

CLASSROOM MANAGEMENT FOR RURAL STUDENTS WITH OR AT RISK FOR
EMOTIONAL AND BEHAVIORAL DISORDERS: A LONGITUDINAL STUDY
ACROSS EARLY ELEMENTARY SCHOOL

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ABSTRACT

Justin David Garwood: Classroom Management for Rural Students with or at Risk for Emotional and Behavioral Disorders: A Longitudinal Study across Early Elementary School
(Under the direction of Lynne Vernon-Feagans)

Besides their homes, children spend more time in classrooms than any other place. Especially in rural areas, the classroom may be one of the most important settings for children's emotional, behavioral, and cognitive development. Considering the strong push for inclusion and the under-identification of students with or at risk for emotional and behavioral disorders (EBD), general education classrooms are likely to include students who experience significant emotional and behavior problems that challenge teachers' management skills and adversely affect academic achievement. Teachers and administrators across rural America have called out for professional development related to EBD and classroom management; yet, no study in the literature has investigated the quality of classroom management taking place in rural elementary schools to assess potential associations with the reading achievement and behavior of students with or at risk for EBD. Data from this study were drawn from the Family Life Project, an epidemiological study of families in low-wealth, rural communities. With a sample of 235 children with or at risk for EBD who were followed from kindergarten through third grade, this study explored the cumulative effects of classroom management quality across the first four years in school on children's reading achievement and behavior in third grade. Results suggested students' self-reported engagement and disaffection in third grade was not related to the quality of classroom management they had experienced. However, hierarchical multiple

regressions and moderation analysis suggested that as the overall quality of classroom management improved, boys with or at risk for EBD scored significantly higher on a standardized test of reading comprehension in third grade, while girls appeared unaffected by the quality of classroom management. Implications for teachers and future directions in research are discussed.

For Ashley and our soon-to-arrive daughter. I wish you enough.

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TABLE OF CONTENTS

LIST OF TABLES	x
LIST OF FIGURES	xi
LIST OF ABBREVIATIONS.....	xii
CHAPTER 1: INTRODUCTION.....	1
Emotional and Behavioral Disorders	2
Reading Struggles	5
Classroom Quality in Elementary School.....	7
Poverty, Rurality, and EBD	8
Theoretical Framework.....	11
The Problem.....	13
Purpose of the Study	14
Research Questions.....	15
CHAPTER 2: REVIEW OF THE LITERATURE	17
Reading Achievement of Students with or at Risk for EBD	19
The Importance of Reading Comprehension and Vocabulary.....	21
Poverty, Risk, and Reading Achievement	22
Behavior of Students with or at Risk for EBD	24
Type of EBD.....	25
Demographic Differences among Students with EBD	27
Differences by Race.....	27

Differences by Gender	29
Classroom Management: An Overview and a Definition.....	32
Defining Classroom Management	34
Managing Students with or at Risk for EBD	35
Teacher Efficacy and Positive Behavior Supports.....	38
Classroom Quality and Associations with Student Outcomes.....	40
Measuring Classroom Quality	41
Observing Classroom Management Quality.....	44
Emotional Support	45
Classroom Organization.....	47
Summary.....	48
CHAPTER 3: METHODS.....	51
Sample.....	51
Measures	56
Behavior	56
Reading Achievement.....	57
Classroom Quality	58
Classroom Management.....	60
Covariates	61
Sample Comparison.....	64
Analytic Plan.....	65
CHAPTER 4: RESULTS.....	70
Descriptive Results	70

Hierarchical Regression Results	72
CHAPTER 5: DISCUSSION.....	77
Overview of the Findings and Implications.....	78
Classroom Management Quality for Students with or at Risk for EBD.....	78
Reading Achievement for Students with or at Risk for EBD	79
Self-Reported Behavior of Students with or at Risk for EBD	84
Implications for Teachers and Teacher Education.....	88
Limitations	89
Conclusion.....	90
APPENDIX A: STRENGTHS AND DIFFICULTIES QUESTIONNAIRE	111
APPENDIX B: SARAC SCALE	112
APPENDIX C: CLASSROOM ASSESSMENT SCORING SYSTEM.....	113
APPENDIX D: SOCIAL COMPETENCE SCALE.....	115
REFERENCES	116

LIST OF TABLES

Table 1 - FLP Recruitment Summary in North Carolina and Pennsylvania.....	93
Table 2 - Child Demographics and Outcomes.....	94
Table 3 - Cut Scores for the SDQ and Demographics for EBD.....	95
Table 4 - Significant Differences between the Current Sample and FLP Sample.....	96
Table 5 - Teacher Demographics.....	97
Table 6 - Dosage of Classroom Management and Classroom Instruction Quality.....	98
Table 7 - Correlation Matrix.....	99
Table 8 - Demographic and Descriptive Statistics for Boys and Girls.....	100
Table 9 - Hierarchical Regression Results for Passage Comprehension.....	101
Table 10 - Hierarchical Regression Results for Picture Vocabulary.....	102
Table 11 - Hierarchical Regression Results for Engagement.....	103
Table 12 - Hierarchical Regression Results for Disaffection.....	104

LIST OF FIGURES

Figure 1 - Model of K-3 Classroom Management Related to Reading Achievement in Third Grade	105
Figure 2 - Model of K-3 Classroom Management Related to Behavior in Third Grade	106
Figure 3 - Model of Moderation in Reading Achievement.....	107
Figure 4 - Model of Moderation in Behavior.....	108
Figure 5 - Moderation by Child Gender in Reading Comprehension.....	109
Figure 6 - Interaction by Child Gender in Vocabulary.....	110

LIST OF ABBREVIATIONS

EBD	Emotional and Behavioral Disorders
IEP	Individualized Education Plan
FLP	Family Life Project

Chapter 1

Introduction

Emotional and behavioral problems on the part of young children often occur in tandem with reading or language struggles (Benner, Nelson, & Epstein, 2002; Greene, 2008; Nelson, Benner, & Boharty, 2014). Reading is considered the gateway to successful school learning (Guthrie & Wigfield, 2000); thus, the combination of behavioral problems and poor reading outcomes puts children at risk for poor academic trajectories throughout their schooling. The direction of the relationship between reading struggles and behavior problems has been investigated for decades. While some have found reading struggles provide the antecedent to behavior problems (Walker, Colvin, & Ramsey, 1995), others have suggested students' disruptive behaviors results in their reading difficulties (Gunter & Denny, 1998). Answers to the exact nature of the association remain elusive (Ackerman, Izard, Kobak, Brown, & Smith, 2007; Gunter, Coutinho, & Cade, 2002; Hinshaw, 1992); however, a two-way relationship likely exists (Trout, Nordness, Pierce, & Epstein, 2003). For example, reading problems in first grade have been shown to significantly predict problem behaviors in third grade, but these same results also showed problem behaviors and off-task behaviors in first grade predicted reading struggles in third grade (Morgan, Farkas, Tufis, & Sperling, 2008).

Regardless of directionality, reading difficulties and behavior problems in early elementary school appear to be risk factors for one another. One group of students who struggle with school in general, and reading in particular, are those with or at risk for emotional and

behavioral disorders (EBD; Walker, Ramsey, & Gresham, 2004). In an effort to diminish the negative relationship between EBD and reading achievement, teachers may need to display exceptional classroom management to keep students on task and involved. The most recent special issue of the *Journal of Emotional and Behavioral Disorders* (JEBD; Farmer, Reinke, & Brooks, 2014) highlighted the importance of classroom management for teachers working with students with or at risk for EBD. At-risk students were emphasized, as prevalence rates suggest more than one-third of students may exhibit an EBD at some time in their schooling, but less than 1% of the school population receives special education services for EBD (Forness, Freeman, Paparella, Kauffman, & Walker, 2012).

Emotional and Behavioral Disorders

Children with or at risk for EBD demonstrate externalizing behaviors (e.g., aggression, noncompliance; Wagner & Davis, 2006) and/or internalizing behaviors (e.g., depression, anxiety; Morris, Shaw, & Morris, 2002) and often display a lack of engagement in school and rate higher on feelings of disaffection than other students, which may adversely affect their academic achievement (Walker et al., 2004). Although the majority of students with or at risk for EBD are boys who exhibit externalizing behaviors (Young, Sabbath, Young, Reiser, & Richardson, 2010), girls constitute approximately 20% of students with EBD and are underrepresented in educational research (Gage, Josephs, & Lunde, 2012). The label of EBD is not a clinical diagnosis, nor is it technically a classification qualifying students for special education services; rather, it is a description of a range of behaviors exhibited by students who may or may not receive special education based on their behavioral and academic needs. When students with EBD are identified for special education services, it is most often under the label of Emotional Disturbance (ED; Siperstein, Wiley, & Forness, 2011).

In order for students to receive special education services for ED, they must exhibit one or more of the following characteristics: (a) learning struggles that cannot be otherwise explained by intellectual, sensory, or health factors, (b) difficulties forming relationships with peers or teachers, (c) inappropriate behaviors or feelings, (d) moods of unhappiness or depression, or (e) the manifestation of physical symptoms or fears related to personal or school problems (Individuals with Disabilities Education Improvement Act [IDEA], 2004). Explicit in IDEA is the stipulation that the students' behavior must be exhibited over a long period of time and it must have an adverse effect on educational performance. Researchers and practitioners working with students with emotional and behavior disorders often prefer the label *EBD* to that of *ED*, feeling the former term more accurately describes the specific group of children and is somewhat less stigmatizing (Kauffman & Badar, 2013). Unfortunately, the inconsistency in language and labels has resulted in confusion in the literature regarding exactly who are the students with EBD. I use the term *with EBD* to refer to students in special education for ED, and the term *at risk for EBD* to describe students who are exhibiting emotional and behavioral problems, but are (a) not receiving services in special education, or (b) receiving services in special education under a label other than ED. It should be noted that the line between who does and does not receive special education services related to EBD is somewhat arbitrary and debate has ensued for decades about the under-identification of these students for special education (Edgar & Hayden, 1984; Kauffman & Badar, 2013).

The identification rate of students with EBD (i.e., those who receive special education services under the category of ED) is less than 1% of the school-age population (U.S. Department of Education, 2007), but this number drastically underestimates the prevalence of EBD. Forness, Kim, and Walker (2012) provided two different types of estimates to depict a

more accurate picture of prevalence rates for EBD. Point prevalence (PP) indicates the percentage of all school-aged students exhibiting EBD at one particular time. Cumulative prevalence (CP), which may be more accurate than PP because it accounts for fluctuation in the expression of EBD across time, indicates the percentage of students who would meet the criteria for EBD at any point in their schooling. Conservative estimates suggest PP at approximately 12% and CP at approximately 37% (Forness, Freeman, et al., 2012; Forness, Kim, et al., 2012).

Despite estimates suggesting more than one-third of students are known to exhibit signs of EBD at some point in their education, the majority of students with or at risk for EBD are in general education classrooms with teachers who may not always be able to address their behavioral and academic needs (Farley, Torres, Wailehua, & Cook, 2012; Scott, Park, Swain-Bradway, & Landers, 2007). Further complicating the issue of identifying and supporting students with or at risk for EBD is evidence suggesting girls, who are more likely than boys to manifest internalizing behaviors, are especially under-identified among the EBD population (Coutinho, Oswald, Best, & Forness, 2002; Gage et al., 2012). Teachers, who are often called upon to identify students with EBD through the use of behavioral screening instruments, tend to focus much more on the externalizing behaviors that disrupt the classroom and are far more common in boys than girls (Harrison, Vannest, Davis, & Reynolds, 2012).

The under-identification of students at risk for EBD is concerning, particularly because of the negative effects of behavior problems on academic and overall life outcomes. Left unattended, the combined effects of reading and behavioral struggles increase the chances of school dropout (Wanzek, Wexler, Vaughn, & Ciullo, 2010) and diminish the chances of a successful transition to life after formal schooling (Lane, Carter, Pierson, & Glaeser, 2006). For instance, nearly half of all students with a disability in juvenile corrections institutions are

identified with EBD (Quinn, Rutherford, Leone, Osher, & Poirier, 2005) and when compared to all other students served in special education, those who received services for EBD have the highest rate of criminal arrest in adulthood (49.4%; Sanford et al., 2011). Therefore, identifying students with or at risk for EBD early in their school careers and targeting their reading and behavioral struggles is critical to preventing such negative outcomes.

Reading Struggles

Students with or at risk for EBD in elementary school experience significant underachievement in reading and are often one or more grade levels behind their peers in reading proficiency (Reid, Gonzalez, Nordness, Trout, & Epstein, 2004; Rivera, Al Otaiba, & Koorland, 2006; Vannest, Temple-Harvey, & Mason, 2009). By age 17, students with EBD have reading comprehension abilities on par with a fifth-grader (Wei, Blackorby, & Schiler, 2011), underscoring the importance of early intervention with evidence-based practices. However, while most elementary students who struggle with reading respond positively to early intervention (Torgesen, 2000), the majority of students with or at risk for EBD do not (Benner, Nelson, Ralston, & Mooney, 2010). The pattern of unresponsiveness is often the result of combative behaviors and conflicts with teachers (Al Otaiba, 2001; Al Otaiba & Fuchs, 2002; Benner et al., 2010; Nelson, Benner, & Gonzalez, 2003). A synthesis on the academic achievement of K-12 students with EBD spanning 40 years of research found 89% of the included students demonstrated underachievement in reading (Trout et al., 2003).

Students with EBD who struggle with reading are typically not identified for supplemental supports (i.e., special education) until approximately fourth grade (Kauffman & Landrum, 2009; Malmgrem & Meisel, 2002); unfortunately, this may be too late because high-stakes testing begins in third grade. Third grade marks an especially important milestone for

students' literacy development, as students begin shifting from a model of *learning to read* to one of *reading to learn* and those who struggle beyond this time are likely to experience difficulties with reading for the remainder of their lives (Alexander, Entwisle, & Kabbani, 2001; Rudasill, Gallagher, & White, 2010; Snow & Biancarosa, 2003; Torgesen & Burgess, 1998). Indeed, for students with EBD, research suggests their reading achievement does not significantly improve as they progress through school (Levy & Vaughn, 2002; Nelson, Benner, Lane, & Smith, 2004), leaving the onus on elementary school teachers to target students with or at risk for EBD as early as possible and ensure their meaningful participation in learning.

Upon school entry, students with EBD perform better in reading than students with learning disabilities; however, as time progresses, this trend is not maintained (Anderson, Kutash, & Duchnowski, 2001). Morgan et al. (2008) found a reciprocal relationship wherein reading struggles and behavior problems in early elementary school were significantly related to each other. Research has shown the reading struggles of students with or at risk for EBD worsen over time (Nelson et al., 2004); two reasons may explain this phenomenon. First, many students who struggle in reading often act out intentionally or disengage altogether in order to avoid academic tasks (Bennett, Brown, Boyle, Racine, & Offord, 2003; Miles & Stipek, 2006). Externalizing behaviors (e.g., disruptions, inattention) can lead teachers to rely on punitive classroom management practices in an attempt to control students (Freiberg, Huzinec, & Templeton, 2009; Sutherland, Denny, & Gunter, 2005; Wehby, Lane, & Falk, 2003), which can then result in less time engaged in learning (Oliver & Reschly, 2010). Second, researchers have found prolonged struggles with reading can also lead to internalizing disorders because students begin to attribute their struggles to their own failure as a student (Ackerman et al., 2007; Maughan, Rowe, Loeber, & Stouthamer-Loeber, 2003). Inefficient and reactive classroom

management practices on the part of general education teachers may hinder the academic success of those students with or at risk for EBD. Effective classroom management may be necessary to improve students' behavior to the point where they may successfully engage in learning and benefit from the teacher's instruction (Nelson et al., 2014).

Classroom Quality in Elementary School

Many children need high-quality emotional, instructional, and organizational supports from their teachers throughout the early elementary school years if they are to be successful (La Paro, Rimm-Kaufman, & Pianta, 2009). Research has shown the quality of these supports can predict rural children's academic trajectories in kindergarten and first grade (Curby, Rimm-Kaufman, & Ponitz, 2009). Unfortunately, the majority of classrooms in the United States are characterized by low-quality instructional supports (Pianta et al., 2007) that may leave students' learning potential untapped (Hagelskamp, Brackett, Rivers, & Salovey, 2013). Investigations of young children's academic trajectories suggest that while the research community has conducted many studies exploring associations between classroom experiences and child outcomes in any given school year, there has been a dearth of research exploring these associations longitudinally across the elementary years (Pianta, Belsky, Vandergrift, Houts, & Morrison, 2008).

Elementary teachers of students with or at risk for EBD may need to have exceptional classroom management skills to keep students engaged and discourage the disaffection for school and learning that many children with EBD develop at an early age. Unfortunately, teachers working with students with or at risk for EBD have reported a discomfort and uncertainty in their ability to help these children (Oliver & Reschly, 2010). Indeed, it has been documented that teachers of students with EBD spend less than one-third of the day on academic instruction (Wehby et al., 2003), instead having to focus on classroom management issues

whereby valuable instruction time is lost. The definition of classroom management has evolved in the past century from one of simple behavioral control to that of all teacher actions outside of direct instruction that set the stage for both academic and social-emotional learning to occur (Emmer & Sabornie, 2015; Evertson & Weinstein, 2006). Qualitative studies in first and third grade (Bogner, Raphael, & Pressley, 2002; Dolezal, Welsh, Pressley, & Vincent, 2003) have pointed towards a positive relationship between teachers' establishing a warm and organized classroom climate and children's engagement in learning. Students with or at risk for EBD are especially sensitive to the quality of teachers' classroom management because of their unique emotional and behavioral needs (Buyse, Verschueren, Doumen, Van Damme, & Maes, 2008; Reinke et al., 2014). Intervention in the early elementary years may help ameliorate the high rates of dropout and deter the often negative post-secondary outcomes for students with EBD. (Lund, 2014; Sanford et al., 2011; Wills, Kamps, Abbott, Bannister, & Kauffman, 2010).

Poverty, Rurality, and EBD

Forty-three percent of school districts in the United States are in rural areas where over 50% of the children (compared to 37% in urban areas) live below 200% of the federal poverty line (Johnson & Strange, 2007; Vernon-Feagans, Gallagher, & Kainz, 2010). Per pupil expenditure is approximately 25% lower in rural areas when compared to urban centers; yet, 27% of children in rural school districts are eligible for free and/or reduced lunch, compared to just 18% in urban areas (Rural School and Community Trust, 2005). Children living in rural areas are exposed to a multitude of unique risks, such as deep poverty, stigma associated with emotional and behavioral problems, and a lack of access to mental health services (Blair et al., 2008; Burchinal, Willoughby, & the Family Life Project [FLP] Key Investigators, 2013; Heflinger, Wallston, Mukolo, & Brannan, 2014; Vernon-Feagans et al., 2010; Walrath et al.,

2003). Due to a lack of resources in schools and in homes, children from low-income families and communities are also at risk for EBD and struggles in reading achievement (D'Agostino & Murphy, 2004; Lacour & Tissington, 2011; Lee & Burkham, 2002; Offord, Boyle, & Racine, 1991; Rimm-Kaufman & Chiu, 2007; Rouse, Brooks-Gunn, & McLanahan, 2005; Snow, Burns, & Griffin, 1998; Vernon-Feagans, Kainz, Hedrick, Ginsberg, & Amendum, 2013).

When children are exposed to prolonged poverty at an early age, there is a negative effect on their cognitive and social development (Kainz, Willoughby, Vernon-Feagans, Burchinal, & FLP Key Investigators, 2012). As students grow older, longer time living in poverty magnifies the negative effects on healthy development and results in poor and non-poor children setting apart on what have been referred to as “diverging destinies” (McLanahan, 2004), whereby children from low-income families fall further behind their more affluent peers in educational attainment and overall quality of life. Of the 200 most economically depressed counties in the United States, more than 95% are located in rural areas (Save the Children, 2002). Children in rural areas, constituting approximately 20% of all public school students, experience deeper levels of poverty than their urban counterparts; yet, despite evidence that suggests this gap is increasing (Strange, Johnson, Showalter, & Klein, 2012), researchers and policymakers continue to emphasize urban areas in school-based studies (Arnold, Newman, Gaddy, & Dean 2005). O'Hare (2009) referred to rural children as the “forgotten fifth”, due to this lack of attention.

The lack of focus on rural areas in policy and research is unfortunate, as 64% of rural students scored at or below the basic level on the reading assessment of the most recent National Assessment of Education Progress (NAEP; 2013) and maladaptive student behaviors are just as much of a concern in rural schools as they are in urban and suburban areas (Schroth, Pankake, & Fullwood, 2003). While urban schools have reported higher rates of externalizing behaviors

among students (Sherman, 1992; Thomas & Bierman, 2006), internalizing behaviors have been found to be more prevalent in rural students (Hope & Bierman, 1998) and mental health services are less available in rural locales (Walrath et al., 2003). Furthermore, using a sample of 6,550 children from the Early Childhood Longitudinal Study-Birth cohort, researchers found that more than their urban or suburban counterparts, rural parents felt their children were entering kindergarten without proper behavioral skills (Sheridan, Koziol Clarke, Rispoli, & Coutts, 2014).

Comparatively little research has focused on students with or at risk for EBD in low-income rural areas. In one study with a diverse sample, prolonged exposure to poverty had a negative association with the development of executive functioning (e.g., attention, memory, inhibitory control) in rural four-year-old African American and Caucasian children (Raver, Blair, Willoughby, & FLP Key Investigators, 2013). A few studies have focused on the validation of behavioral screening instruments across various grade levels with mostly Caucasian students in rural schools (e.g., King, Reschly, & Appleton, 2012; Lane, Parks, Kalberg, & Carter, 2007; Lane et al., 2011, 2012), while others have investigated the school adjustment of rural adolescents with or at risk for EBD (e.g., Farmer et al., 2005, 2010, 2011).

One particular study to note compared the academic, social, and behavioral profiles of students at risk for EBD in rural and suburban elementary schools (Lane, Little, Menzies, Lambert, & Wehby, 2010). Results from a sample of 134 children (94% Caucasian) suggested although no significant differences existed between the two groups in academics or behavior, for both groups of students reading performance and academic engagement decreased from kindergarten through second grade and disruptive behaviors increased. Despite the racially homogenous sample, the study was important because it documented the negative academic and behavioral trajectories of students at risk for EBD from kindergarten through second grade in

rural schools are as much of a concern as they are in suburban areas. Furthermore, evidence suggests that for all students, the negative effects of economic hardship on healthy child development are as serious in rural communities as they are in more urban centers (Blair et al., 2008). The quality of interactions between teachers and students may be more important to children in rural areas due to a lack of after-school programs, deeper levels of poverty, and irregular work hours that limit parent-child interactions (Vernon-Feagans et al., 2010).

Theoretical Framework

Empirical and theoretical work based on a transactional model of human development taking place in the classroom between students with or at risk for EBD and their teachers has gained attention in recent years (Sutherland & Oswald, 2005). In the transactional model of human development, children shape, and are shaped by, their environment (Sameroff & Mackenzie, 2003). For example, a child who is disruptive with the intention of avoiding academic work may cause a change in the environment whereby the teacher chooses to interact with him or her less frequently in the hopes of avoiding future combative exchanges. The student then receives instruction less often and likely of a lesser quality (Sutherland & Oswald, 2005). Together, students and teachers collectively bargain to shape the climate of the classroom and may enter into negative feedback loops where both sides struggle to have their needs satisfied (Sutherland, Lewis-Palmer, Stichter, & Morgan, 2008). Because students with or at risk for EBD are known to shift their teachers away from instruction (Nelson & Roberts, 2000), teachers may need to display exceptional classroom management in their exchanges with these students if they hope to improve their behavior and academic achievement.

