TEACHER SELF-EFFICACY, TEACHER-STUDENT

INTERACTIONS, AND PRESCHOOL STUDENT

OUTCOMES: A DOMAIN-SPECIFIC APPROACH

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TEACHER SELF-EFFICACY, TEACHER-STUDENT INTERACTIONS, AND PRESCHOOL STUDENT OUTCOMES: A DOMAIN-SPECIFIC APPROACH

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Abstract: This study examined the nature of preschool teachers' self-efficacy, and the relationships among specific dimensions of teacher self-efficacy, teacher-child interactions, and preschoolers' academic and social adjustment. Teachers (n = 49) completed a survey and were observed in the classroom. Exploratory factor analysis indicated that preschool teachers' self-efficacy was best represented by three factors: classroom management, instructional engagement, and managing peer relations. Teachers felt less efficacious about classroom management compared to instructional engagement. Teachers' self-efficacy for classroom management was positively associated with observed emotional support and classroom organization, as well as with student engagement. Teachers' self-efficacy for instructional engagement was positively associated with students' emotional regulation. Moderate associations between student outcomes and dimensions of teacher-child interactions were also observed.

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CHAPTER I

INTRODUCTION

"Among the mechanisms of agency, none is more central or pervasive than people's beliefs about their capabilities to exercise control over their own level of functioning and over events that affect their lives. Efficacy beliefs influence how people feel, think, motivate themselves, and behave." (Bandura, 1993, p. 118)

Bandura (1993, 1997) proposed that one of the main mechanisms driving teachers' agency in the classroom is their self-efficacy for teaching, or their beliefs about their capability to bring about desired student outcomes. Indeed, a strong body of evidence supports the importance of teachers' self-efficacy to key educational variables. Teacher self-efficacy has been consistently related to a number of factors for teachers themselves including their job satisfaction (Caprara et al., 2006; Klassen et al., 2009), their sense of personal accomplishment (Brouwers & Tomic, 2000), and teaching performance evaluated by students (Klassen & Tze, 2014). Teachers' self-efficacy has also been associated with students' academic and social adjustment such as students' learning and academic achievement, and social, emotional, and cognitive competence (Guo, Piasta, Justice & Kadaverek, 2010; Justice, Mashburn, Hamre & Pianta, 2008; Klassen & Tze, 2014).

Empirical research has used different self-efficacy measures in investigating the impact of teacher self-efficacy on teaching practices and student adjustment (see

Appendix 1). Initial work focused on two dimensions of teachers' personal self-efficacy (i.e., beliefs about personal ability to bring about desired student outcomes) and general teaching self-efficacy (i.e., beliefs about teaching ability). With this measure, researchers found that teacher self-efficacy was positively related to teachers' time spent on lesson planning and monitoring on students' work, and providing students higher quality feedback (Gibson & Dembo, 1984). Raising the need to be more specific to teaching in diverse context and subjects, subsequent research used teacher self-efficacy measures with multiple dimensions including self-efficacy for decision making, using school resources, enlisting parental and community involvement, creating a positive school climate, and instruction (Bandura, 1977; NICHD; 1996, 2002). With multifaceted teacher self-efficacy measures, researchers found that teachers' high self-efficacy has a positive impact on students' learning (Guo, Connor, Yang, Roehrig, & Morrison, 2013; Guo, Piasta, Justice & Kadaverek, 2010; Justice, Mashburn, Hamre & Pianta, 2008.) Criticizing the relevance of multiple subscales to teachers' teaching practices, Tschannen-Moran and Hoy (2001) developed a scale representing three distinct teaching practices: classroom management, student engagement, and instructional strategies. Incorporating this measure, multiple studies have evidenced that high teacher self-efficacy has a positive impact on teachers' sense of empowerment (Hemric, Eury & Shellman, 2010) and students' learning, motivation, and achievement (Mojavezi & Tamiz, 2012; Sezgin & Erdogan, 2015; Tuchman & Isaacs, 2011).

Collectively, previous empirical research provides strong evidence that teachers' self-efficacy is a key factor affecting teacher's teaching practices and student's academic and social adjustment. Expanding from two dimensions to multiple dimensions (Bandura,

1997; Gibson & Dembo, 1984; Tschannen-Moran & Hoy, 2001), researchers have used multidimensional measures of teacher self-efficacy in exploring the association with teachers' teaching practices and student adjustment. However, almost all studies summed up multiple dimensions to create one composite teacher self-efficacy score and used a "general sense of teacher self-efficacy" in examining its impact on teaching practices and student adjustment. This is unfortunate since examining specific dimensions of teacher self-efficacy and its relation to teachers' teaching practices and student adjustment could provide much more rich information.

A recent study by Ryan, Kuusinen and Bedoya-Skoog (2015) used a dimension-specific approach to examine the associations between teachers' self-efficacy and actual teacher-student interactions based on class observations. They used the three-dimension teacher self-efficacy measure developed by Tschannen-Moran and Hoy (2001), and additionally included a new dimension, "teachers' self-efficacy for managing peer relations." With the revised four dimensions of teachers' self-efficacy (i.e., classroom management, student engagement, instructional strategies, and managing peer relations), they found that middle school teachers felt less efficacious about classroom management and managing peer relations compared to elementary school teachers, and each dimensions of teacher self-efficacy were respectively associated with corresponding teacher-student interactions (i.e., emotional support, instructional support, and classroom management). Findings by Ryan and colleagues (2015) suggest that examining different dimensions of teacher self-efficacy may better explain the nature of teachers' self-efficacy, and its relationship with teachers' teaching practices and student adjustment in the classroom.

I build on Ryan et al.'s (2015) study by examining additional student adjustment outcome in a younger sample in preschool classroom setting. I examine the applicability of four-dimensional structure of teacher self-efficacy on preschool teachers, and investigate the association between teacher self-efficacy, actual teacher-student interaction, and students' academic and social adjustment. By examining specific dimensions of teacher self-efficacy and its associations with students' academic and social adjustment, the current study will fill gaps of current knowledge in preschool teachers and student adjustment. Most teacher self-efficacy studies with a preschool sample focused on students' engagement and literacy skills (Guo et al., 2010; 2011; Justice et al., 2008). I expand the scope of prior work and explore both academic and social adjustment in preschool classroom. Further, I examine whether the dimension of managing peer relations of teacher self-efficacy is also relevant for preschool teachers and has implications for students' academic and social adjustment. Given preschool students' academic and social competence is influenced by their peers (DeLay, Hanish, Martin & Fabes, 2016), and peer interactions among preschoolers are related to students' own engagement (Coolahan, Fantuzzo, Mendez & McDermott, 2000), teachers' competence about managing peer relations may have significance for preschoolers' adjustment.

CHAPTER II

REVIEW OF LITERATURE

Examining Teacher Self-Efficacy

Theoretical and empirical research has evidenced that teachers' self-efficacy determines their teaching practices (Allinder, 1995; Bandura, 1977, 1993, 1997; Gibson & Dembo, 1984) and impact students' academic and social adjustment (Armor et al., 1976; Caprara, Barbaranelli, Steca, & Malone, 2006; Goddard et al., 2000; Guo, et al., 2013; Guo et al., 2010; Holzberger, Philipp, & Kunter, 2014; Justice et al., 2008). Teachers' self-efficacy is posited to impact student outcomes through higher quality teacher practices (Bandura, 1993; Gibson & Dembo, 1984). This follows Bandura's (1977, 1978, 1993, 1997) theory that higher self-efficacy leads to greater accomplishments because highly efficacious individuals are more likely to expend effort in pursuit of their goals, persist in the face of challenges, rebound from setbacks, and exercise control over events that affect them. In order to better understand the classroom climate in preschool, it is important to understand preschool teachers' self-efficacy, and whether teachers' self-efficacy actually translate into positive teaching practices.

Teacher self-efficacy measures. Earlier studies defined self-efficacy for teaching according to outcome expectancies, assessing whether teachers believed that they could impact students above and beyond environmental influences. An initial study by the RAND corporation (Armor et al., 1976) asked teachers to rate their level of agreement

with two items assessing general sense of teaching efficacy: "*When it comes right down to it, a teacher really can't do much because most of a student's motivation and performance depends on his or her home environment*"; and "*If I really try hard, I can get through to even the most difficult or unmotivated students.*" Teachers who highly disagreed with the first item and highly agreed with the second indicated their confidence that teachers can overcome the powers of environmental factors. Based on this measure, findings indicated that teachers' self-efficacy was positively associated with students' reading scores (Armor et al., 1976).

Following Bandura's theoretical proposition that the construct of self-efficacy should go beyond outcome expectancy, Gibson and Dembo (1984) developed the Teacher Efficacy Scale, a more detailed measure for self-efficacy to capture both teachers' beliefs about the degree to which teaching in general can impact students and their beliefs about the degree to which they themselves have the ability to bring about desired student outcomes. They assessed teachers' general efficacy for teaching by asking teachers to rate their level of agreement with items like: "Even a teacher with good teaching abilities may not reach many students"; or "the amount a student can learn is primarily related to family background." They assessed teachers' personal self-efficacy for teaching by asking teachers to rate their level of agreement with items like: "When I really try, I can get through to most difficult students"; or "when the grades of my students improve, it is usually because I found more effective approaches."

