,786	49.0%	1.258
	Male	2,535	50.0%	7,049	51.0%	
Ethnicity	Asian	803	15.8%	879	6.4%	590.21**
	Black	1,533	30.3%	5,315	38.4%	
	Latino	2,253	44.5%	5,456	39.4%	
	Mixed/Other	76	1.5%	191	1.4%	
	Native American	14	0.3%	61	0.4%	
	White	388	7.7%	1,933	14.0%	
Lunch Status	Free/Reduced Price	4,777	94.3%	12,661	91.5%	41.37***
	Full Price	286	5.6%	1,171	8.5%	
ELL Status	ELL	1,277	25.2%	2,547	18.4%	106.03***
	Non-ELL	3,790	74.8%	11,288	81.6%	
ED Status	ED SPED	1,318	26.0%	3,109	22.5%	25.90***
	Never SPED	3,749	74.0%	10,726	76.6%	

*** $p < .001$

Chi Square Analysis – Ever City Connects Status and Demographics. Table 6 shows the Chi Square analyses were further used to examine if the ever City Connects group and comparison student sample differed on the categorical covariates for study Aim 2. There are no apparent differences between female and male students for City Connects status, χ^2 (1, N = 18,902) = 1.26, p = .26. However, there was a significant relationship between ethnicity and City Connects status, χ^2 (1, N = 18,902) = 590.21, $p < .001$. Larger numbers of Asian and Latino students and lower numbers of Black and White students were found in the City Connects sample. Free/reduced price lunch status and ever being in City Connects also met significance, χ^2 (2, N = 18,895) = 41.37, $p < .001$. A significant majority of students received reduced price or free lunch within City Connects schools despite an expected higher percentage of students paying full price. The ever City Connects predictor was significantly associated with ELL status, χ^2 (1, N = 18,902) = 106.03, $p < .001$. Fewer numbers of ELL students were found in

comparison schools than expected. Analyses also indicate a significantly association between City Connects status and the ED special education status, χ^2 (1, N = 18,902) = 25.90, $p < .001$. While marginal, a higher percentage of students in City Connects schools receive an ED special education designation than comparison schools.

Preliminary Analyses for Multicollinearity. Variance inflation factors (VIF) were used to detect the potential existence of multicollinearity – the correlations between predictor variables in a model – that could reduce the validity of the estimates within the primary regressions of the current study. Lower VIFs with a cutoff of 10 and subsequent tolerance higher than .10 are suggested (Belsley, Kuh, & Welsch, 1980; Hair, Black, Babin, & Anderson, 2010). As seen in Table 7, the highest VIF is 3.19 (tolerance = 0.31) which is well within the recommended range and confirms the absence of multicollinearity.

Table 7

Multicollinearity Tests Between Predictors - VIF

	Math Report Card		Reading Report Card		Writing Report Card		Behavior Report Card		MCAS ELA		MCAS Math	
	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance	VIF	Tolerance
Ever CCNX	1.04	0.96	1.04	0.96	1.04	0.96	1.04	0.96	1.04	0.96	1.04	0.96
Ever ED	1.05	0.95	1.05	0.95	1.05	0.95	1.05	0.95	1.05	0.95	1.05	0.95
Race												
Black	3.05	0.33	3.05	0.33	3.05	0.33	3.04	0.33	2.98	0.34	2.98	0.34
Asian	1.83	0.55	1.83	0.55	1.83	0.55	1.83	0.55	1.79	0.56	1.79	0.56
Latino	3.19	0.31	3.19	0.31	3.19	0.31	3.19	0.31	3.13	0.32	3.12	0.32
Native Amer.	1.04	0.96	1.04	0.96	1.04	0.96	1.04	0.96	1.04	0.97	1.04	0.97
Mixed/Other	1.12	0.9	1.12	0.9	1.12	0.89	1.12	0.9	1.11	0.9	1.11	0.9
Male	1.03	0.97	1.03	0.97	1.03	0.97	1.03	0.97	1.03	0.97	1.03	0.97
F/R Lunch												
Reduced	1.34	0.75	1.34	0.75	1.34	0.75	1.34	0.75	1.32	0.76	1.32	0.76
Free	1.57	0.64	1.57	0.64	1.57	0.64	1.57	0.64	1.58	0.63	1.58	0.63
Bilingual	1.19	0.84	1.19	0.84	1.19	0.84	1.19	0.84	1.19	0.94	1.19	0.84

Preliminary Analyses – ED Special Education Status and Outcomes. Independent sample t-tests were run to analyze whether the ever ED special education group and never special education sample means differed on the academic and behavior outcomes (Table 8).

Table 8
Independent Sample t-Tests – ED Status and Outcomes

		Obs	Mean	Std Err	Std Dev	95% CI		*t*
Math RC	Never SPED	13,892	0.182	0.008	0.962	0.166	0.198	47.35***
	ED SPED	4,188	-0.605	0.014	0.88	-0.632	-0.578	
Reading RC	Never SPED	13,868	0.224	0.009	0.924	0.209	0.239	60.04***
	ED SPED	4,177	-0.744	0.014	0.874	-0.77	-0.717	
Writing RC	Never SPED	13,854	0.218	0.008	0.931	0.202	0.233	57.95***
	ED SPED	4,179	-0.721	0.013	0.873	-0.748	-0.695	
Behavior RC	Never SPED	13,087	0.104	0.008	0.959	0.088	0.12	25.93***
	ED SPED	4,118	-0.348	0.016	1.053	-0.38	-0.316	
MCAS ELA	Never SPED	14,416	0.243	0.007	0.873	0.229	0.278	69.15***
	ED SPED	4,177	-0.84	0.147	0.953	-0.869	-0.811	
MCAS Math	Never SPED	14,381	0.215	0.008	0.911	0.2	0.23	59.38***
	ED SPED	4,156	-0.744	0.015	0.936	-0.772	-0.715	

*** $p < .001$

The ED sample scored significantly lower (M = -0.61, SD = 0.88) than students without the ED designation (M = 0.18, SD = 0.96) on math report cards, t(18,078) = 47.35, $p < .001$. Similarly, the mean reading report card score was significantly lower for the ED disability group (M = -0.74, SD = 0.87) than the never special education sample (M = 0.22, SD = 0.92), t(18,043) = 60.04, $p < .001$. Students never in special education had significantly higher writing report card scores (M = 0.22, SD = 0.93) than the sample of children with ED designations (M = -0.72, SD = 0.87), t(18,031) = 57.95, $p < .001$. The never special education sample also scored higher (M = 0.10, SD = 0.96) than students in ED special education (M = -0.35, SD = 1.05) on report card behavioral grades, t(17,923) = 25.93, $p < .001$.

Consistent findings were identified within the standardized MCAS outcomes. Students with ED scored lower (M = -0.84, SD = 0.95) than students never in special education (M = 0.24, SD

= 0.87) on the MCAS ELA outcome, $t(18,591) = 69.15$, $p < .001$. For the MCAS Math scores, students in the ED group scored lower ($M = -0.74$, $SD = 0.94$) than the never in special education group ($M = 0.22$, $SD = 0.91$), $t(18,535) = 59.38$, $p < .001$. The significant differences existing between means offers continued justification for Aim 1 and the main analyses for the study.

Preliminary Analyses – City Connects Status and Outcomes. Analyses of the mean scores for the ever City Connects and comparison groups were also calculated using independent sample t-tests, see Table 9. Math report card means were significantly higher for the City Connects students ($M = 0.04$, $SD = 1.00$) than the comparison sample mean ($M = -0.01$, $SD = 1.00$), $t(18,078) = -2.98$, $p < .01$. The reading report card scores were significantly lower for the City Connects group ($M = -0.05$, $SD = 0.98$) compared to students not receiving these supports ($M = 0.02$, $SD = 1.01$), $t(18,043) = 3.96$, $p < .001$. The writing report card scores of the comparison sample ($M = 0.01$, $SD = 1.01$) did not significantly differ from the group of children in City Connects ($M = -0.22$, $SD = 0.98$), $t(18,031) = 1.78$, $p = .08$. City Connects students had a significantly lower behavior report card mean ($M = -0.06$, $SD = 0.99$) than the comparison student mean ($M = 0.02$, $SD = 1.01$), $t(17,923) = 4.46$, $p < .001$.

The differential findings are also found across the two MCAS outcomes. Comparison student means ($M = 0.03$, $SD = 0.98$) on the MCAS ELA measure are significantly higher than City Connects student scores ($M = -0.09$, $SD = 1.04$), $t(18,591) = 7.15$, $p < .001$. The MCAS Math scores reached significance where students in City Connects scored higher ($M = 0.03$, $SD = 1.03$) than the comparison sample ($M = -0.01$, $SD = 0.99$), $t(18,535) = -2.37$, $p < .05$.

Table 9
Independent Sample t-Tests – City Connects Status and Outcomes

		Obs	Mean	Std Err	Std Dev	95% CI		*t*
Math RC	Comparison	13,243	-0.013	0.009	1.001	-0.03	0.004	-2.98**
	City Connects	4,837	0.037	0.014	0.998	0.009	0.065	
Reading RC	Comparison	13,235	0.018	0.009	1.006	0.001	0.035	3.96***
	City Connects	4,810	-0.049	0.014	0.982	-0.077	-0.021	
Writing RC	Comparison	13,192	0.008	0.009	1.008	-0.009	0.025	1.78
	City Connects	4,841	-0.219	0.014	0.976	-0.049	0.006	
Behavior RC	Comparison	13,120	0.02	0.009	1.005	0.003	0.037	4.46***
	City Connects	4,805	-0.055	0.014	0.985	-0.083	-0.027	
MCAS ELA	Comparison	13,616	0.032	0.008	0.983	0.015	0.048	7.15***
	City Connects	4,977	-0.087	0.015	1.039	-0.115	-0.058	
MCAS Math	Comparison	13,615	-0.01	0.008	0.991	-0.027	0.006	-2.37*
	City Connects	4,922	0.029	0.015	1.025	0	0.058	

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

Preliminary Analysis of Variance between Schools and Outcomes. Beyond the comparisons of samples based on ED special education and City Connects status, consideration of the within and between group school differences was assessed. One-way analysis of variance (ANOVA) was used to examine the differences between the schools and each of the criterion variables. There was a significant effect of school on all of the report card outcomes: math, $F(87, 17{,}985) = 23.06$, $p < .001$; reading, $F(87, 17.951) = 23.11$, $p < .001$; writing, $F(87, 17{,}938) = 26.40$, $p < .001$, and behavior, $F(86, 17{,}831) = 24.72$, $p < .001$.

The significant effect of school was also found on the MCAS ELA and Math scores, $F(89, 18{,}496) = 30.63$, $p < .001$ and $F(89, 18{,}440) = 32.21$, $p < .001$, respectively. These outcomes highlight that there are both observed and unobserved differences between schools within the analyses. These significant variations further support the use of school-fixed effects which will account for these variations.

Primary Analyses

Having determined variation in the outcomes across the ED disability and City Connects predictors and schools, several school-fixed effects regression models were built to assess the two aims of this study:

Aim 1 – determining if the ED special education disability is associated with lower scores across ELA, math, and behavior outcomes.

Aim 2 – examining the interaction of City Connects on ED designation and the academic/behavior scores.

School-fixed effects regressions were established in several steps. First, academic and behavior outcomes were regressed onto the ED special education status. City Connects status was then added in a second step followed by a third accounting for school clustering with robust standard errors. An interaction term assessing the moderating effects of City Connects on ED designation included in a fourth step. The fifth regression removed the interaction term and the demographic covariates (gender, race, free/reduces lunch status, ELL) were added to determine relationship changes between the main predictors and outcomes after accounting for the covariates. Outcomes were finally regressed onto all covariates, school clusters, the ever ED and ever City Connects status variables, and the interaction.

School-Fixed Effects Regressions – Math Report Cards. The first analysis regressed math report card scores onto the ever ED special education variable; data presented in Table 10. The overall model was significant, $F(1, 18{,}078) = 2{,}242.14$, $p < .001$, $R^2 = .11$. Results indicated that there was a significant negative relationship with ED designation and math report card scores. Supporting Hypothesis 1a, having an ED disability significantly predicts a lower math report card scores than students never in special education.

The model remains significant after adding the City Connects indicator in the second step, $F(2, 18{,}077) = 1{,}134$, $p < .001$, $R^2 = .11$. A significant positive association between City Connects status and math report card outcomes is found. That is, ever receiving City Connects during the K-5 school years predicts significantly higher math report card grades while controlling for ED status. The ED designation continues to significantly predict lower math report card scores after accounting for City Connects status.

Accounting for clustering by school with robust standard errors continues to return a significant model, $F(2, 17{,}990) = 1180.72$, $p < .001$, $R^2 = .20$. While the negative association between ED and report card math scores is statistically significant, the positive City Connects effect no longer reaches significance.

Introduction of the interaction term between ED disability and City Connects to the regression continued to return overall significance, $F(3, 17{,}989) = 787.35$, $p < .001$, $R^2 = .20$. Contrary to Hypotheses 2ai, the interaction was not significant indicating that City Connects does not moderate the relationship existing between ED special education and math report cards. The positive relationship between City Connects and the criterion was non-significant after accounting for ED status. The ED designation continues to be significantly negatively associated with the math report card scores controlling for the other predictors in the model.

The next step in the regression analyses removed the interaction term and includes the covariates into the model which remains significant and accounting for 26% of the proportion of variance in math report card scores, $F(11, 17{,}974) = 398.87$, $p < .001$, $R^2 = .26$. Results indicate that Black, Latino, Mixed/Other, free/reduced lunch, and ELL students had significantly lower report card math scores compared to comparison groups. Asian students received significantly higher math report cards marks than White students. Both gender and Native American ethnicity

Table 10
Math Report Card Scores Regressed on Predictors

Predictor Variables	R^2	*b*	*p*
Step 1	.11		***
Ever ED Special Education		-.79	***
Step 2	.11		
Ever ED Special Education		-.79	***
Ever City Connects		.08	***
Step 3	.20		
Ever ED Special Education		-.77	***
Ever City Connects		.03	
Step 4	.20		***
Ever ED Special Education		-.76	***
Ever City Connects		.04	
Ever ED SPED x Ever City Connects		-.03	
Step 5	.26		***
Ever ED Special Education		-.70	***
Ever City Connects		.05	*
Gender		.00	
Race			
Asian		.45	***
Black		-.32	***
Latino		-.23	***
Mixed/Other		-.17	***
Native American		-.07	
Lunch Status			
Reduced Lunch		-.47	***
Free Lunch		-.61	***
ELL		-.06	**
Step 6	.26		***
Ever ED Special Education		-.70	***
Ever City Connects		.05	*
Ever ED SPED x Ever City Connects		-.01	
Gender		-.01	
Race			
Asian		.45	***
Black		-.32	***
Latino		-.23	***
Mixed/Other		-.17	**
Native American		-.07	
Lunch Status			
Reduced Lunch		-.45	***
Free Lunch		-.61	***
ELL		-.06	**

Note. Steps 3-6 include clustering for school-fixed effects with robust standard errors.
* $p < .05$. ** $p < .01$. *** $p < .001$.

did not significantly predict math report card grades. City Connects was significantly associated with positive increases in the criterion accounting for the variables in the model. Ever having an ED disability continued to significantly predict lower math report card scores.