In his Ecological Systems Theory, Bronfenbrenner (1976) suggested four distinct systems act on the developing child. First, the microsystem is the child's immediate setting (e.g., a

classroom, the home) where they participate and engage with others. Second, the mesosystem encompasses the connections between the child's microsystems. For instance, a child's experiences at home may relate to experiences in school such that children who are neglected by caregivers may struggle to form meaningful connections with teachers. Third, the exosystem represents the microsystems of which the child is not a member, but those that do have an indirect influence on the developing child (e.g., parent's work setting). Finally, the macrosystem encompasses the child's cultural contexts, such as socioeconomic status and race or ethnicity. Within an ecological approach to education, the student's habitat (i.e., the classroom), or microsystem, may be most important in emotional and behavioral development (Doyle, 2006).

When children misbehave or disengage in the classroom, they may have fewer positive interactions with the teacher, which may then impede their academic progress (Downer, Rimm-Kaufman, & Pianta, 2007). In the 1990s, Urie Bronfenbrenner identified *proximal processes* (e.g., personal interactions between children and adults) in the microsystem as the drivers of development (Tudge, Mokrova, Hatfield, & Karnik, 2009). If the classroom climate is not supportive of positive interactions between students and the teacher, it is likely to exacerbate, rather than remediate the problems of those students at risk for school failure. The dynamic interplay between the child's personal characteristics and the climate of the classroom may either promote or hinder development and these interactions become more influential over time (Bronfenbrenner & Morris, 2006), which may explain why students with or at risk for EBD remain stagnant or worsen in their academic achievement throughout their schooling.

From an ecological stance on classroom management, a lack of understanding in how to properly structure the classroom and interact with students can lead to a less positive climate where achievement suffers (Carter & Doyle, 2006). Particularly for students with or at risk for

EBD, teachers often struggle with effective classroom management skills that helps these students (Kostewicz, Ruhl, & Kubina, 2008; Sutherland & Wehby, 2001a). However, a warm and positive classroom climate has been suggested as a possible protective factor for students at risk for school failure because it is known to increase attentive and on-task behaviors (Good & Brophy, 2008). These classroom processes are especially important in elementary school as children set developmental trajectories for their academic and behavioral growth (Alexander et al., 2001; O'Connor, Dearing, & Collins, 2011).

Bronfenbrenner also developed the Process-Person-Context-Time (PPCT) theory within the Bioecological Model of Human Development (Bronfenbrenner & Morris, 2006). *Process* represents the reciprocal interactions between children and the other people in their immediate environment, or, their microsystem. *Person* constitutes the child's individual characteristics (e.g., gender, race, temperament). *Context* is represented by the different microsystems exerting an influence over the child, such as the classroom environment or their home. *Time* suggests developmental changes throughout the child's life coincide with progressive changes in each contextual level. Use of the PPCT model requires an emphasis on proximal processes by examining the interaction between personal characteristics and the many contexts in which the child is developing over time. Although many studies have investigated children's behavior through an ecological lens, much of this work has not aligned with the PPCT model (Tudge et al., 2009). Few have considered the important variable of time and none have measured classroom management quality in consecutive years for rural students with or at risk for EBD.

The Problem

The vast majority of students at risk for EBD are educated in the general education classroom until at least fourth grade (Wagner, 2014). While high-quality instruction is critically

important to the academic success of students with or at risk for EBD (Kauffman & Badar, 2014), classroom management may be an equally important skillset teachers need in order to be successful with these students (Buyse et al., 2008; Reinke et al., 2014; Simonsen, Myers, & DeLuca, 2010). Teachers in rural areas have expressed the need for more professional development in the areas of classroom management and working with students with or at risk for EBD (Berry, Petrin, Gravelle, & Farmer, 2011). Unfortunately, a void exists in the research literature focused on classroom management of students with or at risk for EBD in more rural communities. Although there are no empirical studies in the literature, it seems important to examine whether high-quality classroom management across early elementary school might be related to better academic and behavioral outcomes in later elementary years for students with or at risk for EBD.

Purpose of the Study

Farmer et al. (2005) suggested it is equally important to focus on students at risk for EBD in addition to those already identified for special education in an effort to prevent harm and increase the chances of success for students with elevated levels of emotional and behavioral problems. The current study maintains such a focus and improves upon the literature in five important ways. The study is the first to report the classroom management quality experienced by rural students with or at risk for EBD across their first four years of formal schooling, thereby measuring one aspect of the microsystem of the classroom across time. Second, and unlike much of the research in rural settings that has included racially homogenous samples, the sample of this study is racially diverse. Third, there is an equal focus on outcomes for both boys and girls with or at risk for EBD. Fourth, the study is the first to explore associations between the sustained quality of classroom management in early elementary school and students' reading

achievement and behavior in upper elementary school. Finally, while most studies of students with or at risk for EBD have relied on convenience sampling techniques (Reid et al., 2004), the current study makes use of a large, epidemiological dataset with a diverse and representative sample of rural children (FLP; Vernon-Feagans, Cox, & FLP Key Investigators, 2013)

Research Questions

1. *In what ways does the dosage of classroom management quality experienced by students with or at risk for EBD from kindergarten through third grade relate to their scores in reading comprehension and vocabulary in third grade for children living in low-wealth rural communities?* The hypothesis is that the dosage of classroom management quality – defined as the proportion of high- versus low-quality classroom management – experienced across children’s first four years in school will have a significant and positive association with their reading achievement. That is, as the dosage of classroom management quality increases, reading achievement will also increase.

2. *In what ways does the dosage of classroom management quality experienced by students with or at risk for EBD from kindergarten through third grade relate to their engagement and disaffection in third grade for children living in low-wealth rural communities?* The hypothesis is that the dosage of classroom management quality – defined as the proportion of high- versus low-quality classroom management – experienced across children’s first four years in school will have a significant and positive association with their engagement, as well as a significant and negative association with their disaffection. That is, as the dosage of classroom management quality increases, engagement will increase and disaffection will decrease.

3. *For students with or at risk for EBD living in low-wealth rural communities, in what ways are the aforementioned associations between the dosage of classroom management quality*

and students' reading achievement and behavior moderated by race, gender, or type of EBD?

There is little empirical research related to classroom management quality and moderation effects with respect to reading achievement or behavior for students with or at risk for EBD. However, there is some support in the theoretical literature for five sub-questions. Boys are known to lag in their reading achievement when compared to girls, and African American boys have been specifically identified as demonstrating the most struggles in reading achievement, which may be linked to perceived maladaptive behaviors in the classroom (Borman et al., 2007; Entwisle, Alexander, & Olson, 2007; Lee, 2002; Vernon-Feagans, 1996). Furthermore, girls are more likely than boys to exhibit internalizing behaviors and may have unique needs different from boys (Kauffman & Landrum, 2012; Srsic & Rice, 2012).

Exploring moderation allows researchers to move beyond questions of whether or not a practice is effective, to for whom or in what context it is meaningful (Odom et al., 2005). Therefore, while no hypotheses are included, the following exploratory sub-questions are proposed: (a) *Is the association between classroom management quality and reading achievement, engagement, or disaffection moderated by race (African American vs. Caucasian)?* (b) *Is the association between classroom management quality and reading achievement, engagement, or disaffection moderated by type of EBD (externalizing vs. internalizing)?* (c) *Is the association between classroom management quality and reading achievement, engagement, or disaffection moderated by gender (girls vs. boys)?* (d) *Is the association between classroom management quality and reading achievement moderated by a combination of race and gender (e.g., African American boys vs. Caucasian girls)?* (e) *Is the association between classroom management quality and engagement or disaffection moderated by a combination of type of EBD and gender (e.g., externalizing boys vs. internalizing girls)?*

Chapter 2

Review of the Literature

From the time of school entry, academic and behavioral trajectories of children begin to develop patterns of success or failure in school. Once children reach third grade, their trajectories have been found to become relatively fixed and typically do not change significantly over time, especially for children who live in poverty or are at risk (Entwisle et al., 2007; Levy & Vaughn, 2002; Rudasill et al., 2010; Torgesen & Burgess, 1998). Understanding the qualities of early elementary classrooms that help to set trajectories is therefore quite important. Children experience a range of quality in classroom climates as they transition from one year to the next in early elementary school (Gazelle, 2006; La Paro et al., 2009; Pianta, Belsky et al., 2008). Unlike child-level characteristics, such as temperament, classroom management quality likely varies from year to year as students encounter new teachers. Effective classroom management early in children's schooling may help reduce problem behaviors and improve student achievement by creating more time for quality instruction and increasing students' engagement (Farley et al., 2012; Maldonado-Carreno & Votruba-Drzal, 2011; Witt, VanDerHyeden, & Gilertson, 2004).

For students with or at risk for EBD, the first few years of school are especially important, as research indicates their academic achievement diminishes when they are not behaviorally engaged and their reading development may also suffer (Lane, Barton-Arwood, Nelson, & Wehby, 2008; Nelson et al., 2004). Early intervention is crucial, as problem behaviors become more related to reading proficiency as students at risk for EBD progress

through school (Miles & Stipek, 2006). Geographic isolation and a lack of services make the challenge to meet the needs of children with or at risk for EBD especially problematic in rural schools (Murray, 2005). Unfortunately, we know comparatively little of the early classroom experiences of rural elementary students with or at risk for EBD.

Three significant and related gaps in the literature need to be addressed. First, the limited amount of research that has investigated potential associations between classroom management and the behavior or academic achievement of students with or at risk for EBD has typically not followed students across multiple years of their education. Recently, the call for longitudinal studies with students with or at risk for EBD has become louder (Madill, Gest, & Rodkin, 2014). Second, much of the educational research focused on the classroom conditions that promote prosocial behaviors and reading achievement has been conducted with mostly Caucasian children from middle-income families (Murray & Zvoch, 2011; Wentzel, 2006). The research that has been conducted with students from low-income or minority families has typically emphasized urban/suburban students, despite more than 25% of the nation's poor children living in rural areas (O'Hare, 2009; Vernon-Feagans et al., 2010). Finally, much of the research on students with or at risk for EBD has not given adequate attention to possible differences in achievement or behavior based on child race or gender, despite evidence suggesting select groups of students may have unique needs based on these demographics (Cullinan, Osborne, & Epstein, 2004; Srsic & Rice, 2012)

The purpose of the current study is to (a) investigate the classroom management quality experienced by rural students with or at risk for EBD from kindergarten through third grade and the associations with their reading achievement and behavior in third grade, and (b) differentiate outcomes based on child characteristics to provide a more nuanced picture of students with or at risk for EBD in rural elementary schools. In this dissertation, I include academic and behavioral

outcomes for students in third grade. Academic achievement is represented by students' standardized reading comprehension and vocabulary scores. Behavior is represented by students' self-reported feelings of engagement and disaffection. In the review of the literature that follows, I include a synthesis of several different areas of research, to include (a) a description of the reading achievement, behavior, and individual differences among students with or at risk for EBD, (b) an overview of classroom management, and (c) recent studies investigating classroom quality and the relation to student outcomes.

Reading Achievement of Students with or at Risk for EBD

Struggles with attention and behavior problems in early elementary school have been related to poorer school outcomes, including diminished reading achievement (Feagans & McKinney, 1991; Miller et al., 2014; Vernon-Feagans & Blair, 2006). Systematic reviews of the literature regarding the reading achievement of students with or at risk for EBD have been conducted by many researchers who have arrived at the following conclusion: these students have been underserved in educational research and their reading achievement has suffered in part due to this research gap (Nelson et al., 2014). For instance, Coleman and Vaughn (2000) identified high rates of underachievement in reading for students with EBD in grades K-6 and found only eight intervention studies had been conducted in this area between 1975 and 2008. In a meta-analysis of studies focused on a broad range of academic outcomes (e.g., reading, math, spelling, writing) for students with EBD between the ages of 5 and 14, Reid et al. (2004) identified just 26 studies between 1961 and 2000. The mean overall achievement for the students was in the 25th percentile and the effect size for reading was -0.61.

Regarding a lack of focus on early elementary school, Rivera et al. (2006) sought to discover the number of reading interventions for K-3 students with or at risk for EBD that took

place between 1975 and 2004 and found only 11 studies, which represents a rate of approximately 1 study every 3 years. Benner et al. (2010) reviewed the literature dating back to 1970 and identified just 24 studies across the K-12 spectrum focused on the reading skills of students with EBD. The authors expressed their concern that only six studies involved group designs and of those only two replicated the findings from previous research, making it impossible to establish evidence-based practices. Finally, recent reviews of the literature for secondary students with or at risk for EBD have made it clear that literacy interventions become even more infrequent once students leave elementary school (Garwood, Brunsting, & Fox, 2014; Griffith, Trout, Hagaman, & Harper, 2008), which highlights the importance of early intervention to remediate the struggles of students with or at risk for EBD (Coutinho, 1986).

Direct, one-on-one instruction has been documented as an effective strategy to improve the reading achievement of students with or at risk for EBD across the K-12 spectrum (Garwood et al., 2014; Nelson et al., 2004, 2014); however, even with one-on-one teacher-student instruction, problem behaviors in early elementary school have been known to interfere with students' progress (Al Otaiba & Fuchs, 2002; Torgesen et al., 1999). As a result, Benner et al. (2010) suggested reading interventions should include behavior management procedures to increase student engagement if they are to be effective. To be sure, the traditional method of increasing the intensity of intervention for non-responders is ineffective when behavior is not properly addressed (Volpe, Young, Piana, & Zaslofsky, 2012). Indeed, in their meta-analysis of 30 studies focused on the variables related to the treatment effectiveness of early literacy interventions, Nelson et al. (2003) found children's problem behaviors were more powerful predictors of literacy outcomes than phonological awareness, memory, and student demographics.

The importance of reading comprehension and vocabulary. The Common Core State Standards have highlighted the importance of all students being able to comprehend texts at a high rate (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). Reading comprehension, which becomes the focus of standards in third grade, is the ultimate goal of reading instruction and the most important skill for students to acquire, as learning in all academic subjects is dependent upon adequate reading comprehension (Bryant, Linan-Thompson, Ugel, Hamff, & Hougen, 2001; Durkin, 1979; Mason, 2004). High school graduation, often considered a minimum requirement for future economic success, occurs for only 45% of students with low levels of reading comprehension (National Commission on Adult Literacy, 2008) and struggles in comprehension can create obstacles throughout a person's entire lifetime (Elleman, Compton, Fuchs, Fuchs, & Bouton, 2011). Unfortunately, struggles in reading comprehension have been documented as a common occurrence among students with or at risk for EBD (Lane et al., 2008; Nelson et al., 2014).

While several aspects of language facilitate comprehension, vocabulary is a critical component of proficiency in comprehension and has been identified by numerous researchers as one of its strongest predictors (Baumann, 2009; Senechal & LeFevre, 2002; Storch & Whitehurst, 2001; Torgesen, Wagner, Rashotte, Burgess, & Hecht, 1997; Whitehurst & Lonigan, 1998). Low-income children enter school with poorer vocabulary skills than their peers and this gap increases as students grow older (Hart & Risley, 1995; Vernon-Feagans et al., 2010). As students move to upper elementary school, teachers expect them to comprehend large amounts of information from content texts (Sanacore & Palumbo, 2009), which requires a sophisticated vocabulary (Scarborough, 2005; Verhoeven & Van Leeuwe, 2008). Therefore, reading

comprehension and vocabulary are critical aspects of literacy in which students with or at risk for EBD need to achieve proficiency if they are to be successful in school.

Poverty, risk, and reading achievement. Within the industrialized world, the United States has the largest economic disparities among its citizens (Rijlaarsdam et al., 2013). Children living in rural areas experience higher rates of poverty than their urban peers and these income disparities put rural children at an increased risk for negative school outcomes (Burchinal et al., 2008, 2013; Strange et al., 2012), including the development of EBD (Heflinger et al., 2014; Mukolo & Heflinger, 2011), diminished academic skills (Lee & Burkham, 2002), and poor language and vocabulary development (Vernon-Feagans, Bratsch-Hines, & FLP Key Investigators, 2013). Regardless of initial skill level, most rural children enter school with an eagerness and excitement to learn and have parents who are optimistic about the child's academic future (Morrison, Bachman, & Connor, 2005; Vernon-Feagans 1996). Unfortunately, rural communities also face geographical isolation, which includes the concomitant risk of lower quality schools (De Marco & Vernon-Feagans, 2013). Rural schools face several challenges, including struggles to recruit highly-qualified teachers (Reeves, 2003), limited professional development opportunities (Beach, 1997), and lower ratings of professional community among school staff (Lee & Burkham, 2002). Disparities in school quality have been identified as major contributors to the achievement gap between urban and rural areas (Rosignano & Crowley, 2001). Analysis of the Early Childhood Longitudinal Study – Kindergarten (ECLS-K) data suggested children in rural schools scored 20% lower in reading than their suburban peers, which the authors suggested was a result of lower quality teaching in rural areas (Pigott & Israel, 2005).

A U.S. Department of Education (2001) study of elementary-grades students in 71 low-income schools revealed those who lived in poverty scored significantly lower than their peers

on all academic measures and schools with the highest poverty had the lowest overall performance. While rural areas do offer some protective factors to children's development, such as safer neighborhoods, less exposure to drug activity, stronger support of teachers from parents, and a greater sense of community (Burchinal, Vernon-Feagans, Cox, & FLP Key Investigators, 2008; De Marco & Vernon-Feagans, 2013; Vernon-Feagans et al., 2010; Provasnik et al., 2007), rural families living in poverty face risk factors beyond income level that may influence children's behavioral and academic development. For example, rural parents are forced to make longer commutes and work more hours for less money than their urban counterparts, which then limits the opportunity for parent-child interactions (Vernon-Feagans et al., 2010). Additionally, single-mother households, in which approximately 60% of low-income rural children live (Dill, 1999), represent a greater risk in rural areas when students make the transition to school, as mothers face the increased barrier of long-distance commutes and fewer opportunities for home-school communication (Burchinal et al., 2013; Vernon-Feagans et al., 2010).

African American children, in particular, experience higher rates of single-mother households and deeper poverty when compared to their peers (Burchinal et al., 2008; Graefe & Lichter, 2002). In a sample of nearly 1,300 young children, researchers examined a cumulative risk factor (e.g., single-parent households, maternal education, neighborhood safety) and found African American children experienced significantly more risks ($d = 0.78$; Burchinal et al., 2013). The effect remained significant when analysis was restricted to comparisons of only low-income families ($d = 0.48$). Socioeconomic status has also been shown to explain the disparity in school readiness skills and the achievement gap between African American children and their peers (Burchinal et al., 2011; Lee & Burkham, 2002; Magnuson & Duncan, 2006). Low-income African American children are more likely to be placed in low ability groups where they receive

a lower quality of instruction from their teachers (Vernon-Feagans, 1996) and teachers have reported more behavior problems among African American children when compared to their Caucasian peers in the first two years of school (Sbarra & Pianta, 2001). Clearly, there is evidence to suggest the school experience is different for African American children and their Caucasian counterparts and these differences are somewhat related to socioeconomic status.

Behavior of Students with or at Risk for EBD

Engagement is a crucial element of success in school and is often observed as students being on-task and attentive (Gettinger & Kohler, 2006; Gettinger, 1984; Good & Brophy, 2008). Student engagement, which can be shaped by the quality of the teachers' instruction and classroom management, is important because it forms the link between motivation and learning (Connell & Wellborn, 1991; Kortering & Christenson, 2009; Reed, Wexler, & Vaughn, 2012). Engagement is both behavioral and emotional, including students' effort, persistence, enthusiasm, and pride (Skinner, Kindermann, & Furrer, 2009). The opposite of engagement is disaffection; it involves not only an absence of engagement, but also maladaptive behaviors and emotions such as passivity, inattention, sadness, and anxiety (Skinner, Furrer, Marchand, & Kindermann, 2008). Disaffection, whether it is manifested as an externalizing or internalizing behavior, is a detriment to students' academic and social development because it interferes with learning and sets students apart from their typically developing peers (Skinner et al., 2008). Common characteristics of students with or at risk for EBD are a lack of engagement and high rates of disaffection (Murray & Greenberg, 2001; Walker et al., 2004). When students are not engaged and develop a growing disaffection for school, they may come to devalue learning, which may have long-lasting effects on their achievement (Roeser, Wolf, & Strobel, 2001). In a study of 110 early elementary students, inattentive and disengaged behaviors in first grade were

significantly related to lower scores in word-reading growth and reading comprehension two years later in third grade (Miller et al., 2014).

Teachers may exert a large influence on the engagement or disaffection students demonstrate in the classroom. On the one hand, researchers have found teachers are likely to magnify their students' present level of engagement (Skinner & Belmont, 1993), which is unfortunate for students at risk for EBD who often demonstrate low levels of engagement during school hours (Matheson & Shriver, 2005). On the other hand, teachers who are enthusiastic in their interactions with students and are attentive to the quality of the classroom environment can increase student engagement and decrease feelings of disaffection (Dolezal et al., 2003; Fredricks, Blumenfeld, & Paris, 2004). A study of 805 middle-income elementary and middle school students found warmth, support, and classroom structure on the part of the teacher were associated with increases in engagement and decreases in disaffection (Skinner et al., 2008). A separate study with 700 urban students in grades four through six focused on the Consistency Management & Cooperative Discipline (CMCD; Freiberg et al., 2009) program, which was designed to help teachers create a caring and respectful classroom climate focused on active learning and student engagement. Students involved in CMCD schools scored in the 64th percentile in reading, while students in control schools ranked at the 50th percentile, for a moderate effect size of 0.34. When comparing reading improvement, the effect size was 0.54 in favor of students in CMCD schools. Freiberg and colleagues suggested the more positive climates encouraged students to become more engaged and involved in the classroom.

Type of EBD. Physically and verbally aggressive behaviors are typical of students with externalizing disorders, while feelings of depression and anxiety are common to those children with internalizing disorders (Walker et al., 2004). However, the broad label of EBD has resulted

in blanket intervention approaches that may not be efficacious for all students under the umbrella of this term (Harris, Oakes, Lane, & Rutherford, 2009). In fact, some evidence suggests internalizing and externalizing behaviors may be differentially associated with reading achievement. In a study with 206 kindergarten students, internalizing and externalizing behaviors were both significantly related to lower scores in reading achievement (Hagan-Burke et al., 2011); however, a separate study of K-12 students found only externalizing behaviors were predictive of reading performance (Nelson et al., 2004). Furthermore, with a sample of 423 urban students in kindergarten through fifth grade, researchers found positive relationships with the teacher were related to increases in reading achievement for students with externalizing behaviors – most likely due to increases in engagement – but not for those with internalizing behaviors (Baker, Grant, & Morlock, 2008). Feelings of engagement and disaffection, and their relationship with reading achievement, may vary among students exhibiting different types of internalizing or externalizing behaviors.

