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A Preliminary Investigation of Family Engagement Practices in Schools Implementing Problem-Solving/Response to Intervention (PS/RtI).

by

Devon Renee Minch

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
in
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Department of Psychological and Social Foundations
College of Education
University of South Florida

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Dedication

I dedicate this dissertation to my family and friends. It is because of your laughter, love, and unrelenting support throughout my graduate training and especially while writing my dissertation that I was able to achieve this accomplishment.

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I would like to thank my committee chair, Dr. George Batsche, as I will forever be grateful for his generosity, mentorship, and confidence in me throughout my advanced doctoral training. I am sure that without his support this dissertation would not have been possible. I am indebted and thankful for the support that my committee members have provided me during the completion of this dissertation. I would like to thank Dr. Connie Hines for her expertise in measurement and evaluation, ongoing feedback, and patience throughout my writing process. I would like to thank Drs. Shannon Suldo and Donald Kincaid for their continued guidance and support throughout my graduate training.

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Abstract

The current study investigated the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and a) educator reports of individual and school-wide practices to engage families, and b) family perceptions of educators' family engagement practices in schools implementing PS/RtI. Survey instruments measuring family engagement in PS/RtI were developed for the current study. Survey data measuring the beliefs about family engagement, perceptions of knowledge and skills for family engagement, and perceptions of family engagement practices were collected from 396 families and 933 educators from 40 schools in a local school district. Findings suggest that PS/RtI implementation was not a significant predictor of family engagement behaviors or of family or educator perceptions of educators' family engagement practices. Results suggest a positive relationship between educator knowledge and skills for family engagement and educators' family engagement practices. Additionally, findings suggest a positive relationship between family perceptions of educators' family engagement practices and families' engagement communication and activities. Generally, results suggest that school-level demographic variables (i.e., percentage of minority students, percentage of students eligible for special education services, and percentage of students eligible for free or reduced-price lunch, Title 1 status) demonstrated negative relationships with educators' family engagement practices and with families'

engagement communication and activities. Implications for practice include professional development and coaching opportunities targeting educators' culturally sensitive family engagement knowledge and skills and subsequent family engagement practices. Implications for future research include replicating the study with diverse samples and the use of different research methods (e.g., quasi-experimental, longitudinal, qualitative designs) to gain a better understanding of the relationships found in the current study.

Chapter I

Introduction

Over 40 years ago, the Coleman report demonstrated that family factors were more important predictors of student outcomes than school factors for at-risk students (Coleman et al., 1966). Since the publication of these findings, educators have tried to integrate family-friendly policies and practices in schools in an attempt to foster the home-school connection to improve student outcomes. Despite years of policy and research reinforcing the important role that families serve in supporting children's educational success (Christenson & Reschly, 2010), meaningful family engagement remains a challenge for schools (Christenson & Reschly, 2010). Efforts to emphasize increased collaboration and communication between families and schools are evident in national legislation (i.e., No Child Left Behind Act of 2001 [NCLB], 2002). A national emphasis on high academic standards and accountability for student outcomes, combined with reduced budgets, has resulted in conditions that necessitate positive partnerships among educators and families to support student success. Families can serve as an additional resource for schools and through positive partnership, schools and families can help each other reach their mutual goal of student success.

Education is in the midst of numerous reform efforts designed to improve student performance (Individuals with Disabilities Education Improvement Act of 2004 [IDEIA, 2004]; United States Department of Education [USDOE], 2010). For the past 30 years, educational service delivery models have remained relatively constant with mandates and initiatives having only fleeting impact due to a lack of ongoing support for the change process (Hall & Hord, 2006). An increasingly diverse student body has resulted in a significant number of students who are not achieving academic proficiency, and an overrepresentation of racial minorities in special education programs (Donovan & Cross, 2002; Griffiths, Parsons, Burns, VanDerHeyden, & Tilly, 2007), and under-representation in high-achieving programs such as the International Baccalaureate (IB) and Advanced Placement (AP) programs (Donovan & Cross; Mayer, 2008). In response to the need to reform educational practices, laws have set high expectations for schools, emphasizing improved quality of educational services for students to ensure that *all* students are academically proficient (IDEIA, 2004; NCLB, 2002). Taken together, these changes have called for substantial school reform initiatives.

School Reform Initiatives

As schools have identified methods to improve services provided to children and to meet the expectations set forth in statutes (IDEIA, 2004; NCLB, 2002), Problem-Solving/Response to Intervention (PS/RtI) has been identified as

a framework for organizing and guiding effective school practices (Batsche et al., 2005). Problem-Solving/Response to Intervention “is the practice of (1) providing high-quality instruction and intervention matched to student needs, and (2) using learning rate over time and level of performance (3) to make important educational decisions” (Batsche et al., 2005, p. 5). Conceptualized as a school reform effort, PS/RtI addresses the limitations (e.g., the lack of reliability, validity, and assessment that informs instruction; Gresham & Witt, 1997; Stuebing et al., 2002) of the traditional service delivery model and has been shown to be an effective and efficient educational framework to improve outcomes for all students (Batsche, Curtis, Dorman, Castillo, & Porter, 2007; Berkely, Bender, Peaster, & Saunders, 2009; Conner et al., 2009; Gersten et al., 2009; Stepanek & Peixotto, 2009).

PS/RtI incorporates data-based decision-making, prevention, early intervention, collaborative problem-solving, and evidence-based instruction and intervention organized within a multi-tiered framework that matches intensity of service delivery to student need. PS/RtI embodies the practices that are known to be effective for improving student outcomes (Adelman & Taylor, 2007; Crawford & Torgesen, 2007; Herman, et al., 2008; Shannon & Bylsma, 2007). Family engagement is one of the essential practices of schools that have improved student outcomes (Abrams & Gibbs, 2000; Shannon & Bylsma, 2007). However, there has been less attention to the role of families in PS/RtI

implementation research (Smrekar, Cohen-Vogel, & Lee, 2010). This is a critical gap in both practice and research that has left schools without research to inform practices specific to engaging families in PS/RtI efforts. Furthermore, existing studies suggest that essential practices of PS/RtI models have the potential to improve family engagement (USDOE, 2001). Research that investigates the role of families within schools implementing PS/RtI is needed in order to build a foundation of knowledge and understanding to guide effective practices within schools.

Although there is strong evidence for the effectiveness of PS/RtI implementation for achieving positive student outcomes (Griffiths et al., 2007), the fact remains that schools are resource-limited institutions; not all schools will be able to accommodate the needs of all students without additional supports. Interestingly, there is significant overlap among the practices that facilitate effective family engagement and PS/RtI practices. Research demonstrates that positive outcomes result from family engagement focused on early intervention (Shepard & Carlson, 2003), problem-solving (Blechman, Taylor, & Schrader, 1981; McNamara, Telzrow, & DeLamtre, 1999), monitoring and ongoing communication about student progress (USDOE, 2001), and data-based decision-making which correspond to core practices of a PS/RtI model (Marston, Muyskens, Lau, & Canter, 2003). Furthermore, studies suggest that when parents are involved in school-wide reform efforts, the school, teachers, parents,

and students all benefit from family engagement (Cook et al., 1999; Desimone, Finn-Stevenson, & Henrich, 2000; Henderson & Mapp, 2002). Recognizing the degree of student need within our schools, and the finite resources available to respond to those needs, policy makers, researchers, and practitioners continue to emphasize the importance of fostering family engagement to achieve greater student success (Christenson & Reschly, 2010; IDEIA, 2004; Henderson & Mapp, 2002; NCLB, 2002). Thus, the importance of partnering with families as a resource for achieving high academic performance of students has been established as a priority among policy makers, practitioners, and researchers in the education arena (Christenson & Reschly, 2010; IDEIA, 2004; Henderson & Mapp, 2002; NCLB, 2002; USDOE, 2010).