The final step includes all covariates, predictors, and the interaction in the regression; overall this model is significant, $F(12, 17{,}973) = 365.63$, $p < .001$, $R^2 = .26$. Contrary to predictions, the moderating effect of City Connects is non-significant in the model. When controlling for demographics, school effects, and City Connects status, ED disability significantly predicts lower report card scores for math (supporting Hypothesis 1a). The model also indicates that math report card scores significantly increase if the student ever received City connects while controlling for covariates and the ED indicator (confirming Hypothesis 2a).

School-Fixed Effects Regressions – MCAS Math. Regressing the MCAS math outcome on ED special education returns an overall significant model, $F(1, 18{,}535) = 3{,}525.76$ $p < .001$, $R^2 = .16$, see Table 11. Further supporting Hypothesis 1a, having an ED disability significantly predicts lower MCAS math scores than students without such disability.

Introducing the ever City Connects status maintains model significance, $F(2, 18{,}534) = 1{,}776.16$, $p < .001$, $R^2 = .16$. Accounting for the City Connects indicator, students ever in special education for ED score significantly lower on MCAS math measures than students never in special education. Controlling for the ED designation, City Connects also significantly predicts MCAS math scores. There is a significant positive relationship indicating that ever receiving City Connects results in higher MCAS math outcomes than students that never receive the intervention.

In the third step, school-fixed effects are added to account for observed/unobserved differences across schools. Overall, the model is significant, $F(3, 18{,}444) = 1{,}140.15$, $p < .001$,

Table 11
MCAS Math Scores Regressed on Predictors

Predictor Variables	R^2	*b*	*p*
Step 1	.16		***
Ever ED Special Education		-.96	***
Step 2	.16		***
Ever ED Special Education		-.96	***
Ever City Connects		.07	***
Step 3	.28		***
Ever ED Special Education		-.93	***
Ever City Connects		.10	***
Step 4	.28		***
Ever ED Special Education		-.92	***
Ever City Connects		.11	***
Ever ED SPED x Ever City Connects		-.03	
Step 5	.34		***
Ever ED Special Education		-.87	***
Ever City Connects		.12	***
Gender		.03	*
Race			
Asian		.43	***
Black		-.36	***
Latino		-.26	***
Mixed/Other		-.19	**
Native American		-.12	
Lunch Status			
Reduced Lunch		-.35	***
Free Lunch		-.54	***
ELL		-.10	***
Step 6	.34		***
Ever ED Special Education		-.86	***
Ever City Connects		.12	***
Ever ED SPED x Ever City Connects		-.01	
Gender		.03	*
Race			
Asian		.43	***
Black		-.36	***
Latino		-.26	***
Mixed/Other		-.19	**
Native American		-.12	
Lunch Status			
Reduced Lunch		-.35	***
Free Lunch		-.54	***
ELL		-.10	***

Note. Steps 3-6 include clustering for school-fixed effects with robust standard errors.
* $p < .05$. ** $p < .01$. *** $p < .001$.

$R^2 = .28$. Both the significant negative association between ED status and MCAS scores and the positive relationship between City Connects and MCAS math outcomes remain.

The model continues to be significant after adding the interaction between City Connects and ED status in the fourth step, $F(3, 18{,}444) = 1{,}140.15$, $p < .001$, $R^2 = .28$. Contrary to predictions, the moderating effect of City Connects is not supported as it does not meet significance in the model. Ever having an ED disability continues to significantly negatively predict MCAS math scores while controlling for the City Connects predictor. Accounting for ED status, City Connects also significantly positively predicts higher outcomes on the MCAS math measure.

Demographic covariates were added in the next step to assess any changes in these relationships. The overall model remains significant and accounts for 34% of the proportion of variance found in MCAS math scores, $F(11, 18{,}429) = 563.83$, $p < .001$, $R^2 = .34$. Similar results to the previous regression analyses were found. Black, Latino, and Mixed/Other students scored significantly lower on MCAS math measures compared to respective peers. Asian students significantly performed higher than peers on the MCAS math scores. While Native American students scored lower on MCAS math results, these findings did not meet significance within the model. Gender was a significant predictor in the model indicating that males scored significantly higher than females on math MCAS. Both ELL status and qualifying for free or reduced lunch significantly predicted lower scores on MCAS math scores. The main predictors remain significant after accounting for these covariates. Holding others constant, ever being in special education for ED predicts significantly lower MCAS math scores compared to students without such need. Significantly higher MCAS math scores are found for students that ever receive City Connects than the comparison sample.

The model remains significant reintroducing the interaction term in addition to the predictors and covariates, $F(12, 18{,}428) = 517.26$, $p < .001$, $R^2 = .34$. The predicted moderating effect of City Connects is non-significant contrary to Hypothesis 2ai. Confirming Hypothesis 1a, the ED predictor is significant where students never in special education receive higher MCAS math scores than those with an ED disability controlling for demographic and the City Connects variables. City Connects students receive significantly higher MCAS math scores than comparison students while accounting for ED designation and covariates (supporting Hypothesis 2a).

School-Fixed Effects Regressions – Reading Report Cards. Table 12 presents the model for the report card reading outcomes. Regressing reading scores onto the ever ED predictor was significant, $F(1, 18{,}043) = 3{,}605.06$ $p < .001$, $R^2 = .17$. Results indicated a significant negative relationship where ED disability contributed to lower report card scores in reading; supporting Hypothesis 1b.

The model maintains significance at the second step where the City Connects predictor is added, $F(2, 18{,}042) = 1{,}805.30$, $p < .001$, $R^2 = .17$. Special education for ED continues to significantly predict lower report card grades for reading while accounting for the City Connects indicator. City Connects status is also significant though, contrary to hypothesis, students receiving City Connects scored lower for reading on report cards than comparison students holding ED status constant.

Clustering for school-fixed effects with the ED and City Connects predictors accounts for 25% of the variance in reading scores; the model is significant, $F(2, 17{,}955) = 1{,}813.36$, $p < .001$, $R^2 = .25$. Reading scores are significantly lower if a student has an ED disability. The

Table 12
Reading Report Card Scores Regressed on Predictors

Predictor Variables	R^2	*b*	*p*
Step 1	.17		***
Ever ED Special Education		-.97	***
Step 2	.17		***
Ever ED Special Education		-.97	***
Ever City Connects		-.03	*
Step 3	.25		***
Ever ED Special Education		-.93	***
Ever City Connects		-.10	***
Step 4	.25	_	***
Ever ED Special Education		-.95	***
Ever City Connects		-.11	***
Ever ED SPED x Ever City Connects		.05	
Step 5	.31		***
Ever ED Special Education		-.85	***
Ever City Connects		-.08	***
Gender		-.18	***
Race			
Asian		.15	***
Black		-.33	***
Latino		-.27	***
Mixed/Other		-.18	**
Native American		-.12	
Lunch Status			
Reduced Lunch		-.42	***
Free Lunch		-.61	***
ELL		-.14	***
Step 6	.31		***
Ever ED Special Education		-.87	***
Ever City Connects		-.10	***
Ever ED SPED x Ever City Connects		.08	*
Gender		-.18	***
Race			
Asian		.15	***
Black		-.33	***
Latino		-.28	***
Mixed/Other		-.18	**
Native American		-.12	
Lunch Status			
Reduced Lunch		-.42	***
Free Lunch		-.61	***
ELL		-.14	***

Note. Steps 3-6 include clustering for school-fixed effects with robust standard errors.
* $p < .05$. ** $p < .01$. *** $p < .001$.

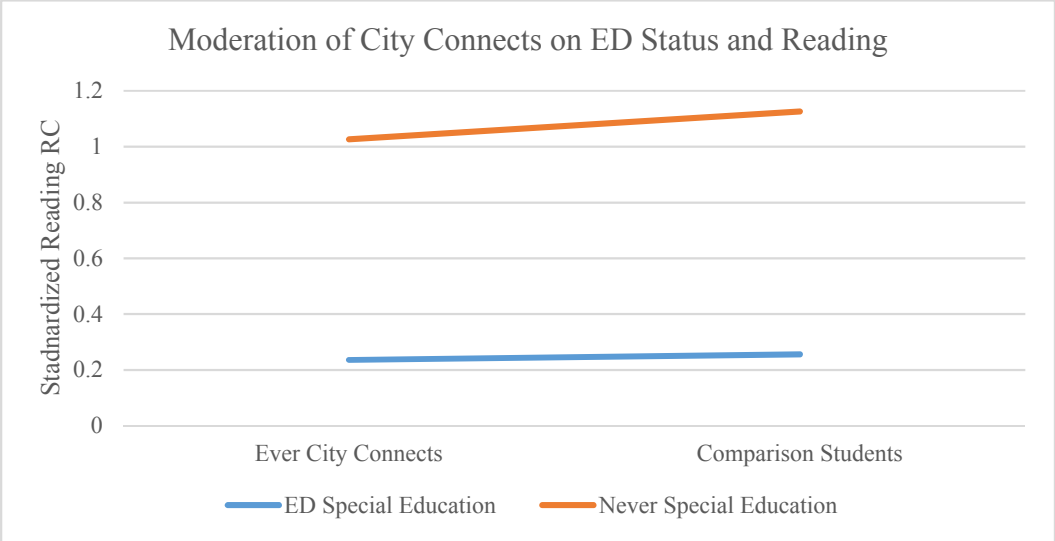
significantly negative relationship between City Connects and reading indicates that students in City Connects schools score lower on reading than comparison students in the sample.

The fourth step introduces the interaction between ED special education and ever City Connects, $F(3, 17{,}954) = 1{,}209.82$, $p < .001$, $R^2 = .25$. The significant negative associations between ED designation and reading scores and City Connects and reading outcomes continue in this model. However, the predicted moderation of City Connects on the relationship between ED special education and report card reading scores is not significant.

Introduction of the covariates in the study maintains model significance, $F(11, 17{,}940) = 520.34$, $p < .001$, $R^2 = .31$. Similar to previous results, Black, Latino, and Mixed/Other students score significantly lower than comparison peer groups; Native American students score lower on reading though this result non-significant. Asian students score significantly higher on reading than respective peer groups. Female students score significantly higher than male peers on reading scores within the model. Significantly lower report card grades are found for students receiving free/reduced lunch. Non-ELL children score significantly higher on report cards for reading than ELL students. Accounting for these covariates, the ED designation significantly predicts lower reading scores than students never needing ED special education supports. Also, students in City Connects receive significantly lower reading scores than comparison students.

The interaction of City Connects and ED status was brought back in during the final step; overall, the model was significant, $F(12, 17{,}939) = 477.83$, $p < .001$, $R^2 = .31$. Students with an ED disability score significantly lower than peers on the reading outcome while accounting for City Connects status and covariates, supporting Hypothesis 1b. Contrary to predictions in Hypothesis 2a, students in City Connects schools score significantly lower than comparison students on report card reading scores while controlling for other predictors. The interaction

term is also significant in support of Hypothesis 2bi (Figure 1). As seen, City Connects moderates the relationship between ED status and report card reading scores while controlling for demographic covariates in the school-fixed effects model. Differences in the reading outcomes between students ever having ED special education and children not receiving these services was smaller for the City Connects students than the two groups of students never in a City Connects school.



School-Fixed Effects Regressions – Writing Report Cards. Progression through the writing report card scores regressions is presented in Table 13. The first step in the model regressing writing report card scores on the ED predictor was significant, $F(1, 18{,}031) = 3{,}358.27$ $p < .001$, $R^2 = .16$. There was a significant negative relationship between the two as having an ED disability predicts lower scores on writing scores; this supports Hypothesis 1b.

Adding the ever City Connects status into the second step maintains overall significance, $F(2, 18{,}030) = 1679.05$, $p < .001$, $R^2 = .16$. Contrary to hypotheses, the relationship between ever being in City Connects and writing outcomes did not meet significance while accounting for special education status. The ever ED variable continues to be negatively associated as students

Table 13
Writing Report Card Scores Regressed on Predictors

Predictor Variables	R^2	*b*	*p*
Step 1	.16		***
Ever ED Special Education		-.94	***
Step 2	.16		***
Ever ED Special Education		-.94	***
Ever City Connects		.00	
Step 3	.25		***
Ever ED Special Education		-.91	***
Ever City Connects		-.04	
Step 4	.25		***
Ever ED Special Education		-.91	***
Ever City Connects		-.04	
Ever ED SPED x Ever City Connects		.03	
Step 5	.33		***
Ever ED Special Education		-.80	***
Ever City Connects		-.02	
Gender		-.30	***
Race			
Asian		.27	***
Black		-.27	***
Latino		-.22	***
Mixed/Other		-.18	**
Native American		-.12	
Lunch Status			
Reduced Lunch		-.46	***
Free Lunch		-.67	***
ELL		-.16	***
Step 6	.33		***
Ever ED Special Education		-.81	***
Ever City Connects		-.03	
Ever ED SPED x Ever City Connects		.06	
Gender		-.30	***
Race			
Asian		.27	***
Black		-.27	***
Latino		-.22	***
Mixed/Other		-.18	**
Native American		-.12	
Lunch Status			
Reduced Lunch		-.46	***
Free Lunch		-.67	***
ELL		-.16	***

Note. Steps 3-6 include clustering for school-fixed effects with robust standard errors.
* $p < .05$. ** $p < .01$. *** $p < .001$.

with ED disabilities receiving significantly lower writing scores than students without these needs while controlling for the City Connects predictor.

Accounting for school-fixed effects in step three returns similar results. The model is significant and accounting for 25% of the variance in report card writing scores, $F(2, 17{,}943) = 1{,}748.99$, $p < .001$, $R^2 = .25$. Students ever having ED special education supports score lower on the writing outcomes than comparison peers. The City Connects predictor remained non-significant.

The overall model remains significant when the interaction between City Connects and Ever ED special education is added, $F(3, 17{,}942) = 1{,}166.36$, $p < .001$, $R^2 = .25$. Contrary to predictions, the moderating effect of City Connects on the ED designation and writing scores was not significant. The ED variable continues to predict significantly lower writing scores for students ever receiving ED designation, whereas the City Connects status did not reach significance.

Introducing covariates in the fourth step accounts for a third of the proportion of variance in writing report card scores accounted for by the model, $F(11, 17{,}927) = 535.89$, $p < .001$, $R^2 = .33$. Asian students continue to perform significantly higher than respective peers on writing scores from report cards. Black, Latino, and Mixed/Other students score significantly lower on these same outcomes. Native American students did not significantly differ than White peers on the writing outcomes. Significantly lower writing scores are found for male students than female peers. The relationship between writing and the lunch indicator was significant and negative, indicating lower scores on writing for students receiving free or reduced price lunch. The ELL status is significant and negatively related to writing scores. While the ever City Connects

indicator does not reach significance, ED status continues to have a significant negative association with writing scores accounting for the City Connects and demographic variables.