Subsequent research using the Teacher Efficacy Scale (Gibson & Dembo, 1984) identified inconsistencies in its factor structure, as several items were found to load on both factors (Tschannen-Moran & Hoy, 1998). Further, there were conceptual concerns

with the generality of these items. Bandura (1977, 1978, 1993, 1997) explained self-efficacy as context and subject specific, so that an individual's self-efficacy is not uniform across tasks but rather varies according to the specific task at hand. In response to the generality of the Teacher Efficacy Scale (Gibson & Dembo, 1984), Bandura developed a multifaceted measure of self-efficacy. His measure included 30 items with seven subscales: efficacy to influence decision making, efficacy to influence school resources, efficacy to enlist parental involvement, efficacy to enlist community involvement, efficacy to create a positive school climate, instructional self-efficacy, and disciplinary self-efficacy. Items included: "How much can you influence the decisions that are made in the school?" (*efficacy to influence decision-making*); "How much can you do to get the instructional materials and equipment you need?" (*efficacy to influence school resources*); "How much can you do to assist parents in helping their children do well in school?" (*efficacy to enlist parental involvement*); "How much can you do to get community groups involved in working with the schools?" (*efficacy to enlist community involvement*); "How much can you do to make students enjoy coming to school?" (*efficacy to create a positive school climate*); "How much can you do to keep students on task on difficult assignments?" (*instructional self-efficacy*); and "How much can you do to get children to follow classroom rules?" (*disciplinary self-efficacy*).

Bandura's instrument has been widely circulated due to its use in the National Institute for Child Health and Human Development's (NICHD) longitudinal Early Child Care and Youth Development study (1996, 2002). The NICHD study used five subscales from Bandura's instrument: efficacy to influence decision making, efficacy to influence school resources, instructional self-efficacy, disciplinary self-efficacy and efficacy to

create a positive school climate. Researchers focusing specifically on preschool and elementary school classrooms have chosen items from the NICHD measure to assess the relationship between teachers' self-efficacy, instructional quality, and student adjustment (Guo et al., 2013; Guo et al., 2010; Justice et al., 2008). Their findings indicated that fifth grade teachers' self-efficacy was positively associated with teacher warmth, use of instructional time, and effective feedback (Guo et al., 2013), and that preschool teachers' self-efficacy positively predicted students' gains in print awareness (Guo et al., 2010) and was positively associated with the quality of literacy focus observed in the classroom (Justice et al., 2008).

Criticizing the relevance of multiple subscales to teachers' teaching practices, Tschannen-Moran and Hoy (2001) developed a scale representing three distinct teaching practices. After three studies investigating factor structure, reliability and validity, the final instrument consisted of 12 items made up of three dimensions: teachers' self-efficacy for classroom management, teachers' self-efficacy for student engagement, and teachers' self-efficacy for instructional strategies. This three-factor structure had strong internal consistency across several samples of elementary, middle, and high school teachers (Fives & Buehl, 2009; Tschannen-Moran & Hoy, 2001) and was found to have strong psychometric properties (Klassen et al., 2009). Summed teacher self-efficacy scores for these items has been used to examine the sources of elementary teachers' self-efficacy (Sezgin & Erdogan, 2015; Tschannen-Moran & Hoy, 2007; Tschannen-Moran & McMaster, 2009; Tuchman & Isaacs, 2011), the association between elementary teachers' self-efficacy and their sense of empowerment (Hemric, Eury & Shellman, 2010), and the effects of high school teacher self-efficacy on student motivation and

achievement (Mojavezi & Tamiz, 2012). Collectively, these studies indicate that teachers' self-efficacy is positively predicted by teachers' academic optimism and zest for their work (Sezguin & Erdogan, 2015) and their experiences of mastery in the classroom (Tschannen-Moran & Hoy, 2007), and is positively associated with teachers' sense of empowerment, meaning their sense of the degree to which they can influence what and how they teach (Hemric et al., 2010). They also indicate that teacher self-efficacy is positively associated with student motivation, and that there are significant differences in students' achievement according to whether their teachers have high or low self-efficacy (Mojavezi & Tamiz, 2012).

A recent study by Ryan, Kuusinen and Bedoya-Skoog (2015) used a dimension-specific approach to examine the associations between teachers' self-efficacy and actual teacher-student interactions based on class observations. They modified the measure by Tschannen-Moran and Hoy (2001) by adding an additional dimension: self-efficacy for managing peer relations. This dimension was created to capture teachers' roles in facilitating students' peer interactions, a component of teaching which had not previously been included in measures of teacher self-efficacy. They examined the four-factor structure of teacher self-efficacy with 101 elementary and middle school teachers, and confirmed the validity of four dimensions of teacher self-efficacy: self-efficacy for classroom management, self-efficacy for student engagement, self-efficacy for instructional strategies, and self-efficacy for managing peer relations. The new dimension of managing peer relations has not yet been used in studies of preschool teachers' self-efficacy. However, recent research has emphasized the importance of peer relations to preschoolers' development. Preschool students' academic and social competence,

meaning the level of participation and academic and social skill displayed in the classroom, was influenced by their peers' competence controlling for individual and environmental factors (DeLay, Hanish, Martin, & Fabes, 2016), and students' engagement in learning activities was positively related to peer play interactions (Coolahan, Fantuzzo, Mendez, & McDermott, 2000). This indicates that examining teacher self-efficacy for managing peer relations may also be important. Thus, the present study examines the applicability of four dimension structures of teacher self-efficacy.

Teacher self-efficacy dimensions and student outcomes. The four dimensions chosen for the *Revised Teacher Self-Efficacy Scale* (Ryan et al., 2015; Tschannen-Moran & Hoy, 2001) represent key teaching practices which have been consistently linked to student outcomes: classroom management, instructional strategies, student engagement, and peer relations. Teachers' classroom management, or the process by which teachers create and maintain appropriate student behavior, has been related to students' gains in literacy (Dobbs-Oates et al., 2011) and social-emotional skills (Sperry, 1999), decreases in negative behavior (Snyder et al., 2011), and higher student engagement (de Kruif et al., 2000). Teachers' instructional strategies, or the strategies teachers put in place to facilitate instruction, are also key to students' performance. Research provides evidence that students' performance is maximized when teachers' instructional interactions with children are focused, direct, intentional, and feedback-oriented (Dolezal, Welsh, Pressley, & Vincent, 2003; Pianta et al., 2008; Pianta, La Paro, Payne, Cox, & Bradley, 2002). Student engagement has been showed to moderate the relationship between various teacher supports and student outcomes, such that higher student engagement in emotionally supportive classrooms can lead to greater student outcomes (Reyes, Brackett,

Rivers, White, & Salovey, 2012). Lastly, peer relations have been related to students'

academic and social-emotional competence (Coolahan et al., 2000; Salminen et al.,

2014). Research on effective teacher practices thus provides ample evidence that the four

dimensions chosen for the *Teacher Self-Efficacy Scale* (Tschannen-Moran & Hoy, 2001)

are important and impactful components of teaching.

Teacher self-efficacy and teaching practices. Researchers focusing specifically

on early childhood have found that preschool teachers generally feel highly efficacious

about teaching (Guo, Justice, Sawyer, & Tompkins, 2011; Justice, Mashburn, Hamre, &

Pianta, 2008). This indicates that in general, preschool teachers feel confident in their

abilities to bring about desired student outcomes. This is important because many studies

suggest that highly efficacious teachers use more effective teaching practices.

In elementary school, teachers' self-efficacy has been positively associated with

more productive use of time, higher quality feedback, and greater warmth when

interacting with students. Highly efficacious elementary school teachers spent more time

preparing for lessons and monitoring student work in the classroom and were more

effective in using questions to lead students to the correct answer. Highly efficacious

teachers showed more sensitivity toward their students through warm and responsive

interactions. They also made more productive use of instructional time through efficient

transitions and pacing, and gave higher quality evaluative feedback for children's

performance and ideas (Guo et al., 2013). On the contrary, less efficacious teachers were

more frequently observed giving students the answer, calling on another student, or

criticizing the student for their incorrect answer (Gibson & Dembo, 1984). Less

efficacious teachers were observed making less effective use of their time, since they

spent more time on transitions between activities, less time monitoring students' work, and less time preparing for lessons (Gibson & Dembo, 1984).

Specific to a preschool sample, teachers' self-efficacy has been positively associated with time spent teaching academic and social-emotional skills as well as with higher quality literacy instruction (Fantuzzo et al., 2012; Justice et al., 2008). Highly efficacious preschool teachers spent more time teaching literacy skills such as letter and name identification, reading, and writing; numeracy skills such as number identification, counting, computation and word problems; and social-emotional skills such as cooperation, self-control, self-confidence, and positive work habits (Fantuzzo et al., 2012). Highly efficacious preschool teachers exhibited higher quality language modeling in the classroom, meaning that they modeled more advanced and complex language for their students, and facilitated frequent conversations with and among students (Justice et al., 2008).

Collectively, these studies provide considerable evidence that teacher self-efficacy is positively related to teaching practices. However, most studies used composite teacher self-efficacy scores. Although they used different measures including the Teacher Efficacy Scale (Gibson & Dembo, 1984), the NICHD adaptation of Bandura's instrument (Guo et al., 2013; Justice et al., 2008), and Tschannen-Moran and Hoy measure (2001), all of these studies summed up different dimensions to create one teacher self-efficacy score.

Raising the need to look at specific dimensions of teacher self-efficacy, Ryan et al. (2015) explored the association between teachers' self-efficacy for classroom management, student engagement, instructional strategies, and managing peer relations

and the quality of observed teacher-student interactions. They found that teachers who were highly efficacious about classroom management provided better classroom organization, instructional support, and emotional support, and teachers who were highly efficacious about managing peer relations were better at providing instructional support. This indicates that when teachers feel confident about their ability to manage their classrooms, they provide their students with higher quality organizational structures, instructional facilitation, and emotional facilitation; and that when teachers feel confident about their ability to manage student interactions, they provide their students with higher-quality instructional facilitation. Findings indicate that teacher self-efficacy for classroom management and managing peer relations are of particular importance to elementary and middle school teaching practices, and further suggest that a dimension-specific approach in examining teacher self-efficacy is important in clarifying the associations between teacher self-efficacy and teaching practices.

Teacher self-efficacy, teaching practices, and student outcomes. Teachers' self-efficacy is posited to impact student outcomes through higher quality teacher practices (Bandura, 1993; Gibson & Dembo, 1984). Teacher self-efficacy has indeed been related to both teaching practices and student outcomes in elementary school and preschool.