Conceptual Framework for Family Engagement

Family engagement research and practice is based on an ecological-systems theory of child development. The theoretical framework holds that multiple layers of the system directly and indirectly influence child development (Bronfenbrenner, 1986; Pianta & Walsh, 1996). Ecological-systems theory provides a comprehensive view of the bidirectional relationships between systems (e.g., schools, families) that influence child development (Bronfenbrenner, 1986; Kellaghan, Sloane, Alvarez, & Boom, 1993; Pianta & Walsh, 1996). As shown in Figure 1, the home and school environments, which

are part of the mesosystem in this framework, represent instrumental socializing influences in children's lives.

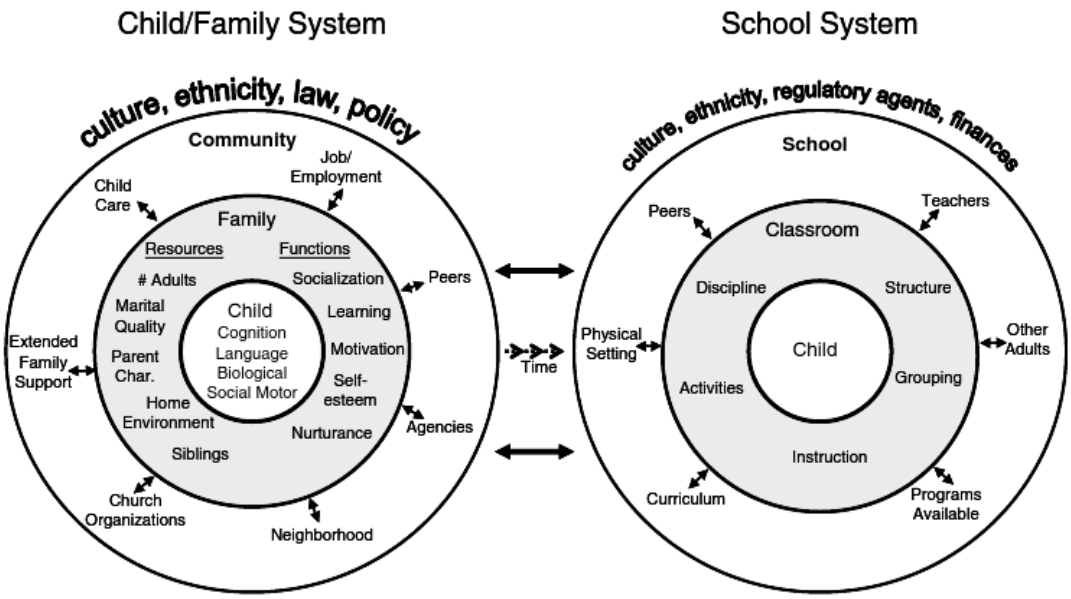

Figure 1. Developmental/ecological model (as adapted from Pianta & Walsh, 1996; obtained from Downer & Myers, 2010, reprinted with permission).

A better understanding of the mesosystem of the ecological-systems framework will help to inform more effective family engagement research and practice. Utilizing this framework, researchers have organized the links between the home and school environments into three main categories:

(a) family engagement/support for education *at home* (e.g., having discussions about school and helping with homework);

(b) family engagement/support for education *at school* (e.g., volunteering, chaperoning fieldtrips, attending school events) and;

(c) the *interface* of the two which includes the communications and interactions between families and schools (e.g., parent-teacher conferences, home-school notes, phone calls; see Henderson & Mapp, 2002).

Each form of family engagement (i.e., home-based, school-based, and home-school connections) was found to be related to positive student outcomes (Henderson & Mapp, 2002).

Impact of Family Engagement on Student Outcomes

The importance of family engagement in student learning is supported by research demonstrating improved student outcomes that result from educators' family engagement practices (e.g., two-way communication between home and school that is sensitive to and addresses the needs of families and schools; Christenson & Reschly, 2010). Increased connections among families and educators facilitate positive student outcomes, indirectly, through students' increased motivation and eagerness to learn (Fan & Chen, 2001). Additionally, student outcomes are directly impacted by family engagement, as evidenced by improved grades (Jordan, Snow, & Porche, 2000); test scores (Epstein, Clark, Salinas, & Sanders, 1997); and scores on skill assessments in academic subject areas (Izzo, Weissberg, Kasprow, & Fendich, 1999; Houtenville & Conway, 2008; Marcon, 1999; see Ginsburg-Block, Manz, & McWayne, 2010 for a review). Improved attendance (Epstein et al., 1997), reduced tardiness, increased

educational attainment (Barnard, 2004), and decreased likelihood for special education placement (Miedel & Reynolds, 1999) are additional positive outcomes of family engagement. Social-emotional outcomes (e.g., improved self-awareness, self-management, social awareness, relationship skills, and responsible decision-making; Albright & Weissberg, 2010), school-based behavior (e.g., discipline referrals, behavior problems; Terzian & Fraser, 2005), and relationships with others, especially others at school (Gutman & Midgley, 2000) improve when positive connections between home and school are established. Importantly, students of all ages and races experience benefits when families are engaged in educational matters (Boethel, 2003; Catsambis, 1998; Ferguson, 2008).

Effective Family Engagement

Research on family engagement has moved beyond investigations of the positive impact of family engagement on student achievement to understanding the conditions that facilitate the development of effective family engagement practices and outcomes (Anderson & Minke, 2007; Clarke, Sheridan, & Woods, 2010; Cox, 2005; Hoover-Dempsey, Whitaker, & Ice, 2010). The literature has identified cognitive characteristics (e.g., beliefs about family engagement, perceptions of family engagement skills), and behavioral characteristics (e.g., family engagement practices) that are associated with effectively engaged families and educational success among students (Christenson & Reschly,

2010). Furthermore, research has identified predictors of family engagement representing school-level and family-level demographic variables.

Beliefs about family engagement. Four essential beliefs of effective family engagement include: (a) all families want what is best for their child, (b) families play an important role in supporting their child's academic achievement (DePlanty, Coulter-Kern, & Duchane, 2007), (c) families' understanding of school processes and practices are important for families' meaningful participation in school, and (d) families are equal partners in supporting their child's education (Mapp & Hong, 2010). Educators' beliefs about the relevance and importance of engaging families were found to influence the degree to which they implement those practices, and maintain fidelity of implementation of those practices over time (Hoover-Dempsey & Sandler, 1997; Hoover-Dempsey, Walker, Jones, & Reed, 2002). Parents who believe that one of their roles and responsibilities is to actively facilitate their child's learning are more engaged in their child's education in various ways (Drummond & Stipek, 2004). Educators' and families' beliefs and values regarding family engagement are further complicated by cultural differences regarding the role that families play in their child's education (e.g., passive versus active participation in educational matters; Holloway, Rambaud, Fuller & Eggers-Pierola, 1995) as well as their personal educational histories (Hoover-Dempsey, Whitaker, & Ice, 2010).

Perceptions of knowledge and skills for family engagement. The likelihood of sustaining the implementation of effective family engagement practices is significantly increased when educators perceive that they have the knowledge and skills necessary to implement effective family engagement practices (Hoover-Dempsey, Walker, Jones, & Reed, 2002). Similarly, the degree to which parents believe they have the knowledge and skills necessary to successfully help their child with school and to positively interact and communicate with educators influences the degree to which they enact these educationally supportive behaviors (Dauber & Epstein, 1993; Drummond & Stipek, 2004; Eccles & Harold, 1996; Hoover-Dempsey & Sandler, 1997; Hoover-Dempsey, Bassler, & Brissie, 1992; Overstreet, Devine, Bevans, & Efreom, 2005). Parents' and educators' perceptions of their skills for developing relationships with one another in order to support the student are further influenced by prior parent-teacher experiences (Hoover-Dempsey, Bassler, & Brissie, 1992; Sheldon, 2002). To date, there have been no studies that have investigated educators' or families' perceptions of their skills to participate in family engagement efforts in the context of PS/RtI implementation.