Writing scores are regressed onto the covariates, the main predictors, and the interactions in the final step, $F(12, 17{,}296) = 491.63$, $p < .001$, $R^2 = .33$. The ED predictor remains significant with students ever having an ED status receiving lower writing scores compared to outcomes for students without an ED disability while controlling for other variables; this finding is in support of Hypothesis 1b. Results do not support the hypothesis of moderation as the interaction between City Connects and ED special education is non-significant. The City Connects predictor also did not reach significance in the model and Hypothesis 2b was not supported.

School-Fixed Effects Regressions – MCAS ELA. Table 14 reports the results of MCAS ELA regressions. The model is significant when MCAS ELA scores are regressed on the ever ED special education predictor, $F(1, 18{,}591) = 4{,}781.40$ $p < .001$, $R^2 = .20$. The association is significantly negative where students ever having an ED disability score lower than peers without these needs, supporting Hypothesis 1b.

The overall model remains significant when adding the City Connects predictor, $F(2, 18{,}590) = 2{,}409.69$, $p < .001$, $R^2 = .21$. The relationship between ED designation and ELA MCAS outcomes remains significantly negative, where students ever with ED score lower than respective peers. Contrary to predictions, ever City Connects is also negatively related to MCAS ELA measures; this negative association is also significant. Comparison students scores higher on the MCAS ELA outcome than students ever in City Connects.

School-fixed effects and standard errors are introduced in the third step which overall is significant, $F(2, 18{,}501) = 2{,}184$, $p < .001$, $R^2 = .31$. Both the ED special education predictor

Table 14
MCAS ELA Scores Regressed on Predictors

Predictor Variables	R^2	*b*	*p*
Step 1	.20		***
Ever ED Special Education		-1.08	***
Step 2	.21		***
Ever ED Special Education		-1.08	***
Ever City Connects		-.08	***
Step 3	.31		***
Ever ED Special Education		-1.05	***
Ever City Connects		-.06	**
Step 4	.31		***
Ever ED Special Education		-1.04	***
Ever City Connects		-.05	*
Ever ED SPED x Ever City Connects		-.02	
Step 5	.36		***
Ever ED Special Education		-.98	***
Ever City Connects		-.04	
Gender		-.16	***
Race			
Asian		.14	***
Black		-.29	***
Latino		-.25	***
Mixed/Other		-.17	**
Native American		-.12	
Lunch Status			
Reduced Lunch		-.26	***
Free Lunch		-.46	***
ELL		-.23	***
Step 6	.36		***
Ever ED Special Education		-.98	***
Ever City Connects		-.04	
Ever ED SPED x Ever City Connects		.00	
Gender		-.16	***
Race			
Asian		.14	***
Black		-.29	***
Latino		-.25	***
Mixed/Other		-.17	**
Native American		-.12	
Lunch Status			
Reduced Lunch		-.26	***
Free Lunch		-.46	***
ELL		-.23	***

Note. Steps 3-6 include clustering for school-fixed effects with robust standard errors.
* $p < .05$. ** $p < .01$. *** $p < .001$.

and the ever City Connects indicator remain significantly negatively related to MCAS ELA scores.

The fourth step includes the interaction term between ever ED and City Connects; the model is significant, $F(3, 18{,}500) = 1{,}457.02$, $p < .001$, $R^2 = .31$. Contrary to hypotheses, the moderation effect of City Connects on ED status and ELA MCAS measures is non-significant. The City Connects and ED disability variables remain significant, predicting lower MCAS ELA scores if ever in City Connects of special education for ED.

The model is significant when adding the demographic covariates, accounting for 36% of the variance in ELA MCAS outcomes, $F(11, 18{,}485) = 572.94$, $p < .001$, $R^2 = .36$. As with previous criterion variables, ELA MCAS scores were significantly lower for Black, Latino, and Mixed/Other students compared to White peers. Asian students scored significantly higher than respective peers on the ELA MCAS outcome; Native American students did not score significantly different. Female students score significantly higher than male peers on the MCAS ELA measure. Students with both free and reduced lunch have significantly lower scores on MCAS ELA than peers that pay full price. The ELL status significantly predicts lower scores for ELL students than non-ELL peers on MCAS ELA results. While the special education designation remains significant, predicting lower scores for students with ED, the City Connects predictor is no longer significant.

Reintroduction of the City Connects and ED special education interaction occurred during the final step, retaining model significance, $F(12, 18{,}484) = 525.76$, $p < .001$, $R^2 = .36$. The hypothesized City Connects moderation of the relationship between ED special education and MCAS ELA scores was not supported, as the interaction did not reach significance. The ED designation, while controlling City Connects status, is significant. That is, students ever in

special education for ED score lower than peers without ED which supports Hypothesis 1b. Contrary to Hypothesis 2b, City Connects did not significantly predict higher ELA MCAS scores controlling for covariates and ED status.

School-Fixed Effects Regressions – Behavior Report Cards. Results from the regression analyses for behavior report card scores (Hypothesis 1c) are reported in Table 15. The first step includes the ED disability predictor and is significant, $F(1, 17{,}923) = 672.37$ $p < .001$, $R^2 = .04$. As predicted, there is a significant negative association between ED special education and behavior scores. Specifically, students ever receiving an ED designation have lower report card scores for behavior than students without ED.

In the second step, the model remains significant when introducing the ever City Connects variable, $F(2, 17{,}922 = 342.92$, $p < .001$, $R^2 = .04$. The significant negative relationship between ED disability and behavior scores remains while accounting for the City Connects variable. Counter to predictions, City Connects was also negatively associated with behavior report card grades; this relationship met significance while controlling for ED status. Ever being in City Connects resulted in lower behavior scores than students in comparison schools.

The overall model is significant with the school-fixed effects added in the third step, $F(2, 17{,}836) = 256.51$, $p < .001$, $R^2 = .13$. Both predictors have significant and negative relationships with the behavior outcome. Students ever in City Connects score lower than comparison students on report cards for behavior. Also, higher behavior scores are found for students that never have an ED disability than children with this need.

Step four introduces the interaction between City Connects status and ED disability into the regression, $F(3, 17{,}835) = 172.01$, $p < .001$, $R^2 = .13$. Contrary to hypotheses, despite model significance, the moderating effect of City Connects was not significant. The ED predictor

Table 15
Behavior Report Card Scores Regressed on Predictors

Predictor Variables	R^2	*b*	*p*
Step 1	.04		***
Ever ED Special Education		-.45	***
Step 2	.04		***
Ever ED Special Education		-.45	***
Ever City Connects		-.06	***
Step 3	.13		***
Ever ED Special Education		-.40	***
Ever City Connects		-.11	***
Step 4	.13		***
Ever ED Special Education		-.38	***
Ever City Connects		-.09	***
Ever ED SPED x Ever City Connects		-.07	
Step 5	.20		***
Ever ED Special Education		-.28	***
Ever City Connects		-.11	***
Gender		-.36	***
Race			
Asian		.26	***
Black		-.32	***
Latino		-.15	***
Mixed/Other		-.20	**
Native American		-.15	
Lunch Status			
Reduced Lunch		-.15	*
Free Lunch		-.35	***
ELL		.04	*
Step 6	.20		***
Ever ED Special Education		-.27	***
Ever City Connects		-.10	***
Ever ED SPED x Ever City Connects		-.03	
Gender		-.36	***
Race			
Asian		.26	***
Black		-.32	***
Latino		-.15	***
Mixed/Other		-.20	**
Native American		-.15	
Lunch Status			
Reduced Lunch		-.15	**
Free Lunch		-.35	***
ELL		.04	*

Note. Steps 3-6 include clustering for school-fixed effects with robust standard errors.
* $p < .05$. ** $p < .01$. *** $p < .001$.

remains significant indicating a negative relationship between ever having an ED disability and behavior scores. City Connects also predicted lower scores for behavior on report cards, a relationship that is significant.

Adding covariates brings the proportion of variance accounted for by the model to 20%, $F(11, 17{,}820) = 218.15$, $p < .001$, $R^2 = .20$. Differential effects are found for ethnicity. Black, Latino, and Mixed/Other students have significantly lower scores than respective peers; Native American students do not significantly differ. Behavior scores are significantly higher for Asian students than White students. Male students perform lower on behavior scores than female peers; this relationship is significant. Students receiving free and reduced price lunch both score significantly lower on behavior than respective peers. Behavior scores are also significantly lower for ELL students than non-ELL children. Accounting for the demographic covariates, both of the main predictors continue to be negatively and significantly related to the behavior report card scores. Students never having an ED disability have higher behavior outcomes than students with an ED status. City Connects students also score lower on report cards for behavior than comparison students.

The final step including the main predictors, the interaction, and all covariates returned a significant model, $F(12, 17{,}819) = 199.87$, $p < .001$, $R^2 = .20$. Hypotheses of the moderating effect of City Connects was not supported as the interaction term was non-significant. Having an ED disability was a significant predictor of lower behavior scores while accounting for City Connects status and covariates (supporting Hypothesis 1c). Report card behavior outcomes were also significantly higher for comparison students than students in City Connects schools controlling for other variables, contrary to predicted relationship in Hypothesis 2c.

Results Summary

Preliminary findings indicate gender, ethnicity, and socioeconomic status are all significantly associated with ever having an ED special education status as noted in the extant literature. Specifically, males are significantly more like to receive an ED designation than female peers. Black and Latino students also receive an ED status significantly more often than White peers, whereas Asian students receive ED special education services significantly less frequently. Also, students facing greater financial disadvantage have ED designation at a significantly greater rate than students with higher SES. Also, there were significantly higher numbers of Asian and Latino children, students receiving free/reduced price lunch, ELL students, and students receiving special education in City Connects schools than expected.

Results provide variable support for the study hypotheses. Consistent across all primary analyses, ED special education designation was significantly and negatively associated with all academic and behavioral outcomes. Students with an ED disability scored lower on all report card and standardized measures confirming Hypotheses 1a-c. Support for the impacts of City Connects on the six outcomes was mixed. Both math scores (report card and MCAS) were positively related to City Connects, where students receiving the intervention scored higher than students without such supports. Writing and ELA MCAS scores did not significantly differ between comparison and City Connects students. However, both reading and behavior scores were significant opposite of hypotheses, where City Connects scores lower on both outcomes than comparison peers. The predicted moderation of City Connects on ED status and the outcomes only met significance for reading report card scores.

Of note, these findings could be influenced by the school-fixed effects design used in the study. Specifically, if City Connects status is highly correlated with the school students attended

in fifth grade, the school-fixed effects may lead to misspecified effect estimates and standard errors for both the City Connects predictor and the interaction with special education status. Consequently, a set of analyses were run replacing the school-fixed effects with school-random effects but found no differences in the results. As such, only the model results from the school-fixed effect models are presented above.

Chapter V: Discussion

The impacts of out-of-school factors on learning have long been established in developmental and educational literature. With consistent and, in some cases, widening academic and behavioral outcome gaps, greater attention to addressing such factors has contributed to the creation of an approach to schooling called *Integrated Student Supports* (ISS; Moore, 2014; Moore et al., 2017; Walsh & Wasser Gish, 2017; Wasser Gish, 2019). While several positive outcome evaluations of ISS have emerged, limited research exists on the impact of ISS for specific subgroups of students. An important group of students to look at closer includes those children with severe emotional disturbance (ED) and social-emotional-behavioral (SEB) needs, children who often face poorer short and long-term developmental outcomes (de Voursney & Huang, 2016; Lewis et al., 2017; Moore et al., 2017; Olivier et al., 2018). The current study contributed to these endeavors by investigating the relationship between students with ED special education needs, ISS, and developmental outcomes.

Specifically, the investigation explored the impacts of one approach to ISS, City Connects, on academic and behavioral outcomes for students with a special education ED designation. The City Connects approach is grounded in the basic principles from the research in developmental psychology and developmental psychopathology. Research into the City Connects approach has demonstrated effective impacts on achievement and thriving through the primary and secondary school years (City Connects, 2010, 2012, 2016, 2018, 2020; Lawson et al., 2019; Walsh & Backe, 2013; Walsh et al., 2014). This dissertation extended current City Connects research into special education by focusing on students with an ED disability.

Review and Discussion of Findings

Prior to exploration of the main study aims, it is important to consider the groupings of students designated within the "ever ED special education" and "non-special education" samples for the study. Discussed earlier, students present with a range of SEB needs and a number of these students qualify for ED categorization under the Individuals with Disabilities Education Act (IDEA, 2004). Review of available student data for the domain of accommodation allowed for including students who participated in special education consistent with ED support at any point during the K-5 school years. Students receiving special education for other primary needs, comorbid diagnoses of intellectual disability or autism, and students in completely separate schools were excluded. These criteria returned an ever-ED sample of 4,427 students and 14,457 children never in special education.

There were significant differences across the samples based on the demographic covariates. Female students received the ED designation significantly less than male peers. Past evaluations of gender influences in special education, especially related to behavioral need, underscore a greater number of male students than females meeting the threshold for special education disabilities (Lopes et al., 2012; Murray, 2003; Wehmeyer & Schwartz, 2001). Several suggested explanations for these differences include gender socialization, bias, and the likelihood of unmet need (Lopes et al., 2012; Wehmeyer & Schwartz, 2001). Despite the variability identified in the current sample, these differences are reflective of existing figures in special education practice.

Significant differences also existed between the ED special education and non-special education groups based on ethnicity. Both Black and Latino students received the ED categorization at higher rates than respective peers. These findings are consistent in trends in other research samples (Murray, 2003). While these students are designated with an ED status more frequently, Asian students in the current investigation have lower rates within the ED

designation. Cooc (2019) highlights that Asian American and Pacific Islander students are often underrepresented in special education and, if receiving support, accommodation begins later than same-aged peers.

Socioeconomic status (SES) was also significantly associated with ED categorization despite a large proportion of both samples facing economic disadvantage. Students from higher SES – as measured by paying full price lunch – were placed in special education for ED less than students that received free/reduced price lunch. Extant literature indicates that assignment to special education designations occur more often for students from lower SES than middle and higher-SES backgrounds (Murray, 2003).

Students with ELL status were less likely than peers to be in the ever ED sample. While this difference exists, the current groupings appear representative of numbers found in previous studies. Specifically, research suggests that schools identify fewer numbers of students with ELL with an ED disability (Sullivan, 2011). Researchers have suggested that several factors contribute to the inconsistent number of ELL students in special education including misinterpretations and misdiagnosis of need and, at times, the denial of special education services contributing to underrepresentation (Zetlin, Beltran. Salcido, Gonzalez, & Reyes, 2011).

Taken together, the uneven numbers that exist between the ever-ED special education sample of students and those children never receiving special education is unfortunately common in research samples and schools in general. It is important to note as these differences underscore out-of-school factors that shape learning and thriving (AEI Brookings, 2015; Blair & Raver, 2015; Magnuson, 2013; Moore, 2014; Moore et al., 2017; Sandstrom & Huerta, 2013). The primary analyses account for these covariates to help delineate the relationships between the main predictors and outcomes.