In elementary school, teacher self-efficacy has influenced students' literacy skills through positive support for students' learning. Students made greater gains in letter and word recognition, vocabulary, and reading comprehension when their teachers were highly efficacious about teaching (Guo et al., 2013). Teachers' self-efficacy was evidenced to impact student outcomes through greater support for student learning such

as sensitivity to student needs and interests, and shaping positive classroom climate. Interactions between teachers' self-efficacy and the quality of teachers' support have been noted in preschool as well. Preschool students made higher vocabulary gains when their teachers were highly efficacious about teaching and when the teacher provided higher quality emotional supports (Guo et al., 2010). Preschool students also made greater gains in print awareness when their teachers were highly efficacious about instruction and about creating a positive school climate.

Examining Teacher-Student Interactions using Class Observations

Teacher-student interactions. Teacher-student interactions have become a focal point in discussions about high quality teaching practices, as research has evidenced the importance of teacher-student interactions to student outcomes (La Paro, Pianta, & Stuhlman, 2004; Pianta, 2003). The level of instructional and emotional support teachers provide to their students has been found to buffer elementary school students' risk of school failure. First graders who had previously been identified as behaviorally or academically at-risk showed higher achievement and lower conflict with their teachers when their classroom offered stronger instructional and emotional support (Hamre & Pianta, 2005). Further, research has indicated that the effects of students' early interactions with their teachers can last into middle school. Students who experienced negative and conflictual relationships with their kindergarten teachers had lower academic and behavioral outcomes through to eighth grade (Hamre & Pianta, 2001). These findings indicate that teacher-student interactions are important to students' current and future behavioral and academic adjustment. However, research has suggested that preschool students are not consistently exposed to effective teacher-child interactions,

since teachers have generally been observed providing low levels of instructional support when interacting with their students (La Paro, Pianta, & Stuhlman, 2004).

Classroom Assessment Scoring System (CLASS). In order to systematically capture the range of teacher-student interactions observable in classrooms, Pianta, La Paro and Hamre (2008) developed the Classroom Assessment Scoring System (CLASS). The CLASS tool was conceptualized to assess the classroom learning environment with three domains: emotional support, classroom organization and instructional support. For emotional support, high-quality teacher-student interactions are characterized by teachers' sensitivity toward their students, their regard for students' perspectives, and indications of positive affect and warm relationships. Highly emotionally supportive teachers provide motivational supports for their students, use positive communications, acknowledge emotions, allow student choice, and encourage child talk and movement. For classroom organization, high-quality teacher-child interactions are characterized by effective behavior management, productive use of time, and engaging instructional formats. Highly organized teachers proactively manage behaviors by setting clear and consistent expectations for student behavior, setting clear routines, having materials prepared in advance, and using a range of modalities to expand students' engagement. For instructional support, high-quality teacher-child interactions are characterized by an emphasis on higher-order thinking skills, high-quality feedback, and frequent language modeling. Instructionally supportive teachers facilitate their students' cognitive development by integrating concepts, making real-world connections, asking children to explain their thinking, asking open-ended questions, and using advanced vocabulary.

The CLASS observation tool has been widely used to examine the influence of

teacher-child interactions on preschool students. Findings have indicated that preschool students make greater gains in receptive vocabulary, print knowledge, and inhibitory control when they have higher-quality interactions with their teachers, as measured by composite emotional, organization, and instructional supports (Williford, 2013). Based on these three domains, research has also explored the general and domain-specific effects of teacher-student interactions on children's development during their preschool year, and found that responsive teacher-student interactions positively predicted children's gains in language and literacy skills and working memory, and negatively predicted teacher-student conflict (Hamre, Hatfield, Pianta, & Jamil, 2014). The specific domains of teacher-student interactions (i.e., emotional support, classroom organization, and instructional support) related differentially across outcomes. Instructional support predicted gains in language and literacy skills, and classroom organization predicted gains in inhibitory control (Hamre et al., 2014). Studies focusing on each domain factor of teacher-child interactions have found that classroom instructional support positively predicted preschool students' gains in pre-reading skills and mathematical problem-solving, classroom emotional support positively predicted students' social competence and inhibited problem behaviors (Mashburn et al., 2008), and classroom organization positively predicted students' gains in reading, phonological awareness and print knowledge (Hatfield, Burchinal, Pianta, & Sideris, 2015).

The Present Study

I examine my hypotheses in a sample of preschool teachers and students from Head Start early childhood centers in a small urban school district in the Midwest. Head Start is the U.S. government's major early childhood program. It aims to reduce the

achievement gap between low-income children and their more affluent peers by providing high quality early childhood education. Students must live at or below 100% of the federal poverty line to qualify for the Head Start program, with the exception of children with special needs. The sample consisted of 49 lead teachers and a random sample of students from their classrooms. The data were collected by the Early Childhood Education Institute, a research institute focused on young children in early childhood education programs.

I administered a teacher questionnaire with the revised teacher self-efficacy scale including self-efficacy for classroom management, instructional strategies, student engagement, and managing peer relations (Ryan et al., 2015; Tschannen-Moran & Woolfolk Hoy, 2001) along with demographic information. The survey was administered online in March 2016. I obtained data from classroom observations and assessments conducted by the Early Childhood Education Institute from January to March 2016. Classroom observations focused on teacher-child interactions using the Classroom Assessment Scoring System (Pianta, La Paro, & Hamre, 2008), and individual children's classroom interactions using the Individualized Classroom Assessment Scoring System (Downer et al., 2010). Observations were conducted by certified observers who met reliability requirements recommended by Pianta et al. (2008) during half-day classroom observations taking place between January and March 2016. I also collected information about students' engagement and adjustment along with demographics information with a battery of assessments which will be described below.

I had three main research questions:

- First, I examined the nature and structure of teacher self-efficacy for preschool teachers. Specifically, I examined whether preschool teachers have the four-dimension structure of teacher self-efficacy observed by Ryan et al. (2015) for elementary and middle school teachers. Preschool teachers may differ from elementary and middle school teachers due to differing teaching responsibilities and learning processes. Therefore, I was open to the possibility that the structure of preschool teachers' self-efficacy may diverge from what was found in the previous study.

- Second, I examined the associations between each dimension of teacher self-efficacy (classroom management, instruction, engagement, and managing peer relations) and teacher-student interactions (classroom organization, emotional and instructional supports) to better understand how teachers' self-efficacy in each dimension translates to teacher-student interactions.

- Third, I examined the associations between teacher self-efficacy, teacher-student interactions, and student outcomes. I examined how multiple dimensions of teacher self-efficacy and teacher-child interactions are related with student outcomes including reading skills, mathematical problem-solving, cognitive regulation, emotional regulation, teacher-student relationships, relationships with peers, and student engagement. For additional information, I also examined whether there are significant differences for student outcomes between classes according to the level of teachers' self-efficacy and teacher-student interactions.

CHAPTER III

METHOD

Participants

The observational and student outcomedata for the current study were provided by the Early Childhood Education Institute at the University of Oklahoma. The Early Childhood Education Institute is a research institute focusing on young children in early childhood programs. They conduct program evaluation projects to guide policy and programming decisions. Early Childhood Education Institute researchers recruited teachers from the Head Start programs in a small urban school district in the Midwest.. Head Start, the U.S. government's major early childhood program, aims to reduce the achievement gap between low-income children and their more affluent peers by providing high quality early childhood education.

The Head Start program surveyed in this study serves around 1300 three- and four-year olds in their preschool programs. With the exception of children with special needs, all students must live at or below 100% of the federal poverty line to qualify for the program, so all schools are comparable in socioeconomic status.

The original sample consisted of 97 lead and assistant preschool teachers from ten early childhood centers, out of a total possible sample of 140 teachers. I retained only the lead teachers, for a sample of 49 teachers. The years of experience, level of education, gender, and ethnicity of teachers are presented in Table 1. The teachers' years of

experience ranged from 0 to 33 years, with approximately half of the teachers having taught under 5 years. Approximately 90% of teachers had a bachelor's degree, and the remaining 10% had master's degrees. The sample was all female and ethnically diverse (65% European American, 12.2% African American, 6.1% Native American, 6.1% Latino, and 10.2% other).

Additionally, the Early Childhood Education Institute selected a random sample of three to ten students from each participating teacher's classroom. Parental consent was obtained for 212 students across the preschool program, or approximately 16% of the total 1,292 preschool students enrolled at the beginning of the school year. As participants in this pilot study, students were observed in the classroom during one half-day using the Individualized Classroom Assessment Scoring System (inCLASS) and were pulled individually for a battery of assessments in February and March 2016, which will be explained further in the measure section.

The students' primary language, family income, gender and ethnicity are presented in Table 2. Half of the participating students spoke English as their primary language, and the other half were dual language learners (47.6% Spanish, 2.4% other languages including Swahili, Burmese, and Hmong). The majority of participating students lived at or below the federal poverty line (73.8%). The sample consisted of 54.4% male students and 45.6% female. The sample was ethnically diverse (46.6% Latino, 18.9% European American, 18.4% African American, 8.3% multiracial or biracial, 3.4 % American Indian, Alaska Native, or Pacific Islander; 1.9% Asian, and 6.9% other).

Procedures

The Early Childhood Education Institute approached teachers across the school district's Head Start early childhood centers. They received consent from 2 to 9 lead teachers from each school site, for a final sample of 49. A teacher survey containing demographic questions and teacher self-efficacy items was administered online in March 2016. Classroom observations were conducted from January to mid-March 2016. Teachers received a gift card in return for their participation.

Early Childhood Education Institute researchers selected a random sample of students from each classroom, then distributed letters to parents and guardians explaining the study. They were present at the school sites to answer questions, and obtained consent for a final sample of 212 students. Students were pulled from the classroom for one-on-one assessments in February and March 2016. The length of each assessment session was determined by the child's level of attention and focus. During each of these assessment periods, students completed the Woodcock-Johnson Tests of Achievement letter-word identification to examine reading and applied problems subtest to examine mathematics. After each assessment period, the assessor filled out the Leiter Examiner Rating Scale to capture students' engagement behaviors during the assessment. Students were also observed in the classroom setting using the Individualized Classroom Assessment Scoring System in spring 2016, as described below.