While some have suggested students with internalizing disorders often go unnoticed, a recent survey of 132 general and special education teachers found internalizing disorders were the most frequently identified problem behavior among K-6 students (Conley, Marchant, & Caldarella, 2014). Yet, there continues to be much more research on students with externalizing behaviors than those with internalizing concerns (Henricsson & Rydell, 2004). It is possible that general education teachers can identify internalizing behaviors, but they may feel incapable of addressing the struggles of students with these problems (Seeley, Severson, & Fixsen, 2014). In fact, some evidence suggests general education teachers view internalizing behaviors as a learning disability instead of a sign of depression and may feel unprepared to intervene (Forness et al., 2012). Given the theoretical and empirical literature suggesting significant associations

between both types of EBD and academic achievement, researchers should maintain a strong focus on both.

Demographic Differences among Students with EBD

Although behavior problems appear to be a more powerful predictor of reading performance in early elementary school (Nelson et al., 2003; Torgesen et al., 1999), demographic differences among students also play a role in reading achievement. Results from the most recent NAEP (2013) indicated 82% of African American students versus 54% of Caucasian students, 68% of male students versus 62% of female students, and 80% of low-income students versus 49% of not low-income students, demonstrated below-proficient aptitude in fourth-grade reading achievement. African American boys demonstrate the most severe discrepancies in reading achievement and are also the most likely students to be identified as having an EBD (Matthews, Kizzie, Rowley, & Cotrina, 2010; Turnbull, Turnbull, Shank, & Smith, 2004). For children with or at risk for EBD, differential academic and behavioral outcomes may be at least partially related to demographic differences (Sugai, O'Keefe, & Fallon, 2011). Indeed, research suggests teachers interact differently with students based on the child's race and gender (Entwisle et al., 2007).

Differences by race. The racial landscape of American classrooms is growing more and more diverse. By the year 2050, the majority of the United States population will be represented by individuals currently identified as a minority group member (U.S. Census Bureau, 2008). Minority students living in poverty are more likely than their Caucasian peers to experience punitive school measures, such as suspension or expulsion (Carter & Doyle, 2006; Murray & Zvoch, 2011; Skiba & Rausch, 2015), and are at an increased risk for reading difficulties (Chatterji, 2006; Cooper, Crosnoe, Suizzo, & Pituch, 2010). African American males, in

particular, experience high rates of expulsion, which leaves less time for learning (Sugai et al., 2011). Perhaps most disheartening is the fact that some parts of the country use the number of four-year old African American boys to estimate how many prisons will need to be built in the future (Barbarin, 2010).

Much has been written about the disproportionate representation of African American students in special education for EBD, as well as their increased likelihood for school discipline and dropout (Gay, 2006; Milner & Tenore, 2010). For nearly 50 years, researchers have investigated the relationship between poverty, minority status, school discipline, and placement into special education due to behavior problems (Dunn, 1968; Hibel, Farkas, & Morgan, 2010). Some have tried to explain the skewed numbers by pointing to poverty's negative impact on student outcomes and minority students' higher concentration in low-income areas. However, even when controlling for students' family income level and the rate of externalizing behaviors in a sample of 1,493 elementary students, researchers found African American students to be seven times more likely to receive school discipline than their peers (Horner, Fireman, & Wang, 2010). Specific to EBD, studies have shown that when controlling for socioeconomic status, African American students are still 1.3 to 1.5 times more likely than their peers to receive services under this label (Oswald, Coutinho, Best, & Sing, 1999; Skiba, Poloni-Staudinger, Simmons, Feggins-Azziz, & Chung, 2005).

Cultural misunderstandings between predominantly Caucasian female teachers and an increasingly diverse student population may help explain disproportionate placement into special education (McIntyre & Tong, 1998; Milner & Tenore, 2010), but income variables remain under investigation. Recently, Hibel et al. (2010) controlled for a host of individual-, family-, and school-level variables in a nationally representative sample of over 10,000 students and found

minority students were actually less likely to be placed into special education than their peers. The authors discovered what they referred to as a “frog-pond effect,” wherein attending a school with higher overall academic achievement and behavior ratings was significantly associated with an increased chance of being placed in special education. For example, a student scoring one standard deviation below the mean on a standardized test may “stand-out” more at a school where the majority of the students are high-achieving; however, in schools where the majority of students score one standard deviation below the mean on standardized assessments, students would be less likely to be identified for supplemental supports. Socioeconomic status at the child-level was at best a weak and often non-significant predictor in the study. Instead, Hibell and colleagues suggested minority students’ higher concentration in schools with lower overall achievement explained their under- or equal-identification for special education. It must be noted that a school’s income level is often highly correlated with student performance (Herbers et al., 2012; Ransdell, 2011). Clearly, more research about differential outcomes for students based on race that controls for socioeconomic status is needed.

Differences by gender. Much of the research has failed to include girls or consider gender differences when working with students with or at risk for EBD (Cullinan et al., 2004; Srsic & Rice, 2012). Male students who demonstrate externalizing behaviors make up the majority of the EBD population, but many school-aged girls also demonstrate significant behavior problems (Reid et al., 2004). Girls are more likely than boys to experience internalizing symptoms (McIntyre & Tong, 1998; Walker et al., 2004), which may help explain their under-identification, as this type of behavior problem does not typically interfere with the daily routines of classrooms and may be less likely to garner teachers’ attention. The lack of emphasis on possible differences in academic and behavioral needs based on gender for students

with or at risk for EBD has resulted in girls receiving interventions that have been developed primarily with and for boys (Oswald, Best, Coutinho, & Nagle, 2003), which is unfortunate given the likelihood of girls having unique needs different from boys. The limited amount of empirical work currently available is inconclusive and points to the need for more research.

Controversy exists as to whether girls of all abilities are ahead in their academic achievement from an early age (Matthews, Ponitz, & Morrison, 2009; Tyre, 2009). From the time they enter school, researchers have suggested boys demonstrate lower levels of engagement and are therefore at a disadvantage (Tach & Farkas, 2006). According to the Center on Education Policy, girls perform higher in reading across all grade levels (Chudowsky, & Chudowsky, 2010). Some have suggested it is the stronger relationships between teachers and their female students that contributes to girls' advantage (Coplan, Gavinski-Molina, Lagace-Seguin, & Wichmann, 2001; Furrer & Skinner, 2003; Jerome, Hamre, & Pianta, 2009; Ready, LoGerfo, Burkam, & Lee, 2005). Still, in their review of the literature on the academic status of K-12 students with EBD, Nelson et al. (2004) found no significant differences in reading achievement between boys and girls; however, the sample included only 29 female students, which limits the generalizability of the finding. In a study of 2,030 seven-year-old children (91% Caucasian), there was a two-way relationship between behavior problems and reading struggles for boys, with significant associations in both directions, but for girls, behavior problems predicted reading struggles, while reading struggles did not predict behavior problems (Trzesniewski, Moffit, Caspi, Taylor, & Maughan, 2006).

Girls' behaviors are consistently rated higher by teachers (Furrer & Skinner, 2003; Good & Brophy, 2008). In a study of 575 preschool and kindergarten Australian children, girls were rated significantly higher on engagement and boys were higher on behavior problems (Searle,

Sawyer, Miller-Lewis, & Baghurst, 2014). A separate study with 172 rural first-graders (84% Caucasian) found significant differences in behavior, with boys struggling more in their adjustment to school, but no differences in achievement (Ponitz, Rimm-Kaufman, Brock, & Nathanson, 2009). Gazelle (2006), in a study with 1,364 children (76% Caucasian) in early elementary school, combined ratings of classroom climate, classroom management, and classroom control to create an emotional support variable. Results suggested low-quality emotional climates were associated with boys being more rejected from peers and girls being bullied more often. High-quality emotional climates were related to boys being more accepted, but had no associations with girls' outcomes. Finally, in a study with 628 elementary students, higher ratings of teachers' emotional support were more strongly associated with improvements in boys' behaviors than girls' (Madill et al., 2014). The authors hypothesized it was the tendency of teachers to focus more on the behaviors of boys than girls that resulted in the differences.

Girls may form stronger relationships with teachers, but boys are more often the target of teachers' attention, for both positive and negative reasons (Beaman, Wheldall, & Kemp, 2006; Rice & Yen, 2010; Serbin, O'Leary, Kent, & Tonick, 1973). In fact, teachers of students with EBD have claimed they prefer to work with boys over girls, often findings girls identified as EBD to be far more difficult to interact with than boys (Rice, Merves, & Srsic, 2008; Srsic & Rice, 2012). Furthermore, Rice and Yen (2010), in a study of 363 students with EBD between the ages of 7 and 14, found no significant differences in reading achievement between boys and girls, but boys increased at a significantly faster rate than girls over a three year period. Therefore, Rice and Yen claimed it would be a critical misstep to assume girls, by nature of their gender, are at an advantage. While some have pointed to immaturity and societal expectations of appropriate school behavior as the reasons for boys' overrepresentation in special education due

to EBD (Callahan, 1994), it might simply be the case that teachers are paying much more attention to boys. Unfortunately, this may lead to girls suffering in silence, with only the most severe cases of EBD being recognized in female students (Rice & Yen 2010).

Girls with or at risk for EBD are under-identified such that only girls with the most extreme behaviors are provided supplemental supports (Cullinan et al., 2004). Prior research has found female students are more likely to be identified for mental health services in a hospital setting than in school (Caseau, Luckasson, & Kroth, 1994). The predominant focus on boys with or at risk for EBD is unfortunate, as a study of girls with EBD in elementary school found their externalizing behaviors (e.g., hyperactivity) significantly predicted their chances of criminal arrest in middle and high school (Gage et al., 2012). In one of the few studies that focused exclusively on girls, both those with EBD and those who were typically developing, Cullinan et al. (2004) measured students on each of the five federal guidelines used to identify students for special education for EBD. With a total of 689 female students (32% EBD; 68% with no behavior problems) across 34 states in elementary, middle, and high school, girls with EBD scored significantly higher on inability to learn, relationship problems, inappropriate behavior, unhappiness or depression, and physical symptoms or fears. As the girls grew older, their symptoms became worse. The small number of studies focusing on girls with or at risk for EBD suggests researchers should differentiate outcomes for boys and girls to see if more targeted approaches sensitive to gender are needed (Searle et al., 2014).

Classroom Management: An Overview and a Definition

In 1970, educational psychologist and theorist, Jacob Kounin, published what many consider a groundbreaking book on classroom management, *Discipline and Group Management in Classrooms*, which was the culmination of over a decade of research. Much of Kounin's work

was descriptive and based on field-notes from in-class observations and analysis of videotapes. Kounin discovered the secret to successful behavior management was preventing disruptive behaviors before they occurred. In other words, teachers needed to be proactive rather than reactive. Previously, Kounin and Gump (1961) had examined the differential impact of teachers' behavior management styles on elementary students' perceptions of inappropriate conduct. Students from classrooms emphasizing punishment for misbehavior – a reactive approach – identified aggressive actions as the worst thing one could do in school, while students from non-punitive classrooms – a proactive approach – identified behaviors that would interfere with learning as most detrimental. The early research suggested punishment was unsuccessful in promoting engagement or improving learning and teachers with authoritative styles (i.e., a balance of power) were more effective than teachers with authoritarian or hands-off orientations (Brophy, 2006).

Brophy and Evertson (1976) claimed good classroom management was not only desirable, but necessary for student learning. In a third-grade study, effective teachers (i.e., those with engaged and on-task students) were those who explicitly taught logistical aspects of the classroom to students, such as rules, procedures, and academic guidelines, much like they would teach academic content (Emmer, Evertson, & Anderson, 1980). Students were provided with clear explanations of consequences for misbehavior and conduct violations were handled in a fair and consistent manner. Effective teachers arranged the room depending on the type of instruction and planned for efficient transitions between activities. What the early researchers suspected, and others later found to be true in empirical work, was that classroom management is related to higher academic achievement because effective management practices promote

positive behaviors and a sense of safety in the classroom, which helps all students engage in their own learning and provides the teacher more time for instruction (Emmer & Sabornie, 2015).

Defining classroom management. Classroom management is often discussed as if it were synonymous with discipline; unfortunately, this leads to an emphasis on controlling students instead of teaching them (Wong, Wong, Rogers, & Brooks, 2012). The true meaning of classroom management encompasses all those teacher actions used to maintain order, stimulate engagement, and create opportunities for learning by responding to the behavioral and emotional needs of individual students and establishing a positive classroom climate (Emmer & Stough, 2001). Classroom management also includes student-teacher relationships because strong relationships promote positive student behaviors and engagement (Holt, Hargrove, & Harris, 2011; Pianta, 2006).

Two separate reviews of the educational and psychological literature representing thousands of statistical findings concluded that classroom management was the number one predictor of student achievement (Marzano, Marzano, & Pickering, 2003; Wang, Haertel, & Walberg, 1993). High-quality classroom management, operationalized as the creation of safe and productive learning environments with clear expectations for student behavior and strong student-teacher relationships, has also been found to foster resilience (i.e., the ability to overcome challenges) in urban elementary students at risk for school failure (Bondy, Ross, Galligane, & Hambacher, 2007). The key to effective classroom management is creating a learning environment where students want to cooperate and engage (Brown, 2004). Therefore, student-teacher relationships are a central component of classroom management. When students and teachers have a strong relationship, students are more likely to demonstrate prosocial behaviors and engage in the teacher's instruction, which is the ultimate goal of classroom

management (Holt et al., 2011; Pianta, 2006). Of course, strong student-teacher relationships are just one of several elements of high-quality classroom management.

Jones (2006) suggested any effective classroom management plan should at least include teachers (a) being responsive to students' personal needs and creating an emotionally-safe environment, (b) focusing on positive interactions between students and teachers, (c) explicitly teaching logistical aspects of the classroom (e.g., rules and procedures), and (d) having a planned response for misbehavior. In the only known review of evidence-based practices in classroom management, Simonsen, Fairbanks, Briesch, Myers, and Sugai (2008) echoed the importance of these areas, while also highlighting the need to attend to student engagement and interest, ensure efficient transitions between activities, and carefully organize the classroom with attention to the physical layout of the room. Together, the suggestions from Jones (2006) and the findings from Simonsen et al. (2008) constitute a broadened view of classroom management that has been accepted by many other researchers who have realized behavioral control is just one of several important elements (e.g., Cothran, Kulina, & Garrahy, 2003; Emmer & Sabornie, 2015; Emmer & Stough, 2001; Nie & Lau, 2009). In line with the views of these scholars, I operationalize classroom management by the following factors: (a) classroom climate (e.g., positive relationships, respect, non-punitive discipline), (b) teachers' sensitivity to, and a regard for, students' needs and interests, (c) proactive behavior management, and (d) productive classroom routines.

Managing Students with or at Risk for EBD

Given the known struggles in classroom management for teachers working with students with or at risk for EBD (Elliot, 2014; Sutherland & Wehby, 2001a), it should not be surprising that many teachers resort to punitive and reactive practices (e.g., removal from the class), which

then leads to less time for learning. Research suggests the majority of interactions between teachers and their students with or at risk for EBD are negative, with students rarely receiving praise or positive reinforcement (Wehby et al., 2003). One program with a burgeoning evidence base for students at risk for antisocial behaviors is First Step to Success (FSS; Walker et al., 1998). The FSS program, a secondary intervention based in ecological theory, is designed for early elementary students with elevated levels of externalizing behaviors and involves behavioral coaches (e.g., school counselors, behavior specialists) who work with target children, teachers, peers, and parents to develop and implement the intervention in classrooms and eventually in children's homes. Children are taught social skills at home that translate to school success (e.g., sharing, problem solving) and teachers reinforce these behaviors through positive praise and group contingency procedures (Walker et al., 2009). A recent randomized controlled trial of FSS demonstrated significant improvements in students' attention and engagement, as well as teacher-perceived academic competence (Sumi et al., 2012). However, there is a need for more research that follows children across multiple years (Walker et al., 2009).

Young children with or at risk for EBD are also vulnerable to a host of negative long-term outcomes beyond academic struggles, including but not limited to alcohol and drug abuse, mental health concerns, unstable employment, and interactions with the criminal justice system (Sprague et al., 2001); the need to intervene early in children's school careers is ever-present. While the grim outcomes previously mentioned are a reality for many students with or at risk for EBD, researchers should not be discouraged from pursuing interventions to improve the chances of success for these at-risk students. Put quite simply, EBD is treatable (Kauffman & Badar, 2013). Several studies focused on the behavior of students with or at risk for EBD instill reasons for hope. For example, in a study of ten second-grade students with EBD, a check-in/check-out

procedure involving a daily report card, where students could earn points for positive behaviors such as displaying respect for others and problem solving on their own, was related to a significant reduction in the incidence of problem behaviors (Fairbanks, Sugai, Guardino, & Lathrop, 2007). Two other management strategies with empirical support for improving the behavior of students with or at risk for EBD are behavior-specific praise and opportunities to respond (OTR).

The effective use of praise (i.e., praise that is immediate and behavior-specific) has long been shown to increase appropriate behaviors and decrease undesired behaviors (Madsen, Becker, & Thomas, 1968; Reinke, Lewis-Palmer, & Martin, 2007). In a self-contained classroom with nine fifth-grade students with EBD, the use of behavior-specific praise was related to increases in on-task behaviors (Sutherland, Wehby, & Copeland, 2000). In a separate study with 23 students at risk for EBD in kindergarten through third grade, praise was significantly associated with a decrease in disruptive behaviors and increases in on-task behaviors (Reinke et al., 2014). Unfortunately, another study involving 33 early elementary urban teachers found students were more likely to receive reprimands from their teachers, with one teacher delivering 10 reprimands for every 1 instance of praise (Reinke, Herman, & Stormont, 2013). The study also found that students received very few OTRs throughout the day and as reprimands increased, so too did students' disruptive behaviors and teachers' reported feelings of emotional exhaustion.

An OTR involves giving students a chance to demonstrate proficiency in a situation with a high probability of success and can be accomplished through activities such as choral responding or the use of response cards (Simonsen et al., 2008; 2010). High rates of OTRs can improve academic outcomes for students with or at risk for EBD by limiting disruptive and off-

task behaviors and increasing engagement (Haydon, Marsicano, & Scott, 2013). Students with high levels of engagement achieve better grades and when getting these results, thereby maintain and increase their engagement (Morgan & Fuchs, 2007). In an observational study of students with EBD in grades one to three, high rates of OTRs were associated with better reading achievement (Wills, Kamps, Abbott, Bannister, & Kauffman, 2010). Unfortunately, research shows students with EBD receive fewer OTRs than their peers and are therefore more likely to be disengaged and disaffected during school hours (Haydon, MacSuga-Gage, Simonsen, & Hawkins, 2012; Sutherland & Wehby, 2001b).

When teachers make use of evidence-based classroom management practices, such as behavior-specific praise and OTRs, the on-task behavior of students with EBD has been shown to improve (Jeffrey, McCurdy, Ewing, & Polis, 2009). In their study with nine special education teachers, Jeffrey and colleagues found teachers' classroom management practices (e.g., clearly stating expectations, posting classroom rules) were positively related to students' on-task behavior. While the study, which took place in a suburban school district, is noteworthy for being one of the few in the literature that focused on students with EBD and the overall quality of teachers' classroom management, some limitations are worth noting. First, the study took place in self-contained classrooms that had teaching assistants to support the teacher and only 6 to 12 students per class, which limits the ability to generalize to the general education classroom where most students at risk for EBD are educated. Second, the study had a low sample size ($N = 9$ teachers), which further limits its external validity. Despite these limitations, the findings highlighted the importance of classroom management for students with or at risk for EBD.

Teacher efficacy and positive behavior supports. A classroom where teachers have a firm understanding of effective classroom management practices can help prevent disruptive

behaviors and improve teacher efficacy (Aloe, Amo, & Shanahan, 2014; Scott et al., 2007). Indeed, high-quality classroom managers report higher rates of self-efficacy, lower incidence of burnout, and have students with fewer disruptive behaviors (Reinke et al., 2013). Teachers' self-efficacy is important, as research suggests low self-efficacy often results in teachers developing a negative affect towards teaching, which then results in students experiencing a decline in their academic engagement, with effects especially pronounced for students at risk for school failure (Brackett, Reyes, Rivers, Elbertson, & Salovey, 2011; Eccles et al., 1993; Emmer & Stough, 2001). Ultimately, good classroom management may be able to increase job satisfaction for teachers, preventing burnout and attrition (Aloe et al., 2014). Teacher turnover is a serious concern in the United States and is reported to cost the nation over \$7 billion per year (National Commission on Teaching and America's Future, 2007). In light of these numbers, federal dollars are now available to improve student behavior, increase achievement for at-risk students, and promote a positive environment where teachers and students succeed on a daily basis (Simonsen et al., 2010).

One of the ongoing initiatives designed to address student behavior is School-Wide Positive Behavior Supports (SWPBS; Sugai & Horner, 2009). The SWPBS framework encompasses three tiers of support to address students' behavioral needs. Tier-1 is designed to prevent behavioral struggles through evidence-based practices, such as positive reinforcement, and the screening of the entire school population to identify students who may need supplemental supports. Tier-2 is designed to reverse the harm already done and includes targeted interventions (e.g., social skills training) with small groups of students considered at-risk for continued emotional and behavioral difficulties. On average, approximately 15% of students will require some form of Tier-2 intervention. Tier-3 is designed to reduce the amount

of harm for students experiencing severe emotional or behavioral difficulties. Typically, schools can expect 5% of their students to require this type of support in the form of functional behavior assessments, individualized behavior plans, or other more specialized services from clinicians such as psychologists or social workers (Sugai & Horner, 2009).

Scott and Barrett (2004) calculated the impact of SWPBS in terms of instructional time lost related to office discipline referrals and school suspensions. After one year of successful implementation of SWPBS, the school had gained 72.7 days of instruction time. While these results are encouraging and research suggests SWPBS is an effective means of improving the behaviors of school-aged students, much less research has been conducted at the classroom level where teachers' management struggles threaten to undermine the success of school-wide prevention systems (Reinke et al., 2014; Sugai & Horner, 2009). To make matters worse, gaps in research often translate into gaps in practice, as pre- and in-service teachers cannot be schooled in content that has not been properly addressed in empirical inquiry. Researchers have called for a more focused research agenda on students with or at risk for EBD in general education classrooms (Lane, Wehby, Little, & Cooley, 2005); especially on the ecology of the classroom, the quality of classroom management students are experiencing, and its relation to their success (Conroy, Sutherland, Haydon, Stormont, & Harmon, 2008; Gest, Madill, Zadzora, Miller, & Rodkin, 2014; Wills et al., 2010).

Classroom Quality and Associations with Student Outcomes

The majority of studies focused on measures of classroom quality and student outcomes have not included high-risk samples of students (Pianta et al., 2007). It is possible, however, given the under-identification of students with EBD, that students at risk for EBD may have been included in these non-risk samples. In the absence of a substantial empirical literature from

which to build, the review of the literature that follows mostly includes studies that have not been focused on students with or at risk for EBD, as they may have implications for students struggling with emotional or behavioral problems.

Measuring classroom quality. Researchers have conducted observational studies of classrooms for over a century, but few standardized measures of classroom quality existed until recent years. Downer et al. (2007) used the Classroom Observation System for Third Grade (COS-3; National Institute of Child Health and Human Development [NICHD] Early Child Care Research [ECCRN], 2005) to explore the relationship of students' behavioral engagement to classroom quality and child risk status for 955 third-grade children. Risk was a cumulative factor consisting of externalizing behaviors, conflicts with the teacher, and academic (reading and math) achievement. The authors found that children at risk for school problems were more likely to struggle with engagement, but they also benefitted more than their peers when the classroom was rated higher on measures of climate and instructional productivity. In a separate study, 791 children were assessed in first, third, and fifth grade for reading achievement (Pianta, Belsky et al., 2008). Controlling for prior achievement at age 54 months, the researchers found higher ratings of emotional support (e.g., high quality student-teacher interactions) were related to greater reading achievement in third- and fifth-grade. The results also suggested that even if teachers spent a significant amount of time on reading instruction, low-quality emotional climates were associated with less progress in reading from age 54 months to first grade for typically developing readers (i.e., those not demonstrating rapidly accelerating growth from 54 months to first grade), which may suggest the non-instructional components of early elementary classrooms could be more powerful predictors of early reading achievement than the quantity of instruction taking place.