Variability based on ethnicity, SES, ELL, and the ever ED status was also present between the City Connects sample and students never receiving City Connects supports. A higher percentage of Asian and Latino students and lower number of Black and White children were ever in City Connects than comparison schools. In general, a majority of students within the City Connects and comparison schools received free or reduced-price lunch though a higher number of students paying full price was anticipated in City Connects schools. Significantly fewer students with ELL status were found in the comparison sample. These differences relate to the variability associated with a quasi-experimental design and will be expanded on in the limitations section.

City Connects and comparison groups were also notably different for ED categorization. A larger, albeit marginal, percentage of students in the ED special education existed in City Connects schools than found in the comparison sample. While this variability may also be explained by the quasi-experimental nature of the current investigation, prior research suggests that the higher number may be reflective of the intervention itself. Previous findings have highlighted a greater likelihood of accurate referrals for special education when City Connects is implemented in schools (Boston College Center for Optimized Student Support, 2010). Both the whole-class and individualized student review processes of City Connects may contribute to students receiving an accurate referral for ED special education and qualifying for the ED status in the current investigation.

Predictor and Criterion Preliminary Analyses

Assessments of the association between the ED categorization and outcomes were run to establish the need for the primary analysis in Aim 1. As predicted, results were significant and indicated that students ever in special education for ED from K-5th grade score lower on ELA

and Math standardized measures and report card grades; lower scores for students with ED were also found on behavior scores. These findings replicate previous results (Asarnow et al., 2005; Garner & Waajid, 2012; Landrum et al., 2004; Ursache et al., 2012) and provide further justification for the primary analyses of the current study.

There was greater variability within the preliminary analyses of the relationship between City Connects status and the academic and behavioral outcomes. Children ever in City Connects schools had higher 5th grade math scores than comparison students on both report cards and the MCAS; these outcomes are consistent with prior findings (City Connects, 2010, 2012, 2016, 2018; Lawson et al., 2019; Walsh et al., 2014). However, the ELA and behavior outcomes have negative associations with City Connects status, where comparison students scored higher on ELA, reading, writing, and behavior scores than those students in City Connects. Looking closer at these associations while controlling for other factors is necessary to determine if the relationships remain the same (Aim 2).

Beyond the impacts of previously described variables, a number of factors at the school level can also influence student outcomes including the ratio of students to teachers/staff, funding available for the district, and supports available within the school. Even a school system's choice to implement City Connects tends to be influenced by higher need/greater disadvantage (City Connects, 2016). While many variables can be observed/measured, other unobserved factors influence student performance and behavior. The combination of both observed and unobserved effects can produce bias within regression models if not controlled for (Murnane & Willett, 2010). Preliminary analysis of variance related to the school indicator reached significance on all MCAS and report card outcomes. The variations connected to observed and

unobserved schools factors need to be accounted for within the primary analyses and further supported the use of school-fixed effects modeling in the current study.

Aim 1: ED Designation Academic and Behavior Outcome Comparisons

A substantial amount of research has established that students with ED disabilities receive consistently lower academic and behavioral marks than respective peers (Atkins et al., 2010; Asarnow et al., 2005; Giota, et al., 2009; Green et al., 2014; Hanson et al., 2004; Katsiyannis et al., 2012; Landrum et al., 2004; Stiefel et al., 2017; Stoutjesdijk et al., 2012). Such results maintain despite special education services being in place (Duchnowski et al., 2013; Katsiyannis, Losinski, & Prince, 2012). The first study aim assessed the relationship between ever having an ED disability and academic and behavioral outcomes within the current sample.

After controlling for the demographic covariates (i.e., gender, ethnicity, free/reduced price lunch, ELL), school-fixed effects, and the City Connects predictor, significantly lower report card and MCAS scores were found for students ever identified with ED disability. The significant findings across all six outcomes are consistent with the extant literature and support Hypotheses 1a-c. These results are partially explained by the specific disability being assessed. The SEB domain includes a repertoire of abilities that shape, and are shaped, by one's cognitive capacities (Jones et al., 2015). Such "non-cognitive" skills are relevant to reach learning goals and include problem-solving, self-control, and effort among others (Farrington et al., 2012; McKown, 2017). Students with ED face challenges with these specific capabilities. Qualification for ED is marked by maladaptive behaviors, emotional dysregulation, and difficulty learning (IDEA, 2004). The cumulative nature of educational achievement focused on prerequisite knowledge and acquisition over time underscores the tension students with ED face (Jimerson et al., 1999). A student may struggle to access class material necessary for short-term

achievement which has long-term impacts on outcome measures. These needs are further exacerbated by a social and educational setting that fails to meet these areas of concern (Wolanin & Steele, 2004). As a result, students not in special education may consistently earn higher scores that maintain, if not widen gaps, without appropriate supports for students with ED disabilities motivating the second research question.

Aim 2: City Connects, ED Disability, and Outcomes

Limited research has investigated the impacts on City Connects outcomes with co-occurring supports including special education for subgroups of students. As noted, previous investigations found that City Connects contributed to referrals for special education with a greater likelihood of identifying a disability than comparison schools (Boston College Center for Optimized Student Support, 2010). While promising, research continues to be lacking on the impacts of City Connects, and ISS more broadly, accompanying special education on subsequent student outcomes. This study is one of the first to assess the effects of City Connects on the relationship between ED designation and academic and behavioral outcomes.

Main Effects for City Connects – Hypotheses 2a-c. Both school-fixed effects regressions assessing math report card grades and MCAS-Math scores found positive main effects for City Connects; outcomes in support of Hypothesis 2a. Controlling for the other predictors, the models indicated that ever receiving City Connects contributed to significantly higher math scores for students than never receiving City Connects schools. The hypothesized main effects of City Connects for both the writing and the ELA MCAS outcomes were not supported. While the models returned unpredicted negative relationships between City Connects and both outcomes, these effects did not meet significance and are described in greater detail below. In contrast to the predicted association, reading and behavior report card scores were significantly

negatively associated with City Connects, accounting for demographic covariates, school-fixed effects, and ED special education designation. Students ever receiving City Connects scored significantly lower on reading report cards than comparison students.

These contrasting outcomes are notable and deserve further review. Previous research has found that ELA and math scores are significantly higher for students that receive ISS than respective peers (City Connects, 2010, 2012, 2016, 2018; Lawson et al., 2019; Moore et al., 2017; Walsh et al., 2014); outcomes that are found for City Connects specifically and ISS more broadly. However, Moore et al. (2017) note that variability exists across and within investigations for certain outcome measures. These authors reviewed several studies and indicated that more consistent and positive effect of ISS are found for math when compared to ELA findings. All math results indicated at least null findings if not significantly positive impacts on scores when receiving one of the ISS approaches. Moreover, specific investigations of City Connects have shown a greater positive response in trajectory and longitudinally for math more than outcomes such as reading (City Connects, 2016).

The relationship between the varied approaches to ISS and ELA outcomes tends to be irregular including positive, null, and negative outcomes (Moore, 2014; Moore et al., 2017). While the positive outcomes of City Connects on reading/writing report cards and ELA standardized tests fueled the hypothesized main effects, the varied outcomes found in the current investigation are consistent with the existing body of research on ISS generally. Potential explanations for the significant negative main effect on reading in the opposite direction than predicted include type, timing, and coordination of supports. For instance, Moore (2014) highlighted that for students facing low SES, inclusion of parental services within ISS approaches contributes to positive reading gains over time. More specifically, combining City

Connects with other services (i.e., preschool) returns significantly higher reading report card scores than either support in isolation (City Connects, 2020). Notably, reading scores often start lower for students in City Connects schools where making gains/surpassing comparison students can been seen by 6th grade (City Connects, 2016); the current investigation considered 5th grade measures. Further, the coordinated delivery of supportive services can be influenced by many factors despite fidelity monitoring. Moore et al. (2017) highlighted significantly worse reading outcomes for students receiving partially implemented ISS services. These considerations help explain in part the significant and non-significant relationships found between City Connects and the varied ELA outcomes.

Similarly, behavior report card scores met significance and were negatively related to City Connects status. The relationship contradicted the anticipated direction as City Connects students were significantly lower on report card behavior scores than comparison students. Where reading, writing, and ELA scores are mixed, behavioral outcomes are looked at less commonly and often return less promising results (Moore, 2014). The variability within the current investigation of City Connects appears related to the mixed outcomes found in the ISS literature and support the need for ongoing research into the mechanisms behind such differences.

A potential explanation for the variability relates to "dosage" or the amount of time receiving City Connects support. It was beyond the scope of the current study to assess dosage and students were grouped based on ever receiving City Connects during the K-5 school years or never receiving these supports. It is possible that current outcomes are influenced by the amount of years receiving the tailored supports offered by City Connects. Research has found positive effects of dosage as better outcomes emerge with longer time accessing City Connects

interventions (Walsh et al., 2014). It would be important to better assess the amount of time a student receives City Connects and whether differential and more positive outcomes are found based on this longevity.

The sample for the current investigation also included students in the 2001-2002 to 2008-2009 cohorts. This is notable as the initial rollout of City Connects occurred in 2001 with subsequent expansion over the next several years. While significant positive outcomes are associated with City Connects implementation even after one year and evaluations have indicated meeting high – more than 80% – benchmarks for fidelity (City Connects, 2012, 2014), during these initial phases it is likely that quality of implementation improved over time. Other ISS evaluations indicate that quality enhances through continued implementation with a noted increase following first two years of practice (Moore et al., 2017). Some of the recent investigations of City Connects have controlled for school level factors based on the amount of consecutive years City Connects operated within the schools. The significantly negative reading/behavior scores – students in City Connects scoring lower than comparison peers – and the non-significant writing/ELA MCAS – City Connects students scoring lower – outcomes may relate to these differences in implementation and deserve consideration.

Further, responsiveness to City Connects services may differ based of interactions between dosage, domain, and time. Campbell, Bowman-Perrott, Burke, and Sallese (2018) suggest that added support and staff directed intervention may most influence math knowledge above other learning areas. Math skills may develop at a different rate where outcomes reflect advantages of even short-term experience with City Connects, whereas reading, writing, and behavior may require more dosage and emerge in outcomes at differing time points. For instance, Lawson et al. (2019) demonstrated that the City Connects effect was positively associated with ELA

outcomes and reached significance in 6th grade. As the current investigation considers end of the year results for 5th grade, it is possible that positive deflections are associated with longer term learning that was not captured for the sample in this study.

City Connects Moderating Effects. Limited data exist on predictors that shape the longstanding negative associations between ED disability and academic and behavioral outcomes. Even with special education practices in place, lower academic grades/standardized testing results and higher behavioral reprimands are found for students with ED (Atkins et al., 2010; Asarnow et al., 2005; Bowman-Perrott et al., 2011; Hayden, 1994Giota et al., 2009; Green et al., 2014; Hanson et al., 2004; Katsiyannis et al., 2012; Landrum et al., 2004; Stiefel et al., 2017; Stoutjesdijk et al., 2012). However, there is no data on the interaction between ISS and special education on these outcomes. With the advantages associated with ISS for students facing several risk factors (SES, mobility, etc.), it was expected that City Connects would moderate the relationship between ED status and academic and behavior scores.

The school-fixed effects regression models including the interaction term returned one significant moderation: City Connects on ever ED disability and reading. As predicted, the gap in 5th grade reading scores between students ever having an ED designation and children never in special education was smaller in City Connects schools than the difference of reading grades for these groups of students in comparison schools. This finding is especially important noting the impacts that reading has for all learning and the consistent finding that students with ED make less reading gains during the K-5 academic years (Campbell et al., 2018). Closing the gap in student outcomes between children facing risk and need and peers without these challenges is a major focus of City Connects and consistent across ISS approaches. While scoring lower overall

in reading than comparison students, results indicate that City Connects can reduce the differences found in reading outcomes across need categories.

Although this significant interaction was found, the predicted moderations of City Connects on ED status and the other five outcomes were non-significant contrary to hypotheses. All of the regression models account for a significant proportion of variance in the respective outcomes. The robust detrimental impacts of ED disability are highlighted throughout these analyses even with students receiving special education accommodation and the tailored supports offered through City Connects. A lack of moderation may be linked more to the significance of ED impairment and less associated with lack of efficacy from City Connects support in general. However, another consideration is the focus of support interventions. Jimerson et al. (1999) note that accommodations may place less emphasis on academic achievement than found for students without SEB need. Under IDEA, students qualifying for special education are promised accommodations and related services to enhance learning, independent living, and employment (IDEA, 2004; OSERS, 2014). These services are broad and meant to support students accessing an appropriate education. Special educators and staff support progress toward individualized goals that, in turn, enable achievement for grade promotion (Jung & Guskey, 2007). Therefore, accommodations may enhance emotion regulation and engagement though not immediately be reflected in outcomes of close the achievement gap between students. While the coordinated supports exist, improvements may not be reflected in traditional achievement measures (McCormick et al., 2015). Jung and Guskey (2007) highlight that this challenge is heightened with standards-based learning.

One consideration for the current outcomes focuses on student grading. Teacher-rated report card scores are considered subjective despite potential reliability found within and between

schools (Chiekem, 2015; Hardre, 2014). This may be especially true for areas such as reading and writing compared to math that has a clearer "correct" solution. Grading students with ED and other special education needs is especially tenuous (Jung & Guskey, 2007). Teachers are challenged by attempting to assign fair and accurate grades while accounting for the student spending differing amounts of time in mainstream and special education classrooms (Guskey & Jung, 2009; Jung & Guskey, 2007; Kurth, Gross, Lovinger, & Catalano, 2012). Researchers suggest that grades for students with disabilities may not communicate actual performance (Guskey & Jung, 2009; Silva, Munk, & Bursuck, 2005). Relative changes even in scores that speak to support targets such as behavioral outcomes may remain constant due to other factors (i.e., initial impressions of behavior; Fovet, 2011). These challenges are exacerbated by the importance of accurately documenting progress to determine the effectiveness of supports and potential changes necessary. The results found within the moderation models may be reflective of challenges differentiating progress made in the associated grades for students with ED status.

This concern might also highlight a strength of the combination of City Connects, and ISS more broadly, and special education. That is, an essential element of ISS includes progress monitoring of students including responses to services and adjustments as needed (Moore, 2014; Walsh et al., 2017). Jung and Guskey (2007) suggest that communication and coordination around targets help accurately reflect a student's production, process, and progress. Both the significant and non-significant City Connects interactions may better reflect the true progress students are making beyond respective peers and offer insights into preventative science for students with ED designation. Such considerations suggest that while the outcomes of students in City Connects schools are assessed against comparison students, these comparisons might be more dissimilar than anticipated.

The amount and timing of both special education and City Connects are also important factors shaping potential moderating effects. Prior research and preventative theory underscore that importance of meeting risk and needs early to support positive trajectories in learning (Davidson et al., 2006; Dion et al., 2010; Fields, 2012; Haight et al., 2013; Kern et al., 2017; Landrum et al., 2003; Lewis et al., 2017; Magnuson, 2013; Walker et al., 1996). Dion et al. (2010) found that earlier interventions contributed to significant gains for high-risk students in reading that were not found for children that did not participate in the early support. As noted, the current investigation did not address dosage and timing of supports. It is possible that the lack of moderation effects found for City Connects relates to differences in the onset and longevity of these supports.