Measures

Teachers' self-efficacy. Teachers' self-efficacy was assessed using the revised version of the Teacher Self-Efficacy Scale (TSES) developed by Tschannen-Moran and Woolfolk Hoy (2001) based on Bandura's (1997) conceptualization of self-efficacy. Tschannen-Moran and Woolfolk Hoy tested TSES in three separate studies, resulting in a

24-item long form and 12-item short form, which produced similar information regarding factor structure, reliability, and validity. Following Ryan et al. (2015), I used the short form in the present study. The three-factor structure – efficacy for classroom management, instructional practices, and student engagement – has been found to be appropriate for practicing teachers (Fives & Buehl, 2009). This measure has been frequently used to examine teacher self-efficacy in relation to teachers' psychological characteristics, sense of empowerment, feelings of burnout, and effects of professional development; as well as to explore the factors related to teacher self-efficacy (Skaalvik & Skaalvik, 2007; Tschannen-Moran & Woolfolk Hoy, 2007; Tschannen-Moran & McMaster, 2009; Klassen et al., 2009; Hemric, Eury & Shellman, 2010; Kelm & McIntosh, 2012; Bullock, 2015).

The Teacher Self-Efficacy Scale assesses participant teachers' perceptions about their competence to handle situations in their classroom by asking them to rate their own efficacy for each of three areas of teaching (classroom management, instructional practices, and student engagement) using a 9-point scale ranging from 1 (nothing) to 9 (a great deal). The instructions direct the teacher to "respond to each of the questions by considering the combination of your *current* ability, resources, an opportunity to do each of the following in your present position." Items for self-efficacy for classroom management include: "How much can you do to control disruptive behavior in the classroom?" "How much can you do to get children to follow classroom rules?" Sample items for self-efficacy for instruction include: "To what extent can you craft good questions for your students?" "How well can you implement a variety of assessment strategies (i.e. observations, checklists, etc.)?" Items for self-efficacy for student

engagement include "how much can you do to help your students value learning?" "How much can you do to motivate students who show low interest in school work?" (Tschannen-Moran & Woolfolk-Hoy, 2001).

I also included four items developed by Ryan, Kuusinen, and Bedoya-Skoog (2015) to capture teacher self-efficacy for managing peer relations, a dimension that was found to be theoretically distinct from the original three-dimensional model proposed by Tschannen-Moran and Woolfolk-Hoy (2001). These additional items have been used in in elementary and middle school classrooms (Ryan et al., 2015), but not yet applied in early childhood classrooms. Given the importance of the peer relations (i.e., peer acceptance and friendships) for preschoolers' social adjustment in classroom (Johnson, Ironsmith, Snow, & Poteat, 2000), I expected that this category would be equally important within an early childhood setting. Sample items include: "How much can you do to help a student make friends at school?" "How much can you do to help students work out a problem or disagreement in your classroom?" (Ryan, Kuusinen, and Bedoya-Skoog, 2015).

With factor analyses, I could extract three factors as described in detail in the results section. I found that teacher self-efficacy for student engagement and teacher self-efficacy for instructional practices were loaded as a single factor. I labeled this joint dimension as teacher efficacy for "instructional engagement." The final scale was then composed of 16 items representing three factors: self-efficacy for classroom management, self-efficacy for instructional engagement, and self-efficacy for managing peer relations. The final scale was found to be reliable in our sample (Cronbach's alpha

for self-efficacy for classroom management = .89, for instructional engagement = .89, for peer management = .86).

Teacher-student interactions: Classroom Assessment Scoring System (CLASS). I measured teacher-student interactions with observations using the Classroom Assessment Scoring System. Observers conducted four cycles of 20-minute observations in each classroom, and rated each of eleven dimensions using the Classroom Assessment Scoring System manual of behaviors and responses. Observers were research associates from the Early Childhood Education Institute at the University of Oklahoma-Tulsa who had received Classroom Assessment Scoring System certification in the prekindergarten version. Certification was obtained following an assessment and video rating at the end of a course on Classroom Assessment Scoring System. Observers viewed five videos online and assigned scores. Their scores were compared to scores determined by master coders and met reliability standards recommended by Pianta et al. (2008): 80% of scores fell within 1 point of the master code, and 2 out of the 5 codes within each dimension must be within 1 point of the master code. Additionally, observers' live reliability was assessed by sending two observers for simultaneous assessments. Observers' ratings were required to meet the same reliability standards recommended by Pianta et al. (2008).

Observations were conducted beginning with students' arrival in the mornings in order to capture a range of student activities, from mealtimes to small groups to center play. During each observation cycle, observers noted the frequency of behaviors using a seven-point Likert-type scale to rate teacher-student interactions across three domains (Pianta & Hamre, 2009). Scores across observations were then averaged to create a mean

score for emotional support, classroom organization, and instructional supports for each classroom. The scale was found to be reliable in our sample (Cronbach's alpha for emotional support =.83, classroom organization =.87, instructional support =.92).

The Classroom Assessment Scoring System has three domains, each measured through a series of indicators or targeted behaviors: emotional support, classroom organization, and instructional support (see Appendix 2). Emotional supports examined the level of provisions made in the classroom for children's emotional wellbeing. The domain of emotional support is measured through *positive climate, negative climate, teacher sensitivity and regard for student perspectives*. A positive climate is indicated by warm relationships, positive affect, mutual respect, and positive communication. A negative climate is indicated by evidence of punitiveness, sarcasm, disrespect, or negativity. Teacher sensitivity is indicated by the teacher's level of awareness, responsiveness, and action to address problems as well as the degree of students' comfort in the classroom. Finally, the teacher's regard for student perspectives is indicated by evidence of teacher flexibility and student autonomy and expression. In classrooms displaying a high level of emotional support, teachers and students show frequent signs of mutual respect and positive affect, teachers are responsive to students and aware of their emotional states, and teachers are flexible to allow for student expression.

The second domain is classroom organization, or the level of behavior management and planning evident in the classroom. The domain of classroom organization encompasses *behavior management, productivity, and instructional learning formats*. Indicators of effective behavior management include clear expectations, proactiveness, and redirection. Indicators of productivity include optimal use of time, and

efficient routines and transitions. Indicators of instructional learning formats include a variety of materials, promotion of student interests, clarity, and an engaging approach. In classrooms high in classroom organization, teachers have clear expectations, are effective at redirecting behaviors, maximize their use of time, and use a variety of materials and approaches to engage student interests.

The third domain is instructional support, or the level of cognitive facilitation evident in the classroom. Instructional support encompasses *concept development, quality of feedback, and language modeling*. Effective concept development is indicated by analysis and reasoning, creativity, and integration. Quality of feedback is indicated by feedback loops, encouragement of responses, and expansion of performance. Language modeling is indicated by frequent conversation, open-endedness, repetition and extension of students' speech, and advanced language. In classrooms high in instructional support, there is evidence of high-level analysis and reasoning, students are encouraged to be creative and integrate ideas, students' responses are extended and encouraged with high-quality feedback, and conversations include advanced language.

The Classroom Assessment Scoring System is designed to address limitations of other established classroom assessment tools by addressing emotional and instructional processes rather than the physical classroom environment and available materials (La Paro, Pianta and Stuhlman, 2004). For example, though the Early Childhood Environment Rating Scale (Harms, Clifford, & Cryer, 1998), another widely used classroom observation tool, includes some items addressing classroom processes, it has many more items on the organization of classroom activities and materials. It is therefore possible for programs to score highly on the Early Childhood Environment Rating Scale

while scoring poorly on instructional supports (Denny, Hallam, & Homer, 2012). However, as La Paro et al. (2004) argue, the materials and curricula present in a classroom are not as important as their use and implementation within the classroom (Pianta, 2003). The Classroom Assessment Scoring System has been used more widely as a comprehensive indicator of classroom quality, since it focuses on teacher-student interactions and instructional practices (include references in relate to preschool sample).

Student outcomes (inCLASS). I examined teacher-student relationships, students' interactions with their peers, and student engagement using observations which used the Individualized Classroom Scoring System (inCLASS, Downer et al., 2010) The inCLASS was developed as a tool to observe individual students' interaction with their teachers and peers, and students' engagement with tasks within the classroom.

The teacher interactions scale encompasses students' engagement with the teacher, the quality of their communications with teachers, and the degree of conflict observable in the students' interactions with their teacher. In high quality teacher interactions, the child is attuned to their teacher (tracks the teacher, pays attention to them, cooperates), seeks proximity to their teacher, displays shared positive affect, and initiates and sustains conversations. We used this scale to measure teacher-student relationships.

The peer interactions scale encompasses the degree of students' sociability and assertiveness with their peers, as well as the quality of their communication and the degree of conflict experienced in the classroom. In high quality peer interactions, the child seeks out their peers, shows shared positive affect, cooperates with their peers, initiates play with others, shows leadership, initiates and sustains communication, and

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does not display aggression, negative affect, or attention-seeking behaviors. We used this scale to measure students' interactions with their peers.

The task orientation scale measures encompasses students' involvement in classroom tasks, the degree of students' self-reliance, and the degree to which students take learning into their own hands. In high quality task orientation, the child shows sustained attention in a task, is enthusiastic and actively engaged in what they are working on, displays personal initiative and inquisitiveness, shows confidence in their abilities and persists through frustration. We used this scale to measure students' engagement in classroom activities.

Certified observers from the Early Childhood Education Institute completed four 15-minute cycles for each pilot student in participating classroom. Scores were then averaged across observation cycles to create a mean score for each of the three domains. The score for teacher interactions was computed from scores for students' engagement with their teacher, teacher communication, and teacher conflict. The score for peer interactions was computed from scores for peer sociability, peer communications, peer assertiveness, and peer conflict. The score for task orientation was computed from scores for students' engagement within tasks, self-reliance, and behavior control. The scale was found to be reliable in our sample (Cronbach's alpha for teacher interactions =.72, peer interactions =.89, task orientation =.63, respectively).