Practices for family engagement. Families and educators both engage in collaborative practices to support student success. Families' efforts to intentionally build positive relationships with educators and demonstrate support for their child's education is related to, and somewhat dependent on, educator

outreach and support for family engagement in educational activities (see Hoover-Dempsey, Whitaker, and Ice, 2010). Parents' efforts to develop positive relationships with their child's teacher (e.g., communicating with the teacher, volunteering in class) and parents' efforts to support student learning (e.g., helping with schoolwork at home, implementing specific intervention strategies at home, communicating the importance of education to their child, etc.) all have the potential to positively impact students' academic success (Henderson & Mapp, 2002).

Educator beliefs and perceptions of knowledge and skills for engaging families are also predictive of the degree to which educators implement family engagement practices (Hoover-Dempsey et al., 2005). Across all three tiers of PS/RtI implementation, family engagement practices can be generally organized into four domains: (a) relationships/communication, (b) collaboration/problem-solving, (c) social networks, and (d) direct support/parent education.

Educator and family efforts to develop relationships with one another to support positive student outcomes are most effective when educators reach out to families and consistently keep the connection between home and school positive (USDOE, 2001). Effective relationships are based on mutual respect and trust among educators and families (Adams & Christenson, 1998, 2000; Dunst, Johanson, Rounds, Trivette, & Hamby, 1992), and are characterized by honest and open communication (Dunst et al., 1992). Communication among educators

and families is critical to developing trusting relationships (Adams & Christenson, 2000) and is central to other family engagement activities (e.g., collaborative problem-solving, parent training). School-wide invitations and teacher-specific invitations to families to participate in their child's education influence the degree to which families are involved in supporting their child's education (Hoover-Dempsey, Whitaker, & Ice, 2010). When schools implement more active outreach practices, families respond to those efforts by communicating more with the school staff and participating more in their child's education (Hoover-Dempsey, Whitaker, & Ice, 2010; Seitsinger, Felner, Brand, & Burns, 2008; Simon, 2004).

In conclusion, the foundation for sustained family engagement within schools implementing a Problem-Solving/Response to Intervention (PS/RtI) model include: (a) building positive relationships and effective communication among educators and families, (b) ensuring effective collaboration and problem-solving opportunities, (c) providing opportunities for families to connect and learn from one another, and (d) providing direct support and parent education opportunities to families (Clarke, Sheridan, & Woods, 2010; Cox, 2005; Marcon, 1999). To date, no published studies have investigated family engagement practices in schools implementing PS/RtI.

Demographic factors. Research suggests educator and family beliefs, perceptions of knowledge and skills, and practices for family engagement are

associated with school-level demographic variables (e.g., school size) in addition to individual-level characteristics (e.g., race/ethnicity of teachers/family members) of families and educators (Dee, Ha, & Jacob, 2006/2007; Epstein & Dauber, 1991; Griffith, 1998). Research studies further suggest an inconsistent relationship between various school-level demographic factors (e.g., school size, percentage of students receiving free or reduced-price lunch), family demographic factors, and the development of effective family engagement (Dee, Ha, & Jacob, 2006/2007; Epstein & Dauber, 1991; Griffith, 1998). For example, one study found that Latino, African American, and Asian families reported lower levels of individual participation in school activities (Griffith, 1998); however, school-level analyses showed that the percentage of students receiving free or reduced-price lunch better explained levels of parent participation than the percentage of ethnic/racial minority families enrolled at the school. Many studies fail to use appropriate statistical analyses that address the nested nature of educational research. As demonstrated by Griffith's (1998) study, failure to simultaneously account for school-level and individual-level relationships in statistical analyses may result in inaccurate estimates of relationships among variables of interest.

Additionally, family engagement appears to change throughout a child's educational career as studies demonstrate that levels of parent engagement decline as a child advances through the grades (Griffith, 1998; Henderson &

Mapp, 2002). However, many family engagement studies are limited by narrow conceptualizations of family engagement (e.g., attendance at conferences) that may not capture family engagement behaviors that occur in families with older students (e.g., help planning for college).

Family Engagement in PS/RtI Implementation

Research identifies communication (or diffusion) of a school reform effort (e.g., PS/RtI implementation) with all stakeholders as one of the guiding principles of effective school-wide change (Hall & Hord, 2006). Establishing positive relationships and bi-directional lines of communication between families and schools implementing PS/RtI offer a potential resource to facilitate sustained PS/RtI implementation. The more information educators provide to families about the school's PS/RtI implementation plans and the related changes in educator practices, the more families are likely to have the information needed to support, approve, and effectively participate in the reform effort (Deslandes, Rivard, Joyal, Trudeau, & Laurencelle, 2009; Mu & Childs, 2005). Family support for PS/RtI holds promise for facilitating and maintaining changes in educators' implementation of PS/RtI and ultimately improving student outcomes. Without information regarding changes occurring in the school, parents are more likely to become resistant to changes because they lack the necessary information to understand and participate in the changes (Fullan, 2001; Mu & Childs, 2005). Engaging families in PS/RtI (e.g., providing opportunities to communicate and

share information with families about PS/RtI; providing support to build families' capacity for participation in PS/RtI practices), offers great potential to improve mutual trust, respect, and collaboration among families and educators (Adams & Christenson, 1998). Building trust and positive relationships among educators and families are essential, foundational components to effective, meaningful, and sustained family engagement efforts (Byrk & Schneider, 2002), all of which contribute to higher student achievement outcomes.

Full implementation of a PS/RtI model typically takes between three to five years (Batsche et al., 2005; Fullan, 2001). The degree to which educators (a) have achieved consensus for PS/RtI implementation, (b) have developed the infrastructure necessary to support PS/RtI practices, and (c) have implemented PS/RtI practices is likely to be related to the degree to which schools have communicated changes in the school with families and engaged families in PS/RtI (Batsche, Curtis, Dorman, Castillo, & Porter, 2007; Hall & Hord, 2006). Once educators have established an understanding of the changes occurring within their school as a result of PS/RtI implementation, they are better equipped to provide accurate information to families and offer opportunities to improve families' skills for participation in PS/RtI. Thus, schools with greater levels of PS/RtI implementation are better prepared to share information and work with families to improve their skills needed for participation in PS/RtI (e.g., understanding student data, participating in problem-solving meetings).

Additionally, several studies report greater data-based problem-solving, teaming, and frequent monitoring of student progress represent school practices that foster more effective relationships between educators and families (Esquivel, Ryan, & Bonner, 2008; Flowers, Mertens, & Mulhall, 1999; Lake & Billingsly, 2000; McNamara, Telzrow, & DeLamtre, 1999; Morrow & Young, 1997; Sheridan et al., 2004). Importantly, these practices represent essential practices of a school implementing PS/RtI. The above findings support the notion that schools with greater levels of PS/RtI implementation will also have greater levels of family engagement as reported by families and educators.

Rationale for the Study

To date, there have been no published studies that have investigated educators' or families' beliefs, perceptions of knowledge and skills, or practices specific to family engagement in schools implementing PS/RtI. Exploring educators' and families' beliefs, perceptions of knowledge and skills, and practices will inform future research and practice regarding effective family engagement in PS/RtI implementation. School outreach and efforts to engage families in educational matters is the strongest predictor of families' engagement behaviors (Hoover-Dempsey, Whitaker, & Ice, 2010; Seitsinger, Felner, Brand, & Burns, 2008; Simon, 2004). An understanding of families' and educators' beliefs, perceptions of knowledge and skills, and practices for family engagement within schools implementing PS/RtI offers a foundation of knowledge from which

subsequent research aimed at improving family engagement within PS/RtI can be developed.