Another consideration regarding moderating effects is that all of the covariates were significant across outcome analyses. This is important to note as children with ED disabilities also face the negative impacts of out-of-school factors. The transactions that occur in relational chains between risk factors shape both short and long-term outcomes (Murray, 2003). For example, ethnicity influences SES, SES impacts special education status and educational opportunities that shape achievement and so on. While the covariates are accounted for in the regressions, it may be the disproportionate risk moves children toward negative outcome trajectories (Fraser et al., 2014; Rutter, 1979; Rutter, 2001). Better exploration of the combination of risk factors faced by students with ED can shape school-based interventions that promote development.

Study Implications

Several implications related to theory and practice are supported by this investigation. Developmental and ecological perspectives underscore growth as an ever-changing process that

involves bio-psycho-social elements, strengths and needs, and contextual factors over time (Walsh et al., 2002). Developmental science attempts to better understand typical development and maladjustment and the factors that influence such trajectories (Cicchetti & Sroufe, 2000; Cummings et al., 2000). Continued exploration of the transactions between protective and risk factors as shaped by context can help inform preventions and interventions to support thriving for the whole child (Cicchetti, 1990; Cicchetti & Toth, 2006; Moore & Emig, 2014). This lens provides the foundation for ISS, as services are meant to address out-of-school factors so that learning and thriving can be enhanced.

Factors that consistently impact the whole child and systems around the child include those abilities within the SEB domain. Skills in this area influence functioning across systems and are used to reach a number of goals throughout development (McKown, 2017). There is a strong relationship between SEB abilities and learning as negative outcomes are often found for students facing SEB needs (de Voursney & Huang, 2016; Lewis et al., 2017; Moore et al., 2017; Olivier et al., 2018). The current investigation examined the impacts of specific SEB needs (i.e., ED) on academic and behavioral outcomes. Preliminary results replicate existing literature on the differential proportions of students receiving special education services based on gender, ethnicity, and socioeconomic status. These findings hold important implications. Developmental theory suggests that early supports can benefit functioning and growth over time (Moore et al., 2017). Therefore, students underrepresented in special education (i.e., females, Asian students, etc.) may not receive services necessary to enhance skills preventatively and exacerbate future need/impairment. However, overrepresentation of subsamples of students based on factors separate from a specific ED disability can shape perceptions of these children. Such impressions can influence early and secondary schooling and ongoing involvement in

special education, a form of "negative tracking" (Conyers et al., 2003). Continued attention must be directed at the factors that lead to these disproportionate numbers to enhance unbiased practices that balance access without deleterious consequences on learning trajectories.

Primary findings support existing literature on the relationships between ED status and outcomes. Students receiving special education for ED have several negative academic and behavioral outcomes when compared to peers without such need. The strong negative trajectories found for students facing challenges with ED continue to suggest that SEB need moves a child toward maladjustment. Gaps between students with and without such need continue despite special education practices in place. These differences fuel critiques that service delivery within schools, including accommodations delivered through special education, are inefficient and fragmented (Adelman & Taylor, 2000; Adelman & Taylor, 2008; Taylor & Adelman, 2000). Special education accommodation alone are not leading to beneficial outcomes necessary to promote learning. Such findings highlight that students with ED and SEB need require greater support and calls for policy and practice that promote wellbeing of the whole child.

Research has indicated that ED and SEB needs make up the top factors influencing educational outcomes and concerning educators and administrators (Greenberg et al., 2003; NAESP, 2018). It remains that students with disabilities are one of the most vulnerable populations for poorer trajectories during schooling and over time including dropping out from school all together (Reschly & Christenson, 2006). Despite awareness of the often challenging paths ahead of students with ED disability, educational reform contributing to consistent gains for these children has been limited. Examining potential moderators of the relationship between

ED designation and learning outcomes is important to track change and enhance supports that contribute to closing the gap between student outcomes.

The current study expands the body of developmental research as one of the initial inquiries into the impacts of ISS, specifically City Connects, on outcomes for students with an ED disability. City Connects is grounded in developmental principles that appreciate the strengths and needs of the whole child – academic, social-emotional-behavioral, family, and physical health/medical (City Connects, 2018; Foley et al., 2015; Lee-St. John et al., 2018). Addressing need and promoting strengths across these domains, City Connects operationalizes effective practice that is customized, comprehensive, coordinated, and continuous (Walsh, Wasser Gish, Foley, Theodorakakis, & Rene, 2016). The combined efforts of these practices and special education are crucial in multiple ways. Once-fragmented supports are able to come together to service the whole child. Special education accommodation targeting specific impairments are delivered in tandem with integrated services and supports directed at addressing and enriching diverse domains to promote opportunities for thriving. As adaptation does not occur in isolation, servicing need in this multifaceted way can trigger change across domains (Moore, 2014; Sandstrom & Huerta, 2013). Moreover, the continuum of supports from prevention to intensive intervention can address the multitude of factors shaping development (Moore & Emig, 2014). Where children facing ED may often require more intensive supports, offering the range of services can enhance strengths and target challenges in a more proactive way. These concerted endeavors have the best potential to address the outcome gaps while shifting attention from siloed services contraindicated for students with significant need (Atkins et al., 2015).

This investigation found that the integrated supports offered to students through City Connects have direct positive relationships with achievement (specifically, math outcomes)

while controlling for other factors that shape learning. The significant effect of City Connects on math measures is encouraging. Skills develop at different rates and influence future outcomes in specific and cascading domains. Measures may more accurately reflect acquisition and growth in mathematics which offer students space to feel successful and shape engagement in other academic and behavioral areas. Moreover, the outcome gap for reading between students with and without ED status is attenuated when City Connects interventions are in place. The significant City Connects moderation on the association between ED status and reading outcomes indicate that implementation of City Connects supports can reduce outcome differences consistently found between students with ED and those without these challenges. The moderation found for reading scores is important as learning from reading is central for ongoing development across primary into secondary school years and beyond. As such, findings suggest that earlier City Connects supports may have benefits for student outcomes in the short term and contribute to development in other areas over time. Noting that services can have direct impact on outcomes and lessen the gap persistently found between students with and without ED offers promise for continued City Connects implementation.

The positive outcomes associated with the combination of City Connects intervention and special education practice are grounded in and inform developmental theory. Attention to both needs and strengths across both academic and non-academic areas enhance the prospect of development (Bowden et al., 2017; Foley et al., 2015; Lee-St. John et al., 2018; Moore et al., 2017; Moore & Emig, 2014; Sibley et al., 2017; Walsh et al., 2017). The contributions of ISS, and City Connects specifically, in adjunct to a school's special education programming expands attention from deficit to capture qualities of each student that can be enriched. Supports are embedded within the varied contexts around a student and can shape and enhance the

effectiveness of one another while broadening access for all (Meyers & Hickey, 2014; McCormick et al., 2015; Moore & Emig, 2014; Moore et al., 2017). The multiple systems around the student are also supported as services are directed beyond the student to the family, school, and community (Moore, 2014; Moore & Emig, 2014).

Despite these benefits, study predictions were partially supported and identified that the pervasive impacts of ED are quite robust especially in combination with other out-of-school factors. The results indicate most academic and behavior outcome gaps exist even with simultaneous special education and City Connects supports in place. Support for ISS approaches hold that student need can partly emerge and intensify from systems that fail to meet challenges (Burns, 2011; Guralnick, 2011; Wolanin & Steele, 2004). The benefits of ongoing progress monitoring and potential service adjustment core to ISS practice and the City Connects approach particularly hold the best opportunity to enhance accommodations offered to students with ED. Broadly speaking, the stages of initial/ongoing assessment and data monitoring support incorporation of ISS best practices for students, schools, and communities (Walsh et al., 2017). These practices promote understanding, development, and service delivery for the varied systems around the child with ED. A related consideration is that outcomes may more accurately reflect student functioning with the increased knowledge offered through ISS. For instance, educators in schools with ISS may have a better understanding of adaptive and maladaptive behavior and better record these abilities in report cards knowing these measures contribute to subsequent accommodation. Previous research highlights that City Connects in schools returns more accurate referrals for special education (Boston College Center for Optimized Student Support, 2010). Although the current study identifies lower reading and behavior marks for students in the City Connects intervention, these scores may accurately capture functioning above and

beyond comparison school reports. At the student level, tracking data from initial strengths and need review to service referral to outcome helps identify factors influencing learning and enhances the delivery of supports that benefit development (Moore, 2014; Walsh et al., 2017). This assessment goes beyond progress markers and IEP three-year reevaluation windows, contributing to more timely service implementation and necessary support plan adjustment.

Another important implication from the data is that several factors that shape student outcomes remain beyond those in the current study. The analyzed models have several predictors – gender, ethnicity, SES, special education status, school – commonly investigated and associated with developmental trajectories and academic and behavioral measures. Current findings contribute to the body of research of out-of-school factors that impact outcomes. Additionally, only a quarter to a third of the variance in the outcomes were accounted for in the full model. Several additional strengths and needs that intensify, maintain, or lessen the gap found between students with ED and children without these challenges must be explored. These findings direct ongoing incorporation of City Connects specifically and ISS frameworks generally into schools to better understand the set of preventions to intensive interventions that address barriers to learning and allowing even the most vulnerable students to thrive.

Study Limitations

Several limitations must be discussed in light of the advantages and implications of the findings from this investigation. Special education utilizes the ED disability designation to capture the broad domain of SEB need. Despite enhancements to ecological validity associated with current special education practice, the ED category remains heterogeneous. Students with similar ED qualifications can look different based on emotional sensitivities, internalized vs externalized behavior, and responses from the social environment. Researchers have indicated

that the range of conditions within the category make the predictor not consistently reliable (Bulotsky-Shearer et al., 2010; Jull, 2008). Moreover, many students qualifying for special education also have more than one disability and are not mutually exclusive to the ED domain (Wolanin & Steele, 2004). It is likely that the current method and use of an ever ED status does not account for differences across ED designation. This limitation could overlook specific outcomes and underestimate the findings for certain students and ED needs.

The current study included students in the ED group based on the student ever receiving special education services in this domain from kindergarten through 5th grade. It was beyond the scope of this study to assess when the ED disability was first identified and the longevity of schooling with this identified need. Jimerson et al. (1999) suggest that students with early identification and special education during the first several years of elementary school may have the most severe impairment and may not make subsequent gains that are typically expected across kindergarten through 5th grade. In contrast, students with certain disabilities may not be identified until later with referral peaks exiting in second to third grade, leading to a delayed intervention and marked delays already existing (Conyers et al., 2003; Severson et al., 2007). Grouping students based on timing of ED emergence during the K-5 years may better capture responses to both special education and City Connects services and the impacts on future academic and behavioral outcomes.

Further, use of the ever ED identifier is limited as it groups students that may have similar challenges while disparate in degree. Schools have differing and increasingly restrictive placements to assist students including: mainstream classes with secondary services delivered as needed, resource rooms/learning centers where students are pulled from general education classes to receive supports, self-contained classrooms where students spend a majority of

respective class time, and alternative schooling services outside of the primary school setting (Obiakor et al., 2012). The amount of time spent in separate classrooms is often a marker for intensity of needs. Previous research has indicated the variable response to services and subsequent outcomes for students with higher level of special education need than peers with lower intensity needs (Dion et al., 2010, Fraser et al., 2014). Students were included in ED group if they ever received special education services for the purposes of the current study. Considering this limitation, results from this grouping may underrepresent the predicted City Connects moderation and main effects on ED status and outcomes that may exist across the range of ED intensity. Specifically, students with lower intensity ED might have greater opportunities to access and generalize the range of City Connects supports in mainstream settings. As a result, stronger positive academic and behavioral responses to the range of City Connects tiered supports might be found for children with lower versus higher intensity ED. There would also be a clearer picture gained of the relationship between ED status, City Connects, and outcomes for students with greater need if this group was differentiated.

The noted heterogeneity further expands to the services rendered and accessed by each student. Students could receive a range of supports in the special education settings indicated above. For instance, aids in mainstream classes may scribe, tutor on specific lessons, or monitor behavioral and emotional experiences. Whereas resource room providers can offer a broader combination of remedial opportunities to foster basic skills alongside instructional strategies focused on academic content standards (Wilson et al., 2011). The type and amount of services can be influenced by a number of factors. Therefore, one student may receive several accommodations to address a specific domain, whereas another student could receive one service to support this area. Similarly, a strength of City Connects is the tailored approach to support

available that can result in diverse services offered from student to student. Current hypotheses examined the relationships between the academic/behavioral outcomes and ED special education services and City Connects support. It is unknown which of the specific supports, the number of supports, or intensity (prevention/enrichment, early intervention, and intensive intervention) contributed to results in the current study.

The amount of time spent receiving City Connects services – known as service dosage – was not part of the current investigation. Dichotomizing the sample of students having ever received City Connects influences the ability to better capture if support duration moderates the academic and behavioral outcomes or contributes to more robust main effects. Existing research on the length of time receiving City Connects has indicated that dosage has an effect, the longer a student receives integrated services and supports results in better outcomes (Walsh et al., 2014). This limitation underscores the potential for future research which will be discussed in the next section.

Finally, the quasi-experimental nature of this study has both advantages and disadvantages. City Connects implementation at the school level improves generalizability. However, it was not possible for randomization to City Connects and ED special education designation and participants were from a specific region/school district. Results indicated that there were statistically significant differences on some of the categorical covariates between the City Connects and comparison sample, a limitation of the quasi-experimental design. School fixed effects and demographic covariates were used to reduce the impact of these factors though selection bias among other factors may still influence findings and generalizing outcomes should be approached with these elements in mind.

Future Research

Expanding from existing literature and the findings of this study, several opportunities for future research emerge. First, current special education practices capture the range of social, emotional, and behavioral needs under the broad domain of ED disability. While similarities exist, the varied experiences of students with the ED designation may lead to response underestimates in outcome data. Examining IEP/504 data for students in City Connects and comparison schools to categorize this variable could add information that helps distinguish grouping. As this data is not always readily accessible, another potential remedy includes utilizing the SEB domain needs captured within the City Connects whole class and individualized student review processes. Clinical cutoff scores could ensure the creation a comparison sample despite lacking City Connects WCT/ISR data. Using these identified needs and cutoff comparisons would permit closer analysis of the differential academic and behavioral outcomes following from City Connects and special education services for specified SEB needs (i.e., anxiety, behavioral dysregulation, etc.).

Such information underscores a second area of future research: service dosage. Grouping based on emergence of ED designation can support investigations of the relationship between the length of time with identified need, special education services, and academic/non-academic outcomes. There is a range of time spent within special education services among students each day and longitudinally. While outcomes are mixed on time spent in special education (Duchnowski et al., 2013; Katsiyannis et al., 2012), studies of City Connects have indicated that increasing dosage (i.e., length of time receiving the City Connects intervention in schools) leads to more beneficial outcomes (Walsh et al., 2014). This research would contribute to the awareness of periods of implementation enriching wellbeing and thriving over time.