InCLASS observers' reliability was guaranteed through certification and an assessment of live reliability. Certification was obtained following a video rating task. Observers viewed five videos online and assigned scores. Their scores were compared to scores determined by master coders and met reliability standards recommended by Pianta

et al. (2008): 80% of scores fell within 1 point of the master code, and 2 out of the 5 codes within each dimension must be within 1 point of the master code. Additionally, observers' live reliability was assessed by sending two observers for simultaneous assessments. Observers' ratings were required to meet the same reliability standards recommended by Pianta et al. (2008).

Student outcomes (Researcher report). I examined students' reading, mathematical problem-solving, cognitive and emotional regulation using the following measures. Trained assessors from the Early Childhood Education Institute pulled pilot students from the classroom and assessed them orally in a one-on-one setting. The length of the assessment session depended on the child's energy level and willingness to participate. After each assessment session, assessors completed a questionnaire to report on students' emotional and cognitive behaviors during their interaction.

For students' reading, I used the Woodcock-Johnson III Tests of Achievement Letter-Word Identification subtest. The Letter-Word Identification subtest is an oral assessment requiring students to read uppercase and lowercase letters and words. For example, the examiner might show the student a list with letters and words, and ask them to point to the letter B. Reliability coefficients for the Letter-Word Identification subtest ranged from .97 to .98 for students ages 2 to 4 (McGrew et al., 2007).

Students' mathematical problem-solving skills were measured using the Woodcock-Johnson III Tests of Achievement Applied Problems subtest, which targets students' ability to analyze and solve math problems. For example, students might be asked to count the number of particular items pointed to by the examiner, or might be given a word problem like: "Susan has six pencils. Then her sister gives her two more.

How many pencils does Susan have now?" Students are thus required to listen to a problem, recognize the mathematical procedure that must be followed, and perform the appropriate calculations. Reliability coefficients for the Applied Problems subtest ranged from .92 to .94 for students ages 2 to 4 (McGrew et al., 2007).

Both the Applied Problems and Letter-World Identification subtests of the Woodcock-Johnson III were nationally normed using a sample of 1,153 preschool children ages 2 to 5 randomly selected to represent the U.S. population based on 2005 U.S. Census statistics (McGrew et al., 2007). A validation study of 202 two- to six-year old children demonstrated that performance on the WJ-III is consistent with performance on similar measures for children of this age group, including the Wechsler Preschool and Primary Scale of Intelligence—Revised (WPPSI-R; Wechsler, 1989) and the Differential Abilities Scale (DAS; Elliott, 1990) (McGrew & Woodcock, 2001).

I examined students' cognitive regulation using the first section of Examiner Rating Scale, a component of the Leiter International Performance Scale (Roid, Miller, Pomplun, & Koch, 2013). The Examiner Rating Scale allows assessors to document the cognitive and emotional characteristics affecting a child's performance during assessments by recording the frequency with which they observed certain behaviors. The scale has been nationally normed through a standardization sample of 1,603 three- and four-year olds randomly selected to match the 2008 U. S. Census update (Roid et al., 2013). After completing each assessment session, Early Childhood Education Institute assessors completed these scales. The cognitive/social subscale consists of behaviors pertaining to the child's attention, organization, impulse control, activity level and sociability. Items include the degree to which the child paid attention during instructions

and demonstrations, refrained from indiscriminately touching test materials, needed minimal reinforcement to sit still, and interacted positively with the examiner. I used this subscale to understand students' cognitive regulation. Reliability coefficients for the cognitive scale were .97 for both three- and four- year olds (Roid et al., 2013).

I examined students' emotional regulation using the second section of the Examiner Rating Scale, the emotions/regulations subscale (Roid, Miller, Pomplun, & Koch, 2013). The emotions/regulations subscale is comprised of behaviors pertaining to the child's energy level, feelings, emotional regulation, anxiety and sensory reactiveness. Items include the degree to which participants showed pleasure in accomplishment and task mastery, was calm during the assessment session, and showed concentration. I used this subscale to understand students' emotional regulation. Reliability coefficients for the emotions scale were .93 for three-year-olds and .96 for four-year-olds.

Hypotheses

Research to date has documented the association between general teacher self-efficacy, teacher practices, and student outcomes (Fantuzzo et al., 2012; Guo et al., 2013; Justice et al., 2008). Limited studies have examined the specific dimensions of teacher self-efficacy in relation to respective teacher-student interaction and student academic and social adjustment. In the current study, I examine how specific dimensions of teacher self-efficacy are associated with different domains of teacher-student interactions and students' academic and social adjustment outcome.

Teacher self-efficacy for classroom management. Teacher self-efficacy for classroom management is theoretically aligned with the classroom organization

dimension of teacher-student interactions. Teachers who are highly efficacious about classroom management manage disruptive students well, make students follow classroom rules, and establish a classroom management system with each group of students. Teachers characterized by high classroom organization display clear expectations and redirection, and have efficient routines and transitions. Due to the overlap between these constructs, I expect that teachers who are highly efficacious about classroom management may exhibit higher level of classroom organization.

Moreover, teachers' self-efficacy for classroom management could be related to instructional and emotional support because classroom management has been identified as a crucial component of teaching. Effective classroom management is a key component of teaching because it creates an orderly classroom environment, and thereby, makes the classroom more conducive to learning (Marzano, Marzano, & Pickering, 2003). Indeed, classroom management has been related to preschoolers' academic, cognitive, and social-emotional learning. It has been associated with decreased negative behavior of children high on conduct problems (Snyder et al., 2011), gains in social-emotional skills (Sperry, 1999), and gains in literacy skills (Dobbs-Oates et al., 2011). Teachers' self-efficacy for classroom management may thus also translate into emotional and instructional support.

Lastly, I expect that teachers' self-efficacy for classroom management will relate to students' engagement. Previous research has indicated that preschool students are more engaged in classrooms where teachers are effective in redirecting behavior and responsive to students' interests and needs (de Kruif, McWilliam, Ridley, & Wakely, 2000; Downer, Sabol, & Hamre, 2010). These findings suggest that when teachers effectively manage behavior, the classroom environment is more conducive to learning

and can thereby facilitate higher student engagement. This is consistent with previous studies highlighting the importance of behavior management to creating effective learning environments (Marzano et al., 2003). I can thus expect that when teachers are highly efficacious about classroom management, they actively manage behaviors in a manner which optimizes student engagement.

Teacher self-efficacy for student engagement and instructional strategies. I expect that teacher self-efficacy for student engagement will be positively related to emotional support, and that teacher self-efficacy for instructional strategies will be positively related to instructional support.

Previous research has related teachers' emotional support to student motivation (Ruzek et al., 2016). In middle and high school, students showed higher motivation when their teachers were more emotionally supportive, as evidenced by a positive classroom climate, teachers' sensitivity toward their students, and regard for students' perspectives (Ruzek et al., 2016). In elementary school, teachers' emotional support was related to positive classroom motivational environments, in that emotionally supportive teachers were perceived by their students as more frequently emphasizing enjoying learning, understanding new ideas, developing new skills, and learning from errors (Patrick, Kaplan, & Ryan, 2011). These findings suggest that emotionally supportive teachers create classroom environments which are more conducive to students' motivation. Since the dimension of teacher self-efficacy for student engagement assesses teachers' beliefs about their ability to motivate students, I can expect that teachers who are highly efficacious about student engagement will also be highly emotionally supportive.

Ryan et al. (2015) hypothesized that due to the theoretical alignment between

teacher self-efficacy dimensions and teacher-student interactions, one could expect positive associations between teacher self-efficacy for instructional strategies and classroom instructional support. The dimension of teacher self-efficacy for instructional strategies assesses teachers' beliefs about their ability to adapt instruction to students' needs. The domain of classroom instructional support aims to assess teachers' responsiveness to their students' needs (La Paro & Pianta, 2003). Due to this theoretical alignment, I can expect that teachers who are highly efficacious about instructional strategies will provide high-quality instructional support to their students.

Lastly, teacher self-efficacy for student engagement and instruction may relate to students' observed engagement and emotional regulation. Previous theoretical and empirical research has indicated that student engagement is higher when teacher-student relationships are supportive, and has suggested that student engagement may be higher when students are exposed to challenging, high-level instruction (Downer, Sabol, & Hamre, 2010; Lee & Bierman, 2015; Pianta et al., 2002). Teachers who are highly efficacious about instruction and student engagement may engage in responsive teaching practices which are conducive to student engagement. Furthermore, research has indicated that young children's emotional competence can be influenced by instructional strategies such as emotional scaffolding (Denham, Bassett, & Zinsser, 2012). Teachers who are highly efficacious about instruction and student engagement may scaffold students' social and emotional regulation in such a manner as to promote students' greater emotional regulation.

Teacher self-efficacy for managing peer relations. Previous studies evidenced that peer relations are key to students' academic adjustment (Coolahan et al., 2000;

DeLay et al., 2016; Salminen et al., 2014). Ryan et al. (2015) found that teachers' self-efficacy for managing peer relations related to instructional support, such that teachers who were highly efficacious about facilitating student friendships and solving social problems were observed providing better instructional support for students. They posited that this was due to the social nature of the dimension of instructional support, which takes into account the instructional conversations occurring in the classroom. In preschool classrooms, I expect that this same pattern will emerge. Observations of teachers' management of peer relations has indicated that effective teachers give explicit instruction about peer relations by modeling appropriate interactions and scaffolding students' interaction skills such as resolving conflicts or initiating play (Salminen et al., 2014). Thus, when preschool teachers are highly efficacious about managing peer relations, they may be better at using effective instructional strategies to support students' social development.