Purpose

The purpose of the current study was to investigate relationships among school-level factors, educator factors, family factors and families' and educators' family engagement practices in schools implementing PS/RtI. Specifically, the current study explored relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and educators' and families' reports of practices to engage families in PS/RtI. School factors included school size, percentage of the student population that was non-white, percentage of the student population that was eligible for free or reduced-price lunch, the percentage of the student population that was eligible for Exceptional Student Education services (ESE), and the percentage of the student population that represented English Language Learners (ELL). Implementation factors, also school-level factors, were explored and included degree of PS/RtI implementation as measured by the Consensus, Infrastructure, and Implementation subscales of the Self-Assessment of Problem-Solving Implementation (SAPSI) and length of PS/RtI and RtI:B implementation. Title 1 status was also included as an implementation factor as Title 1 status has implications for implementation of school-wide family engagement efforts that are required of schools receiving Title 1 funds. Educator factors included educators'

position/role, membership on the School-based Leadership Team (SBLT), educators' beliefs about the importance of family engagement, and educators' perceived knowledge and skills for engaging families. Family factors included the grade of the child, the child's Exceptional Student Education (ESE) eligibility status, the child's participation in additional interventions, parents' race/ethnicity, parents' highest level of education, parents' frequency of engagement in educationally supportive activities and school communication, and families' beliefs and perceived knowledge and skills for participating in educationally supportive behaviors and activities. Based on the extensive literature base demonstrating the importance of families for supporting student school success (Henderson & Mapp, 2002), the current study augmented the current knowledge base of family engagement research by exploring family engagement practices among schools implementing PS/RtI service delivery models. As schools nationwide move towards the implementation of PS/RtI in order to meet all students' needs, a greater understanding of family engagement in the context of PS/RtI implementation will help to inform future practice and research that better supports student success.

Research Questions

1a. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and educators' self-reported family engagement practices?

1b. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and educator reports of school-wide family engagement practices?

2a. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family perceptions of educators' family engagement practices?

2b. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family initiated school communication?

2c. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family engagement activities?

Definitions of Terms

PS/RtI Implementation is the degree of consensus, infrastructure, and implementation as measured by the Self-Assessment of Problem-Solving Implementation (SAPSI).

Family includes primary caregivers or legal guardian of a child that is inclusive of primary caregivers who may or may not be a child's biological parent.

Chapter II

Literature Review

Introduction

Due to national legislation calling for increased accountability for improved student outcomes, schools nationwide are implementing a Problem-Solving/Response to Intervention (PS/RtI) model of service delivery (Spectrum K-12 School Solutions, 2010). Published empirical investigations of PS/RtI have yet to investigate the role of families within PS/RtI implementation. This represents a critical gap in the literature as years of research have established the importance of families for children's educational success (Cox, 2005; Fan & Chen, 2001; Henderson & Mapp, 2002; McCarthey, 2000; Shepard & Carlson, 2003). Given the empirical support for the role of families in supporting children's education, the current study investigates family engagement in schools implementing a PS/RtI model of service delivery. The following chapter will review the broader literature base on effective school reform and improvement efforts followed by a review of the literature with respect to a specific school reform effort: Problem-Solving/Response to Intervention (PS/RtI). Next, a summary of the literature demonstrating the importance of family engagement within reform and improvement efforts will be provided. Finally, the conceptual framework for family

engagement and empirical investigations of family engagement will be reviewed. Specifically, research regarding educators' and families' beliefs, perceptions of skills, and practices for family engagement that are consistent with a PS/RtI model and supported by the family engagement research will be reviewed.

School Reform Efforts

Recent legislation and initiatives. There has been an emphasis on increasing the connections between home and school environments for the purpose of supporting student success within national legislation and educational initiatives. Among these include the No Child Left Behind Act of 2001 (NCLB, 2002), Individuals with Disabilities Education Improvement Act of 2004 (IDEIA, 2004), and the National Education Goals 1 and 8, which call for increased communication, collaboration, and partnerships among educators and families to support student learning. Efforts to improve family engagement are evident in important national educational organizations including the National Council for Accreditation of Teacher Education (NCATE), the National Association of School Psychologists (NASP), and the National Parent Teacher Association (PTA). In addition to the emphasis on increasing connections between home and school environments, educational legislation and initiatives have emphasized the implementation of PS/RtI in order to better serve students (Batsche et al., 2005).

The movement towards improving family engagement is founded on a strong literature base demonstrating positive outcomes for students, schools, and

families when home and school contexts work together to support student success (Henderson & Mapp, 2002; Weiss, Bouffard, Bridglall, & Gordon, 2009). Similarly, the movement towards implementation of PS/RtI in schools is informed by evidence-based instructional practices and systems change/school reform literature (Batsche, et al., 2005).

School reform research. PS/RtI implementation includes critical elements of educational practice that years of research have demonstrated to be important for successful educational reform (i.e., a systems change perspective; high-quality, evidence-based instruction; data-based decision-making; etc.). Below, studies demonstrating the elements that make schools and school improvement efforts successful are reviewed. Importantly, these studies continuously identify: (a) families' engagement, and (b) practices embodied within PS/RtI implementation as essential characteristics of effective and successful schools.

In one study, interviews and observations were conducted across nine different sites (i.e., two visits per site) in geographically diverse regions of the United States in order to better understand school reform in the middle grades (Rutherford, Anderson, & Billig, 1995). Eight major themes emerged across the nine sites, including the theme "challenges [within school reform efforts] can create opportunities for family involvement" (Rutherford, Anderson, & Billig, 1995, pg. 4). Researchers found that changes associated with the reform efforts

resulted in new and different opportunities for family engagement. When looking at the impact of reforms on outcomes, researchers found that schools reported increased support for the reform efforts when strong family engagement has been established (Rutherford, Anderson, & Billig, 1995).

Haycock et al., (1999) investigated 366 high-poverty schools across 21 states that were identified by their state as either (a) highest performing (i.e., among the high-poverty schools, these schools were among the 10 highest performing schools on state assessments in reading and/or math), or (b) most improved (i.e., among the 10 biggest gaining, high-poverty schools on state assessments in reading and/or math). In high-poverty schools 50% or more of students were eligible for free or reduced-price lunch. During the 1996-1997 school year, surveys were administered to obtain information about the practices implemented in high-poverty, high-success schools to better understand the factors that may have contributed to their success.

Results of the study identified that one of the six practices common to high-poverty/ high success schools was a focus on involving parents for the purpose of helping students meet state standards (Haycock et al., 1999). About a third of schools said that 25-50% of parents were involved in school practices to understand the quality of student work (e.g., standards and student assessments), while 25% of schools said that 50-75% of parents were involved in standards and assessment-related practices. Furthermore, schools indicated

high levels of parent engagement in areas related to student work including (in order from highest to lowest) budget, curriculum, governance, standards, classroom help, P.T.A., and student work (Haycock et al.).

A study by the USDOE (2001) followed 71 high-poverty schools in 18 school districts across seven states from 1996 to 1999 as part of a national evaluation of Title I. The longitudinal study aimed to determine the impact of school practices on student achievement as students progressed from third to fifth grade. The school practices being monitored were encouraged from state, district, and school-level policies encouraging standards-based reform that expected and encouraged schools to adopt high standards and increased accountability for student outcomes (USDOE, 2001). Among the 71 schools, 59 were implementing school-wide programs (using Title I funds) aimed at improving student outcomes and in most schools, 50% and 90% of students were eligible for free or reduced-price lunch.