A third indication for future research relates to the specified supports that students receive as part of special education and/or City Connects. Several special education accommodations (i.e., resource room, multi-handicapped, etc.) offer broad support without clear reference to a specific SEB need area. While literature holds that support in one domain may enhance development in other areas (Moore, 2014; Sandstrom & Huerta, 2013), emphasis on target goals for support can offer greater insight to the method influencing specific student outcomes and potential cascades. Moreover, information gained by identifying the intensity (i.e., enrichment/prevention, early intervention, intensive intervention) and type of support received through City Connects would allow for comparisons of the combined services of City Connects and special education on cognitive and non-cognitive outcomes. This examination could enhance tailoring of services through City Connects to match a student's SEB need and intensity.

Future research should also diversify the outcomes assessed in response to combined City Connects and special education services. Several criterion variables exist in the educational landscape beyond the academic and behavioral findings presented within this investigation. It is important to consider non-academic capabilities (social competence, perseverance, etc.) that may act as mediators for eventual academic outcomes (Moore et al., 2015, Moore et al., 2017). For instance, Atkins et al. (2015) found that interventions had impacts on more proximal outcomes (i.e., engagement) that could shape future learning. It would be interesting to examine the combination of special education and City Connects on gains in these non-cognitive skills and subsequent achievement measures.

Although frequently used as a predictor, another potential outcome measure could analyze special education status change as a marker for progress over time. Schools have increasingly restrictive placements to aid students in meeting yearly progress. Legislators, educators, and

families have called for accommodations to move from exclusionary placements to meet youth in general education classrooms with individualized supports (Chitiyo, 2014). Stoutjesdijk et al. (2012) highlight that it is important to consider the variables that factor into placement restrictiveness. Limited research exists on factors that contribute to reducing the amount of time spent receiving special education for greater involvement in inclusive classes. The use of predictors from the current study to analyze change in ED special education designation longitudinally may provide insight into another City Connects effect: reducing exclusionary practice while maintaining comprehensive tailored supports.

Conclusions

The impacts of ED and lower threshold SEB need are pervasive and vast, influencing functioning and thriving across all developmental domains. Additionally, students with ED also encounter severe challenges associated with out-of-school factors faced by other students without such need. Rates of students confronting ED challenges are rising (Chasson et al., 2007; Chitiyo, 2014; Conyers et al., 2003; de Voursney & Huang, 2016; Harbin et al., 2004; Kern et al., 2017). Increasing numbers are concerning as students typically face negative short and long-term developmental path if SEB and other out-of-school needs are not met (Gutman et al., 2003; Rones & Hoagwood, 2000). Closing achievement gaps by serving the non-academic barriers to learning is central to improving opportunity for all students, especially those children facing the most need (AEI Brookings, 2015; Moore & Emig, 2014; Moore et al., 2017). Policies meant to attend to such gaps have contributed to the practice of integrated student support.

The present study focused on extending City Connects research to students facing the impacts of ED. Assessing the impacts of City Connects, the study was seeking to determine if integrated services and supports could moderate the relationship between ED status and

academic and behavioral outcomes. While results replicated previous, more general findings on the negative association between ED disability and academic outcomes, the hypothesized impact of City Connects was only partially supported. There were beneficial associations for City Connects on math report card and MCAS scores while controlling for other factors. City Connects also moderated the relationship between ED and reading scores. These results expand existing literature of the effects of City Connects specifically on academic and behavior outcomes. Given the notable impacts of SEB need and combined out-of-school factors and the mixed results of the current investigation, calls for continued implementation and investigation of the factors that support students facing such risk are essential. The ongoing tailoring of services and monitoring of response found in City Connects are a possible solution for the all too common trajectory of negative outcomes for students facing disability. Greater awareness of the coordinated prevention and intervention efforts are necessary to inform policy and practice that allows educators and families to promote wellbeing for all students.

References

Acker, R.V. (2007). Antisocial, aggressive, and violent behavior in children and adolescents within alternative education settings: Prevention and intervention. P*reventing School Failure: Alternative Education for Children and Youth, 5*(12), 5–12.

Adelman, H., & Taylor, L. (2000). Looking at School Health and School Reform Policy Through the Lens of Addressing Barriers to Learning. *Children's Services: Social Policy, Research, and Practice, 3*(2)*,* 117-132.

Adelman, H., & Taylor, L. (2008). School-Wide Approaches to Addressing Barries to Learning and Teaching. In B. Doll & J. Cummings (Eds.), *Transforming School Mental Health Services: Population Approaches to Promoting Policy and Wellness of Children* (pp. 277-306). Thousand Oaks, CA: Corwin Press.

Adelman, H., & Taylor, L. (2011a). Expanding school improvement policy to better address barriers to learning. *Policy Futures in Education, 9*, 431-436.

Adelman, H., & Taylor, L. (2011b). Turning around, transforming, and continuously improving schools: Policy proposals are still based on a two- rather than a three-component blueprint. *The International Journal of School Disaffection, 8*(1)*,* 22-34.

AEI/Brookings Institution (2015). *Opportunity, responsibility, and security: A consensus plan for reducing poverty and restoring the American dream*. Washington D.C.: American Enterprise Institute. Retrieved from https://www.brookings.edu/wp-content/uploads/2016/07/Full-Report.pdf

Ander, R., Guryan, J., & Ludwig, J. (2016). *Improving academic outcomes for disadvantaged students: Scaling up individualized tutorials.* Washington DC: Hamilton Project. Retrieved

from https://www.brookings.edu/research/improving-academic-outcomes-for-disadvantaged-students-scaling-up-individualized-tutorials/

Asarnow, J.R., Jaycox, L.H. Duan, N., LaBorde, A.P., Rea, M.M., Murray, P., … Wells, K.B. (2005). Effectiveness of a quality improvement intervention for adolescent depression in primary care clinics: A randomized controlled trial. *Journal of the American Medical Association, 293*(3), 311-319.

Atkins, M., Hoagwood, K., Kutash, K., & Seidman, E. (2010). Toward the integration of education and mental health in schools. *Administration and Policy in Mental Health, 37*(1-2), 40-47.

Atkins, M.S., McKay, M.M., Frazier, S.L., Jakobsons, L.J., Arvanitis, P., Cunningham, T., … Lambrecht, L. (2002). Suspensions and detentions in an urban, low-income school: Punishment or reward? *Journal of Abnormal Child Psychology, 30*(4), 361–371.

Atkins, M.S., Shernoff, E.S., Frazier, S.L., Schoenwald, S.K., Cappella, E., Marinez-Lora, A., … Bhaumik, D. (2015). Redesigning community mental health services for urban children: Supporting schooling to promote mental health. *Journal of Consulting and Clinical Psychology, 83*(5), 839-852.

Barnett, W.S. (1995). Long-term effects of early childhood programs on cognitive and school outcomes. *The Future of Children, 5*(3), 25-50.

Barnett, W.S. (2011). Effectiveness of early educational intervention. *Science, 333,* 975-978.

Barton-Arwood, S.M., Wehby, J.H., & Falk, K.B. (2005). Reading instruction for elementary-age students with emotional and behavioral disorders: Academic and behavioral outcomes. *Exceptional Children, 72*(1), 7-27.

Belsley, D.A., Kuh, E., & Welsch, R.E. (1980). *Regression diagnostics: Identifying influential data and sources of collinearity.* New York: John Wiley.

Berliner, D. (2009). *Poverty and potential: Out-of-school factors and school success.* Boulder and Tempe: Education and the Public Interest Center & Education Policy Research Unit.

Berrueta-Clement, J.R. (1984). *Changed lives: The effects of the Perry preschool program on youths through age 19*. Ypsilanti, MI: Monographs of the High/Scope Educational Research Foundation.

Blair, C., & Raver, C.C. (2015). School readiness and self-regulation: A developmental psychobiological approach. *Annual Review of Psychology, 66,* 711-731.

Blank, M.J. (2015). Building sustainable health and education partnerships: Stories from local communities. *Journal of School Health, 85*(11), 810-816.

Boston College Center for Optimized Student Support (2010). *The impact of Boston Connects: Summary report 2008-2009.* Chestnut Hill, MA: Trustees of Boston College.

Bowden, A.B., Belfield, C.R., Levin, H.M., Shand, R., Wang, A. & Morales, M. (2015). A benefit-cost analysis of City Connects. Center for Benefit-Cost Studies of Education, Teachers College, Columbia University. Available: cbcse.org

Bowden, A.B., Shand, R., Belfield, C.R., Wang, A., & Levin, H.M. (2017). Evaluating educational interventions that induce service receipt: A case study application of City Connects. *American Journal of Education, 38*(3), 405-419.

Bowen, G.L., Rose, R.A., Powers, J.D., & Glennie, E.J. (2008). The joint effects of neighborhoods, schools, peers, and families on changes in the school success of middle school students. *Family Relations, 57,* 504-516.

Bowman-Perrott, L., Benz, M.R., Hsu, H.-Y., Kwok, O.-M., Eisterhold, L.A., & Zhang, D. (2011). Patterns and predictors of disciplinary exclusion over time: An analysis of the SEELS national data set. *Journal of Emotional and Behavioral Disorders, 21*(2), 83-96.

Brault, M.W. (2012). *Americans with disabilities: 2010.* Retrieved from https://www2.census.gov/library/publications/2012/demo/p70-131.pdf

Bridgeland, J., Bruce, M., & Hariharan, A. (2013). *The missing piece: A national teacher survey on how social and emotional learning can empower children and transform schools.* Chicago, IL: Civic Enterprises, Hart Research Associates, & CASEL. Retrieved from https://www.casel.org/wp-content/uploads/2016/01/the-missing-piece.pdf

Bronfenbrenner, U. (1994). Ecological models of human development. In *International Encyclopedia of Education, Vol. 3* (2nd edition). Oxford: Elsevier.

Bronfenbrenner, U. & Evans, G.W. (2000). Developmental science in the 21st century: Emerging questions, theoretical models, research designs and empirical findings. *Social Development, 9*(1), 115-125.

Bruce, M., Bridgeland, J.M., Hornig Fox, J., & Balfanz, R. (2011). *On track for success: The use of early warning indicator and intervention systems to build a grad nation*. Baltimore, MD: Civic Enterprises and The Everyone Graduates Center for Social Organization of Schools. Retrieved from https://eric.ed.gov/?id=ED526421.

Bruder, M.B. (2010). Early childhood intervention: A promise to children and families for their future. *Exceptional Children, 76*(3), 339-355.

Bulotsky-Shearer, R.J., Fantuzzo, J.W., & McDermott, P.A. (2010). Typology of emotional and behavioral adjustment for low-income children: A child-centered approach. *Journal of Applied Developmental Psychology, 31*(2), 180-191.

Burns, B.J., Schenwald, K.S., Burchard, J.D., Faw, L. & Santos, A.B. (2000). Comprehensive community based interventions for youth with severe emotional disorders: Multisystemic therapy and the wraparound process. *Journal of Child and Family Studies, 9*(3), 283–314.

Burns, M.K. (2011). School psychology research: combining ecological theory and prevention science. *School Psychology Review, 40*(1), 132-139.

Campbell, A.R., Bowman-Perrott, L., Burke, M.D., & Sallese, M.R. (2018). Reading, writing, math, and content-area interventions for improving behavioral and academic outcomes of students with emotional and behavioral disorders. *Learning Disabilities, 16*(2), 119-138.

Cappella, E., Jackson, D.R., Bilal, C., Hamre, B.K., & Soule, C (2011). Bridging mental health and education in urban elementary schools: Participatory research to inform intervention development. *School Psychology Review, 40*(4), 486-508.

Castillo, J.M., Arroyo-Plaza, J., Tan, S.Y., Sabnis, S., & Mattison, A. (2017). Facilitators of and barriers to model school psychological services. *Psychology in the Schools, 54*(2), 152-168.

Castrechini, S., & London, R.A. (2012). *Positive student outcomes in community schools*. Washington DC: Center for American Progress. Retrieved from https://www.americanprogress.org/issues/education-k-12/reports/2012/02/22/11098/positive-student-outcomes-in-community-schools/.

Cavanagh, S.E., & Huston, A.C. (2006). Family instability and children's early problem behavior. *Social Forces, 85*(1), 551-581.

Cavanagh, S.E., & Huston, A.C. (2008). The timing of family instability and children's social development. *Journal of Marriage and Family, 70,* 1258-1269.

Chasson, G.S., Harris, G.E., & Neely, W.J. (2007). Cost comparison of early intensive behavioral intervention and special education for children with autism. *Journal of Child and Family Studies, 16*(3), 401-413.

Chiekem, E. (2015). Grading practice as valid measures of academic achievement of secondary schools students for national development. *Journal of Education and Practice, 6*(26), 24-28.

Chitiyo, J. (2014). The wraparound process for youth with severe emotional behavioural disorders. *Journal of Research in Special Education Needs, 14*(2), 105-109.

Cicchetti, D. (1984). The emergence of developmental psychopathology. *Child Development, 55*(1), 1-7.

Cicchetti, D. (1990). Development and psychopathology. In D. Cicchetti & D.J. Cohen (Eds.), *Developmental psychopathology: Theory and method* (pp. 1-23). Hoboken, NJ: Wiley & Sons, Inc.

Cicchetti, D. (2006). Development and psychopathology. *Developmental Psychopathology,* 1-26.

Cicchetti, D. & Sroufe, L.A. (2000). The past as prologue to the future: The time, they've been a-changin'. *Development and Psychopathology, 12*(3), 255-264.

Cicchetti, D., & Toth, S.L. (2006). Building bridges and crossing them: Translational research in developmental psychopathology. *Development and Psychopathology, 18*(3), 619-622.

City Connects (2010). *The Impact of City Connects: Annual Report 2010.* Retrieved from: http://www.bc.edu/content/dam/files/schools/lsoe/cityconnects/pdf/City Connects_AnnualReport_2010_web.pdf

City Connects (2012). *The impact of City Connects: Progress report 2012*. Retrieved from: http://www.bc.edu/content/dam/files/schools/lsoe/cityconnects/pdf/CityConnects_ProgressReport_2012.pdf

City Connects (2014). *The impact of City Connects: Progress report 2014*. Retrieved from: http://www.bc.edu/content/bc/schools/lsoe/cityconnects/results/publications.html.

City Connects (2016). *City Connects: Optimized Student Support.* Retrieved from: http://www.bc.edu/schools/lsoe/cityconnects.html.