Teacher self-efficacy for managing peer relations may also relate to classroom organization. Previous research on teacher-child interactions has related classroom organization to positive peer interactions and lower relational aggression in elementary school students (Luckner & Pianta, 2011). Luckner and Pianta (2011) posited that highly organized classrooms facilitate more positive peer interactions because effective time and behavior management offer more opportunities for students to practice peer interaction skills and allow further development of the self-regulation skills necessary for effective interactions. In preschool classrooms, teachers' management of peer behavior through proactive measures such as modeling appropriate interactions and scaffolding interaction skills has been related to greater student cooperation and collaboration (Salminen et al.,

2014). This association could be explained by Luckner and Pianta's (2011) hypothesis that positive peer interactions could result from increased opportunities for students to practice interactional skills. Preschool teachers' self-efficacy for managing peer relations could thus translate into higher classroom organization, such that teachers who feel highly efficacious about facilitating friendships and solving social problems would display greater use of time and behavior management in the service of students' social development.

Lastly, teachers' self-efficacy for managing peer relations may also be related to students' engagement and emotional regulation. Preschool peer relations have been related to students' readiness to learn (Coolahan, Fantuzzo, Mendez, & McDermott, 2000). Coolahan et al. (2000) found that preschoolers' peer competency related to learning and positive behaviors, such that positive play interactions were related to active engagement in classroom learning, attention, persistence, and positive attitudes toward learning; whereas negative or disconnected play interactions were related to inattention and lack of motivation. This suggests that peer relations may be critically intertwined with preschool students' engagement in learning behavior. Coolahan et al. (2000) proposed that this pattern was observed because positive peer interactions lead to a sense of belonging, which promotes the development of achievement motivation and thus leads to the learning behaviors essential to school success. It is thus possible that when teachers are highly efficacious about managing peer relations, that is, when they feel that they are able to facilitate positive peer interactions, students show higher levels of key learning behaviors like engagement and emotional regulation.

CHAPTER IV

RESULTS

Exploratory Factor Analysis

I conducted a factor analysis to evaluate the four hypothesized dimensions of teacher self-efficacy, which had not been previously used in preschool: classroom management, instructional strategies, student engagement, and managing peer relations. I used a principal axis factor analysis with varimax rotation to extract all factors with eigenvalues greater than 1. This procedure extracted three factors. After removal of low-loaded items, this three-factor structure persisted when the model was re-examined. Upon closer examination, I found that two theoretically distinct dimensions, self-efficacy for instructional strategies and for student engagement, were loaded together as a single dimension. I thus labeled this dimension as "instructional engagement," and revised the teacher self-efficacy scale accordingly. The final three factor model accounted for 71.33% of the variance (see Table 3). All items loaded above .50 on their primary factor.

Reliability Analysis

Reliability analyses indicated that the three dimensions of teacher self-efficacy had strong internal consistency (see Table 3). Cronbach's alpha for self-efficacy for classroom management was .89, for instruction/engagement was .89, for managing peer

relations was .86. I averaged the items within each of dimensions to create three dimensions of teacher self-efficacy with a possible range of 1 through 9.

Descriptive Statistics of the Teacher Self-Efficacy Scale

The means and correlations among three dimensions of teacher self-efficacy are included in Table 4. The three dimensions were strongly inter-correlated, indicating that teachers who were highly efficacious in one dimension were also likely to be highly efficacious in other two dimensions. For example, if a teacher rated themselves as highly efficacious for classroom management, they were also likely to rate themselves as highly efficacious for instruction/engagement and managing peer relations. The means across all three dimensions were 7.01-7.61 out of a possible 9 points, which shows that teachers generally felt efficacious about class management, organizing instruction in an engaging manner, and managing peer relations in their classroom.

I further examined the teacher self-efficacy scale by using ANOVA to compare the means for each dimension. Findings indicated that the means for the three dimensions were significantly different ($F(2, 144) = 4.14$, $p < .01$). In post-hoc pairwise comparisons with the Bonferonni correction to correct for multiple comparisons, we found that means for teacher self-efficacy for classroom management were significantly lower than the means for teacher self-efficacy for instructional engagement ($p < .01$).

Associations of Teacher Self-Efficacy with Teacher-Student Interactions

The means and correlations among teacher self-efficacy and teacher-student interactions are presented in Table 4. The three CLASS dimensions were moderately to strongly inter-correlated, indicating that teachers who were rated highly in one dimension

were also likely to be rated highly in the other dimension (r = .55 – .80, p <.01). ANOVA indicated that the means for emotional supports, classroom organization, and instructional supports were significantly different (F(2, 144) = 120.33, p =.000). In post-hoc pairwise comparisons with the Bonferonni correction to correct for multiple comparisons, I found that the means the means for instructional support were significantly lower than classroom organization (p <.01) and emotional support (p <.01)

Teacher self-efficacy for classroom management was moderately related to observed classroom emotional support (r = .29, p <.05) and observed classroom organization (r = .35, p <.05). This indicates that teachers who felt efficacious about managing behaviors within their classrooms provided higher level of emotional support and organized classroom better than teachers who were less efficacious about classroom management. Unlike findings of previous studies (Ryan et al., 2015), I did not find significant associations between teachers' self-efficacy for managing peer relations and the dimensions of teacher-student interactions (emotional support, classroom organization, and instructional support).

Associations of Teacher Self-Efficacy, Teacher-Student Interactions, and Student Outcomes

The means and correlations among teacher self-efficacy, teacher-student interaction, and student outcomes are presented in Table 5 and Figure 1. Association between variables were moderate in magnitude (.33 - .43, p <.05). Teacher self-efficacy for classroom management was positively related to student engagement (r=.41, p <.05), indicating that students in classroom where teachers were more efficacious about classroom management were highly engagement in academic work. Teacher self-efficacy

for instructional engagement was positively related to emotional regulation (r=.34, p <.05), indicating that students in classroom where teachers were more efficacious about engaging them in instructional activities displayed higher levels of emotional regulation.

Classroom emotional support was positively related to students' emotional regulation (r=.34, p <.05), indicating that students regulated their emotion better in classrooms where teacher provide higher level of emotional support. Classroom organization was positively related to student engagement, reading, and emotional regulation (r=.43, p <.05; r=.33, p <.05; r = .42, p <.05, respectively). This indicates that when teachers organize classroom in an effective manner, students are more engaged, better at reading, and regulate their emotion better. Classroom instructional support was positively related to students' interaction with peers (r=.40, p <.05) and student engagement (r=.43, p <.05). This indicates that when teachers are better at instructional support, students have more positive interactions with their peers and more engaged in academic work.

Mean Differences for Student Outcomes Between Classrooms with High and Low Teacher-Student Interaction and Teacher Self-Efficacy

To further understand the relationship between teachers' self-efficacy, teacher-student interaction, and student outcome, I created classroom profiles based on mean values of teachers' self-efficacy and teacher-student interaction (see Tables 7 and 8). For each of the three dimensions of teachers' self-efficacy and three dimensions of teacher-student interaction, we labeled classrooms as "high" when their scores were above the mean, and "low" when their scores were below the mean.

For teachers' self-efficacy for classroom management, the overall mean (standard

deviation) was 7.01 (1.08). The mean for "high" classrooms for teacher self-efficacy for classroom management was 7.86 (.46) and the mean for "low" classrooms was 6.13 (.79).

For teachers' self-efficacy for instructional engagement, the overall mean (standard deviation) was 7.61 (1.16). The mean for "high" classrooms for self-efficacy for instructional engagement was 8.35 (.41), while the mean for "low" classrooms was 6.76 (.76).

For teachers' self-efficacy for managing peer relations, the overall mean (standard deviation) was 7.38 (1.02). The mean for "high" classrooms for self-efficacy for managing peer relations was 8.32 (.59), while the mean for "low" classrooms was 6.68 (.54).

For classroom emotional support, the overall mean was 6.00 (.66). The mean for "high" classrooms for emotional support was 6.34 (.31), while the mean for "low" classrooms was 5.29 (.64).

For classroom organization, the overall mean was 5.72 (.77). The mean for "high" classrooms for organization was 6.21 (.34), while the mean for "low" classrooms was 5.00 (.63).

For classroom instructional support, the overall mean was 3.62 (1.01). The mean for "high" classrooms for instructional support was 4.47 (.58), while the mean for "low" classrooms was 2.74 (.44).

For teachers' self-efficacy for classroom management, there was a significant difference between high and low classrooms in student engagement (t [97] = -2.10, p <.05). Students were more engaged in classrooms where teachers were more efficacious about classroom management compared to students in classrooms where teachers were

less efficacious about classroom management.

For classroom emotional support, there was a significant difference between high and low classrooms for cognitive regulation (t [110] = -1. 98, p <.05). Students displayed greater cognitive regulation in classrooms with higher emotional support compared to students in classrooms with lower emotional support.

For classroom organization, there was a significant difference between high and low classrooms for teacher-student relationships (t [101] = -2.26, p <.05) and student engagement (t [88] = -3.32, p < .01). Students had warmer relationships with their teachers and displayed higher engagement in classroom activities in classrooms with higher classroom organization compared to students in classrooms with lower classroom organization.

Teacher-Student Interactions and Teacher Self-Efficacy Profiles as Predictors for Student Outcomes

As additional analyses, I used regression to examine whether students' membership in classrooms (i.e., high vs. low) predicted their academic and social adjustment outcome. I explored students' membership in classrooms for three teachers' self-efficacy and three teacher-student interaction profile as predictors (see Table 8). I tried each profile separately and included students' demographic information.

I found that students' previous language achievement positively predicted student engagement (β =.27, p <.05) and emotional regulation (β =.17, p <.05). I found that boys were less engaged in instructional activities (β =-.25, p <.01). Regarding membership in class profiles, I only found significant results for classroom organization. Belonging in "high" classroom organization positively predicted teacher-student relationships (β =.23,

p $< .05$) and student engagement ($\beta = .34$, $p < .01$). This indicates that in highly organized classrooms, students have a close, intimate relationship with their teachers and are highly engaged in instructional activities.