Findings from the study identified practices that were related to higher student achievement. With respect to reading achievement, two practices were related to greater increases in student outcomes including: (a) teachers' high ratings towards professional development in reading, and (b) third grade teachers' active outreach towards parents of low-achieving students (USDOE, 2001). Specifically, findings indicate that among those schools and teachers who reported high levels of early outreach to parents (i.e., "high levels" included those

teachers whose responses fell at or above the 90th percentile on survey responses regarding outreach practices), students' reading test scores demonstrated growth 50% higher than those students and schools that reported low levels of early outreach to families. With respect to math achievement, three practices were related to gains in student outcomes including: (a) teachers' high ratings towards professional development in math, (b) teachers' active outreach towards parents of low-achieving students, and (c) instructional practices that involved students in more exploration in upper grades (USDOE, 2001). Specifically, findings indicate that between third and fifth grade, those students and schools that indicated high levels of early outreach to families grew test scores at a 40% higher rate compared to those teachers and schools that did not indicate early outreach to families (USDOE, 2001). Active outreach was defined (i.e., measured) as the "the extent to which teachers communicated with parents of low-achieving students through face-to-face meetings, sent them materials on ways to help their child at home, and telephoned them when their child was having problems, and more routinely, when there were no problems" (USDOE, 2001, pg. 7).

One study investigated schools in Illinois, known as Golden Spike schools (i.e., schools serving disadvantaged, low-income, high-minority schools that were successful at closing the achievement gap) and compared them to high-poverty, low-performing schools in order to determine commonalities among the Golden

Spike schools that might help explain their success (McGee, 2004). Excluding schools within the city of Chicago, there were 59 schools out of 919 high-poverty schools (6.5%) that met the criterion for (a) high-performing (i.e., two out of every three students meeting [or exceeding] state standards over the past three years) and (b) sustained improvement (i.e., demonstrated an overall increase of 10% of the students meeting [or exceeding] standards on the Illinois Scholastic Achievement Test [ISAT]). There was a significant difference between the high-poverty, high-performing (HP/HP) schools and the high-poverty, low-performing (HP/LP) schools in school size (325 vs. 402 students, $p = .02$). There were significant differences (although small practical differences) between HP/HP schools and HP/LP schools in the (a) amount of revenue the district spent on instruction (50.7% vs. 47.9%) and (b) mobility rate with HP/HP schools spending more on instruction and having a lower mobility rate. Qualitative analysis of interviews and document reviews identified commonalities shared among 90% of the HP/HP schools. The common characteristics included (a) strong leadership, (b) emphasis on early literacy, (c) talented, hard-working teachers who believe every child can and will learn, (d) more academic learning time, and (e) extensive parent involvement (McGee, 2004). One of the conclusions of this study suggests educational reform that allows for reallocation of resources at HP/LP schools in order to support greater implementation of family engagement in educational practices is critical to improving outcomes in low-performing schools.

These findings have implications for family engagement in PS/RtI as PS/RtI embodies the practices described above and allows for more efficient allocation of resources thus, creating conditions conducive to family engagement.

Guhn (2009) reviewed two school-wide reform programs (i.e., Comer School Development Program [CSDP] and Child Development Project [CDP]) in order to identify shared characteristics among the successful reform efforts. A total of 26 studies (16 for CSDP and 10 for CDP) were reviewed in order to identify factors related to the programs' implementation, sustainability, and evaluation efforts that were attributed to the programs' success (or lack of). Themes identified included (a) relationship building, (b) autonomy and decision-making, (c) overcoming resistance to change, (d) competence, (e) formative evaluation and assessment, (f) principal as role model /continuity in leadership (g) district support and goal alignment, (h) team (school-community) support, and (i) school-community-university partnerships. Further clarification of these major themes suggested parents were critical stakeholders identified within four of the nine major themes including relationship building, autonomy and decision-making, overcoming resistance to change, and team (school-community) support. Thus, findings suggest that families play multiple, but important, roles in successful school-wide reform and restructuring efforts aimed at improving student outcomes.

More recently, Shannon and Bylsma (2007) published the second edition of “Nine Characteristics of High-Performing Schools,” an update to their 2002 publication. The original publication reviewed over 20 studies in which schools were achieving greater outcomes than would be predicted based on their demographic characteristics. The outcomes of the 2002 study identified nine common characteristics of the high-performing schools. One of the nine characteristics was high levels of family and community involvement. In the second edition, Shannon and Bylsma (2007) reviewed over 120 publications on school improvement with findings verifying the original nine characteristics while adding an additional 10 concepts that either expand on or further refine the original nine characteristics. One of the ten additional concepts identified in the 2007 publication that was found to be common among effective schools was family and community engagement (Shannon & Bylsma, 2007). Taken together, Shannon and Bylsma’s work underscores the importance of families for successful school improvement efforts in over 140 studies over many years of research.

Taken together, the studies described above illustrate the critical role families play in successful school improvement and reform efforts. Literature over the past 20 years has suggested that when families are engaged in educational practices and efforts to improve student outcomes, students and schools are successful. In particular, studies demonstrate that low-SES/high-poverty schools

that are successful at improving student outcomes and closing the achievement gap engage families in their improvement efforts. Furthermore, a common practice essential to family engagement includes high levels of early outreach and communication with parents of low-performing students (USDOE, 2001). With the movement towards implementation of PS/RtI and a critical focus on improving outcomes for *all* students, these studies suggest that involving parents in PS/RtI implementation efforts will only serve as a resource to further support the improvement of student outcomes. However, no published studies have investigated the role of families in PS/RtI implementation. Next, a review of studies demonstrating empirical support for engaging and involving families in school-wide programs and curricula that result in improved student outcomes will be provided in order to further demonstrate the importance of families to current educational improvement efforts.

Family engagement in school-wide reforms and programs. Literature on the sustainability of reform/improvement efforts suggests that building support for the reform effort beyond school walls will motivate teachers to buy-in to and implement innovative practices in order to improve student outcomes (Walter, 2004). Comprehensive School Reform (CSR) is the umbrella term used to refer to the many school-wide reform efforts designed to improve outcomes for students (USDOE, 2002). The USDOE (2002) defines CSR to include the implementation of 11 key components that represent a comprehensive,

scientifically based approach to school reform (Borman, Hewes, Overman, & Brown, 2003). Importantly, these 11 key components are embodied in PS/RtI implementation. The following studies illustrate school-wide programs that have successfully engaged families in implementation efforts, resulting in improved student outcomes.

Accelerated schools. Levin developed one of the CSR models, Accelerated Schools, in the mid 1980's. It has since expanded over the past 30 years with implementation and evaluation efforts. Accelerated Schools is based upon a six-step change process aimed at improving the school quality of educational services and student outcomes among high-poverty schools. The family engagement component to Accelerated Schools includes providing opportunities for natural family engagement by establishing an inviting and interactive school climate among families and schools. There is an expectation that families will take an active role of engaging with the school to support student learning. Families and schools work together through a collaborative process to establish a shared vision, mission, and mutual goals about educational practices and processes. There is also an emphasis on more traditional roles of parent involvement (e.g., volunteering, helper, and homework assistant). Although research on the effectiveness of Accelerated Schools suggests it has promising evidence of effectiveness, evaluations do not include information on the family engagement component (Borman et al., 2003). This is a

limitation common to the studies that make up the literature base for CSR models. Thus, it is important to include evaluations of family engagement within current improvement and reform efforts (e.g., PS/RtI models).

Comer's school development program (CSDP). In 1968 Comer developed the Comer School Development Program that is now implemented in over 700 schools. CDSP is founded on a whole-child developmental approach emphasizing comprehensive services that facilitate positive child development in 6 main areas: physical, language, ethical, social, psychological, and cognitive. The main vision and mission of CSDP is that all students will be successful in school and in life and that student success depends on the degree to which families and schools work together to support whole-child development. The main structure of CSDP includes three teams: the School Planning and Management Team, the Social Support Team, and the Parent Team.

The family engagement component to CSDP includes (a) family engagement in policy, governance, and management issues, (b) family engagement in activities that support student learning and academics, and (c) family attendance at school events. Another founding philosophy behind Comer's program is that training and support provided to staff is critical in order to develop positive interactions among staff and families. The empirical support behind CSDP is limited to two studies, only one of which included the family engagement component in evaluations. Results of this study suggest that

schools implementing CSDP also had higher levels of family engagement in school-based activities, more frequent invitations to parents to attend school events, and greater parent satisfaction than non- CSDP schools (Cook et al., 1999).