City Connects (2018). *City Connects: Intervention and Impact.* Chestnut Hill, MA: Center for Optimized Student Support. Retrieved from https://www.bc.edu/content/dam/bc1/schools/lsoe/sites/coss/pdfs/CityConnectsProgressReport2018.pdf

City Connects (2020). *City Connects: Intervention and Impact.* Chestnut Hill, MA: Center for Optimized Student Support. Retrieved from https://www.bc.edu/content/dam/bc1/schools/lsoe/sites/coss/City%20Connects%20progress%20report%202020.pdf

Coalition for Community Schools (2017). Standards for Community School Initiatives. Washington DC: Institute for Educational Leadership. Retrieved from http://files.constantcontact.com/b14ce16e301/2ed57938-73d1-4055-a466-ecbf1e0029a1.pdf

Coalition for Community Schools (2018). Community school standards. Washington DC: Institute for Educational Leadership. Retrieved from http://files.constantcontact.com/b14ce16e301/a164526e-f4c0-4288-a78d-81dfde370111.pdf

Conyers, L.M., Reynolds, A.J., & Ou, S.-R. (2003). The effect of early childhood intervention and subsequent special education services: Findings from the Chicago child-parent centers. *Educational Evaluation and Policy Analysis, 25*(1), 75-95.

Cooc, N. (2019). Disparities in the enrollment and timing of special education for Asian American and Pacific Islander students. *The Journal of Special Education, 3,* 177-190.

Cratty, D. (2012). Potential for significant reductions in dropout rates: Analysis of an entire 3rd grade state cohort. *Economics of Education Review, 31*(5), 644-662.

Crowder, K., & South, S.J. (2003). Neighborhood distress and school dropout: The variable significance of community context. *Social Science Research, 32,* 659-698.

Cruse, C. & Powers, D. (2006). Estimating school district poverty with free and reduced price lunch data. Retrieved from: www.census.gov/hhes/www/saipe/asapaper/CrusePowers2006asa.pdf

Cummings, E.M., Davies, P.T., & Campbell, S.B. (2000). *Developmental Psychopathology and Family Process.* New York: Guilford.

Dahl, G.B., & Lochner, L. (2012). The impact of family income on child achievement: Evidence from the earned income tax credit. *American Economic Review, 102*(5), 1927-1956.

Davidson, M.M., Waldo, M., & Adams, E.M. (2006). Promoting social justice through preventive interventions in schools. In R.L. Toporek, L.G. Gerstein, N. Fouad, G. Roysircar, & T. Israel (Eds.), *Handbooks for social justice in counseling psychology: Leadership, vision, and action* (p. 117-129). Thousand Oaks, CA: Sage.

de Voursney, D., & Huang, L.N. (2016). Meeting the mental health needs of children and youth through integrated care: A systems and policy perspective. *Psychological Services, 13*(1), 77-91.

Dearing, E., McCartney, K., & Taylor, B. A. (2006). Within-child associations between family income and externalizing and internalizing problems. *Developmental Psychology, 42,* 237–252.

Dearing, E., Walsh, M.E., Sibley, E., Lee-St. John, T., Foley, C., & Raczek, A. (2016). Can community and school-based support improve the achievement of first-generation immigrant children attending high-poverty schools? *Child Development, 87*(3), 883-897.

Delaney-Black, V., Covington, C., Ondersma, S.J., Nordstrom-Klee, B., Templin, T., Ager, J., & Sokol, R.J. (2002). Violence exposure, trauma, and IQ and/or reading deficits among urban children. *Archives of Pediatric and Adolescent Medicine, 156*(3), 280-285.

DeNike M., & Ohlson, B. (2013). ELEV8 Oakland community school costs and benefits: Making dollars and cents of the research. Oakland, CA: Bright Research Group.

Dion, E., Brodeur, M., Gosselin, C., & Campeau, M.-E. (2010). Implementing research-based instruction to prevent reading problems among low-income students: Is earlier better? *Learning Disabilities Research & Practice, 25*(2), 87-96.

Dishion, T.J., Véronneau, M., & Myers, M.W. (2010). Cascading peer dynamics underlying the progression from problem behavior to violence in early to late adolescence. *Development and Psychopathology*, 22(3), 603–619.

Dixon-Roman, E., & Nyame-Mensah, A. (2017). Transforming education: Toward thinking comprehensively about education. In J.L. Jackson (Ed.), *Social Policy and Social Justice* Philadelphia, PA: University of Pennsylvania Press.

Dodge, K.A., Lansford, J.E., Burks, V.S., Bates, J.E., Pettit, G.S., Fontaine, R., & Price, J. M. (2003). Peer rejection and social information-processing factors in the development of aggressive behavior problems in children. *Child Development*, *74*(2), 374–393.

Duchnowski, A.J., Kutash, K., Green, A.L., Ferron, J.M., Wagner, M., & Vengrofski, B. (2013). Parent support services for families of children with emotional disturbances served in elementary school special education settings: Examination of data from the special education elementary longitudinal study. *Journal of Disability Policy Studies, 24*(1), 36-52.

Duncan, G.J., & Magnuson, K. (2011). The nature and impact of early achievement skills, attention and behavior problems. In G.J. Duncan & R.J. Murnane (Eds.) *Whither Opportunity?* (pp. 47-69). New York: Russell Sage Foundation.

Durlak, J. A. (1995). *School-based prevention programs for children and adolescents.* Thousand Oaks, CA: Sage.

EMSI (2012). *The economic impact of communities in schools*. Retrieved from https://www.communitiesinschools.org/our-data/publications/publication/economic-impact-communities-schools.

Fain, A. C. (2019). Emotional disturbance. In N.D. Young, A.C. Fain, & T. Citro (Eds.), *Creating compassionate classrooms: Understanding the continuum of disabilities and effective educational interventions* (pp. 33-44). Wilmington, DE: Vernon Press.

Farrington, C.A., Roderick, M., Allensworth, E., Nagaoka, J., Keyes, T.S., Johnson, D.W., & Beechum, N.O. (2012). *Teaching Adolescents to Become Learners: The Role of Noncognitive Factors in Shaping School Performance--A Critical Literature Review*. Consortium on Chicago School Research.

Fields, B. (2012). Getting the balance right: The challenge of balancing praise and correction for early school years children who exhibit oppositional and defiant behavior. *Australasian Journal of Early Childhood, 37*(4), 24-28.

Flouri, E., Hickey, J., Mavroveli, S., & Hurry, J. (2011). Adversity, emotional arousal, and problem behaviour in adolescence: The role of non-verbal cognitive ability as a resilience promoting factor. *Child and Adolescent Mental Health, 16*(1), 22-29.

Foley, C., Theodorakakis, M., Walsh, M. E., DiNatale, P., & Raczek, A. (2015). *Building a sustainable intervention to address the out-of-school factors affecting achievement: A primer and case study*. Chestnut Hill, MA: Center for Optimized Student Support. Available: www.bc.edu/content/dam/city-connects/Publications/Policy%20Brief%20%20Building%20Sustainable%20Interventions%20Final%20WEBSITE.pdf

Frankel, E.B., & Gold, S. (2007). Principles and practices of early intervention. *A Comprehensive Guide to Intellectual and Developmental Disabilities,* 451-466.

Fovet, F. (2011). Towards a new construct of social, emotional and behavioural difficulties. *Emotional and Behavioural Difficulties, 16*(3), 249-262.

Fraser, M.W., Thompson, A.M., Day, S.H., & Macy, R.J. (2014). The making choices program: Impact of social-emotional skills training on the risk status of third graders. *The Elementary School Journal, 114*(3), 354-379.

Gallagher, J., & Desimone, L. (1995). Lessons learned from implementation of the IEP: Applications to the IFSP. *Topics in Early Childhood Special Education, 15*(3), 353-378.

Garner, P. W., & Waajid, B. (2012). Emotion knowledge and self-regulation as predictors of preschoolers' cognitive ability, classroom behavior, and social competence. *Journal of Psychoeducational Assessment, 30*(4), 330-343.

Giangreco, M.F. (2001). Interactions among program, placement, and services in educational planning for students with disabilities. *Mental Retardation, 39*(5), 341-350.

Giota, J., Lundborg, O., & Emanuelsson, I. (2009). Special education in comprehensive schools: Extent, forms and effects. *Scandinavian Journal of Educational Research, 53*(6), 557-578.

Green, K.B., Terry, N.P., & Gallagher, P.A. (2014). Progress in language and literacy skills among children with disabilities in inclusive early reading first classrooms. *Topics in Early Childhood Special Education, 33*(4), 249-259.

Greenberg, M.T., Weissberg, R.P., O'Brien, M.U., Zins, J.E., Fredericks, L., Resnik, H., & Elias, M.J. (2003). Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. *American Psychologist, 58*(6-7), 466–474.

Guralnick, M.J. (2011). Why early intervention works: A systems perspective. *Infants and Young Children, 24*(1), 6-28.

Guskey, T.R. & Jung, L.A. (2009). Grading and reporting in a standards-based environment: Implications for students with special needs. *Theory Into Practice, 48*(1), 53-62.

Gutman, L.M., Sameroff, A.J., & Cole, R. (2003). Academic growth curve trajectories from 1st grade to 12th grade: Effects of multiple social risk factors and preschool child factors. *Developmental Psychology, 39*(4), 777-790.

Haight, W., Kayama, M., Kincaid, T., Evans, K., & Kim, N.K. (2013). The elementary-school functioning of children with maltreatment histories and mild cognitive or behavioral disabilities: A mixed methods inquiry. *Children and Youth Services, 35*(3), 420-428.

Hair, J.F., Black, W.C., Babin, B.J., & Anderson, R.E. (2010). *Multivariate data analysis* (7th ed.). Upper Saddle River, NJ: Pearson Prentice Hall.

Halle, T., Forry, N., Hair, E., Perper, K., Wandner, L., Wessel, J., & Vick, J. (2009). *Disparities in early learning and development: Lessons from the early childhood longitudinal study – birth cohort (ECLS-B).* Bethesda, MD: Child Trends. Retrieved from

https://www.childtrends.org/wp-content/uploads/2013/05/2009 52DisparitiesELExecSumm.pdf

Hanson, T.L., Austin, G., & Lee-Bayha, J. (2004). *Ensuring that no child is left behind: How are student health risks and resilience related to the academic progress of schools?* San Francisco: WestEd.

Harbin, G.L., Bruder, M.B., Adams, C., Mazzarella, C., Whitbread, K., Gabbard, G., & Staff, I. (2004). Early intervention service coordination policies: National policy infrastructure. *Topics in Early Childhood Special Education, 24*(2), 89-97.

Hardre, P.L. (2014). Checked your bias lately? Reasons and strategies for rural teachers to self-assess for grading bias. *Rural Educator, 35*(2).

Hauser-Cram, P., Warfield, M.E., Shonkoff, J.P., Krauss, M.W., Sayer, A., Upshur, C.C., & Hodapp, R.M. (2001). Children with disabilities: A longitudinal study of child development and parent well-being. *Monographs of the Society for Research in Child Development, 66*(3), i-viii & 1-126.

Hayden, C. (1994). Primary age children excluded from school: A multi agency focus for concern. *Children and Society*, *8*(3), 257–273.

Heckman, J.J. (2011). The economics of inequality: The value of early childhood education. *American Educator, 35*(1), 31-35.

Hoagwood, K., & Erwin, H. D. (1997). Effectiveness of school-based mental health services for children: A 10-year research review. *Journal of Child and Family Studies, 6*(4), 435–451.

Huefner, D.S. (2000). The risks and opportunities of the IEP requirements under IDEA '97. *The Journal of Special Education, 33*(4), 195-204.

Hughes, L.A. (2012). Children with social and emotional difficulties need support from a range of professionals: Preparing professions for integrated working. *The International Journal of Emotional Education, 4*(2), 55-65.

Hughes, T.L., Minke, K.M., & Sansosti, F.J. (2017). Expanding school psychology service delivery within the context of national health and mental health reform. *Journal of Applied School Psychology, 33*(3), 171-178.

Hunter-Carsch, M., Tiknaz, Y., Cooper, P., & Sage, R. (2006). *The Handbook of social, emotional and behavioural* d*ifficulties.* London and New York: Continuum.

Individuals with Disabilities Education Act, 20 U.S.C. § 1400 (2004).

Jimerson, S., Egeland, B., & Teo, A. (1999). A longitudinal study of achievement trajectories: Factors associated with change. *Journal of Educational Psychology, 91*(1), 116-126.

Jones, D.E., Greenberg, M., & Crowley, M. (2015). Early social-emotional functioning and public health: The relationship between kindergarten social competence and future wellness. *American Journal of Public Health, 105*(11), 2283-2290.

Jull, S.K. (2008). Emotional and behavioural difficulties (EBD): The special educational need justifying exclusion. *Journal of Research in Special Educational Needs, 8*(1), 13-18.

Jung, L.A. & Guskey, T.R. (2007). Standard-based grading and reporting: A model for special education. *Teaching Exceptional Children, 40*(2), 48-53.

Karatekin, C., Hong, S., Piescher, K., Uecker, J., & McDonald, J. (2014). An evaluation of the effects of an integrated services program for multi-service use families on child welfare and educational outcomes of children. *Children and Youth Services Review, 41,* 16-26.

Katsiyannis, A., Losinski, M., & Prince, A.M.T. (2012). Litigation and students with disabilities: A persistent concern. *NAASP Bulletin, 96*(1), 23-43.

Kern, L., Mathur, S.R., Albrecht, S.F., Poland, S., Rozalski, M., & Skiba, R.J. (2017). The need for school-based mental health services and recommendations for implementation. *School Mental Health, 9*(3), 205-217.

Kurth, J., Gross, M., Lovinger, S., & Catalano, T. (2012). Grading students with significant disabilities in inclusive settings: Teacher perspectives. *Journal of the International Association of Special Education, 12*(1), 41-57.

Landrum, T., Katsiyannis, A., & Archwamety, T. (2004). An analysis of placement and exit patterns of students with emotional or behavioral disorders. *Behavioral Disorders, 29*(2), 140-153.

Landrum, T.J., Tamkersley, M., & Kauffman, J.M. (2003). What is special about special education for students with emotional and behavior disorders? *The Journal of Special Education, 37*(3), 148–156.

Lane, K.L., Oakes, W.P., Ennis, R.P., Cox, M.L., Schatschneider, C., & Lambert, W. (2013). Additional evidence for the reliability and validity of the student risk screening scale at the high school level: A replication and extension. *Journal of Emotional and Behavioral Disorders, 21*(2), 97-115.

Langer, D.A., Wood, J.J., Wood, P.A., Garland, A.F., Landsverk, J., & Hough, R.L. (2015). Mental health service use in schools and non-school-based outpatient settings: Comparing predictors of service use. *School Mental Health, 7,* 161–173.

Lawson, H.A., & Sailor, W. (2000). Integrating services, collaborating, and developing connections with schools. *Focus on Exceptional Children, 33*(2), 1–22.

Lawson, J., O'Dwyer, L., Raczek, A., Walsh, M.E., Dearing, E., Foley, C., & Vuilleumier, C.E. (2019). *Using school admissions lotteries to measure effects of an integrated student support*

model on students' academic achievement. Paper session presented at the Society for Research on Educational Effectiveness, Washington, D.C.

Lee-St. John, T.J., Walsh, M.E., Raczek, A.E., Vuilleumier, C.E., Foley, C., Heberle, A., … Dearing, E. (2018). The long-term impact of systemic student support in elementary school: Reducing High School Dropout. *AERA Open, 4*(4), 1-16.