CHAPTER V

DISCUSSION

Early childhood has been characterized as a stage of life where children can make academic and social-emotional strides, which they can carry with them throughout their lifetimes. Recent research conducted with former CAP Tulsa Head Start students has indicated that effects of early childhood education can reach into the middle school years for at-risk students (Phillips et al., 2016). The potential long-term benefits of quality preschool education have motivated researchers to investigate areas of development for early childhood programs. Pianta (2003) described the average United States preschool classroom emerging from his research on teacher-child interactions. It is a place marked by:

> "instruction delivered in a whole-group setting, a positive social environment, and low levels of child productivity and engagement in academic activities. […] Despite being generally well-organized and busy places, classrooms appear low on intentionality,' a term that refers to directed, designed interactions between children and teachers in which teachers purposefully challenge, scaffold, and extend children's skills" (p.9)

Pianta's observation about the lack of instructional support in classrooms has been supported by many studies (Gest & Rodkin, 2011; Guo et al., 2014; Hamre, Pianta, Hatfield & Jamil, 2014) including the present one, where means are significantly lower

for instructional support than for the other two dimensions of teacher-child interactions, emotional support and classroom organization. These trends across preschool programs indicate a need to further examine the associations between teacher-child interactions, teacher characteristics and student outcomes in order to provide a body of evidence to inform teacher development. The present study provides an initial examination of these associations within a sample of preschool teachers and their students.

I found that the structure of preschool teachers' self-efficacy for teaching differs from that of elementary and middle school teachers. Preschool teachers' self-efficacy was best represented by three factors (classroom management, instructional engagement, and managing peer relations) whereas elementary and middle school teachers' self-efficacy had previously been represented by four factors (classroom management, instructional strategies, student engagement, managing peer relations; Ryan et al., 2015). This structural difference was not unexpected since preschool teachers' teaching tasks differ from those of elementary and middle school teachers. In the current sample, two of the four expected factors loaded together: teacher self-efficacy for instructional strategies and teacher self-efficacy for student engagement. It is possible that these areas overlapped for preschool teachers because preschool teacher development has been influenced by the National Association for the Education of Young Children's positions about developmentally appropriate practice, which emphasize the importance of engaging students throughout instruction (Copple & Bredekamp, 2009). Though developmentally appropriate practice is important for all ages and grades, it has been particularly emphasized by the National Association for the Education of Young Children (Bredekamp, 1997). It is therefore possible that the factor structure of teacher self-

efficacy for preschool teachers differed from that of elementary and middle school teachers due to a greater emphasis of preschool teacher development on engaging instruction.

I found that teacher self-efficacy dimensions were highly correlated with each other, and that teacher self-efficacy for classroom management was positively associated with the emotional support and classroom organization domains of teacher-student interaction. The correlations among the dimensions of teacher self-efficacy are consistent with previous research (Ryan et al., 2015; Sezguin & Erdogan, 2015; Kim & Kim, 2010). These findings indicate that when teachers feel highly efficacious about one dimension of teaching, they are likely to feel highly efficacious about the others. The positive association between teacher self-efficacy for classroom management and the classroom emotional support and classroom organization dimensions of teacher-student interaction supports the hypothesis that teachers' self-efficacy translates to the quality of teacher-student interactions. The present study indicates that teachers' self-efficacy for classroom management is related to the level of organizational and emotional support they provide when interacting with their students. These findings are consistent with previous research relating teacher self-efficacy for classroom management to dimensions of teacher-child interactions in elementary and middle school students (Ryan et al., 2015). The positive associations between teachers' self-efficacy for classroom management and teacher-student interactions indicate that when teachers are efficacious about classroom management, they are able to organize their classroom more effectively and provide more responsive emotional support to their students.

Teacher self-efficacy for classroom management was significantly lower than

reported self-efficacy for instructional engagement or managing peer relations. This indicates that classroom management presents some challenges for preschool teachers. Research has indicated that classroom management is a complex meta-skill that integrates cognitive perceptions, self-regulation skills, and interpersonal relationships with students (Tal, 2010). Given the important associations of classroom management to organizational and emotional dynamics in the classroom, this seems like an important area for future preschool teacher development.

I found that teacher self-efficacy for class management was highly associated with student engagement. With supplemental analyses of t-tests with class profiles, we found further evidence that teacher self-efficacy for classroom management matters for student engagement. This is consistent with previous research relating preschoolers' engagement to their teachers' effectiveness in redirecting behavior and responsiveness to students' needs and interests (de Kruif et al., 2000; Downer, Sabol, & Hamre, 2010). These findings indicate that when teachers are efficacious about classroom management, they are able to create a responsive learning environment which facilitates student engagement.

Also, I found that teacher self-efficacy for instructional engagement was positively associated with students' emotional regulation. This indicates that when teachers are efficacious about engaging students and adapting instruction to their needs, they are teaching in such a manner as to lead to their students' greater emotional regulation. A previous study had indicated that young children's emotional competence could be influenced by instructional strategies such as emotional scaffolding or teacher modeling (Denham, Bassett, & Zinsser, 2012). It is possible that teachers who are

efficacious about instructional engagement use instructional strategies such as scaffolding or modeling in the service of social-emotional learning, thereby leading to their students' greater emotional regulation.

I found that the classroom emotional support dimension of teacher-student interactions was positively associated with emotional regulation. This indicates that when teachers were more emotionally responsive to their students, students showed higher emotional regulation. Research has related preschoolers' emotional regulation to attachment security (Vondra, Shaw, Swearingen, Cohen & Owens, 2001). It is possible that when teachers are more emotionally supportive, students develop more secure attachments to their teachers, thereby leading to greater emotional regulation. More secure attachments could explain previous findings relating the dimension of emotional support to greater teacher closeness (Madill, Gest & Rodkin, 2014). It is possible that students in emotionally supportive classrooms develop greater emotional regulation through stronger and more stable relationships with their teachers.

I found that the classroom organization domain of teacher-student interactions is positively associated with students' engagement, reading, and emotional regulation. This is consistent with previous research relating preschool classroom management to higher engagement (de Kruif et al., 2000), gains in literacy skills (Dobbs-Oates et al., 2011), and gains in social-emotional skills (Sperry, 1999). A previous study by Hamre, Pianta, Hatfield and Jamil (2014) found that greater classroom organization predicted students' gains in inhibitory control and working memory. The association of classroom organization to student outcomes affecting both academic and behavioral outcomes may be due to these increases in students' regulation and memory.

I found that the classroom instructional support domain of teacher-student interactions is positively associated with students' interaction with peers and with students' engagement. Teachers who provide high quality instructional support to their students encourage high-level analysis, reasoning, and creativity. Previous findings about instructional support suggested that this dimension was related to academic outcomes in mathematics, language and literacy (Mashburn et al., 2008). My findings indicate that the instructional support provided by a teacher may also be associated with social and emotional variables. In the present sample, students' engagement was positively related to instructional support, which is consistent with previous theoretical and empirical research indicating that student engagement is higher when students are exposed to challenging, high-level instruction (Downer, Sabol, & Hamre, 2010; Lee & Bierman, 2015; Pianta et al., 2002). Students also interacted more positively with their peers in instructionally supportive classrooms. It is possible that instructionally supportive teachers use instructional methods to support students' peer relations, as previous research has indicated that students' peer relations can be influenced by explicit instruction such as modeling appropriate interactions and scaffolding students' interaction skills (Salminen et al., 2014).

The present study contributed to research on preschool teacher-child interactions by examining their associations with student outcomes. I sought to fill gaps in previous research by relating specific dimensions of teacher self-efficacy to student outcomes. The most salient finding was the importance of preschool teachers' self-efficacy for classroom management to a wide array of outcomes ranging from domains of teacher-student interactions to students' academic and social development. Since my results

suggest that teachers generally feel less efficacious about classroom management compared to instructional engagement, this research highlights an avenue for future preschool teacher development.

However, several limitations must also be acknowledged. First, the sample size was limited to 49 lead teachers, which limited the breadth of statistical analyses possible on my dataset. Moreover, the teachers were recruited within a single small urban school district. Future research exploring preschool teachers' self-efficacy should investigate whether similar patterns emerge from a larger, more geographically diverse sample of teachers. This would allow greater representativeness for our findings and expand the breadth of statistical analyses which could be run on this data. Second, this study focused on a sample of Head Start teachers. Future research should examine the variability of teachers' self-efficacy between preschool programs as well as between preschool and other grade levels. Third, the present study was cross-sectional. Longitudinal research could provide more dynamic insight into how teacher self-efficacy, teacher-student interactions, and student outcomes interact and evolve over time.

Despite these limitations, the present research contributes to the literature on teachers' self-efficacy by providing preliminary findings on the relationship between preschool teachers' self-efficacy, their interactions with their students, and their students' academic and social development.

CONCLUSION

Taken together, theory and research create a framework from which to approach the associations between specific dimensions of teachers' self-efficacy, domains of teacher-student interactions and student outcomes. My findings contribute to a clearer

understanding of how these variables impact each other in preschool classrooms. This helps to build knowledge about how teachers' self-efficacy is linked to effective practices and to student outcomes. More specifically, my findings contribute to a greater understanding of how each specific dimension of teacher self-efficacy is related to teacher-student interactions and student outcomes. This contributes to growing knowledge about how teachers' perceptions of their capability affect their work. In the future, this knowledge can be used to create professional development specifically targeting teachers' self-efficacy and their interactions with their students (Althauser, 2015; Pianta, Mashburn, Downer, Hamre, & Justice, 2008; Powell-Moman & Brown-Schild, 2011; Sandholz and Ringstaff, 2014).