CoZi. CoZi reflects the integrated model including both CDSP and 21st Century Schools (i.e., a wrap-around approach to education, including before and after care for students at school, year-round pre-school care and home visitation for families of pre-school age students). CoZi schools incorporate the comprehensive, wrap-around approach essential to 21st Century Schools and the focus on school climate and school improvement efforts of the CDSP model. The major components to CoZi schools include collaborative parent-teacher decision-making, services for children 0-3 years of age, including early supports for parents and childcare, before and after-school care for school-aged children, and family engagement programs. Research on CoZi schools suggests that the combined approach has the strongest impact on school climate and family engagement (Desimone, Finn-Stevenson, & Henrich, 2000). A limitation of the research on CoZi schools is that studies are limited in number and have not included student outcome data.

Success for all. Slavin and Madden piloted Success for All in the1987-1988 school year and it is now implemented over 2,000 schools. Success for All is founded on a comprehensive, high-quality, ecological approach to education

that emphasizes prevention and early intervention that identifies and remedies student skill deficits early and immediately. There is a heavy focus on ongoing assessment that facilitates targeted skills instruction for groups of students with similar needs. There is also a focus on instructional guidance for teachers. Success for All shares very similar critical components to PS/RtI models. Unique to Success for All schools is the Family Support Team which facilitates family engagement in three main areas including (a) family engagement on the Building Advisory Team, (b) in-school volunteering and support, and (c) family engagement in the curriculum (e.g., educating parents on the curriculum and providing support to families so that they can support learning at home). A review of 29 CSR models identified Success for All as having the strongest evidence of effectiveness on student achievement (Borman et al., 2003); however, there have been no evaluations of the family engagement component. This continues to be a limitation of the school reform/improvement literature and the lack of empirical investigations regarding parents' role in school improvement efforts has hindered family engagement practices in PS/RtI implementation.

School-wide positive behavior support (SWPBS). SWPBS represents a framework and approach to schooling that applies behavioral science to school practice, organized within a multi-tiered model of service delivery (Sailor, Dunlap, Sugai, & Horner, 2009). Similar to PS/RtI models, the hallmark of SWPBS is the use of data-based problem-solving and the development of function-based

interventions in order to improve student outcomes. Key behavioral principles include changing environmental influences (antecedents and consequences) to create environments that are more conducive to appropriate behavior and less conducive to inappropriate behavior and a strong emphasis on teaching behavior. SWPBS relies on the collaboration between families and educators in order to support student learning and student development and to ensure consistency across environments (e.g., implementing PBS strategies in the home; Lewis, 2009; Muscott et al., 2008). SWPBS advocates for family engagement across Epstein's six domains from decision-making and participation on leadership teams to home visits and more individualized relationships between families and educators (Muscott, et al., 2008). Engagement strategies are also organized within a tiered framework that match the needs of the families, with some families needing more intensive, personalized, and intimate outreach and relationship development (Lewis, 2009). Key family engagement practices within SWPBS include two-way communication practices and information sharing in order to support student success. Research on schools implementing SWPBS suggest that schools see an improvement in student achievement and a reduction in negative student outcomes (e.g., office referrals, absences, suspensions; Lewis, 2009; Sailor et al., 2009). Similar to other comprehensive approaches to schooling, there has been a lack of evaluations of the family engagement component (Muscott, et al., 2008).

Problem-solving/Response to Intervention (PS/RtI)

Problem-solving/Response to Intervention (PS/RtI) is a framework to organize and execute more effective and efficient educational practices. Services are organized into three-tiers that match the intensity of resources with student needs (Batsche et al., 2005). PS/RtI "is the practice of (1) providing high-quality instruction and intervention matched to student needs and (2) using learning rate over time and level of performance to (3) make important educational decisions" (Batsche et al., 2005, p. 5). Essential elements of a PS/RtI framework include the use of a problem-solving process, data-based decision-making, teaming and collaboration, evidence-based instruction and intervention, valid, reliable, and authentic assessments of student achievement, and ongoing monitoring of student progress. Conceptualized as a systems change effort, implementing PS/RtI addresses the limitations of a traditional service delivery model and has been shown to be an effective and efficient educational framework to ensure improved outcomes for *all* students (Griffiths et al., 2007).

Empirical studies demonstrate support for a Response to Intervention framework for achieving positive student outcomes (Burns, Appleton, & Stehouwer, 2005; Griffiths et al., 2007). A meta-analysis of 21 studies investigating the effectiveness and outcomes associated with PS/RtI found positive systemic and student outcomes associated with sites that implemented

PS/RtI (mean ES between .96 and 1.53 for student and systemic outcomes, respectively; Burns, et al., 2005).

Although initial studies have demonstrated promising outcomes associated with implementation of PS/RtI, it is considered a relatively emergent framework in the field of education. There is evidence to suggest that greater levels of familiarity and exposure to PS/RtI are associated with more favorable ratings of PS/RtI and less favorable ratings of traditional discrepancy models among educators (O'Donnel & Miller, 2011). These findings suggest a similar, positive relationship between level of familiarity/exposure to PS/RtI and favorable perceptions and participation within PS/RtI would exist for families. However, there has been no published research that has investigated families' exposure to or familiarity with PS/RtI or parent participation in PS/RtI.

Conceptual Framework for Family Engagement in Education

Definition of family engagement. There have been many terms used to refer to the concept of family engagement including school-family partnerships, home-school collaboration, family/parent involvement, and family/parent engagement, with terms being used interchangeably in the literature (Christenson & Reschly, 2010). Generally, family engagement refers to parent and caregiver investment of resources to support positive child development and specifically, school success (Grolnick, Benjet, Burowski, & Apostoleris, 1997). This definition would include a range of behaviors both in home settings and

school settings. In general, the research focusing on the links between home environments and school environments can be organized into three main categories:

- family engagement/support for education *at home* (e.g., having discussions about school and helping with homework);
- family engagement/support for education *at school* (e.g., volunteering, chaperoning fieldtrips, attending school events) and;
- the *interface* of the two, which includes the communications and interactions between families and schools (e.g., parent-teacher conferences, home-school notes, phone calls; see Henderson & Mapp, 2002).

Each of these forms of family engagement (i.e., home-based, school-based, and home-school connections) was found to be related to positive student outcomes (Henderson & Mapp, 2002). More recently in the literature, there has been consensus among experts for using the term, *family engagement* in education (The National Family, School, and Community Engagement Working Group, 2009). This term reflects the important role of educators reaching out to and engaging families in all aspects of their child's education. The focus of the current study is family engagement in schools implementing PS/RtI. PS/RtI represents a new way of work in education; therefore, the term family engagement will be used to capture the school's responsibility to inform and to

engage families in the implementation process. Ecological-systems theory provides a framework for understanding family engagement and the positive impact it has on student outcomes.

Ecological-Systems Theory. Ecological-systems theory is a framework for conceptualizing child development and student learning that draws upon the importance of the interconnecting and interdependent levels of systems that influence child development (Bronfenbrenner, 1986). Ecological-systems theory holds that a child's development is influenced by multiple systems (Bronfenbrenner, 1986; Kellaghan, Sloane, Alvarez, & Boom, 1993, & Pianta & Walsh, 1996). The child is recognized as part of larger systems that exert direct and indirect influences on the child. Distal and proximal systems must be understood in order to fully understand the child. It is often the unhealthy transactions, interactions, and connections across systems and among levels of systems that are sources of distress for developing children (Pianta & Walsh, 1996). Systemic influences are often overlooked when the child is considered in isolation from the larger contexts in which they exist. The focus of the present study includes the interface between the school and family systems. The school and family systems represent two instrumental, socializing influences in children's lives and it is important to understand the connections between home and school to foster positive child development.