While emotional support has been shown to predict student outcomes, researchers have also investigated the importance of instructional support quality in the classroom. High quality instructional support (e.g., frequent feedback, scaffolding) has been associated with greater reading achievement in early elementary school (Hamre & Pianta, 2005; Pianta et al., 2007), but there appears to be variability in the quality of instructional support across grades. Comparing the classroom climates in kindergarten and first grade using both a kindergarten version of the COS (COS-K; National Center for Early Development and Learning, 1997) and a first-grade version (COS-1; NICHD-ECCRN, 2002), a study of 192 students found kindergarten teachers offered more instructional support than first-grade teachers (La Paro et al., 2009). In a separate study with data from 946 students in first grade, researchers used the COS-1 and found only approximately 20% of the classrooms were characterized by both high-quality emotional and instructional supports (Wilson, Pianta, & Stuhlman, 2007). As the overall quality of the two constructs increased, children were rated at incrementally higher levels of prosocial behaviors (e.g., cooperation, assertion). The sample for the study by Wilson and colleagues was relatively low-risk with regards to family and child demographics and the researchers encouraged future work with more diverse populations.

Clearly, it would be desirable for students to experience high-quality instructional supports across the elementary school years (La Paro et al., 2009); however, research suggests this is not the reality in many American classrooms (Pianta et al., 2007). In perhaps the most comprehensive investigation of a typical day in third grade, one study investigated 780 classrooms in more than 250 mostly suburban/urban districts across the United States and found most classrooms rated low in instructional quality (NICHD ECCRN, 2005). While almost half of a third-grader's day was spent in literacy instruction, nonacademic activities (e.g., behavior

management) were given nearly as much attention as mathematics. In classrooms where these nonacademic activities dominated, the climates of the classrooms were more negative and students were significantly more likely to be disengaged, which suggests teachers may have been inefficient or ineffective in their classroom management practices. Furthermore, despite the emphasis on literacy instruction, many of the students were performing below proficient levels.

With the knowledge gained from studies using the COS, Robert Pianta and his colleagues at the University of Virginia developed one of the most commonly used classroom observation tools in the literature today, the Classroom Assessment Scoring System (CLASS; Pianta, La Paro, & Hamre, 2008). The CLASS measures classroom quality along the following three domains: (a) Instructional Support, (b) Emotional Support, and (c) Classroom Organization. Originally designed for use in kindergarten through third-grade classrooms, several versions of the CLASS are now available, such as those for use with toddlers (La Paro, Hamre, & Pianta, 2012) and adolescents (Allen et al., 2013).

Although they have not been the focus in classroom observational research, studies using the CLASS may nonetheless have implications for students with or at risk for EBD who are educated in the general education classroom alongside their more socially adept peers. Regarding the interrelated nature of the Emotional Support and Classroom Organization domains of the CLASS, Curby Grimm, and Pianta (2010) found early childhood classrooms with a high degree of emotional support were also found to rate higher on the quality of classroom organization. The authors hypothesized that efficiently run classrooms with low incidences of off-task behaviors allowed teachers more time to build an emotionally supportive environment. Furthermore, it was suggested that teachers who demonstrated more emotional warmth had students who were more likely to be well-behaved. In other words, each of the two domains

essentially “sets the stage” for each other (Curby et al., 2010). Pianta and Hamre (2009) claimed no single aspect of the CLASS is powerful enough on its own to understand the classroom as an ecological system for child development. Studies in both preschool and the elementary grades have given credence to the important role of emotional support and classroom organization in students’ achievement from the beginning of schooling.

In separate preschool settings encompassing hundreds of classrooms and thousands of children, higher ratings of emotional support were significantly related to a lower prevalence of problems behaviors and increased social competence (Mashburn et al., 2008), while higher ratings of classroom organization were associated with greater gains in children’s literacy skills (Hamre, Hatfield, Pianta, & Jamil, 2014). Beyond the preschool setting, studies in the elementary grades have found classrooms rated higher on emotional support also rated higher in the frequency of prosocial student behaviors and engagement (Brackett et al., 2011; Reyes, Brackett, Rivers, White, & Salovey, 2012). A study of 172 rural first-graders found boys and girls in classrooms rated higher on classroom organization and low on chaos performed significantly better on literacy assessments (Ponitz et al., 2009). Finally, a study of 147 rural students followed from kindergarten through first grade found emotional support in first grade was significantly and positively related to children’s growth in phonological awareness over and above the effects of initial skill-level in kindergarten (Curby et al., 2009). Together, evidence from the aforementioned studies suggests emotional support and classroom organization are positively related to reading achievement and student behavior, possibly above and beyond the effects of instructional support.

Observing classroom management quality. A broadened view of classroom management endorsed by researchers in education and psychology has defined classroom

management as much more than controlling student behaviors (Emmer & Sabornie, 2015; Nie & Lau, 2009; Wong et al., 2012). Just as classroom instruction involves more than teachers simply lecturing students, classroom management encompasses a range of teacher actions to facilitate learning. For instance, the Competence Enhancement Behavior Management program (CEBM; Farmer et al., 2006) is a proactive approach to classroom management focused on building engagement and prosocial behaviors with a focus on supportive student-teacher relationships, open communication, and a well-organized learning environment. According to leading scholars in the field, classroom management includes many elements, such as positive student-teacher relationships, respect and fairness in managing behavior, teacher sensitivity and a regard for student perspectives, proactive behavior management, productive and efficient classroom routines, and instructional learning formats that are respectful of students' interests (Emmer & Sabornie, 2015; Emmer & Stough, 2001; Good & Brophy, 2008; Jones, 2006; Oliver & Reschly, 2010; Pianta, 2006; Simonsen et al., 2008). The multiple components of classroom management can be broadly separated into the categories of emotional support (e.g., relationships, teacher sensitivity, positive climates, regard for student perspectives) and classroom organization (e.g., proactive behavior management, classroom routines).

Emotional support. A feeling of emotional safety (e.g., sense of belongingness) in the classroom is related to better adjustment, increased engagement, fewer disruptive behaviors, and improved academic achievement (Fredricks et al., 2004). In a sample of 707 students in third grade, classrooms with higher ratings of emotional support (e.g., positive climate, teacher sensitivity) were significantly more likely to have students with higher achievement in reading (Rudasill et al., 2010). Interestingly, it was classrooms rated low in emotional support where engagement mattered the most for reading achievement. In other words, disengaged behaviors

were most detrimental to reading achievement in classrooms with low-quality emotional supports. Two other studies, involving students in grades three through six, found positive associations between students' engagement and the level of emotional support in the classroom (Furrer & Skinner, 2003; Skinner & Belmont, 1993). When students were in non-emotionally supportive classrooms they were more likely to report feelings of disaffection, such as unhappiness and anger, during school hours. However, when teachers took the time to build a sense of classroom community through attention to positive interactions with students, the students were more likely to be engaged in school.

One program emphasizing attention to emotional support and positive climates in the classroom was the Child Development Project (CDP; Battistich, Schaps, & Wilson, 2004), which was a whole-school, comprehensive approach grounded in Bronfenbrenner's (1976) ecological framework. In a study with 1,246 students, those who were involved in CDP in elementary school reported more enjoyment with school, had better grades, and engaged in fewer disruptive behaviors in their middle school years, which was then associated with a better classroom climate (Battistich et al., 2004). When classrooms rate low in emotional support and teachers do not demonstrate care for students, a negative climate can take hold (Brackett et al., 2011), which may lead students to develop feelings of disaffection. Many teachers believe they can hide their true feelings from students, but research shows students are accurate in predicting whether or not a teacher likes them (Skinner & Belmont, 1993). Using reports from 1,104 elementary students and interviews with their teachers, low preference for students from the teacher perspective was related to students' perceived rates of conflict, while increased levels of teacher support from the student perspective were associated with higher teacher preference (Mercer & DeRosier, 2010).

Classroom organization. An organized classroom with highly structured management practices creates the most opportunities for students to engage in learning, sets the stage for a more emotionally-safe environment, and increases the rate of prosocial behaviors (Curby et al., 2010; Downer et al., 2007). Carefully planned procedures for transitions between activities are likely to result in more on-task student behaviors because students do not have the opportunity to disengage (Harris, 2013). Perhaps the most important aspect of a teacher's management plan as it relates to classroom organization is the creation and teaching of classroom rules and procedures. Classroom rules, which are behavioral expectations, and procedures, which address the specific way to accomplish a task, establish the routines of the classroom (Capizzi, 2009). The optimal number of rules for students with or at risk for EBD in the general education classroom is said to be between three and five, while the number of procedures may be much larger (Kostewicz et al., 2008). Carefully crafted rules and procedures, in addition to providing students with clear learning objectives, can help teachers maximize classroom instructional time (Capizzi, 2009; Harris, 2013).

Having a planned response for misbehavior is a cornerstone of efficient and effective classroom organization (Good & Brophy, 2008). In a survey of 149 K-12 teachers, Little and Akin-Little (2008) found 97% of teachers successfully used the proactive methods of verbal praise and positive feedback in redirecting misbehavior. Common methods of discipline were verbal reprimands and increasing physical proximity to students. While these findings were encouraging, 47% of the teachers reported their schools still allowed corporal punishment. Punishment, in any form, with an emphasis on past actions, exacerbates rather than remediates problem behaviors (Sugai & Horner, 2008) and is ineffective because it only teaches what is not allowed, as opposed to what behavior is desired (Pierangelo & Giuliani, 2008). When students

are disciplined the consequences should be delivered once the misbehavior has been stopped and not during the episode when emotions may be running high and inappropriate consequences may result (Little & Akin-Little, 2008).

From the earliest of years, the transactions between teachers and those students who misbehave shape the classroom environment and the type of instruction that takes place (Sameroff & Mackenzie, 2003). For example, in a study of preschool students, those at risk for EBD received less instruction from the teacher and the instruction they did receive was of lesser quality than that for students who did not misbehave (Carr, Taylor, & Robinson, 1991). When teachers attempt to manage the behavior of students with or at risk for EBD by ignoring them, they may inadvertently encourage undesirable behaviors (Sutherland & Oswald, 2005). It is therefore necessary for teachers to be well-trained in classroom management and to maintain orderly and organized classrooms in order to minimize misbehavior and maximize the time they have for instruction with all of their students. A study of first-grade students found those who were in classrooms that rated higher in classroom organization and efficiency in the beginning of the year had stronger letter- and word-reading skills later in the school year (Cameron, Connor, Morrison, & Jewkes, 2008). Cameron and colleagues suggested specific elements of classroom management (e.g., rules and procedures, efficient transitions) encouraged students to behave in desirable ways and take ownership of their learning.

Summary

Practitioners want to know how to engage marginalized students and improve the reading achievement of their students with or at risk for EBD (Kortering & Christenson, 2009; Nelson et al., 2014). In phone call interviews with 373 administrators and 203 teachers in rural schools across the United States, EBD and classroom management were identified as topics in which

professional development was needed (Berry et al., 2011). While kindergarten teachers in urban areas have reported higher rates of students' externalizing behaviors than in suburban or rural areas (Rimm-Kaufman, Pianta, & Cox, 2000), internalizing behaviors are more prevalent in rural schools (Hope & Biermann, 1998). Furthermore, a comparison of 134 rural and suburban children found no significant differences in the prevalence of behavior problems (Lane et al., 2010). In a survey of parents of children between the ages of 6 and 17, the National Survey of Children's Health (2011) reported 10% of rural parents indicated their child exhibited at least one externalizing or internalizing behavior, compared to 8.8% of urban parents. Taken together, these results suggest students in rural areas have emotional and behavior problems on par with their urban and suburban peers. Yet, while 43% of American school districts are located in rural areas (Johnson & Strange, 2007), educational researchers and policymakers have focused most of their efforts on urban and suburban schools (Arnold et al., 2005; Vernon-Feagans et al., 2010).

Elementary school is an especially important time for students with or at risk for EBD, as their teachers are looked upon to facilitate adjustment into academic and social worlds (Baker et al., 2008). Even when delivered high-quality evidence-based instruction, many students with or at risk for EBD do not benefit in terms of achievement (Al Otaiba & Fuchs, 2002; Nelson et al., 2014; Saez, Folsom, Al Otaiba, & Schatschneider, 2012). The challenges of working with students with or at risk for EBD are many, but general education teachers are still held accountable for their academic achievement (Vannest et al., 2009). Ecological approaches to classroom instruction and management suggest the daily interactions between students and teachers drive learning and healthy emotional-behavioral development (Bronfenbrenner & Morris, 2006; Doyle, 2006). On one hand, poor-quality classroom management may result in a feeling of chaos in the classroom, which is not conducive to student learning. On the other hand,

high-quality classroom management practices in the general education classroom may serve as a protective factor for students with or at risk for EBD and allow students to benefit from quality instruction (Good & Brophy, 2008; Sugai & Horner, 2008).

The early research on classroom management indicated well-managed classrooms were associated with more on-task behaviors (Brophy, 1986; Emmer et al., 1980) and academic achievement was thought to follow, but researchers have not maintained a strong empirical focus on this association. In the only known review of the classroom management literature seeking to identify evidence-based practices (Simonsen et al., 2008), approximately 86% of the included studies were conducted prior to the year 2000 and 60% were conducted prior to 1990. Studies focused on classroom management and students with or at risk for EBD are even more infrequent and no such study has followed rural students from school-entry through third-grade. Given the importance of children's early schooling and knowing classroom quality can vary from year to year (Gazelle, 2006; La Paro et al., 2009; Pianta, Belsky et al., 2008), there is a need for longitudinal studies focused on the early elementary school years.

Citing the promising results from studies in self-contained classrooms and schools, researchers have called for more empirical studies in the general education classroom to discover the most efficacious classroom management practices that result in optimal outcomes – academic and behavioral – for students with or at risk for EBD (Farmer et al., 2014; Gunter et al., 2002; Nelson et al., 2014; Oliver & Reschly, 2010; Reinke et al., 2014). Longitudinal research in rural schools is especially prudent. The current study seeks to provide a better understanding of the classroom management quality experienced from kindergarten through third grade for rural students with or at risk for EBD in the general education classroom and the associations with their reading achievement and behavior in third grade.

Chapter 3

Methods

Sample

Data for this study were drawn from FLP (Vernon-Feagans, Cox et al., 2013). FLP was designed to help fill the gap in research on children living in low-income, rural communities. Four rural areas of the United States considered to be representative of poor, rural children's environment were identified (Dill, 1999). Two of these areas, which lie east of the Mississippi and include Eastern North Carolina and Central Pennsylvania, were chosen by FLP to represent Appalachia and the Black South. Using a developmental epidemiological design, FLP investigators recruited a representative sample of every baby born to a mother in 2003 or 2004 who lived in one of six poor rural counties in these two areas. The epidemiological design oversampled for poverty and African American families to provide the researchers with a sufficient sample of low-income families to investigate questions specific to poverty, while also maintaining the ability to generalize to a broader population. Detailed information regarding the design of the study is available in the monograph by Vernon-Feagans, Cox, et al. (2013).

Selection of FLP sites. As used in FLP, rural was defined as mid-sized or small towns that were not near an urban center, with no town populations exceeding 50,000 in any of the counties selected (Butler & Beale, 1994). FLP calculated household income by accounting for the contributions of the primary and secondary caregiver's income, as well as any person who lived in the house for at least three nights per week, while also including any supplementary sources of income (e.g., social security retirement, child support, alimony, pensions; Hanson,

McLanahan, & Thompson, 1997). Families were considered low-income if they reported household incomes less than or equal to two times the 2003 federal poverty threshold, made use of social services (e.g., food stamps), and/or reported less than a high school education for the primary and secondary heads of the household. At the time of recruitment, specific incomes were not requested; mothers were only asked to report if they fell above or below the cutoff. Because FLP researchers were interested in children from under-resources families, they focused on counties where at least 50% of the children under five were living with families whose income fell below 200% of the poverty line. Using these parameters, FLP researchers identified three counties in North Carolina and three counties in Pennsylvania.

Recruitment in FLP. Hospital visits were utilized for recruitment, as the intention of FLP was to enroll mothers at the birth of their infant child. FLP's screening instrument included questions about income, education, race of the child, whether the family planned to move in the next three years, and whether English was the primary language spoken in the home. If mothers indicated an intention to move or a primary language other than English, they were not included in the study. The study oversampled for low-income families in both states and African American families in North Carolina. The sites in Pennsylvania were 95% non-African American, which did not allow for oversampling based on race at that site.

In-person recruitment took place at both sites, but families in North Carolina were also recruited by phone. Phone contact was used when families living in the target counties delivered their babies in a non-target county hospital. County courthouse records were systematically searched to identify these families. In both North Carolina and Pennsylvania, recruitment was conducted every day of the 12-month period from September 15, 2003 to September 14, 2004 using a standardized protocol. Administrative data from hospital records

indicated a coverage rate of 89% in Pennsylvania and 73% in North Carolina. Table 1 contains a summary of recruitment and sample data for FLP.

FLP sample. FLP recruiters identified 5,471 (57% NC, 43% PA) women during a 12-month period through hospital visits, hospital staff screening (e.g., asking mothers if they would be willing to participate), and county searches. Twenty-eight percent of the women were identified as ineligible, most often due to non-English speaking, non-target county residence, or an intention to move. Of those families selected, 82% ($N = 1,292$) successfully enrolled in the study (i.e., completed the first home visit when the child was two months of age) and 78% were considered low-income. For more detailed information about the procedures used by FLP in recruitment and enrollment, see the monographs by Vernon-Feagans, Cox, et al. (2013) and Willoughby et al. (2013).

Analysis sample. The current study was conducted with data from FLP children who met the following inclusion criteria: (a) they had not been retained more than one time during their first four years in school (i.e., they were in second or third grade), (b) observational data related to classroom quality was available for at least one year of their first four years in school (kindergarten through third grade), and (c) their teacher completed an emotional-behavioral screening measure for them and the results indicated a borderline or abnormal risk score. If students were receiving special education services under a label of ED and they met the first and second inclusion criteria, they were automatically included in the study. Students could not have repeated more than one grade because some of the measures used in this study were not administered to students until they reached second grade. Based on these inclusion criteria, 235 students were identified to be included in this study. Table 2 contains demographic and descriptive information for the participants.

Children at risk for EBD were identified using the Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001). The SDQ is a norm-referenced, 25-item behavior rating scale that has been validated in numerous research studies and is designed to assess risk for emotional and behavior disorders in children between the ages of 3 and 17. The SDQ is available in three forms, including teacher, parent, and self-report. In this study, third-grade teachers rated students on 20 items (the 5 items for Prosocial Behaviors were not included in the current analysis) divided into the following subscales: (a) Conduct Problems (e.g., *Often fights with other children or bullies them*), (b) Hyperactive Behaviors (e.g., *Constantly fidgeting or squirming*), (c) Emotional Symptoms (e.g., *Often unhappy, depressed, or tearful*), and (d) Peer Problems (e.g., *Rather solitary, tends to play alone*). Given the reluctance to identify children for EBD early in their school careers (Kauffman & Landrum, 2009), and the variability in school readiness due to immaturity in the first years of school (May et al., 1994), identification in third grade was deemed most appropriate. All 20 items of the SDQ were scored using a three-point Likert-type scale (not true = 0, somewhat true = 1, certainly true = 2), with scaling reversed for negatively phrased items (see Appendix A). All subscales have a range of 0-10 and Cronbach's alpha coefficients exceeding .80 (Goodman, 2001). Goodman, Lamping, and Ploubidis (2010) suggested the subscales can be combined to categorize the type of problem behavior as internalizing (Peer Problems plus Emotional Symptoms; $\alpha = .88$) or externalizing (Conduct Problems plus Hyperactive Behaviors; $\alpha = .80$) and that these broader scales are more appropriate for non-clinical samples, such as the one included in FLP.

For the purposes of this study and based on the recommendations of Goodman et al. (2010), students were considered as at risk for EBD in one of the following two ways: (a) they scored in the borderline range on both subscales of either the internalizing (peer problems and

emotional symptoms) or externalizing (conduct problems and hyperactive behaviors) scales, or (b) they scored in the abnormal range on any one of the four subscales. Borderline and abnormal scores for each subscale vary (see Table 3); however, in all four subscales the borderline score is only one point below the abnormal range. A borderline score represents an elevated level of risk, while an abnormal score suggests a very high risk for a clinical diagnosis. While EBD refers to extreme behaviors different from the norm (Hallahan, Kauffman, & Pullen, 2009), previous work regarding students at risk for EBD has highlighted the importance of including students with even slightly elevated levels of behavior problems due to the concerns of under-identification wherein students can “slip through the cracks” (Farmer et al., 2005; Pierangelo & Giuliani, 2008; Rivera et al., 2006). The under-identification of students with EBD is an ongoing problem in the field of education (Forness et al., 2012), as too many students in need of supports have been omitted from research and intervention.

For identification purposes, students were assigned a label of *internalizing* or *externalizing* based on the scale that qualified them for the current study. Some students ($n = 29$; 12.34%) scored in the borderline range on both subscales of one behavior (internalizing or externalizing) and in the abnormal range on one or both of the other subscales. In this case, the type of EBD the student was manifesting was identified as *externalizing* or *internalizing* based on the category in which they scored in the abnormal range. In other words, if a student scored in the borderline range on both emotional symptoms and peer problems (i.e., internalizing behaviors), while also scoring in the borderline range on conduct problems and the abnormal range on hyperactive behaviors (i.e., externalizing behaviors), they were identified as *externalizing* because this type of behavior was rated as the most extreme.

Table 3 contains descriptive data on the sample regarding the number of students with externalizing behaviors and internalizing behaviors differentiated by gender, race, and type of EBD (e.g., number of Caucasian female internalizers). The largest group of students represented in this study was African American males with externalizing behaviors ($n = 78$; 33.19% of the sample), while the smallest group of students was Caucasian males with internalizing behaviors ($n = 7$; 2.98% of the sample).

Measures

Behavior. The Student's Achievement-Relevant Actions in the Classroom (SARAC; Wellborn, 1991) is a self-report measure of students' engagement and disaffection in school. The measure is a 20-item scale designed to capture students' behavioral and emotional participation in or withdrawal from their classroom's learning activities (see Appendix B). The SARAC measures the following four dimensions, each consisting of five items: (a) Behavioral Engagement, (b) Emotional Engagement, (c) Behavioral Disaffection, and (d) Emotional Disaffection. Behavioral engagement assesses students' effort, persistence, on-task behavior, and class participation (e.g., *When I'm in class, I listen very carefully*). Emotional engagement assesses students' engaged emotions in relation to learning (e.g., *I enjoy learning new things in class*). Behavioral disaffection assesses students' withdrawal from learning activities, passivity, or lack of effort and attention (e.g., *When I'm in class, I just act like I'm working*). Emotional disaffection measures emotions related to withdrawal or alienation in learning activities (e.g., *When we work on something in class, I feel discouraged*). Total engagement and total disaffection scores are calculated by summing the emotional and behavioral aspects within each construct. Cronbach's alpha coefficients for engagement range from .79 to .86, while coefficients for disaffection range from .86 to .89 (Skinner et al., 2009). In this study, the

SARAC was completed by all target children when the children were in second and third grade as a part of a larger in-person assessment conducted by FLP research assistants in schools. Students responded using a four-point Likert-type scale (1 = not at all true; 2 = not very true; 3 = sort of true; 4 = very true). *Engagement* and *disaffection* in third grade were two of the outcome variables in this study.