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TABLES

Table 1

Teacher Characteristics

Experience	
Range	0-33 years
% 0-2 years	27.1
% 3-5 years	22.4
% 6-10 years	24.4
% 11-20 years	16.2
% 20+ years	9.9
Highest Level of Education	
% Bachelors	89.8
% Masters or above	10.2
Gender	
% Male	0
% Female	100
Ethnicity	
% European American	65.3
% Black/African American	12.2
% Native American	6.1
% Native Hawaiian/Pacific Islander	2.0
% Hispanic/Latino/Spanish	6.1
% Other	8.2

Table 2

Student Characteristics

Primary Language	
% English	50.0
% Spanish	47.6
% Other (Swahili, Burmese, Hmong)	2.4
Income	
% living at 0-100% of federal poverty line	73.8
% living at 101-130% of federal poverty line	9.7
% living at 131% or more of federal poverty line	16.5
Gender	
% Male	54.4
% Female	45.6
Ethnicity	
% Hispanic/Latino/Spanish	46.6
% European American	18.9
% Black/African American	18.4
% Multiracial/Biracial	8.3
% Other	6.9
% American Indian/Alaska Native	3.4
% Asian	1.9

Table 3

Factor Loadings for Teacher Self-efficacy Items (N = 49)

Items	Classroom management	Instruction/ engagement	Peer relations
How much can you do to control disruptive behavior in the classroom?	.83		
How much can you do to get children to follow classroom rules?	.63		
How much can you do to calm a student who is disruptive or noisy?	.79		
How well can you establish a classroom management system with each group of students?	.70	.54	
To what extent can you craft good questions for your students?	.62	.53	
How well can you implement a variety of assessment strategies (i.e. observations, checklists, etc)?		.69	
To what extent can you provide an alternative explanation or example when students are confused?		.73	
How much can you do to motivate students who show low interest in school work?		.50	
How much can you do to get students to believe they can do well in school work?		.80	
How much can you do to help your students value learning?		.73	
How much can you do to help a student make friends at school?			.84
How much can you do to help students work out a problem or disagreement in your classroom?			.69
How much can you to establish positive relationships among students in your classroom?			.73
To what extent can you get students to cooperate with each other on work in your classroom?			.81
Eigenvalue	7.43	1.40	1.15
Percentage of variance explained	53.08%	10.01%	8.24%
Chronbach's alpha	.89	.89	.86

Note. Principal factor analysis with Varimax rotation. All factor loadings ≥ .49 are shown.

Table 4

Correlations and Summary Statistics of Main Variables for Lead Teachers (Self-Report) (N=49).

	1	2	3	4	5	6
1. Teacher self-efficacy for classroom management						
2. Teacher self-efficacy for instruction/engagement	.73**					
3. Teacher self-efficacy for peer relations	.63**	.62**				
4. Classroom emotional supports	.29*	.13	.21			
5. Classroom organization	.35*	.23	.20	.80**		
6. Classroom instructional supports	.17	.02	.01	.55**	.58**	
α	.89	.89	.86	.83	.87	.92
Mean	7.01	7.61	7.38	6.00	5.72	3.62
Standard deviation	1.08	1.16	1.02	.66	.77	1.01
Possible range	1-9	1-9	1-9	1-7	1-7	1-7
Observed range	4.25-9.00	5.17-9.00	5.00-9.00	3.63-7.00	3.00-7.00	2.08-5.58

Note: * p < .05, ** p < .01

Table 5

Correlations and Descriptive Statistics for Teacher Beliefs, Classroom Quality, and Average Student Outcome by Classroom (N=49)

	Teacher self-efficacy for classroom management	Teacher self-efficacy for instruction/engagement	Teacher self-efficacy for peer relations	Classroom emotional supports	Classroom organization	Classroom instructional supports
Teacher-student relationship	-.18	-.11	-.08	.34	.28	.11
Interaction with peers	.19	-.01	.17	.25	.19	**.40***
Student engagement	**.41***	.15	.30	.24	**.43***	**.43***
Reading	.31	.10	.19	.26	**.33***	.04
Math	.21	.17	.08	-.01	.08	-.04
Cognitive regulation	.06	.06	.13	.10	.20	-.03
Emotional regulation	.25	**.34***	.28	**.34***	**.42***	.12
α	.87	.76	.86	.83	.87	.92
M	7.01	7.61	7.38	6.00	5.72	3.62
SD	1.08	1.16	1.02	.66	.77	1.01

Note: * p < .05, ** p < .01

Table 6

Means for Student Outcomes According to Teacher Self-Efficacy (N = 212)

	Self-efficacy for classroom management			Self-efficacy for instruction/engagement			Self-efficacy for peer relations		
	Low	High	t-test	Low	High	t-test	Low	High	t-test
Teacher-student relationship	2.78	2.87	-.58	2.78	2.88	-.57	2.80	2.88	-.47
Interaction with peers	2.15	2.27	-.94	2.23	2.18	.43	2.23	2.16	.47
Student engagement	4.18	4.49	**-2.10***	4.23	4.44	-1.33	4.25	4.48	-1.52
Reading	110.81	101.51	.75	110.56	101.81	.70	109.55	101.14	.82
Mathematical problem-solving	100.26	99.75	.24	99.75	100.29	-.25	100.84	98.66	1.00
Cognitive regulation	139.03	154.86	-.76	139.11	154.78	-.75	137.48	160.98	-1.02
Emotional regulation	381.95	346.95	.53	397.93	334.84	.95	387.41	326.10	.93

Note: * $p < .05$, ** $p < .01$

Table 7

Means for Student Outcomes According to Teacher-Student Interaction Profiles (N = 212)

	Emotional supports			Classroom organization			Instructional supports		
	Low	High	t-test	Low	High	t-test	Low	High	t-test
Teacher-student relationship	2.77	2.86	-.50	2.62	2.98	**-2.26***	2.82	2.83	-.06
Interaction with peers	2.05	2.29	-1.74	2.13	2.26	-.93	2.09	2.30	-1.61
Student engagement	4.17	4.41	-1.57	4.04	4.53	**-3.32****	4.21	4.44	-1.49
Reading	100.00	108.99	-.99	99.13	110.50	-1.14	99.93	111.82	-1.02
Mathematical problem-solving	101.11	99.46	.71	100.00	99.96	.02	100.47	99.53	.45
Cognitive regulation	126.18	156.06	**-1.98***	139.71	151.22	-.55	142.44	150.97	-.41
Emotional regulation	351.53	367.77	-.23	420.07	328.57	1.32	419.27	311.47	1.65

*p < 0.05, **p < 0.01

Table 8

Classroom Organization Profile as a Predictor of Student Outcomes; Regression Analysis (N = 212)

	Teacher-student relationships β	Interaction with peers B	Student engagement β	Reading β	Math B	Cognitive regulation β	Emotional regulation β
Primary language	-.17	.02	.27**	.08	-.09	-.03	.17*
Ethnicity	.03	.14	.02	-.05	-.01	-.02	-.02
Gender	.01	-.08	-.25**	-.12	-.12	.12	-.08
Income	.04	.08	-.02	-.07	-.03	-.09	.09
Classroom organization profile	.23*	.11	.34**	.08	-.00	.04	-.10
R^2	.07	.05	.24	.03	.02	.03	.06

Note: * p < .05, ** p < .01

APPENDICES

Appendix 1

Dimensions and Sample Items for Teacher Self-Efficacy Measures

Gibson & Dembo (1984)	*Teaching efficacy*	A teacher is very limited in what he/she can achieve because a student's home environment is a large influence on his/her achievement. The amount that a student can learn is primarily related to family background.
	Personal teaching efficacy	When the grades of my students improve it is usually because I found more effective teaching approaches. If a student in my class becomes disruptive and noisy, I feel assured that I know some techniques to redirect him quickly.
Bandura (undated)	*Efficacy to influence decision making*	How much can you influence the decisions that are made in the school? How much can you express you views freely on important school matters?
	Efficacy to influence school resources	How much can you do to get the instructional materials and equipment you need?
	Efficacy to enlist parental involvement	How much can you do to get parents to become involved in school activities? How much can you assist parents in helping their children do well in school?

Bandura (continued)	*Efficacy to enlist community involvement*	How much can you do to get community groups involved in working with the schools?
	Efficacy to create a positive school environment	How much can you do to make students enjoy coming to school? How much can you help other teachers with their teaching skills?
	Instructional self-efficacy	How much can you do to get through to the most difficult students? How much can you do to promote learning when there is a lack of support from the home?
	Disciplinary self-efficacy	How much can you do to get children to follow classroom rules? How much can you do to control disruptive behavior in the classroom?
Tschannen-Moran & Hoy (2001)	*Self-efficacy for classroom management*	How much can you do to control disruptive behavior in the classroom? How much can you do to get children to follow classroom rules?
	Self-efficacy for student engagement	How much can you do to motivate students who show low interest in school work? How much can you do to help your students value learning?
	Self-efficacy for instructional strategies	To what extent can you craft good questions for your students? How much can you use a variety of assessment strategies?
Ryan et al. (2015)	*Self-efficacy for classroom management*	From Tschannen-Moran & Hoy (2001)
	Self-efficacy for student engagement	From Tschannen-Moran & Hoy (2001)
	Self-efficacy for instructional strategies	From Tschannen-Moran & Hoy (2001)
	Self-efficacy for managing	How much can you do to help a

peer relations	student make friends at school? How much can you do to establish positive relationships among students in your classroom?

Appendix 2

Dimensions and Indicators for the Classroom Assessment Scoring System – Pre-K (La Paro & Pianta, 2003)

Emotional support	Positive climate	Relationships Positive affect Positive communications Respect
	Negative climate	Punitiveness Negative affect Sarcasm/disrespect
	Teacher sensitivity	Awareness Responsiveness Action to address problems Student comfort
	Regard for student perspectives	Flexibility Autonomy Student expression
Classroom organization	Behavior management	Clear expectations Proactiveness Effective redirection
	Productivity	Maximized time use Efficient routines and transitions
	Instructional learning formats	Variety Promotion of student interests Clarity Engaging approach
Instructional support	Concept development	Analysis/reasoning Creativity Integration
	Quality of feedback	Feedback loops Encouragement of responses Expansion of performance
	Language modeling	Conversation Open-endedness Repetition/extension Advanced language

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