Limitations of Family Engagement Research

The empirical evidence to support family engagement has been established (Christenson & Reschly, 2010; Henderson & Mapp, 2002); however, numerous factors complicate research investigating family engagement in education. These complications make it difficult to navigate and understand the family engagement literature base and have subsequently impeded the translation of research into effective family engagement practice (Beretvas, Keith, & Carlson, 2010; Carlson, 2010; Mattingly, Prislin, McKenzie, Rodriguez, & Kayzar, 2002). First, there are vast differences across studies in the way that family involvement/family engagement has been operationally defined and measured. Furthermore, terms are not used consistently across studies to describe similar behaviors or constructs. That is, family involvement/family engagement defined in one study is likely to be different than family involvement/engagement defined in another study. Secondly, family engagement in education happens within a larger, complex educational context making it difficult to isolate the effects of family engagement on student outcomes from other contributing factors. Thirdly, effective family engagement is dependent on a constellation of interrelated factors including characteristics of the school, educators, parents, and students as well as the thoughts, attitudes, knowledge, skills, behaviors, and activities of each. A change in one factor (e.g., educator skills) is likely to cause changes in others (e.g., educator practices) making it

difficult to identify the essential elements and conditions that facilitate the development of effective family engagement. Fourth, the methodological rigor of many of the studies focusing on family engagement is weak; most studies include data from a single informant rather than including multiple sources of data (Reynolds, 1992). Despite these complicating factors, the evidence to support family engagement for student outcomes is substantial.

Impact of Family Engagement on Student Outcomes

Family engagement in education is supported by research demonstrating improved student outcomes as a result of successful family engagement (Christenson & Reschly, 2010). When families and educators collaborate for the purpose of improving student outcomes, students, families, and educators experience numerous benefits (Henderson & Mapp, 2002). Increased connections among families and educators facilitate positive student outcomes, indirectly, through students' increased motivation and eagerness to learn (Fan & Chen, 2001). Additionally, student outcomes are directly impacted by family engagement including improved grades (Jordan, Snow, & Porche, 2000); test scores (Epstein, Clark, Salinas, & Sanders, 1997); and scores on academic skill assessments (Izzo et al., 1999; Houtenville & Conway, 2008; Marcon, 1999; see Ginsburg-Block, Manz, & McWayne, 2010 for a review). Improved attendance (Epstein, Clark et al., 1997), reduced tardiness, greater school attainment (i.e., more years enrolled in school; Barnard, 2004), and decreased likelihood for

special education placement (Miedel & Reynolds, 1999) are additional positive outcomes of family engagement. Social-emotional outcomes (e.g., improved self-awareness, self-management, social awareness, relationship skills, and responsible decision-making; Albright & Weissberg, 2010), school-based behavior (discipline referrals, behavior problems; Terzian & Fraser, 2005), and relationships with others, especially others at school (Gutman & Midgley, 2000), improve when positive connections between home and school are established. Importantly, students of all ages and races experience benefits when families are engaged in educational matters (Boethel, 2003; Catsambis, 1998; Ferguson, 2008).

Characteristics of Successful Family Engagement in Education

Research has moved beyond investigations of the positive impact of family engagement on student outcomes to understanding the conditions that facilitate the development and sustainability of effective family engagement practices and outcomes (Clarke, Sheridan, & Woods, 2010; Cox, 2005; Garbacz, et al., 2008; Hoover-Dempsey, Whitaker, & Ice, 2010; Anderson & Minke, 2007). The literature has identified a number of characteristics representing beliefs, perceptions of skills, and practices common to successful family engagement that support educational success among students (Christenson & Reschly, 2010). Studies describing parent and educator beliefs, perceptions of skills, and practices for effective family engagement are further described below. In

addition, the contextual factors including demographic characteristics of schools and families that influence family engagement are described.

Beliefs Associated with Effective Family Engagement

Family beliefs about family engagement. Research suggests parents' beliefs about their role influences the degree to which parents engage in educationally supportive behaviors (see Hoover-Dempsey, Whitaker, & Ice, 2010). In general, studies find that families believe they play an important role in supporting their child's educational success (DePlanty, Coulter-Kern, & Duchane, 2007).

In one study, DePlanty, Coulter-Kern, and Duchane (2007) surveyed one hundred and eighty-five families regarding parents' attitudes towards family engagement and the degree to which parents enacted specific family engagement behaviors. Parents were asked to rate the level of importance of various family engagement behaviors; results of factor analyses identified five factors including (a) school involvement, (b) time management, (c) school attendance, (d) parent structure, and (e) supportive home environment (DePlanty, Coulter-Kern, & Duchane, 2007). These five factors explained most of the variance in parent responses regarding the importance of these family engagement behaviors. Results from the study support the notion that parents believe they play an important role in supporting their child's educational success

and that family engagement takes on many different forms (i.e., school and home support for educational success).

Next, parents indicated the amount of time they engaged in each of the educationally supportive behaviors. Results from student, teacher, and parent surveys all identified parent-teacher conferences as the most frequent behavior parents enacted to demonstrate their support for their child's educational success (DePlanty et al., 2007). Of note, parent responses regarding the frequency of family engagement behaviors were significantly higher than educator and student responses to the frequency of family engagement behaviors suggesting that parents may perceive their behaviors differently than students and teachers. Limitations of the study include a limited sample size and data collection procedures that may have influenced survey responses.

Another study identified family beliefs as an important variable to understanding family engagement (Drummond & Stipek, 2004). Surveys and interviews were conducted with the teachers and parents of 234 children enrolled in 103 schools from three different communities throughout the United States. Four themes were obtained from the coded parent interviews regarding their beliefs about what parents should do to support children's educational success (i.e., [1] help with reading, [2] help with math, [3] help with homework and projects, and [4] know what child is learning). The four themes were subjected to empirical analyses to identify differences in the four parent beliefs based on

parent race/ethnicity and school grade of the child. Results of empirical analyses failed to identify significant differences in parental beliefs about family engagement in the four domains listed above by parent race/ethnicity, but identified significant differences by child's grade level with parents of second grade students indicating a higher level of importance for family engagement than parents of third grade students (Drummond & Stipek, 2004). Findings from this study suggest *all* families believe in the value of supporting children's educational success, regardless of race/ethnicity.

One study investigated 853 parents of elementary school students regarding parental motivational beliefs and family engagement behaviors and practices. Parents responded to questions about their motivational beliefs including (a) parental role activity beliefs (i.e., the degree to which parental roles and responsibilities include supporting education and the degree to which parents felt they *should* actively engage in educationally supportive behaviors), (b) parent self-efficacy for supporting the educational success of children, (c) parent perceptions of invitations from the teacher, the school, and the child to be involved in educational matters, (d) parent-reported perceptions of life context variables (i.e., parental skills, knowledge, time, and energy for engaging in educationally supportive activities; Green, Walker, Hoover-Dempsey, & Sandler, 2007). Parents also reported the frequency with which they engaged in

educationally supportive behaviors and practices both at home and at school on a 6-point Likert-type response scale ranging from *never* to *daily.*

Separate multiple regression analyses were conducted with the home-based and school-based family engagement outcome variables. Results suggest (a) parental role activity beliefs and (b) parental self-efficacy for supporting their child's academic success were significant predictors of parents' home-based *and* school-based family engagement (Green et al.,). Furthermore, the predictors of home-based family engagement remained significant, even after controlling for SES, suggesting family engagement in the form of home-support does not differ by family SES. For school-based family engagement, SES was identified as a significant predictor suggesting school-based family engagement might differ by SES (Green et al.). Findings from the study suggest parental beliefs about their role in supporting their child's educational success, as well as their perceptions of their ability to support students effectively, impacts the degree to which parents engage in educationally supportive behaviors; therefore, including parental beliefs about family engagement is important to understanding the factors that influence family engagement in education.