Reading achievement. The Woodcock-Johnson III Tests of Achievement (WJ-III; Woodcock, Mather, & Schrank, 2004) are a norm-referenced battery of subtests for measuring general scholastic aptitude, oral language, and academic achievement. The norming sample for WJ-III consisted of a nationally representative sample of 8,818 participants drawn from 100 communities in the United States and was selected using a stratified random sampling design that controlled for Census region, community size, gender, race, and Hispanic origin. Reliability estimates for individual subtests range from .81 to .94. Each subtest takes approximately 10 minutes to administer. The examinations are similar to those routinely administered in educational settings (Woodcock et al., 2004).

To measure students' reading achievement after four years in school, two of the meaning-focused subtests of the WJ-III were used. The *Passage Comprehension* subtest measures symbolic learning and asks the student to match a rebus (i.e., a pictographic representation of a word) with a picture of an item. More advanced questions require the student to read a short passage and provide missing words to make sense of the sentences within a modified cloze procedure. The median reliability for *Passage Comprehension* is .83 (Woodcock et al., 2004). The *Picture Vocabulary* subtest measures oral language development and lexical knowledge. Students are required to verbally identify pictures of objects. The median reliability for *Picture Vocabulary* is .90 (Woodcock et al., 2004).

The *W*-score for each subtest was used in analysis to measure students' reading achievement. The *W*-score is the metric from which all standardized scores, percentile ranks, and grade-equivalent scores on the WJ-III tests are derived (Jaffe, 2009). According to Jaffe, the primary advantage of the *W*-score is that it is measured on an equal-interval scale, similar to that of a ruler, which allows differences along the scale to be compared regardless of their position. When using achievement scores for statistical analysis, it is preferable to use equal-interval scales (Woodcock, 1999). *Comprehension* and *vocabulary* in third grade were outcome variables in this study.

Classroom quality. The CLASS (Pianta, La Paro et al., 2008) is an observational instrument with three distinct subscales (Emotional Support, Classroom Organization, and Instructional Support) designed to assess classroom quality in K-3 classrooms based on interactions between teachers and students. Each subscale is rated on a seven-point Likert-type scale ranging from low to high (see Appendix C). Emotional Support and Classroom Organization represented classroom management in this study, while the third dimension of Instructional Support was used as a covariate to control for the quality of instruction the students received. The CLASS dimensions are based on developmental theory and research suggesting interactions between students and adults are the primary mechanism of student development and learning. The entire CLASS observation typically starts at the beginning of the school day and continues throughout the morning for at least two hours.

The CLASS standardization sample included 1,791 classrooms across six studies in the United States (Pianta, La Paro et al., 2008). The Emotional Support domain includes the following dimensions: Positive Climate, Negative Climate, Teacher Sensitivity, and Regard for Student Perspectives. The Classroom Organization domain includes the following dimensions:

Behavior Management, Productivity, and Instructional Learning Formats. The Instructional Support domain includes the following dimensions: Concept Development, Quality of Feedback, and Language Modeling. Alpha reliability coefficients for the three domains range from .76 to .94. To complete the ratings, the observer must make judgments based on the range, frequency, intention, and tone of interpersonal and individual behaviors during the observations to provide a score ranging from one to seven (see Appendix C).

Research assistants for FLP had a two-day training period for the CLASS observations and were tested at the end of the second day. They were trained by an FLP research staff member who had been certified as a CLASS trainer. Training consisted of a PowerPoint presentation describing all of the CLASS dimensions, a discussion following the presentation, and short clips of examples of all of the dimensions. The last stage of the CLASS training was reliability testing, which took place at the end of the second day. The reliability test consisted of watching and scoring five, twenty-minute video segments with no feedback or discussion. The research assistants then had twenty minutes to score each of the five videos. To pass the reliability test, research assistants had to score within one point of the master coder on 80% of all codes across segments and score within one point of the master coder on each dimension on at least two of the five segments. Research assistants were recertified every year using videos on the CLASS website.

In the current study, research assistants observed and scored in the classroom for two 30-minute cycles, totaling one hour. While this is less than the four to six cycles outlined in the K-3 CLASS manual, the correlation between two- and four-cycle CLASS observations ranges from .89 to .95 (Pianta, La Paro et al., 2008). The 30-minute cycles consisted of a 20-minute observation period during which the research assistants watched classroom interactions (mostly

focused on those between the teacher and students) and took notes, followed by a 10-minute period for recording codes.

Classroom management. Classroom management in each grade was measured as the mean of the Emotional Support and Classroom Organization domains of the CLASS (see Appendix C), which are often highly correlated (Curby et al., 2010). While the three-domain structure of the CLASS has been well established (Hamre et al. 2013), some versions of the CLASS, such as the one designed for use with toddlers (La Paro et al., 2012), have just two categories, with one being that of emotional and behavioral support. Furthermore, Cronbach's alpha coefficients between the Classroom Organization and Emotional Support domains in this study in kindergarten ($\alpha = .85$), first grade ($\alpha = .76$), second grade ($\alpha = .76$), and third grade ($\alpha = .83$) supported the notion of an underlying latent construct, which is defined herein as *classroom management*. While the CLASS does not capture child-level experiences, it is a well-established measure of classroom quality that relies on independent assessments.

A dosage variable representing the proportion of high- versus low-quality classroom management across four years was created for analysis. The dosage variable was created to represent the percentage of time students experienced high- versus low-quality classroom management from kindergarten through third grade. If the classroom management score was below 5.00 for a given year, it was coded as 0 (Low); if it was at or above 5.00, it was coded as 1 (High). The value of 5.00 was chosen because it represents the lower end of the High Quality rating in the CLASS and it was very near the average for the current sample ($M = 5.13$, $SD = 0.43$). Furthermore, a meta-analysis of studies using the CLASS in early childhood settings suggested a cut-point of 5.00 was the most appropriate to distinguish between low- and high-quality Emotional Support and Classroom Organization (Burchinal, Kainz, & Cai, 2011). A

dosage value of 1.00 would mean the student experienced four years of high-quality classroom management (i.e., 1-1-1-1), whereas a dosage value of 0.50 would mean the student experienced two years of high-quality classroom management and two years of low-quality classroom management (i.e., 1-0-0-1). Due to missing data, not all students had four years of CLASS scores available. Some students ($n = 26$) were missing one year of CLASS data. However, because CLASS data was missing for only 11.06% of the sample, the students' dosage score was calculated as the average of the available data. Dosage of *classroom management quality* was the independent variable of interest.

Covariates. A total of ten variables were used as covariates in separate analyses. In all models, the following eight variables were always included: (a) *income-to-needs ratio*, (b) *maternal education*, (c) *race* (0 = Caucasian, 1 = African American), (d) *gender* (0 = female, 1 = male), (e) *EBD type* (0 = internalizing, 1 = externalizing), (f) *grade* (0 = second grade, 1 = third grade), (g) *Individualized Education Plan (IEP) status* (0 = no, 1 = yes), and (h) dosage of *classroom instruction quality*. Maternal education and income-to-needs ratio represented family socioeconomic status (SES). *Grade* was included to account for students who had previously been retained for one year. Students who had repeated one grade ($n = 49$) were included in the sample because they were administered the same exams as their peers who had not been retained; furthermore, grade retention is a common occurrence for students with or at risk for EBD (Walker et al., 2004). For the purposes of this study, *third grade* refers to students who were actually in third grade ($n = 186$) and those who had been retained for one year and, consequently, were in second grade ($n = 49$). Both groups of children had been in school for four years since kindergarten-entry.

The presence of an IEP was included to account for students who were identified by their teachers as receiving special education services ($n = 38$). Teachers indicated only the presence of an IEP and under what label students were receiving services; no other information about special education programs was available. Of the students with an IEP, services were provided under the following labels: Other Health Impairment (OHI; $n = 10$), Learning Disability (LD; $n = 7$), Intellectual Disability (ID; $n = 4$), ED ($n = 3$), Speech or Language Impairment (SLI; $n = 3$), and Autism ($n = 3$). Eight students had multiple disabilities on their IEP, including the following: one for ID and SLI, one for ED and LD, one for ID and SLI, one for LD, OHI, and SLI, one for ED and SLI, one for autism and ED, and two for ED and ID. Demographic information for students with an IEP was as follows: 57.89% male ($n = 22$), 47.37% African American ($n = 18$), 28.95% retained ($n = 11$), and 84.21% externalizers ($n = 32$). With the exception of the three students with autism, those with an IEP were receiving services for high-incidence disabilities. Though still categorized as low-incidence, autism is the fastest growing developmental disability in the United States, with estimates suggesting a prevalence rate of 1 in 68 (Centers for Disease Control and Prevention, 2014). Visual inspection of the data indicated no statistical outliers with respect to reading or behavior outcomes for any of the students with an IEP. While students with special needs are not a homogenous group of learners, it was decided that controlling for IEP status was the most appropriate method for analysis.

The quality of classroom instruction in each grade was measured by the Instructional Support domain of the CLASS. A dosage variable representing the proportion of better- versus low-quality classroom instruction across four years was created for analysis. The dosage variable was created to represent the percentage of time students experienced better- or low-quality classroom instruction from kindergarten through third grade. The cut-point for better-

versus low-quality classroom instruction was 3.00. If the classroom instruction score was below 3.00 for a given year, it was coded as 0 (Low); if it was at or above 3.00, it was coded as 1 (Better). The value of 3.00 was chosen for two reasons. First, it was very near the average for the current sample ($M = 2.95$, $SD = 0.59$). Second, attempts to mark the cut-point at 5.00 (High) resulted in a severely skewed distribution, with 91.36% of the sample receiving a dosage value of 0.00 and no students experiencing more than one year of high-quality classroom instruction. Furthermore, a meta-analysis of studies using the CLASS in early childhood settings suggested a cut-point of 3.00 was the most appropriate to distinguish between low- and better-quality Instructional Support (Burchinal et al., 2011). The overall lower range of Instructional Support when compared to Emotional Support and Classroom Organization is similar to results from the majority of CLASS studies (Pianta et al., 2007). A dosage value of 0.75 would mean the student experienced three years of better-quality classroom instruction (i.e., 1-1-0-1), whereas a dosage value of 0.25 would mean the student experienced one year of better-quality classroom instruction and three years of low-quality classroom instruction (i.e., 0-1-0-0).

The final two variables included as covariates were students' entry-level literacy skills in prekindergarten, for the two models regarding students' reading achievement in third grade, and social competence in prekindergarten, for the two models regarding students' self-reported behavior in third grade. To assess students' entry-level literacy skills, the *Letter-Word Identification* subtest of the WJ-III was used. Children were asked to identify letters presented in large type and, as the test increased in difficulty, pronounce words correctly. The median reliability for *Letter-Word Identification* is .91 (Woodcock et al., 2004). To assess students' entry-level social competence, the Teacher Social Competence Scale (SCS; Conduct Problems Prevention Research Group [CPPRG], 1995) was used. The SCS contains three separate

subscales, two of which (Emotion Regulation and Prosocial Behavior) can be combined to create a nine-item measure of social competence. The Cronbach's alpha coefficient for the social competence scale is .91 (CPPRG, 1995). In this study, prekindergarten teachers rated children with responses to nine separate questions using a Likert-type scale (1 = almost never; 2 = rarely; 3 = sometimes; 4 = often; 5 = very often; 6 = almost always; see Appendix D).

Sample Comparison

Independent sample *t*-tests conducted between the subsample of children included in this study ($n = 235$) and the rest of the children in FLP revealed significant differences on several variables (see Table 4). Children not included in the subsample were more likely to be female, $t(1,217) = -2.79, p = .005$; more likely to be Caucasian, $t(1,217) = -6.26, p < .001$; less likely to have an IEP, $t(965) = -4.03, p < .001$; and less likely to experience grade retention, $t(965) = 3.27, p = .001$. Additionally, children in the larger FLP sample came from homes with a higher income-to-needs ratio, $t(1,104) = 4.06, p < .001$; had mothers with more years of education, $t(1,112) = 5.06, p < .001$; entered school with superior literacy skills, $t(992) = 2.01, p = .045$, and greater social competence, $t(838) = 6.95, p < .001$; scored higher on measures of reading comprehension, $t(458) = 2.78, p = .006$, and vocabulary, $t(443) = 2.88, p = .004$, in third grade; reported higher levels of engagement, $t(903) = 4.24, p < .001$, and lower levels of disaffection, $t(903) = -6.97, p < .001$, in third grade; had a higher observed quality of classroom instruction from kindergarten through third grade, $t(809) = 3.11, p = .002$; and had a higher observed quality of classroom management from kindergarten through third grade, $t(809) = 3.56, p < .001$.

Taken together, the results of the independent sample *t*-tests suggested the sample for the current study can be characterized as an extremely high-risk group of students who are at a significant disadvantage compared to their peers. The average years of education for mothers of

children in the current sample was less than that required for a high school diploma ($M = 11.69$, $SD = 0.88$). Only three mothers (1.30%) had earned an Associate's degree and not one child came from a home where the mother had earned a Bachelor's degree; furthermore, more than three-quarters of the sample (76.09%) were living in poverty (i.e., had an income-to-needs ratio less than or equal to 2.00). The children in this sample entered school with significantly inferior literacy skills and this gap in reading achievement remained across the first four years of their schooling. The children in the current study also entered school with lower ratings of social competence, which may have manifested in their reports of feeling less engaged and more disaffected four years later. Finally, children in this study experienced a lower quality of classroom instruction and classroom management from their teachers, which may have further compounded their academic and behavioral struggles.

Analytic Plan

All analyses were conducted using SAS 9.2. Missing data were estimated using the multiple imputation procedure in SAS (PROC MI). Multiple imputation serves to reduce bias due to missing data in longitudinal research designs (Spratt et al., 2010). Regarding *comprehension* and *vocabulary*, FLP researchers employed planned missingness. All students received one test (*comprehension* or *vocabulary*) the first year and the other test the following year. Planned missingness is an acceptable approach for longitudinal designs with low rates of attrition (Graham, Taylor, & Cimsille, 2001), such as FLP. Students' scores from the previous year were used as auxiliary variables in the multiple imputation procedure (Schafer, 1997). A total of 20 imputed datasets were created, with the corresponding regression coefficients and standard errors averaged to provide an accurate estimate of the associations between students' reading achievement and behavior with all predictors. Four separate regression analyses were

conducted to explore associations with each of the four outcomes. In all regression models, covariates were mean-centered.

Research question one. *In what ways does the dosage of classroom management quality experienced by students with or at risk for EBD from kindergarten through third grade relate to their scores in reading comprehension and vocabulary in third grade for children living in low-wealth rural communities?* To explore the unique associations between classroom management quality and students' reading achievement, hierarchical multiple regression analyses were undertaken. Predictor variables were entered in a block-wise fashion in separate models for *comprehension* and *vocabulary*. In the first block, five child demographic variables were entered (*income-to-needs ratio, maternal education, race, gender, and EBD type*). In the second block, four variables related to schooling were entered (*grade, Letter-Word Identification, IEP, and dosage of classroom instruction quality*). In the third block, the dosage of *classroom management quality* was entered. Figure 1 represents the main effects model for the first research question.

Research question two. *In what ways does the dosage of classroom management quality experienced by students with or at risk for EBD from kindergarten through third grade relate to their engagement and disaffection in third grade for children living in low-wealth rural communities?* To explore the unique associations between classroom management quality and students' engagement and disaffection, hierarchical multiple regression analyses were undertaken. Predictor variables were entered in a block-wise fashion in separate models for *engagement* and *disaffection*. In the first block, five child demographic variables were entered (*income-to-needs ratio, maternal education, race, gender, and EBD type*). In the second block, four variables related to schooling and behavior were entered (*grade, social competence, IEP,*

and dosage of *classroom instruction quality*). In the third block, the dosage of *classroom management quality* was entered. Figure 2 represents the main effects model for the second research question.

Research question three. *For students with or at risk for EBD living in low-wealth rural communities, in what ways are the aforementioned associations between the dosage of classroom management quality and students' reading achievement and behavior moderated by race, gender, or type of EBD?* To explore possible moderation by race, gender, or EBD type, hierarchical multiple regression analyses were undertaken. Predictor variables were entered in a block-wise fashion in separate models for each of the four outcomes. To explore two-way interactions by *race, gender, and EBD type*, a fourth block was added to all previous regression models. In block four, each of the three moderation variables was allowed to interact with dosage of *classroom management quality*. To explore three-way interactions for *comprehension and vocabulary*, a fifth block was added to the two regression models. In block five, the three-way interaction between *gender, race, and dosage of classroom management quality* was added. Figure 3 represents the full model with main effects and moderation. To explore the three-way interactions for *engagement and disaffection*, a fifth block was added to the two regression models. In block five, the three-way interaction between *gender, EBD type, and dosage of classroom management quality* was added. Figure 4 represents the full model with main effects and moderation.

Nesting. The nesting of data in school-based research is a salient concern for researchers. Nesting suggests students are not randomly assigned to classrooms or schools and, as a result, students in the same classroom may be more similar to one another than students in different classrooms (Raudenbush & Bryk, 2002). However, nesting was not an issue for this

study. Table 5 contains demographic data for students' teachers. The 235 students in this study were spread across 189 different classrooms and 81 different schools. Regarding the schools the children were attending, 88.61% were receiving Title-1 funds. The average school enrollment was 491.50 ($SD = 217.58$) students and an average of 56.23% of students ($SD = 25.35$) were eligible for free and/or reduced-priced lunch. No significant differences were found between schools in the current sample and the remaining schools in the larger FLP sample. Three significant differences were found between teachers of children in the current study and the remaining third-grade teachers in the larger FLP sample. While the majority of teachers in both studies were Caucasian, teachers in the current sample were more likely to be African American, $t(444) = -2.77, p = .006$. Teachers in the current sample were also more likely to live in North Carolina, $t(500) = -3.88, p < .001$, and more likely to have a Bachelor's degree as their highest level of educational attainment, $t(445) = 2.32, p = .021$. The racial differences were most likely a function of North Carolina having a higher concentration of African American teachers and children. Sites in Pennsylvania were 95% non-African American.

Of the classrooms included in this study, 83.07% ($n = 157$) had one target child, 11.64% ($n = 22$) had two target children, 3.70% ($n = 7$) had three target children, and 1.59% ($n = 3$) had four or five target children. Therefore, multilevel models, which take nesting into account, were neither necessary nor possible for this study.

Effect sizes. For significant effects, a partial correlation (pr) effect size was calculated because it represents both the direction and the magnitude of the effect (McCarty & Rosenthal, 2000). In a multiple regression model, each predictor has a regression coefficient (i.e., a beta-weight representing the amount of change in an outcome variable as a function of a one-unit change in the predictor) and a corresponding t -statistic. The pr effect size is defined as the

square root of the quotient derived from squaring the t -statistic and dividing by the sum of the t -statistic squared plus the associated degrees of freedom. The formula for the effect size is as follows: $pr = \sqrt{[t^2 / (t^2 + df)]}$. Interpretation of the magnitude of the effect is similar to that of Cohen's d (Cohen, 1988).

Chapter 4

Results

Descriptive Results

Means and standard deviations for the four outcome variables, as well as students' prekindergarten *Letter-Word Identification* and *social competence* (used as covariates), are reported in Table 2. Although imputed data were used in the regression models, non-imputed data are presented in order to provide the most accurate description of the sample included in this study. *W*-scores related to reading achievement were used in regression analysis, but to aid in interpretability both standard scores (based on grade equivalents) and *W*-scores are presented in Table 2. Target children averaged scores below the standard mean of 100 on the *Letter-Word Identification* ($M = 96.64$, $SD = 11.70$) subtest in prekindergarten, as well as on the *Passage Comprehension* ($M = 92.74$, $SD = 10.73$) and *Picture Vocabulary* ($M = 97.35$, $SD = 9.06$) subtests in third grade. The mean teacher ratings of children's *social competence* at prekindergarten were slightly lower (3.49 vs. 4.16) than those reported in the original study of Head Start children on which the measure was normed (CPPRG, 1995). On the self-reported measure of *engagement*, with scores ranging from 0-40, children rated themselves as highly engaged with an average score of 35.61 ($SD = 4.07$). However, scores on the self-report measure of *disaffection* were fairly normally distributed, with an average score of 21.22 ($SD = 5.62$). Therefore, children in the subsample were on-average reporting themselves to be highly engaged in classroom activities and school in general, but within the group there was a wider range of feelings of disaffection.

The dosage of *classroom management quality* (variable of interest) and *classroom instruction quality* (covariate) across the first four years in school is presented in Table 6. Twelve students (5.10%) had a consistently low-quality classroom management experience, while thirty-nine students (16.60%) had a consistently high-quality classroom management experience. The most common dosage amounts for the current sample were 0.50 ($n = 70$) and 0.75 ($n = 70$). Twenty-six students (11.06%) experienced consistently low-quality classroom instruction, while twenty-four students (10.21%) experienced consistently better-quality classroom instruction. The most common dosage amount for the current sample was 0.50 ($n = 67$). Using the original scale of 1-7 across children's first four years of schooling, the average *classroom management quality* score was observed to be 5.13 ($SD = 0.43$), falling in the lower end of high quality, while the average *classroom instruction quality* score was observed to be 2.95 ($SD = 0.59$), falling in the higher end of low quality for this study.

Zero-order correlations. Correlations between all control and outcome variables using non-imputed data are reported in Table 7. Several significant correlations were found, but some in particular are worth noting. For *comprehension*, significant correlations to note included those with prekindergarten *Letter-Word Identification* (0.53, $p < .001$), *IEP* status (-0.30, $p = .003$), *vocabulary* (0.19, $p < .001$), and dosage of *classroom management quality* (0.24, $p = .010$). Two noteworthy correlations for *vocabulary* were those with prekindergarten *Letter Word Identification* (0.26, $p = .013$) and *IEP* status (-0.20, $p = .041$). The only significant correlation for children's prekindergarten *social competence* was that with their prekindergarten *Letter-Word Identification* (0.21, $p = .006$), which suggests students with better literacy skills were also rated as being more socially competent in prekindergarten. As expected, *engagement* and *disaffection* were negatively correlated (-0.41, $p < .001$), while dosage of *classroom management*

quality and dosage of *classroom instruction quality* were positively correlated (0.38, $p < .001$). It is interesting to note that the dosage of *classroom management quality*, and not *classroom instruction quality*, was significantly correlated with one but not both academic outcomes (*comprehension*). Furthermore, dosage of *classroom management quality* was related to *income-to-needs ratio* (0.15, $p = .026$), *maternal education* (0.16, $p = .012$), *race* (-0.34, $p < .001$), and *EBD type* (-0.18, $p = .006$); although not directly comparable, these findings suggest children with internalizing behaviors, Caucasian children, and those from families with a higher SES experienced a better quality of classroom management across their first four years in school. Two final relationships to highlight are those between *engagement* and *race* (0.17, $p = .013$), and between *engagement* and *IEP* status (-0.16, $p = .033$), which suggest African American children in this subsample reported higher levels of engagement than their Caucasian peers, while students who were receiving special education services reported lower levels of engagement than their peers.