Lerner, R.M. (2011). Structure and process in relational, developmental systems theories: A commentary on contemporary changes in the understanding of developmental change across the life span. *Human Development, 54,* 34-43.Lewallen, T.C., Hunt, H., Potts-Datema, W., Zaza, S., & Giles, W. (2015). The whole school, whole community, whole child model: A new approach for improving educational attainment and health development for students. *Journal of School Health, 85*(11), 729-739.

Lewis, T.J., McIntosh, K., Simonsen, B., Mitchell, B.S., & Hatton, H.L. (2017). Schoolwide systems of positive behavior support: Implications for students at risk and with emotional/behavioral disorders. *AERA Open, 3*(2), 1-11.

Lopes, P.N., Mestre, J.M., Guil, R., Kremenitzer, J.P., & Salovey, P. (2012). The role of knowledge and skills for managing emotions in adaptation to school: Social behavior and misconduct in the classroom. *American Educational Research Journal, 49*(4), 710-742.

Magnuson, K. (2013). Reducing the effects of poverty through early childhood interventions. *Fast Focus, 17,* 1-6.

Manekin, S. (2016). City Connects: Redesigning student support for academic success. *The Abell Report, 29*(3).

Markowitz, A.J. (2017). Associations between emotional engagement with school and behavioral and psychological outcomes across adolescence. *AERA Open, 3*(3), 1-21.

Massachusetts Department of Elementary and Secondary Education (2018). *Teaching, learning & testing*. Retrieved from: http://www.doe.mass.edu/TeachLearnTest.html

Masten, A.S., & Cicchetti, D. (2010). Editorial: Developmental cascades. Developmental Cascades [Special Issue, Part 1]. *Development and Psychopathology, 22*(3), 491-495.

Mattison, E., & Aber, M.S. (2007). Closing the achievement gap: The association of racial climate with achievement and behavioral outcomes. *American Journal of Community Psychology, 40*(1-2), 1-12.

McCormick, M.P., Cappella, E., O'Connor, E.E., & McClowry, S.G. (2015). Social-emotional learning and academic achievement: Using causal methods to explore classroom-level mechanisms. *AERA Open, 1*(3), 1-26.

McKown, C. (2017). Social-emotional assessment, performance, and standards. *The Future of Children, 27*(1), 157-178.

Meyers, A.B., & Hickey, A.M. (2014). Multilevel prospective dynamics in school-based social and emotional learning programs. *Journal of Cognitive Education and Psychology, 13*(2), 218-231.

Moore, K.A. (2014). *Making the grade: Assessing the evidence for integrated student supports*. Bethesda, MD: Child Trends. Retrieved from https://www.childtrends.org/wp-content/uploads/2014/02/2014-07ISSPaper2.pdf

Moore, K.A., & Emig, C. (2014). *Integrated student supports: A summary of the evidence base for policymakers.* Washington, DC: Child Trends.

Moore, K.A., Lantos, H., Jones, R., Schindley, A., Belford, J., & Sacks, V. (2017). *Making a grade: A progress report and next steps for integrated student supports.* Bethesda, MD:

Child Trends. Retrieved from https://www.childtrends.org/publications/making-grade-progress-report-next-steps-integrated-student-supports

Moore, K.A., Lippman, L.H., & Ryberg, R. (2015). Improving outcome measures other than achievement. *AERA Open, 1*(2), 1-25.

Murnane, R.J., & Willett, J.B. (2010). *Methods matter: Improving causal inference in education and social science research.* New York: Oxford University Press.

Murray, C. (2003). Risk factors, protective factors, vulnerability and resilience: A framework for understanding and supporting adult transitions of youth with high-incidence disabilities. *Remedial and Special Education, 24*(1), 16-26.

National Association of Elementary School Principals - NAESP (2018). *The Pre-K-8 school leader in 2018: A 10-year study.* Retrieved from https://www.naesp.org/sites/default/files/NAESP%2010-YEAR%20REPORT_2018.pdf

National Center for Education Statistics – NCES (2017). *The condition of education: Children and youth with disabilities.* Retrieved from https://nces.ed.gov/programs/coe/indicator_cgg.asp

Oakes, J., Maier, A., & Daniel, J. (2017). *Community Schools: An Evidence-Based Strategy for Equitable School Improvement*. Boulder, CO: National Education Policy Center. Retrieved from http://nepc.colorado.edu/publication/equitable-community-schools

Office of Special Education and Rehabilitation Services - OSERS (2014). *35th Annual report to congress on the implementation of the Individuals with Disabilities Act, 2013.* Retrieved from: http://www2.ed.gov/about/reports/annual/osep/2013/parts-b-c/index.html

Olivier, E., Archambault, I., & Dupere, V. (2018). Boys' and girls' latent profiles of behavior and social adjustment in school: Longitudinal links with later student behavioral engagement and academic achievement? *Journal of School Psychology, 69,* 28-44.

Osher, D., Kidron, Y., Brackett, M., Dymnicki, A., Jones, S., & Weissberg, R.P (2016). Advancing the science and practice of social and emotional learning: Looking back and moving forward. *Review of Research in Education, 40*, 644-681.

Phillips, D.A., & Meloy, M.E. (2012). High-quality school-based Pre-K can boost early learning for children with special needs. *Exceptional Children, 78*(4), 471-490.

Raspberry, C.N., Slade, S., Lohrmann, D.K., & Valois, R.F. (2015). Lessons learned from the whole child and coordinated school health approaches. *Journal of School Health, 85*(11), 759-765.

Reese, L., Richards-Tutor, C., Hansuvandha, N., Pavri, S., and Xu, S. (2018). Teachers for inclusive, diverse urban settings. *Issues in Teacher Education, 27*(1), 17-27.

Reschly, A.L., & Christenson, S.L. (2006). Prediction of dropout among students with mild disabilities: A case for the inclusion of student engagement variables. *Remedial and Special Education, 27*(5), 276-292.

Roeser, R.W., Eccles, J.S., & Strobel, K.R. (1998). Linking the study of schooling and mental health: Selected issues and empirical illustrations at the level of the individual. *Educational Psychologist, 33*(4), 153-176.

Rones, M., & Hoagwood, K. (2000). School-based mental health services: A research review. *Clinical Child & Family Psychology Review, 3*(4), 223–241.

Roy, M. & Giraldo-Garcia, R. (2018). The role of parental involvement and social/emotional skills in academic achievement: Global perspectives. *School Community Journal, 28*(2), 29-46.

Rothstein (2004). The achievement gap: Closing the achievement gap requires more than just improving schools. *Educational Leadership, 62*(3), 40-43.

Rutter, M. (1979). Protective factors in children's responses to stress and disadvantage. In M.W. Kent & J.E. Rolf (Eds.), *Social competence in children* (pp. 49-74). Hanover, NH: University Press of New England.

Rutter, M. (2001). Psychosocial adversity: Risk, resilience, and recovery. In J. M. Richman & M.W. Fraser (Eds.), *The context of youth violence: Resilience, risk, and protection* (pp. 13–41). Westport, CT: Praeger.

Rutter, M., & Sroufe, L.A. (2000). Developmental psychopathology: Concepts and challenges. *Development and Psychopathology, 12*(3), 265-296.

Sameroff, A.J. (2000). Developmental systems and psychopathology. *Development and Psychopathology, 12*(3), 297-312.

Sandstrom, H., & Huerta, S. (2013). The negative effects of instability on child development: A research synthesis. Urban Institute: Washington D.C. Retrieved from https://www.urban.org/sites/default/files/publication/32706/412899-The-Negative-Effects-of-Instability-on-Child-Development-A-Research-Synthesis.PDF

Severson, H.H., Walker, H.W., Hope-Doolittle, J., Kratochwill, T.R., & Gresham, F.M. (2007). Proactive, early screening to detect behaviorally at-risk students: Issues, approaches, emerging innovations, and professional practices. *Journal of School Psychology, 45*(2), 193-223.

Sibley, E., Theodorakakis, M., Walsh, M.E., Foley, C., Petrie, J., & Raczek, A. (2017). The impact of comprehensive student support on teachers: Knowledge of the whole child, classroom practice, and teacher support. *Teaching and Teacher Education, 65*, 145-156.

Silva, M., Munk, D.D., & Bursuck, W.D. (2005). Grading adaptations for students with disabilities. *Intervention in School and Clinic, 41*(2), 87-98.

Simpson, E.S., & Yocom, D.J. (2005). Every child: A journey toward individualized education for all. *Teaching Exceptional Children, 37*(5), 36-40.

Somers, M.-A. & Haider, Z. (2017). *Using integrated student supports to keep kids in school: A quasi-experimental evaluation of communities in schools*. New York, NY: MDRC.

Sroufe, L.A. (1990). Considering normal and abnormal together: The essence of developmental psychopathology. *Development and Psychopathology, 2*(4), 335-347.

Stiefel, L., Shiferaw, M., Schwartz, A.E., & Gottfried, M. (2017). *Is special education improving? Evidence of segregation, outcomes, and spending from New York City.* New York, NY: Institute for Education and Social Policy.

Stoutjesdijk, R., Scholte, E.M., & Swaab, H. (2012). Special needs characteristics of children with emotional and behavioral disorders that affect inclusion in regular education. *Journal of Emotional and Behavioral Disorders, 20*(2), 92-104.

Sullivan, A.L. (2011). Disproportionality in special education identification and placement of English language learners. *Exceptional Children, 77*(3), 317-334.

Taylor, L., & Adelman, H. (2000). Toward Ending the Marginalization and Fragmentation of Mental Health in Schools. *Journal of School Health, 70*(5), 210-215.

Thompson, R.A., & Haskins, R. (2014). Early stress gets under the skin: Promising initiatives to help children facing chronic adversity. *Future of Children, 24*(1), 1-6.

Turner, L.A., Powell, A.E., Langhinrichsen-Rohling, J., & Carson, J. (2009). Helping families initiative: Intervening with high-risk students through a community, school, and district attorney partnership. *Child and Adolescent Social Work Journal, 26*(3), 209-223.

United States Department of Agriculture Food and Nutrition Services (2018). *Child nutrition programs – Income eligibility guidelines.* Retrieved from: https://www.gpo.gov/fdsys/pkg/FR-2018-05-08/pdf/2018-09679.pdf.

United States Department of Health and Human Services (1999). *Mental health: A report of the surgeon general*. Washington, D.C.: U.S. Public Health Service. Chapter 2. Retrieved from: www.surgeongeneral.gov/library/mentalhealth/pdfs/c2.pdf.

Ursache, A., Blair, C., & Raver, C.C. (2012). The promotion of self-regulation as a means of enhancing school readiness and early achievement in children at risk for school failure. *Child Development Perspectives, 6*(2), 122–128.

Vanderslice, R. (2004). Risky business: Leaving the at-risk child behind. *Delta Kappa Gamma Bulletin, 71*(1), 15-21.

Walker, H.M., Horner, R.H., Sugai, G., Bullis, M., Sprague, J.R., Bricker, D., & Kaufman, M.J. (1996). Integrated approaches to preventing antisocial behavior patterns among school-age children and youth. *Journal of Emotional and Behavioral Disorders, 4*(4), 194-209.

Walsh, M.E., & Backe, S. (2013). School-university partnerships: Reflections and opportunities. *Peabody Journal of Education, 88*(5), 594-607.

Walsh, M.E. & Brabeck, M.M. (2006). Resilience and risk in learning: Complex interactions and comprehensive interventions. In R. J. Sternberg & R. F. Subotnik (Eds.), *Optimizing student success in school with the other three Rs: Reasoning, resilience, and responsibility* (pp. 113–142). Greenwich, CT: Information Age Publishing.

Walsh, M.E., Galassi, J.P., Murphy, J.A., & Park-Taylor, J. (2002). A conceptual framework for counseling psychologists in schools. *The Counseling Psychologist, 30*(5), 682-704.

Walsh, M.E., Kenny, M.E., Wieneke, K.M., & Harrington, K.R. (2008). The Boston Connects program: Promoting learning and healthy development. *Professional School Counseling, 12*(2), 166-169.

Walsh, M.E., Lee-St. John, T., Raczek, A., Foley, C., & Madaus, G. (2014). Reducing high school dropout through elementary school student support. *Boston College Center for Optimized Student Support Policy Brief.* Chestnut Hill: Boston College.

Walsh, M.E., Lee-St. John, T., Raczek, A., Vuilleumier, C., Foley, C., & Theodorakakis, M. (2017). Reducing high school dropout through elementary school student support: An analysis including important student subgroups. Chestnut Hill, MA: Center for Optimized Student Support.

Walsh, M.E., Madaus, G.F., Raczek, A.E., Dearing, E., Foley, C., An, C., … & Beaton, A. (2014). A new model for student support in high-poverty urban elementary schools: effects on elementary and middle school academic outcomes. *American Educational Research Journal, 51*(4), 704-737.

Walsh, M.E., Sibley, E., & Wasser Gish, J. (2018). *Comprehensive services for children in poverty: Setting the research agenda for integrated student support.* Chestnut Hill, MA: Center for Optimized Student Support.

Walsh, M.E., & Wasser Gish, J. (2017). *Improving student achievement by meeting children's comprehensive needs: State policy options*. Chestnut Hill, MA: Center for Optimized Student Support.

Walsh, M..E., Wasser Gish, J., Foley, C., Theodorakakis, M.A., & Rene, K. (2016). Principles of effective practice for integrated student support. [Policy brief]. Center for Optimized Support. https://www.bc.edu/content/dam/bc1/schools/lsoe/sites/coss/pdfs/Principles%20of%20Effective%20Practice.pdf

Wasser Gish, J. (2019). *Building Systems of Integrated Student Support: A Policy Brief for Local and State Leaders*. Washington, DC: America's Promise Alliance.

Weare, K. (2010). Mental health and social and emotional learning: Evidence, principles, tensions, balances. *Advances in School Mental Health Promotion, 3*(1), 5-17.

Wehmeyer, M.L., & Schwartz, M. (2001). Disproportionate representation of males in special education services: Biology, behavior, or bias? *Education & Treatment of Children, 21*(1), 28-45.

Williams, J.M., & Portman, T.A.A. (2014). "No one ever asked me": Urban African American students' perceptions of educational resilience. *Journal of Multicultural Counseling and Development, 42*(1), 13-30.

Wilson, G.L., Kim, S.A., & Michaels, C.A. (2011). Factors associated with where secondary students with disabilities are educated and how they are doing. *The Journal of Special Education, 47*(3), 148-161.

Wolanin, T.R., & Steele, P.E. (2004). *Higher Education Opportunities for Students with Disabilities: A Primer for Policymakers*. Washington, DC: The Institute for Higher Education Policy.

Zetlin, A., Beltran, D., Salcido, P., Gonzalez, T., & Reyes, T. (2011). Building a pathway of optimal support for English language learners in special education. *Teacher Education and Special Education, 31*(1), 59-70.

Zins, J.E., & Elias, M.J. (2007). Social and emotional learning: Promoting the development of all students. *Journal of Educational and Psychological Consultation, 17*(2&3), 233-255.