Hierarchical Regression Results

Model building was the same for all four outcomes in blocks 1 to 4. In block 1, students' demographic information was entered into the model. In block 2, school-related variables were entered into the model. For *comprehension* and *vocabulary*, prekindergarten *Letter-Word Identification* was included, while in models for *engagement* and *disaffection*, prekindergarten *social competency* was included. In block 3, the main effect of dosage of *classroom management quality* was entered into the model. In block 4, two-way interactions with dosage of *classroom management quality* based on *race*, *gender*, and *EBD type* were entered into the model. In block 5, separate three-way interactions were entered into the models. The three-way interaction for *comprehension* and *vocabulary* was between *gender*, *race*, and dosage of

classroom management quality. The three-way interaction for *engagement* and *disaffection* was between *gender*, *EBD type*, and dosage of *classroom management quality*.

In the first and second research questions, I hypothesized the dosage of *classroom management quality* would have significant associations with students' *comprehension* and *vocabulary*, as well as their self-reported *engagement* and *disaffection*, above and beyond the effects of all covariates. The proposed associations were not significant in any of the models. In my third research question, I proposed five exploratory sub-questions, but no hypotheses. First, I proposed the exploration of moderation effects for all four outcomes by *race*. No significant interactions were found in any of the four outcomes. Second, I proposed the exploration of moderation for all four outcomes by *EBD type*. No significant interactions were found in any of the four outcomes. Third, I proposed the exploration of moderation for all four outcomes by *gender*. Significant interactions were found between *gender* and the dosage of *classroom management quality* related to *comprehension* and *vocabulary*. Table 8 contains descriptive data for the variables of interest in the *comprehension* and *vocabulary* models, with data separated by gender. The only significant difference between boys and girls was in the type of behavior they were exhibiting, where girls were more likely than boys to manifest internalizing behaviors $t(233) = -3.82, p < .001$. Fourth, I proposed the possibility of a three-way interaction for *comprehension* and *vocabulary* between *race*, *gender*, and dosage of *classroom management quality*. No significant interaction was found. Finally, I proposed the possibility of a three-way interaction for *engagement* and *disaffection* between *EBD type*, *gender*, and dosage of *classroom management quality*. No significant interaction was found.

Comprehension. There was no main effect for dosage of *classroom management quality* related to *comprehension* for students with or at risk for EBD; however, the proposed

interaction between *gender* and dosage of *classroom management quality* as related to *comprehension* scores in third grade was significant in block 4 ($B = 21.49, p = .013$; see Table 9). The interaction remained significant in the final model ($B = 41.47, p = .012$). Combined, main effects and interaction effects for classroom management accounted for an additional 8% of the variance in students' *comprehension*, with the full model accounting for 53% of the variance, $R^2 = 0.53$; $F(13, 234) = 31.33, p = .284$. The interaction between *gender* and dosage of *classroom management quality* is displayed in Figure 5. Interpretation of the interaction is explained for students based on gender. For girls ($n = 94$), analysis of the slope indicated the effect was positive, but not significant. For boys ($n = 141$), analysis of the slope indicated the effect was significant, positive, and can be considered moderate ($\beta = 0.51, p = .026$). As the dosage of *classroom management quality* experienced across four years increased, boys with or at risk for EBD scored significantly higher in *comprehension*.

The significant predictors of achievement in the full model were *maternal education* ($B = 1.94, p = .013$), *Letter-Word Identification* ($B = .022, p < .001$), *grade* ($B = 13.05, p < .001$), and *IEP status* ($B = -6.69, p = .016$), which suggests students with better reading skills at school-entry, those who had mothers with more education, those who had not been retained, and those not receiving special education services performed better on the subtest.

Vocabulary. There was no main effect for dosage of *classroom management quality* related to *vocabulary* for students with or at risk for EBD; however, the proposed interaction between *gender* and dosage of *classroom management quality* as related to *vocabulary* scores in third grade was significant in block 4 ($B = 11.06, p = .038$; see Table 10). Combined, main effects and interaction effects for classroom management accounted for an additional 7% of the variance in students' *vocabulary*, with the full model accounting for 33% of the variance, $R^2 =$

0.33; $F(13, 234) = 13.53, p = .303$. The interaction between *gender* and dosage of *classroom management quality* is displayed in Figure 6. While the positive slopes for boys and girls were significantly different from each other, probing of the interaction revealed that neither the slopes for boys ($p = .126$) nor girls ($p = .743$) were significantly different from zero. However, the significant interaction and visual inspection of the data suggested that while neither effect was significant, boys' *vocabulary* scores increased at a significantly greater rate than the scores for girls as the *dosage of classroom management quality* across four years increased.

The significant predictors of achievement in the full model were *maternal education* ($B = 2.27, p = .026$), *Letter-Word Identification* ($B = 0.09, p = .019$), and *IEP* status ($B = -4.64, p = .023$), which suggests students with better reading skills at school-entry, those who had mothers with more education, and those not receiving special education services performed better on the subtest.

Engagement. No significant main effects or interactions for dosage of *classroom management quality* related to *engagement* were found for students with or at risk for EBD (see Table 11). Combined, main effects and interaction effects accounted for an additional 4% of the variance in *engagement*, with the full model accounting for 14% of the variance, $R^2 = 0.14$; $F(13, 234) = 6.96, p = .156$. The only significant predictors of *engagement* in the final model were students' *income-to-needs ratio* ($B = -0.56, p = .008$) and *IEP* status ($B = -2.06, p = .004$), which suggests students from lower-income families and those not receiving services in special education were reporting higher levels of engagement.

Disaffection. No significant main effects or interactions for dosage of *classroom management quality* related to *disaffection* were found for students with or at risk for EBD (see Table 12). Combined, main effects and interaction effects accounted for an additional 3% of the

variance in *disaffection*, with the full model accounting for 9% of the variance, $R^2 = 0.09$; $F(13, 234) = 7.09, p = .163$. None of the included variables were significant predictors of *disaffection*; however, students *income-to-needs ratio* ($B = 0.53, p = .067$), *EBD type* ($B = 2.44, p = .059$), and prekindergarten *social competence* ($B = 0.86, p = .077$) all approached significance.

Chapter 5

Discussion

The first step in helping students with or at risk for EBD is to identify those students who are struggling with emotional and behavioral problems. In their comprehensive meta-analysis of the academic status of students with EBD, Reid et al. (2004) were unable to locate a single study using epidemiological methods, as most studies of students with or at risk for EBD have relied on convenience sampling techniques. The current study improved upon and extended past research in four specific areas. First, the study focused on a representative sample of understudied rural children of America and, unlike most other studies of classroom quality, included a sample of students with or at risk for EBD that was also racially and economically diverse. Second, and in line with the broadened view of classroom management that extends beyond simply controlling student behavior (Cothran et al., 2003; Emmer & Sabornie, 2015; Emmer & Stough, 2001; Nie & Lau, 2009), this study considered both classroom organization and emotional support when measuring classroom management quality. Third, knowing students experience a range of classroom quality from year to year (Gazelle, 2006; La Paro et al., 2009; Pianta, Belsky et al., 2008), this study was longitudinal and followed students from school-entry in kindergarten through third grade, measuring classroom management quality in each of the four years. Finally, this study extended recent work using the CLASS that has suggested the relationship between a child's immediate environment and their academic and behavioral outcomes may not be linear, but instead consists of thresholds (i.e., cut-points) that can be used to distinguish between low- and high-quality supports (Burchinal, Vernon-Feagans, Vitiello,

Greenberg, & FLP Key Investigators, 2014). In the remainder of this chapter, I provide the following information: (a) an overview of the findings and their implications for future research, (b) implications for teachers and teacher education, (c) limitations of the study, and (d) concluding thoughts.

Overview of the Findings and Implications

In this overview of the findings, I first report on the quality of classroom management taking place in rural schools for students with or at risk for EBD. Next, I address the results of my study with regards to the first two research questions. I include a discussion of exploratory moderation analyses from the third research question within my discussion of the first two research questions. Within these sections, I make recommendations for future research throughout the discussion of findings.

Classroom management quality for students with or at risk for EBD. The average classroom management quality experienced by rural children with or at risk for EBD in their first four years of school in this study can be characterized as relatively high ($M = 5.13$, $SD = 0.43$); however, 17.87% ($n = 42$) of the students experienced at-most only one year of high-quality classroom management and only 16.6% ($n = 39$) experienced consistently high-quality classroom management across the first four years of early elementary school. Not surprisingly, classroom management quality was significantly correlated with classroom instruction quality at 0.38 ($p < .001$), suggesting teachers who managed the classroom better were rated as more effective in their instruction. Still, it is unfortunate that the overall quality of classroom instruction was relatively low ($M = 2.95$, $SD = 0.59$). Classroom management quality was positively correlated with reading comprehension at 0.24 ($p = .010$), while instructional quality was not.

In previous work, Gazelle (2006) found the emotional climate of the first-grade classroom was significantly related to children's race and family income for a group of children exhibiting internalizing behaviors, such that Caucasian students and those with higher family incomes experienced a higher quality emotional climate. Similarly, the current study found significant correlations for classroom management quality with family income ($0.15, p = .026$) and race ($-0.34, p < .001$), pointing to an advantage for the same groups of students as in Gazelle's study. Furthermore, significant correlations with behavior ($-0.18, p = .006$) and maternal education ($0.16, p = .012$) indicated an advantage in classroom management quality for internalizing students and those who had mothers with a higher level of education. The significant relationships underscored the importance of controlling for these variables in analysis.

Regarding behavior, it is understandable that students' externalizing behaviors were associated with more classroom management difficulties for teachers, as these behaviors may interrupt the flow of classroom instruction and strain teachers' management skills. However, the correlations regarding demographics suggest the students known to be more at risk for school failure (i.e., students from low SES and minority families) are being further marginalized by the quality of classroom management they experience. While it is possible variables not included in this study, such as housing patterns, may indicate that students from lower-income families and minority students were concentrated in lower quality schools (Hibel et al., 2010), the finding underscores the call for more culturally responsive classroom management practices and educational policies that ensure an equitable school experience for all children (Bondy et al., 2007; Gay, 2006; Weinstein, Tomlinson-Clarke, & Curran, 2004).

Reading achievement of students with or at risk for EBD. The hypothesized main effects between the dosage of classroom management quality and students' reading achievement

were not significant, nor were the interaction effects regarding race or the type of EBD. However, exploratory moderation analysis regarding gender revealed that boys with or at risk for EBD benefitted to a significant degree from high-quality classroom management in relation to their reading comprehension scores. Two issues regarding this finding warrant discussion. The first concerns the relationship between reading comprehension and vocabulary, while the second is related to gender differences in the expression of EBD.

Vocabulary is often a strong predictor of reading comprehension (Baumann, 2009; Torgesen et al., 1997), but in this study the correlation between the two constructs was relatively small at 0.19 ($p < .001$). While vocabulary lessons may be embedded in literacy instruction, the focus in the elementary grades, especially in third grade, is on reading comprehension. Indeed, vocabulary and comprehension, while related, are unique constructs of literacy (National Reading Panel, 2000). While there was a significant interaction by gender regarding students' vocabulary scores, the slopes for both girls and boys ultimately proved non-significant. It is possible that with a larger sample size the positive-trending effect, especially for boys, may have proven significant. The range of scores for reading comprehension (419-515) was larger than that for vocabulary (470-517) and, overall, students scored higher on the vocabulary subtest; thus, it is also possible the limited range played a role in the non-significant findings for vocabulary.

Finally, while the full model for reading comprehension accounted for 53% of the variance in students' scores, the full model for vocabulary accounted for just 33% of students' scores. Therefore, there may be another variable or group of variables that can better explain the variation in students' vocabulary achievement. Future research on students with or at risk for EBD may benefit from the inclusion of variables related to the home environment, especially in

rural settings. Exposure to print materials in the home has long been known as a predictor of students' early vocabulary development (Heath, 1983; Mol & Bus, 2011). From an ecological perspective, it is likely home-literacy practices with parents and other macro-level influences (e.g., community values) play a role in children's reading achievement (Vernon-Feagans, Head-Reeves, & Kainz, 2004).

The second issue to explore centers on the following question: Why did boys benefit from classroom management quality in relation to reading comprehension, but girls did not? The difference in slopes for boys and girls helps to explain the absence of a main effect. Examination of Figure 5 reveals that while boys scored significantly higher in reading comprehension as the classroom management quality improved, the slope for girls, while positive, was not significant. The extant literature on students with or at risk for EBD suggests girls are more likely than boys to exhibit internalizing disorders (Walker et al., 2004) and the results from this study, though with a comparatively smaller sample size, confirmed this significant difference regarding gender and behavior (see Table 8). Of the students in this study displaying internalizing behaviors, 64.44% were girls. Girls with internalizing disorders, due to the discrete nature of their struggles, may be less likely to have their needs addressed by classroom teachers. Internalizing behaviors may go unnoticed or, if identified, unaddressed because teachers are unsure of how to intervene (Conley et al., 2014; Seeley et al., 2014). It is therefore possible that teachers in this study were rated as high-quality classroom managers based largely on their interactions with boys, potentially at the cost of the girls with or at risk for EBD in the classroom.

While the CLASS (Pianta, La Paro et al., 2008) does not capture classroom quality at the student level, it is probable teachers were rated with higher quality scores when they were able to efficiently and effectively manage students' externalizing behaviors. Boys ($n = 141$; 60%), and

externalizing boys in particular ($n = 125$; 53.19%), represented the majority of students in this study. As boys disrupted the classroom, teachers may have been called on to exercise more management skills, possibly causing the boys to become more attentive and therefore better able to learn. Regarding girls with externalizing behaviors, qualitative reports from teachers have suggested teachers feel an aversion to working with them, feeling the students' needs are beyond their capabilities (Srsic & Rice, 2012). Previous classroom observational research in the elementary grades has found high-quality emotional support was related to boys being more accepted by peers (Gazelle, 2006) and boys engaging in more prosocial behaviors (Madill et al., 2014), with little to no effects for girls in either study. Observational instruments of classroom management quality that capture data at the child level would prove beneficial to future research. Furthermore, qualitative studies in the general education classroom may provide a more nuanced picture of the experiences of students with or at risk for EBD and may aid in explaining gender discrepancies in child outcomes.

Girls and EBD. A more focused research agenda on girls with or at risk for EBD may be needed, not only because of the historic gap in research pertaining to their educational and emotional-behavioral needs, but also because girls identified with EBD are educated in self-contained environments dominated by male students, with programming that has not been designed with them in mind (Hipwell & Loeber, 2006; Reid et al., 2004; Srsic & Rice, 2012). The problem behaviors of girls with or at risk for EBD are just as serious and damaging to academic and social success as they are for boys (Cullinan et al., 2004) and when left unaddressed in elementary school may lead to an increased likelihood of criminal arrest in middle and high school (Gage et al., 2012). Early identification of girls at risk for EBD is

equally as important as it is for boys, as it is clear these girls have emotional and behavioral problems that general education teachers are often not equipped to handle.

Boys and EBD. As boys represent the majority of students with or at risk for EBD (Walker et al., 2004), the significant effect of classroom management quality as it relates to their reading comprehension provides a reason for hope. Benner et al. (2010) suggested evidence-based reading interventions may not work for students with or at risk for EBD because the behaviors of these students often counteract instructional practices. As a result, Benner and colleagues suggested teachers will need to be skilled in behavior management. The results of this study provide some support for the ideas espoused by Benner and his colleagues. Comparing the low end of classroom management quality to the high end reveals a difference in reading comprehension scores of approximately one full standard deviation for the current sample of boys with or at risk for EBD. The results, which highlight the importance of the non-instructional aspects of classroom quality to the reading achievement of students with special needs, are in line with those from an earlier study wherein classroom management quality was positively associated with reading fluency and word identification scores in a group of 165 students in grades three to five who were identified with LD (Brownell et al., 2009). In the current study, it is possible high-quality classroom management allowed teachers more time to deliver better-quality instruction. Indeed, classroom management quality and classroom instruction quality were significantly correlated at 0.38 ($p < .001$)

Race. It might have been unfortunate if the significant improvements in boys' reading comprehension scores were moderated by race. In other words, it could have been the case that Caucasian boys benefitted substantially more than African American boys from high-quality management practices. However, the three-way interaction regarding gender, race, and

classroom management quality was not significant, which suggests the benefit of high-quality classroom management to reading achievement was similar for both African American and Caucasian boys with or at risk for EBD in this study.

The results regarding moderation by race, while not significant, are nevertheless interesting to note. Research suggests African American students experience more severe punishments and succeed less often in school than their peers (Gay, 2006; Skiba & Rausch, 2015). Cultural misunderstandings between teachers and students are often identified as a possible reason for disproportionate rates of school discipline in urban areas (McIntyre & Tong, 1998; Milner & Tenore, 2010). However, while the majority of teachers in this study were Caucasian (77.78%), the results suggested that rural African American students experienced effects similar to those of their Caucasian peers in their reading achievement related to classroom management quality. It may be that cultural misunderstandings between teachers and students of different racial and ethnic backgrounds are not as prominent in rural settings as compared to urban schools. Rural teachers of any race, by nature of the close-knit communities in which they live, may be more in touch with the cultural values of the children and families they are serving. A study of K-12 schools on two rural, Native American reservations suggested teachers' alignment of community values with classroom management practices was important to the success of the management plan (Hammond, Dupoux, & Ingalls, 2004). Regarding culturally responsive classroom management (Cartledge, Lo, Vincent, & Robinson-Ervin, 2015; Weinstein et al., 2004), teacher practices in rural America with respect to African American students and their community and cultural values may be an important area for future research.

Self-reported behavior of students with or at risk for EBD. The hypothesized main effects between classroom management quality and students' self-reported behaviors were not

significant, nor were any of the effects in moderation analyses. The full models for engagement and disaffection accounted for only 14% and 9% of the variation in each of the students' self-reported scores, respectively. It might have been expected that boys with or at risk for EBD who experienced significant increases in reading comprehension scores would have significantly increased in engagement or decreased in disaffection as classroom management quality improved; however, this was not the case. Furthermore, despite engagement being considered a critical component of reading achievement (Guthrie & Wigfield, 2000), neither engagement nor disaffection were significantly correlated with students' scores in reading comprehension or vocabulary.

Engagement. It is likely there are much more powerful variables not included in this study that can explain students' engagement scores, as 86% of the variation was unexplained by the full model. For instance, the dynamics of the student-teacher relationship often play a large role in students' classroom behavior and their emotions (Klem & Connell, 2004; Pianta, 1999, 2006). While student-teacher relationships were one of the many constructs included in the CLASS (Pianta, La Paro et al., 2008) instrument that was used to capture classroom management quality in this study, future research may need to examine relationship quality with the teacher as a possible moderator between overall classroom management quality and students' engagement.

A second consideration regarding the lack of significant findings related to engagement is the notion of social desirability, which is always a concern in self-report data. Most researchers have relied on teacher-reports of child behavior or conducted classroom observations, but few have had young children report on their own engagement. Although child reports of engagement are useful because parents and teachers are not always in tune with children's feelings (Searle et al., 2014), young children may not be the most reliable sources for reporting their own behavior.

It is possible the engagement variable in this study was capturing something other than students' feelings of emotional and behavioral involvement. Indeed, results from the engagement variable in this study suggested the majority of these students with or at risk for EBD were highly engaged in the classroom, which would be somewhat surprising. However, it is possible many of the students were reporting high engagement in the classroom because they were performing moderately well academically and therefore simply enjoyed being in school. Results from their reading assessments suggested the students with or at risk for EBD in this sample were performing only slightly below the national average. Finally, while skewed data is typically less of a concern in samples of more than 200 participants (Tabachnick & Fidell, 2001), the average score ($M = 35.61$, $SD = 4.07$) on the engagement scale that ranged from 0-40 may have made it more difficult to detect significant differences in children's engagement related to classroom management quality. Including reports of child behavior from multiple informants (e.g., teachers, parents) to supplement children's self-reports may provide the most accurate data for analysis in future work.

The finding that students from lower income families were reporting significantly higher engagement was unexpected. It is possible students living in the deepest of poverty may yearn for more cognitively stimulating interactions that only their schools can provide. Rural children living in extreme poverty may also have higher rates of single parenthood and therefore fewer interactions with caregivers (Burchinal et al., 2008; Kainz et al., 2012; Vernon-Feagans et al., 2010). Future work exploring the mesosystem connections between behaviorally at-risk students' home lives and their school-based engagement would be useful. Finally, students receiving special education were reporting themselves as significantly less engaged than their peers, which is extremely unfortunate. Special education programs in rural locales are

understaffed, underfunded, and receive fewer opportunities to engage in evidence-based professional development (Berry et al., 2011). Furthermore, special education teachers have reported feeling ill-equipped in effective classroom management practices for students with EBD (Oliver & Reschly, 2010). Although data on the quality of the special education programs in the rural schools involved in FLP was unavailable, it appeared the students in these programs were less emotionally and behaviorally involved in school than their peers.

Disaffection. Similar to the suggestions for engagement, it is likely variables not included in this study can better explain the variation in students' self-reported disaffection. This study was situated in rural areas of the United States where community values and students' home lives may play a larger role in behavior than in urban or suburban settings (Vernon-Feagans et al., 2010). The range of scores for engagement (21-40) and disaffection (10-38) were quite different. The data for disaffection ($M = 21.22$, $SD = 5.62$) was much more evenly distributed than engagement, although the findings were still not significant.

With the inclusion of 14 variables, including main effects and interactions, the full model was unable to explain 91% of the variation in students' disaffection scores. Although not significant, three main effects that approached significance are worth noting. The results suggested that students from higher income families, externalizers, and students who entered school with greater social competence exhibited a trend towards greater feelings of emotional and behavioral disaffection in school. The non-significant effects do not allow for interpretation. However, the fact that such a robust model was able to explain less than one-tenth of students' disaffection highlights the need for more research on rural children's home lives, as well as classroom observations at the student level to capture a more nuanced picture of their school experiences.

Implications for Teachers and Teacher Education

As early as kindergarten, problem behaviors have been shown to predict whether or not children graduate from high school (Vitaro, Brendgen, LaRose, & Tremblay, 2005). The combined challenges of academic and behavioral difficulties common to the population of students with or at risk for EBD present a significant obstacle to general education teachers who are often insufficiently prepared in classroom management practices (Sutherland et al., 2005). A teacher's knowledge about classroom management is typically learned on the job, if it is learned at all (Jones, 2006). When it is encountered in teacher preparation programs, future teachers are most often exposed to the classroom management literature in educational psychology textbooks that contain only a chapter or two on the subject (Emmer & Stough, 2001). Compounding the issue are reports that of the classroom management training taking place, much of it is grounded in reactive and punitive practices that run counterintuitive to promoting prosocial behaviors and creating a positive classroom climate (Oliver & Reschly, 2010).

Teachers frequently cite their lack of classroom management preparation in pre-service education programs and call out for more effective training in the pages of research articles and educational handbook chapters (Chesley & Jordan, 2012; Jones, 2006; Veenman, 1984). Despite these requests, state licensing agencies have not addressed the need for more classroom management coursework (Office of Postsecondary Education, 2011). Of the traditional teacher-licensure programs in 50 states and Washington DC, only 55% require elementary and secondary general education teacher programs to include research-based classroom management strategies in their coursework and approximately 14% do not require classroom management coursework of any kind for general education teachers (Freeman, Simonsen, Briere, & MacSuga-Gage, 2014).

Knowing the majority of students with or at risk for EBD are in the general education classroom, it may finally be time to incorporate more classroom management coursework in teacher preparation programs. Researchers have identified evidence-based practices for classroom management (Simonsen et al., 2008), administrators expect teachers will be able to manage their classrooms effectively (Simonsen, Sugai, & Negron, 2008), and several reviews of the literature and educational handbooks have documented the importance of classroom management to student learning (Brophy, 2006; Emmer & Sabornie, 2015; Marzano et al., 2003; Wang et al., 1993). Furthermore, results of the current study make it clear that high-quality classroom management is related to improvements in reading comprehension scores for boys with or at risk for EBD in the general education classroom. For teachers currently in the field, it may benefit them to consult with special education teachers in an effort to improve their classroom management skillset, as 96% of special education programs require at least some coursework in classroom management (Freeman et al., 2014). For the future teachers of America, the time has come for pre-service coursework to recognize the realities of 21st century classrooms and what tools teachers need in order to be successful and to promote achievement for all of their students (Dyal & Sewell, 2002; Stronge, Ward, & Grant, 2011).

Limitations

As in any empirical study, the current findings must be considered in light of research limitations. First and foremost, statistical modeling always involves a degree of bias on the part of the researcher in the selection of variables to be included for analysis. It is possible other variables not included in this study can explain a significant amount of variation in children's behavior and reading achievement. While some may suggest including externalizing and internalizing behaviors as continuous variables would be useful, attempts to do so did not result

in any significant effects. However, this was likely the result of a limited range due to all students exhibiting elevated levels of behavior problems. Second, this study, although longitudinal in nature, was an observational and descriptive account of students' classroom experiences. The observational instrument included in this study was measured at the classroom-level and not individualized to each child. As previously mentioned, it is possible students in the same classroom experienced a different quality of classroom management based on their unique interactions with the teacher. The CLASS (Pianta, La Paro et al., 2008) was chosen because it is a valid and reliable observational tool and the use of independent classroom observers allowed for a multi-method approach in this study to supplement teachers' ratings of child behavior.

A third limitation is related to the significant relationships between variables, which are not meant to imply causality. The significant findings in observational studies require further empirical inquiry and more rigorous research designs to begin a discussion of causal claims. Fourth, the relatively small sample sizes used in moderation analysis may be somewhat misleading. It is possible that with a sufficiently large sample, interaction effects may yield significant results for specific groups of students with or at risk for EBD. To be sure, students with or at risk for EBD are a heterogeneous group with sometimes vastly different needs. Finally, as in any study relying on secondary data analysis, I was unable to conduct follow-up observations or interviews with participants. Such information may have provided a clearer picture of the classroom management quality taking place in the rural classrooms of this study.

Conclusion

Students with or at risk for EBD do not choose to misbehave, just as students who have a visual or hearing impairment do not choose to struggle with sight or sound. Challenging behaviors often arise from the interaction between the child's environment and their own

psychological makeup (Farmer, Farmer, & Brooks, 2010; Hobbs, 1966). In addition to the PPCT theory within the Bioecological Model of Human Development (Bronfenbrenner & Morris, 2006), several theories of child development support an ecological orientation in the classroom focused on the daily interactions between teachers and students. Maslow's (1943) Hierarchy of Needs suggests students need to feel safe and have a connection with the classroom and its members before they can engage in higher-order thinking. Attachment Theory (Bowlby, 1969) suggests emotional support from adults allows children to operate in a safe environment where they feel confident to explore and take risks. Self-Determination Theory (Connell & Wellborn, 1991; Ryan & Deci, 2000) speaks to the importance of building student autonomy and relatedness, while also attending to students' need for a sense of competence in the classroom. The goal of high-quality classroom management as related to students with or at risk for EBD should be to establish a warm and positive learning environment where students are more likely to enjoy school, develop positive relationships with the teacher and other students, engage in instruction, and ultimately learn more.

Besides their homes, children spend more time in classrooms than any other place (Pianta & Hamre, 2009). Especially in rural areas, where children have limited access to after-school activities (Vernon-Feagans et al., 2010), the classroom may be one of the most important settings for children's emotional, behavioral, and cognitive development (Doyle, 2006). Compounding their underachievement in reading and overall higher rates of maladaptive behaviors, the students in the current sample also experienced a lower quality of instruction and classroom management across their early elementary school years. Regarding socioeconomic status, 76% of the students in this study could be considered low-income and approximately 15% had mothers who did not complete high school. Furthermore, not one child had a mother who had completed a Bachelor's

degree. Therefore overall, the two most important microsystems for young children's development (i.e., the home and school) were of a lesser quality for the students with or at risk for EBD when compared to their peers in the larger FLP sample.

Through an ecological lens, the daily interactions between students and their teachers form the pathways for learning and development (Bronfenbrenner & Morris, 2006). Considering the strong push for inclusion and the under-identification of students with or at risk for EBD (McLeskey, Henry, & Hodges, 1999; Wagner, Newman, Cameto, Levine, & Garza, 2006), general education classrooms are likely to include many students who experience significant emotional and behavior problems that challenge teachers' management skills and adversely affect academic achievement. The quality of teachers' classroom management is therefore a critical area to be targeted in future research and professional development. While the results of this study suggested classroom management quality was positively associated with the reading comprehension scores of boys with or at risk for EBD, it is still unclear what specific elements of classroom management mattered most; there remains much work to be done. Unless there is a more focused research agenda that systematically works to uncover effective classroom management practices for teachers working with students with or at risk for EBD in the general education classroom, schools may continue to marginalize students who have co-occurring academic and behavioral struggles by not addressing their unique needs. "Such children are like disabled aircraft circling over the emergency runway until suddenly forced down by circumstance" (Forness et al., 2012, p. 11).

Table 1

FLP Recruitment Summary by State, Race, and Income (Low vs. Not Low)

	North Carolina		Pennsylvania		Study-Wide		
Identified births (N)	3,127		2,344		5,471		
Eligibility Rate (per criteria)	66%		81%		72%		
Agreement Rate (among eligible)	62%		74%		72%		
Selection Rate (among agreeing)	69%		74%		58%		
Enrollment Rate (among selected)	87%		76%		82%		
Location	North Carolina				Pennsylvania		
	African American		Non-African American				
	Low	Not Low	Low	Not Low	Low	Not Low	
Total	Low	Not Low	Low	Not Low	Low	Not Low	
# Selected Families	546	33	203	104	443	242	1571
# Interviewed	490	29	168	86	344	175	1292
Enrollment Rate	90%	88%	83%	83%	78%	72%	82%

Note. Adapted from Vernon-Feagans, Cox, et al. (2013).

Table 2

Child Demographics, Reading Outcomes, and Behavior (n = 235)

	<i>N</i>	%	<i>M</i>	<i>SD</i>
Gender				
Male	141	60.00		
Female	94	40.00		
Race				
African American	142	60.59		
Caucasian	93	39.41		
EBD Type				
Externalizing	190	80.85		
Internalizing	45	19.15		
Maternal Education				
8 th Grade or Less	4	1.74		
Some High School	31	13.48		
High School Diploma	192	83.48		
Associate's Degree	3	1.30		
Bachelor's Degree	0	0.00		
Income-to-Needs Ratio			1.48	1.36
< 1.00	107	46.52		
1.01 – 2.00	68	29.57		
2.01 – 3.00	32	13.91		
> 3.00	23	10.00		
Grade				
2 nd	49	20.85		
3 rd	186	79.15		
IEP				
Yes	38	16.17		
No	197	83.83		
State				
North Carolina	167	71.06		
Pennsylvania	68	28.94		
Social Competence	176		3.49	0.86
Letter-Word Identification Standard Score	211		96.64	11.70
Passage Comprehension Standard Score	116		92.74	10.73
Picture Vocabulary Standard Score	102		97.35	9.06
Passage Comprehension <i>W</i> -Score	116		483.32	14.82
Picture Vocabulary <i>W</i> -Score	102		491.59	9.78
Engagement	218		35.61	4.07
Disaffection	218		21.22	5.62

Note. EBD = Emotional/Behavioral Disorder; IEP = Individualized Education Plan.

Table 3

Cut Scores for the SDQ and Demographics by Gender, Race, and Behavior

	Normal		Borderline		Abnormal			
Internalizing Behavior								
Emotional Symptoms	0 – 4		5		6 – 10			
Peer Problems	0 – 3		4		5 – 10			
Externalizing Behavior								
Conduct Problems	0 – 2		3		4 – 10			
Hyperactive Behaviors	0 – 5		6		7 – 10			
	Externalizing (<i>n</i> = 190; 80.85%)				Internalizing (<i>n</i> = 45; 19.15%)			
	<i>n</i>		%		<i>n</i>		%	
Gender								
Male	125		65.79		16		35.56	
Female	65		34.21		29		64.44	
Race								
African American	122		64.21		20		44.44	
Caucasian	68		35.79		25		55.56	
	African American Male (<i>n</i> = 87; 37.02%)		African American Female (<i>n</i> = 55; 23.40%)		Caucasian Male (<i>n</i> = 54; 22.98%)		Caucasian Female (<i>n</i> = 39; 16.60%)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Externalizing	78	89.66	44	80.00	47	87.04	21	53.85
Internalizing	9	10.34	11	20.00	7	12.96	18	46.15

Table 4

Significant Differences between the Current Sample and FLP Sample

	Current Sample (<i>n</i> = 235)	FLP Sample (<i>n</i> = 1,057)
Gender (% Female)	40.00	49.86**
Race (% African American)	60.59	38.51***
Retention (% Retained)	20.85	12.30***
IEP (% Yes)	16.17	9.52***
	<i>M (SD)</i>	<i>M (SD)</i>
Income-to-Needs Ratio	1.48 (1.36)	1.99 (1.76)***
Maternal Education	11.69 (0.88)	13.29 (2.08)***
Letter-Word Identification	96.64 (11.70)	98.77 (13.67)*
Social Competence	3.49 (0.86)	4.04 (0.96)***
Passage Comprehension	92.74 (10.73)	96.11 (11.46)**
Picture Vocabulary	97.35 (9.06)	100.90 (11.21)**
Engagement	35.61 (4.07)	36.80 (3.44)***
Disaffection	21.22 (5.62)	18.23 (5.49)***
CMQ Dosage	5.13 (0.43)	5.26 (0.44)***
CIQ Dosage	2.95 (0.59)	3.10 (0.62)**

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. IEP = Individualized Education Plan; CMQ = Classroom Management Quality; CIQ = Classroom Instruction Quality.

Table 5

Teacher Demographics

	Current Sample (<i>n</i> = 189)		Remaining FLP Sample (<i>n</i> = 316)	
	<i>n</i>	%	<i>n</i>	%
Gender				
Female	167	88.36	256	81.01
Male	9	4.76	15	4.75
Missing	13	6.88	45	14.24
Race				
Caucasian	147	77.78	246	77.85
African American	26	13.76	19	6.01**
Other	3	1.59	5	1.58
Missing	13	6.87	46	14.56
Highest Level of Education				
Bachelor's Degree	120	63.50	160	50.63*
Master's Degree or Higher	56	29.63	109	34.49
Missing	13	6.88	47	14.88
State				
North Carolina	131	69.31	167	52.85***
Pennsylvania	58	30.69	149	47.15

Note. * $p < .05$, ** $p < .01$, *** $p < .001$. Other Race included 1 Filipino, 1 Asian Indian, 1 Chinese, 2 Other Race, and 3 Other Asian self-identified teachers.

Table 6

Dosage of Classroom Management and Classroom Instruction Quality (n = 235)

	Classroom Management Quality		Classroom Instruction Quality	
<i>M(SD)</i>	5.13 (0.43)		2.95 (0.59)	
Dosage	<i>n</i>	%	<i>n</i>	%
0.00	12	5.10	26	11.06
0.25	30	12.77	52	22.13
0.33	6	2.55	8	3.41
0.50	70	29.79	67	28.51
0.67	8	3.40	9	3.83
0.75	70	29.79	49	20.85
1.00	39	16.60	24	10.21

Table 7

Correlation Matrix (n = 235)

Variable (n)	1 (230)	2 (230)	3 (211)	4 (211)	5 (235)	6 (235)	7 (235)	8 (235)
1. INR	-							
2. Maternal	0.22***	-						
3. LW	0.19**	0.10	-					
4. SC	0.08	0.08	0.21**	-				
5. Gender	0.01	-0.01	-0.09	-0.04	-			
6. Race	-0.29***	-0.02	-0.07	-0.06	0.03	-		
7. Grade	0.14*	0.14*	0.40***	0.11	-0.10	-0.14*	-	
8. EBD	0.06	-0.02	-0.03	-0.05	0.24***	0.16*	-0.06	-
9. IEP	-0.06	-0.12	-0.24***	-0.12	-0.02	-0.12	-0.09	0.04
10. PC	0.21*	0.25**	0.53***	-0.01	-0.11	-0.33***	0.57***	-0.07
11. PV	0.14	0.22*	0.26*	0.29	0.10	-0.09	0.28***	-0.16
12. Engage	-0.23***	-0.09	0.08	-0.07	-0.09	0.17*	-0.05	-0.01
13. Disaf	0.14*	-0.05	-0.08	0.15	0.05	-0.10	-0.10	0.10
14. CIQ	0.10	0.08	0.02	-0.03	-0.04	-0.39***	-0.01	-0.07
15. CMQ	0.15*	0.16*	0.02	0.05	-0.01	-0.34***	0.07	-0.18**
Variable (n)	9 (235)	10 (116)	11 (102)	12 (218)	13 (218)	14 (235)	15 (235)	
1. INR								
2. Maternal								
3. LW								
4. SC								
5. Gender								
6. Race								
7. Grade								
8. EBD								
9. IEP	-							
10. PC	-0.30**	-						
11. PV	-0.20*	0.19***	-					
12. Engage	-0.16*	-0.03	-0.04	-				
13. Disaf	0.04	-0.15	-0.07	-0.41***	-			
14. CIQ	-0.01	0.15	0.08	-0.01	-0.01	-		
15. CMQ	0.03	0.24*	0.12	-0.05	0.05	0.38***	-	

Note. * $p < .05$, ** $p < .01$, *** $p < .001$; INR = Income-to-Needs Ratio; Maternal = Maternal Education; LW = Prekindergarten Letter-Word Identification; SC = Prekindergarten Social Competence; EBD = Type of Emotional Behavioral Disorder; IEP = Individualized Education Plan; PC = Passage Comprehension; PV = Picture Vocabulary; Engage = Engagement; Disaf = Disaffection; CIQ = Classroom Instruction Quality; CMQ = Classroom Management Quality.

Table 8

Demographic and Descriptive Statistics for Boys and Girls (n = 235)

	Boys (n = 141)			Girls (n = 94)		
	<i>n</i>	<i>M</i>	<i>SD</i>	<i>n</i>	<i>M</i>	<i>SD</i>
INR	140	1.50	1.49	90	1.46	1.12
Maternal Education	139	11.68	0.91	91	11.69	0.84
Pre-K LW	127	95.72	12.08	84	98.01	11.05
CIQ Dosage	141	2.92	0.54	94	2.99	0.63
CMQ Dosage	141	5.08	0.48	94	5.15	0.43
PC	72	91.87	11.27	44	94.16	9.73
PV	62	98.23	9.04	40	96.00	10.43
	Boys (n = 141)			Girls (n = 94)		
	<i>n</i>	<i>n</i>	%	<i>n</i>	<i>n</i>	%
Race	141			94		
African American		87	61.70		55	58.51
Caucasian		54	38.30		39	41.49
EBD Type	141			94		
Externalizing		125	88.65		65	69.15
Internalizing		16	11.35		29	30.85***
Maternal Education	139			91		
8 th Grade or Less		3	2.16		1	1.10
Some High School		18	12.95		13	14.29
High School Degree/GED		116	84.45		76	83.51
Associates Degree		2	1.44		1	1.10
Bachelor's Degree		0	0.00		0	0.00
INR Intervals	140			90		
≤ 1.00		66	47.14		41	45.56
1.01 – 2.00		37	26.43		30	33.33
2.01 – 3.00		24	17.14		8	8.89
> 3.00		13	9.29		11	12.22
Grade	141			94		
2 nd Grade		34	24.11		15	15.96
3 rd Grade		107	75.89		79	84.04
IEP	141			94		
Yes		23	16.31		15	15.96
No		118	83.69		79	84.04

Note. *** $p < .001$; INR = Income-to-Needs Ratio; Pre-K LW = Prekindergarten Letter-Word Identification; CIQ = Classroom Instruction Quality; CMQ = Classroom Management Quality; PC = Passage Comprehension; PV = Picture Vocabulary; EBD = Emotional/Behavioral Disorder; INR = Income-to-Needs Ratio; IEP = Individualized Educational Plan.

Table 9

Hierarchical Regression Results for Passage Comprehension (n = 235)

	Block 1		Block 2		Block 3		Block 4		Block 5	
	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE
<i>Demographics</i>										
INR	1.50 [†]	0.83	0.42	0.72	0.40	0.73	0.39	0.71	0.37	0.70
Maternal Education	2.96 ^{**}	1.39	1.43	1.15	1.36	1.18	1.56	1.16	1.94 [*]	1.13
Race	-4.33 [†]	2.49	-2.88	2.35	-2.67	2.43	-2.90	2.48	-7.61 [†]	4.25
Gender	-2.67	2.41	-0.91	2.06	-0.96	2.04	-0.62	2.03	-5.94	3.99
EBD Type	-2.44	3.09	-1.61	2.53	-1.22	2.63	-0.99	2.81	-0.54	2.86
<i>Schooling</i>										
Grade			13.10 ^{***}	2.86	13.05 ^{***}	2.89	12.55 ^{***}	2.80	13.05 ^{***}	2.72
Pre-K LW			0.22 ^{***}	0.05	0.22 ^{***}	0.05	0.22 ^{***}	0.04	0.22 ^{***}	0.04
CIQ Dosage			4.44	3.86	3.91	4.08	4.38	3.93	4.75	4.01
IEP			-6.02 [*]	2.74	-6.06 [*]	2.77	-6.45 [*]	2.72	-6.69 [*]	2.74
<i>Main Effect</i>										
CMQ Dosage					1.99	5.04	-1.74	11.74	-11.20	13.90
<i>Two-Way Interactions</i>										
Race by CMQ							-6.17	11.75	9.32	18.77
EBD Type by CMQ							-10.64	10.50	-12.95	11.15
Gender by CMQ							21.49 [*]	9.37	41.47 [*]	18.72
<i>Three-Way Interaction</i>										
Race by Gender by CMQ									-21.99	20.84
<i>R</i> ²	0.09		0.45		0.46		0.52		0.53	
ΔF			20.96 ^{***}		0.16		2.08 [†]		1.20	

Note. [†] $p < .10$; ^{*} $p < .05$, ^{**} $p < .01$, ^{***} $p < .001$; INR = Income-to-Needs Ratio; EBD = Emotional Behavioral Disorder; Pre-K LW = Prekindergarten Letter-Word Identification; CIQ = Classroom Instruction Quality; IEP = Individualized Educational Plan; CMQ = Classroom Management Quality.

Table 10

Hierarchical Regression Results for Picture Vocabulary (n = 235)

	Block 1		Block 2		Block 3		Block 4		Block 5	
	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE
<i>Demographics</i>										
INR	-0.11	0.75	-0.63	0.76	-0.61	0.75	-0.72	0.74	-0.79	0.75
Maternal Education	2.50**	0.96	2.01*	0.96	2.10*	0.96	2.11*	0.95	2.27*	0.98
Race	-4.52*	1.79	-6.11**	1.94	-6.38**	1.98	-7.19***	2.00	-4.86	3.51
Gender	3.12†	1.66	3.55*	1.58	3.62*	1.58	3.51*	1.57	5.20	3.26
EBD Type	-2.32	2.13	-1.76	1.99	-2.00	2.05	-2.67	2.18	-2.94	2.18
<i>Schooling</i>										
Grade			4.35*	2.18	4.40*	2.18	4.20†	2.17	4.16†	2.20
Pre-K LW			0.09*	0.04	0.09**	0.04	0.09*	0.04	0.09*	0.04
CIQ Dosage			6.07	3.46	5.40	3.62	-5.72	3.28	5.13	3.61
IEP			-4.91*	2.14	-4.84*	2.13	-4.87*	2.12	-4.64*	2.10
<i>Main Effect</i>										
CMQ Dosage					2.53	3.06	16.01†	8.31	18.74	11.61
<i>Two-Way Interactions</i>										
Race by CMQ							5.57	6.63	12.42	12.14
EBD Type by CMQ							3.66	8.16	3.18	8.11
Gender by CMQ							11.06*	5.31	16.45	12.01
<i>Three-Way Interaction</i>										
Race by Gender by CMQ									-12.38	14.32
R^2	0.10		0.26		0.27		0.31		0.33	
ΔF			6.67***		0.68		1.82		1.10	

Note. † $p < .10$; * $p < .05$, ** $p < .01$, *** $p < .001$; INR = Income-to-Needs Ratio; EBD = Emotional Behavioral Disorder; Pre-K LW = Prekindergarten Letter-Word Identification; CIQ = Classroom Instruction Quality; IEP = Individualized Educational Plan; CMQ = Classroom Management Quality.

Table 11

Hierarchical Regression Results for Engagement (n = 235)

	Block 1		Block 2		Block 3		Block 4		Block 5	
	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE
<i>Demographics</i>										
INR	-0.56**	0.21	-0.77**	0.22	-0.78***	0.22	-0.60**	0.21	-0.56**	0.21
Maternal Education	-0.25	0.33	-0.27	0.34	-0.27	0.34	-0.29	0.35	-0.21	0.35
Race	0.88	0.58	1.09 [†]	0.64	1.11	0.66	1.16	0.68	1.16	0.68
Gender	-0.71	0.58	-0.70	0.58	-0.71	0.59	-0.73	0.59	-2.34	1.37
EBD Type	0.20	0.73	0.19	0.73	0.21	0.74	0.03	0.75	-0.97	0.99
<i>Schooling</i>										
Grade			-0.07	0.69	-0.07	0.69	-0.08	0.70	-0.26	0.70
Pre-K SC			-0.06	0.36	-0.06	0.36	-0.02	0.37	-0.10	0.37
CIQ Dosage			0.93	1.08	0.87	1.10	0.81	1.11	0.85	1.10
IEP			-2.00**	0.79	-2.03	0.80	-1.97**	0.75	-2.06**	0.75
<i>Main Effect</i>										
CMQ Dosage					0.71	1.23	-1.11	2.96	0.80	3.19
<i>Two-Way Interactions</i>										
Race by CMQ							-0.69	2.44	-0.66	2.42
EBD Type by CMQ							3.54	2.92	-0.01	3.47
Gender by CMQ							-1.79	2.18	-8.11	5.25
<i>Three-Way Interaction</i>										
Gender by EBD by CMQ									8.63	5.76
R^2	0.07		0.10		0.10		0.12		0.14	
ΔF			2.85*		0.22		0.43		2.11	

Note. [†] $p < .10$; * $p < .05$, ** $p < .01$, *** $p < .001$; INR = Income-to-Needs Ratio; EBD = Emotional Behavioral Disorder; Pre-K SC = Prekindergarten Social Competence; CIQ = Classroom Instruction Quality; IEP = Individualized Educational Plan; CMQ = Classroom Management Quality.

Table 12

Hierarchical Regression Results for Disaffection (n = 235)

	Block 1		Block 2		Block 3		Block 4		Block 5	
	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE	<i>B</i>	SE
<i>Demographics</i>										
INR	0.54 [†]	0.29	0.52 [†]	0.30	0.51 [†]	0.30	0.54 [†]	0.30	0.53 [†]	0.30
Maternal Education	-0.39	0.47	-0.32	0.48	-0.34	0.48	-0.34	0.49	-0.44	0.49
Race	-0.91	0.82	-1.30	0.89	-1.24	0.92	-1.22	0.95	-1.21	0.95
Gender	0.37	0.80	0.25	0.80	0.24	0.80	0.25	0.81	1.50	1.91
EBD Type	1.16	1.00	1.22	1.00	1.28	1.01	1.52	1.03	2.44 [†]	1.38
<i>Schooling</i>										
Grade			-1.70	0.98	-1.71 [†]	0.99	-1.67 [†]	0.99	-1.44	1.00
Pre-K SC			0.93 [†]	0.51	0.93	0.51	0.86	0.53	0.86 [†]	0.52
CIQ Dosage			-1.22	1.46	-1.37	1.49	-1.32	1.50	-1.41	1.48
IEP			0.54	1.03	0.52 [†]	1.04	0.44	1.04	0.47	1.02
<i>Main Effect</i>										
CMQ Dosage					2.77	1.63	3.00	4.06	-1.52	4.44
<i>Two-Way Interactions</i>										
Race by CMQ							0.87	3.46	0.76	3.44
EBD Type by CMQ							-3.72	3.99	2.23	4.85
Gender by CMQ							0.05	3.02	11.54	7.17
<i>Three-Way Interaction</i>										
Gender by EBD by CMQ									-15.00	7.93
<i>R</i> ²	0.02		0.06		0.06		0.08		0.09	
ΔF			2.30 [†]		0.13		0.25		0.77	

Note. [†]*p* < .10; **p* < .05, ***p* < .01, ****p* < .001; INR = Income-to-Needs Ratio; EBD = Emotional Behavioral Disorder; Pre-K SC = Prekindergarten Social Competence; CIQ = Classroom Instruction Quality; IEP = Individualized Educational Plan; CMQ = Classroom Management Quality.

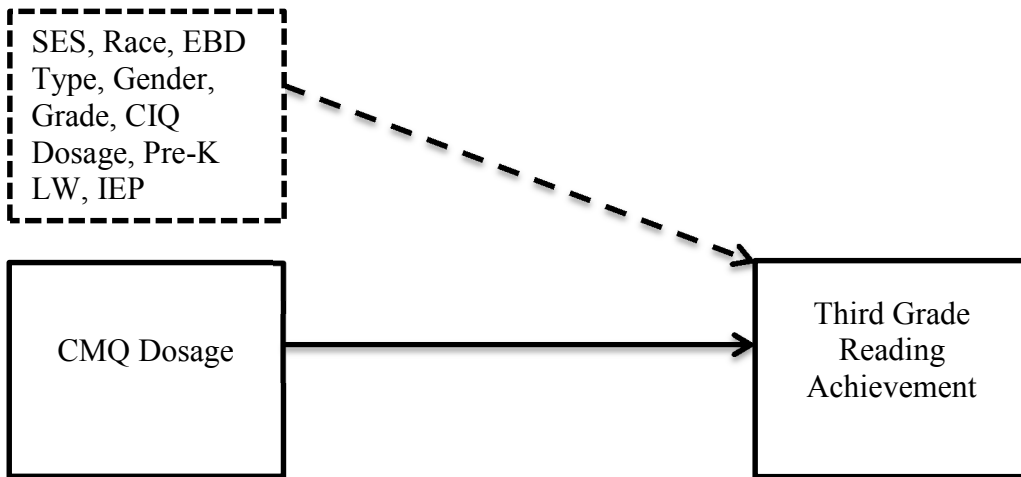


Figure 1. *Model of K-3 Classroom Management Related to Reading Achievement in Third Grade*

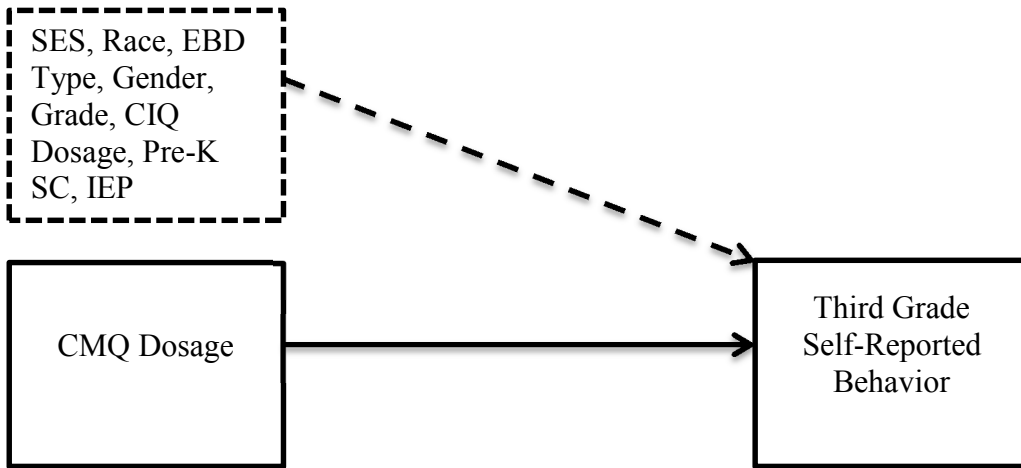


Figure 2. *Model of K-3 Classroom Management Reelated to Behavior in Third Grade*

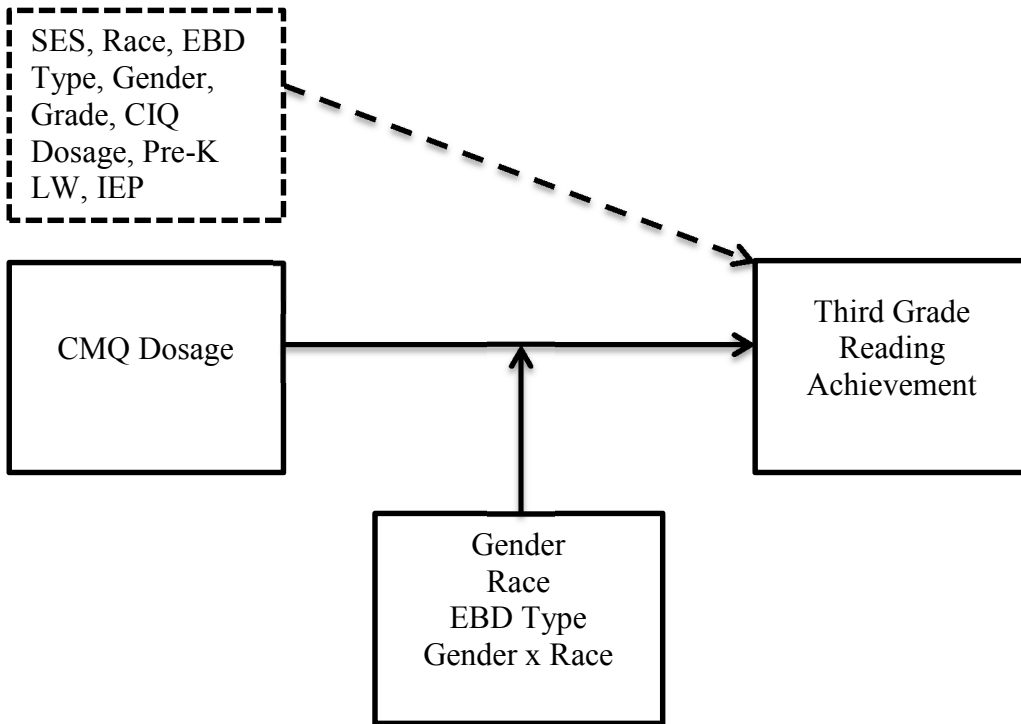


Figure 3. *Model of Moderation in Reading Achievement*

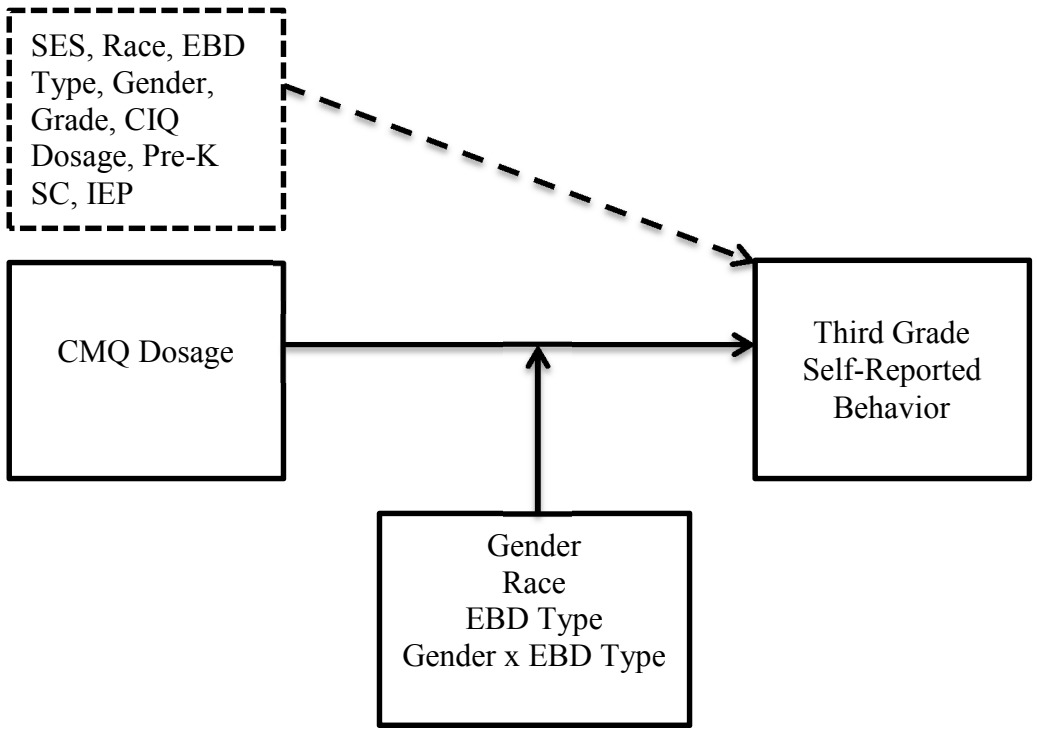


Figure 4. *Model of Moderation in Behavior*

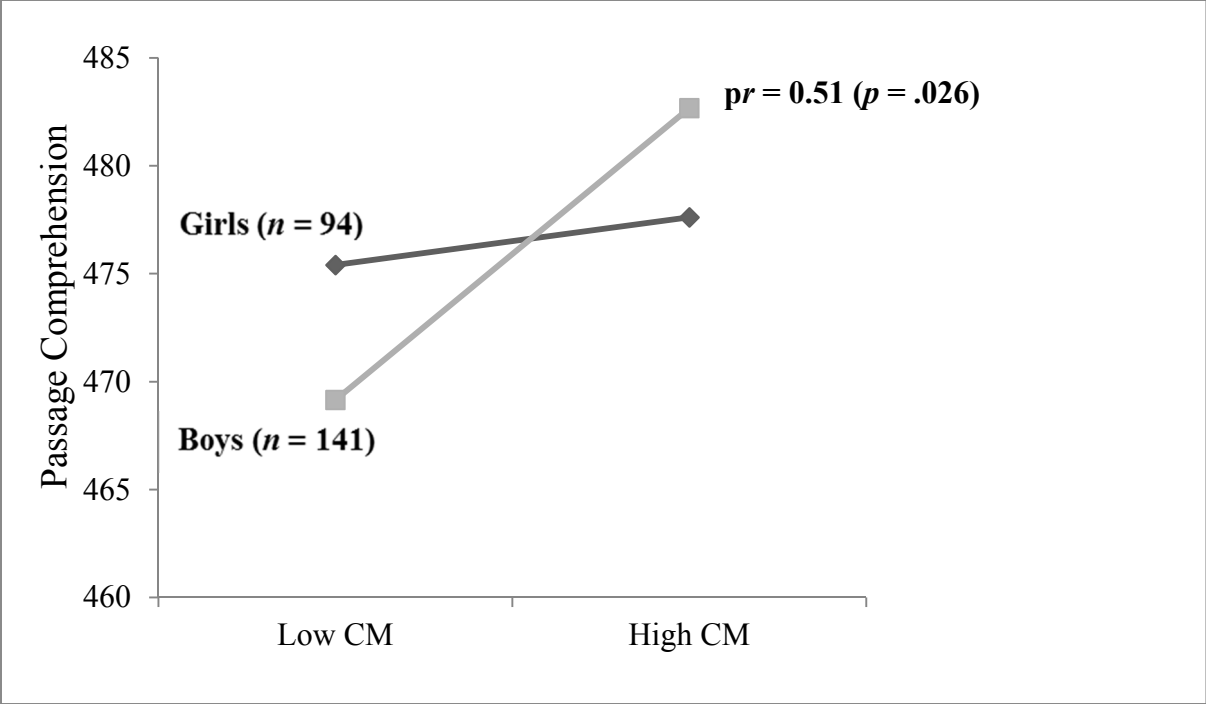


Figure 5. Moderation by Child Gender in Reading Comprehension

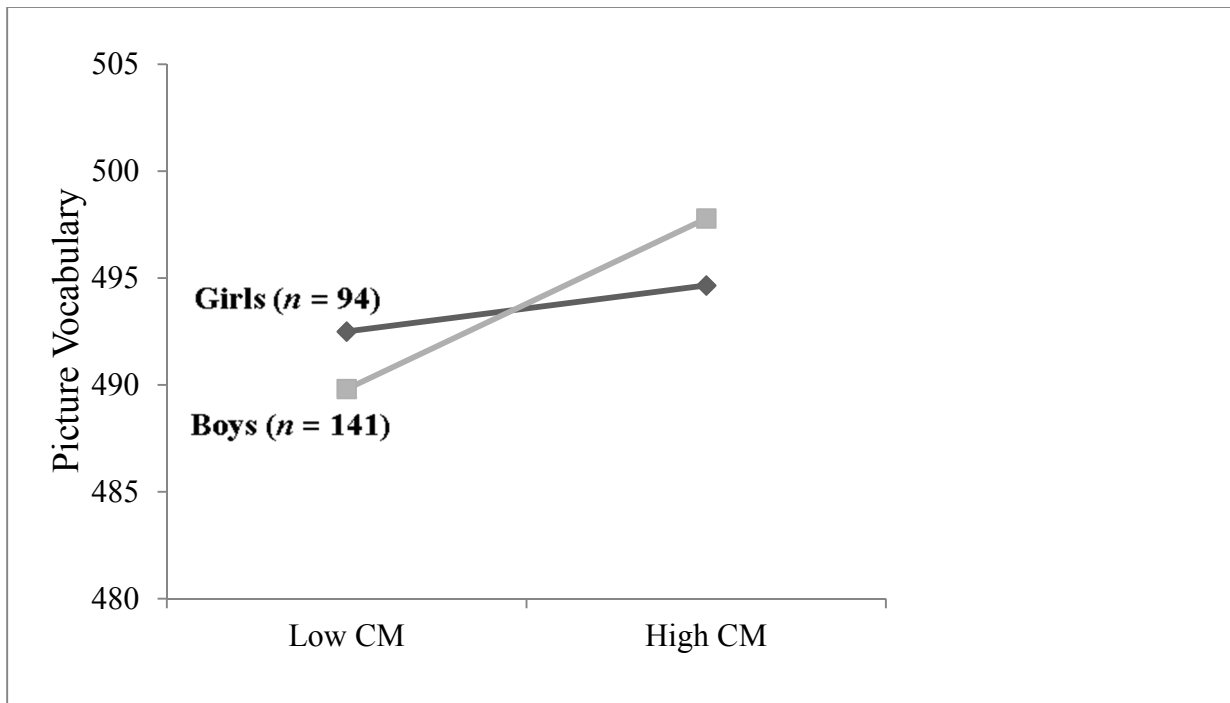


Figure 6. *Interaction by Child Gender in Vocabulary*

APPENDIX A: STRENGTHS AND DIFFICULTIES QUESTIONNAIRE

	Not True	Somewhat True	Certainly True
1. Considerate of other people's feelings	0	1	2
2. Restless, overactive, cannot stay still for long	0	1	2
3. Often complains of headaches, stomach-aches or sickness	0	1	2
4. Shares readily with other children	0	1	2
5. Often loses temper	0	1	2
6. Rather solitary, prefers to play alone	0	1	2
7. Generally well behaved, usually does what adults request	2	1	0
8. Many worries or often seems worried	0	1	2
9. Helpful if someone is hurt, upset or feeling ill	0	1	2
10. Constantly fidgeting or squirming	0	1	2
11. Has at least one good friend	2	1	0
12. Often fights with other children or bullies them	0	1	2
13. Often unhappy, depressed or tearful	0	1	2
14. Generally liked by other children	2	1	0
15. Easily distracted, concentration wanders	0	1	2
16. Nervous or clingy in new situations, easily loses confidence	0	1	2
17. Kind to younger children	0	1	2
18. Often lies or cheats	0	1	2
19. Picked on or bullied by other children	0	1	2
20. Often offers to help others (parents, teachers, children)	0	1	2
21. Thinks things out before acting	2	1	0
22. Steals from home, school or elsewhere	0	1	2
23. Gets along better with adults than with other children	0	1	2
24. Many fears, easily scared	0	1	2
25. Good attention span, sees work through to the end	2	1	0

Note. Items 3, 8, 13, 16, and 24 represent Emotional Symptoms; Items 5, 7, 12, 18, and 22 represent Conduct Problems; Items 2, 10, 15, 21, and 25 represent Hyperactivity; Items 6, 11, 14, 19, and 23 represent Peer Problems; Items 1, 4, 9, 17, and 20 represent Prosocial Behaviors (not included in analysis).

APPENDIX B: SARAC SCALE

	Not at All True	Not Very True	Sort of True	Very True
1. I try to do well in school.	1	2	3	4
2. I enjoy learning new things in class.	1	2	3	4
3. When we work in class, I feel discouraged.	1	2	3	4
4. In class, I do just enough to get by.	1	2	3	4
5. Class is fun.	1	2	3	4
6. In class, I work as hard as I can.	1	2	3	4
7. When I'm in class, I feel bad.	1	2	3	4
8. When I'm in class, I listen very carefully.	1	2	3	4
9. When I'm in class, I feel worried.	1	2	3	4
10. When we work in class, I get involved.	1	2	3	4
11. When I'm in class, I think about other things.	1	2	3	4
12. When we work in class, I feel interested.	1	2	3	4
13. Class is not all that fun for me.	1	2	3	4
14. When I'm in class, I just act like I'm working.	1	2	3	4
15. When I'm in class, I feel good.	1	2	3	4
16. When I'm in class, my mind wanders.	1	2	3	4
17. When I'm in class, I participate in discussions.	1	2	3	4
18. When we work in class, I feel bored.	1	2	3	4
19. I don't try very hard at school.	1	2	3	4
20. I pay attention in class.	1	2	3	4

Note. Behavioral engagement is measured by the sum and mean of items 1, 6, 8, 17, and 20; Emotional engagement is measured by the mean and sum of items 2, 5, 10, 12, and 15; Behavioral disaffection is measured by the sum and mean of items 4, 11, 14, 16, and 19; Emotional disaffection is measured by the sum and mean of items 3, 7, 9, 13, and 18. Engagement is measured by the sum and mean of behavioral and emotional engagement. Disaffection is measured by the sum and mean of behavioral and emotional disaffection.

APPENDIX C: CLASSROOM ASSESSMENT SCORING SYSTEM

Teacher: _____ Observer: _____
 Start Time: _____ End Time: _____
 Number of adults: _____ Number of children: _____

CONTENT (circle all; check majority):			FORMAT (circle all; check majority):		
Lit/Lang Arts	Math	Science	Routine	Whole group	Individual time
Social Studies	Art	Other:	Meals/snacks	Small group	Free choice/centers

Emotional Support			Circle Score
Positive Climate (PC) - Relationships - Positive Affect - Positive Communication - Respect	Notes	1 2 3 4 5 6 7	
Negative Climate (NC) - Negative Affect - Punitive Control - Sarcasm/Disrespect - Severe Negativity	Notes	1 2 3 4 5 6 7	
Teacher Sensitivity (TS) - Awareness - Responsiveness - Addresses Problems - Student Comfort	Notes	1 2 3 4 5 6 7	
Regard for Student Perspectives (RSP) - Flexibility and Student Focus - Support for Autonomy and Leadership - Student Expression - Restriction of Movement	Notes	1 2 3 4 5 6 7	
Classroom Organization			Circle Score
Behavior Management (BM) - Clear Behavior Expectations - Proactive - Redirection of Misbehavior - Student Behavior	Notes	1 2 3 4 5 6 7	
Productivity (PD) - Maximizing Learning Time - Routines - Transitions - Preparation	Notes	1 2 3 4 5 6 7	

Instructional Learning Formats (ILF) - Effective Facilitation - Variety of Modalities and Materials - Student Interest - Clarity of Learning Objectives	Notes	1	2	3	4	5	6	7
Instructional Support								
								Circle Score
Concept Development (CD) - Analysis and Reasoning - Creating - Integration - Connections to the Real World	Notes	1	2	3	4	5	6	7
Quality of Feedback (QF) - Scaffolding - Feedback Loops - Prompting Thought Processes - Providing Information - Encouragement and Affirmation	Notes	1	2	3	4	5	6	7
Language Modeling (LM) - Frequent Conversation - Open-Ended Questions - Repetition and Extension - Self- and Parallel Talk - Advanced Language	Notes	1	2	3	4	5	6	7

Dimension Descriptions for the CLASS

Low range		Middle range			High range	
1	2	3	4	5	6	7
The low-range description fits the classroom and/or teacher very well. All, or almost all, relevant indicators in the low range are present.	The low-range description mostly fits the classroom and/or teacher, but there are one or two indicators that are in the middle range.	The middle-range description fits the classroom and/or teacher, but there are one or two indicators in the low range.	The middle-range description fits the classroom and/or teacher very well. All, or almost all, indicators in the middle range present	The middle-range description mostly fits the classroom and/or teacher, but there are one or two indicators in the high range.	The high-range description mostly fits the classroom and/or teacher, but there are one or two indicators in the middle range.	The high-range description fits the classroom and/or teacher very well. All, or almost all, relevant indicators in the high range are present.

APPENDIX D: SOCIAL COMPETENCE SCALE

	Almost Never	Rarely	Sometimes	Often	Very Often	Almost Always
1. Copes well with disappointment	1	2	3	4	5	6
2. Accepts things not going his or her way	1	2	3	4	5	6
3. Feelings are easily hurt	6	5	4	3	2	1
4. Resolves problems with other children	1	2	3	4	5	6
5. Listens to other people's point of view	1	2	3	4	5	6
6. Controls temper when there is a disagreement	1	2	3	4	5	6
7. Cooperates with children and teachers	1	2	3	4	5	6
8. Expresses needs and feelings appropriately	1	2	3	4	5	6
9. Stops and calms down when frustrated or upset.	1	2	3	4	5	6

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