Studies find parental beliefs about their engagement in educational activities may be related to (a) parent perceptions of educator outreach efforts and, (b) achievement levels of the student (Drummond & Stipek, 2004; Patrikakou & Weissberg, 2000; Ritblatt, Beatty, Cronan, & Ochoa, 2002; Simon,

2004). Studies demonstrate parental perceptions of their role in supporting their child's education is highly influenced by school efforts to empower, engage, inform, and involve parents in all aspects of education (Ames, 1993; Ames, de Stefano, Watkins, & Sheldon, 1995; Anderson & Minke, 2007; Auerbach, 2009; Drummond & Stipek, 2004; Green, Walker, Hoover-Dempsey, & Sandler, 2007). Additionally, studies find perceptions of educator outreach not only impact parent engagement beliefs, but also parent engagement *behaviors* (Patrikakou & Weissberg, 2000; Ritblatt, Beatty, Cronan, & Ochoa, 2002).

A second related factor of parent beliefs about family engagement is child academic achievement. Drummond and Stipek (2004) found significant, negative correlations between parental ratings of the importance of family engagement in supporting reading development and child reading achievement levels ($r = -.21$, $p < .01$), suggesting that families may not feel supporting their child's education is important if their child is experiencing educational success. Furthermore, when parents reported they should not help their child, it was because they felt their child did not need support based on their child's satisfactory academic performance and achievement levels (Drummond & Stipek, 2004).

Educator beliefs about family engagement. Educator beliefs about the relevance and importance of family engagement influences the degree to which they implement family engagement practices and maintain fidelity of implementation of those practices over time (Curtis, Castillo, & Cohen, 2008;

Hoover-Dempsey et al., 2005). The following represents core beliefs of effective family engagement: (a) all families want what is best for their child, (b) educators must support parental understanding of school processes and practices to ensure families are able to meaningfully participate in school matters, (c) families are equal partners, and (d) parent contributions are valued and facilitate effective problem-solving efforts (Mapp & Hong, 2010). These foundational beliefs facilitate the implementation of effective family engagement practices. In the context of implementing PS/RtI, educators must acknowledge the important role of families, including collaboration with families to inform effective and culturally relevant curriculum and instructional strategies and intervention plans (Ordonez-Jasis & Jasis, 2004). As the emphasis on accountability for student outcomes becomes increasingly important, educators must perceive collaboration with families as a strategy for achieving student outcomes and value the contribution of family-school collaboration for student success. These foundational beliefs create conditions conducive to effective collaboration and communication across home and school, especially in the context of vast school reform efforts such as PS/RtI implementation.

Empirical investigations of educator beliefs suggest teachers report positive working relationships with parents and being satisfied with the degree of communication with their students' parents (Izzo, Weissberg, Kasprow, & Fendrich, 1999). Research suggests that in general, educators report positive

beliefs about family engagement (Epstein & Dauber, 1991; Jones, White, Aeby, & Benson, 1997). Although educators hold positive beliefs about family engagement, these beliefs may not reflect best practices needed for effective family engagement. For example, one study by Joshi, Eberly, and Konzal (2005) found that although teachers endorsed family engagement for educational matters, the relationships implied were one way (i.e., family to school support including attendance at school events and written communication from home to school), rather than bidirectional communication practices (i.e., school to home and home to school support), that are identified in the literature and law as characteristic of effective family engagement practices (Cox, 2005; Henderson & Mapp, 2002; NCLB, 2002).

A study by Barnyak & McNelly (2009) surveyed 99 teachers and administrators about family engagement beliefs and practices. Participants responded to questions about the importance of various family engagement strategies as well as the frequency with which various family engagement practices were implemented. Significant differences were found between educator reports about the importance of family engagement and the actual practices educators reported implementing in classrooms and schools. This study's findings contradict other research that suggests educators' beliefs about family engagement are related to educators' practices to support family

engagement (Epstein & Dauber, 1991), however, differences in definitions and measurements of family engagement makes comparisons across studies difficult.

Jones and colleagues (1997) surveyed 92 kindergarten through 3rd grade teachers across six schools. Most of the students (73%) were African American. Teachers completed surveys about their attitudes and beliefs about family engagement. Findings from the study identified significant differences between African American and European American teachers in attitudes towards family engagement with African American teachers reporting more positive attitudes than European American teachers. Researchers found that the sample as a whole reported very positive beliefs about family engagement (M = 3.2 on a 4-point scale).

Epstein and Dauber (1991) surveyed teachers regarding their beliefs about family engagement, and found that teachers held generally positive perceptions of family engagement (M = 3.07 on a 4-point scale). Additional findings from the study suggest a positive association between positive beliefs about family engagement and teacher success for engaging *hard-to-reach* families and the degree of importance teachers place on family engagement practices. Interestingly, differences between teacher-reported supportiveness for family engagement and teacher reports of the degree to which their students' families were supportive of family engagement (i.e., teachers report high levels of teacher support, but low levels of parent support) were associated with weaker

ratings of family engagement practices, suggesting that when families and educators feel as though *both* partners are supportive of family engagement, the actual practices are stronger and more effective.

Studies identify certain factors that may contribute to differences in educator beliefs about family engagement including (a) the race/ethnicity of the teacher and families involved (see Jones, White, Aeby, & Benson, 1997), (b) the educational background of teachers (see Garinger & McBride, 1995 as cited in Jones, White Aeby, & Benson, 1997), and (c) years of experience of the teacher. A study by Garinger and McBride (1995) found that teachers with more formal education reported more positive beliefs about family engagement, however, other studies have failed to find differences in beliefs about family engagement based on years of teaching experience (Jones, White, Aeby, & Benson, 1997). Increased training and experience for family engagement improves increases educators' positive beliefs about the importance of family engagement (Patterson, Web, & Krudwig, 2009).

Research suggests that educators who believe they will be successful in engaging families are more likely to implement family engagement practices (Hoover-Dempsey, Whitaker, & Ice, 2010). Educators' perception of success depends, in part, on the families' reciprocation of educators' engagement efforts. Given the dynamic nature of educators' and families' perceptions and behaviors within the relationship, studies need to include educators' perceptions of skills for

partnering with families to determine if, in addition to their beliefs about the importance of family engagement, educators' feelings of competency are related to actual implementation of engagement practices. Similarly, parent perceptions of their skills to effectively support their child's educational success is likely to impact the degree to which parents engage in educationally supportive behaviors. Investigations of the relationship between families' beliefs, in addition to their perceptions of their skills for supporting their child's school success, is needed to fully understand the construct of family engagement and to ultimately inform effective family engagement practices.

Perceptions of Skills for Family Engagement

Families' perceptions of skills for family engagement. Parent understanding of the educational system, along with their skills for communicating and collaborating with educators influences the degree to which parents engage in school-related activities. Studies find that parents' sense of efficacy for helping their child with school influences parents' practices to support and to be involved in their child's education (Hoover-Dempsey & Sandler, 1997; Hoover-Dempsey, Bassler, & Brissie, 1992).

Hoover-Dempsey and colleagues have conducted much of the research investigating the links between educators' and parents' efficacy for family engagement and family engagement behaviors (Hoover-Dempsey, Bassler, & Brissie, 1992). In one study, parents (n = 390) completed questionnaires that

assessed parents' perceptions of their efficacy for supporting their child's learning and schooling success (e.g., "I know how to help my child do well in school"). Parents also responded to items about their level of engagement in various educationally supportive activities (e.g., hours spent helping with homework). Teachers (*n* = 50) completed questionnaires assessing (a) general teaching efficacy (e.g., "I am successful with the students in my class"), (b) perceptions of parental efficacy for supporting learning and schooling (e.g., "My students' parents help their children learn"), and (c) estimates of family engagement in various activities (e.g., percentages of parents who attended conferences, telephone calls, etc.). Results of the study failed to find significant correlations between parental efficacy scores and demographic variables with the exception of parent education levels, with parents with more formal education reporting higher levels of efficacy for family engagement. Greater parental efficacy scores were linked with more volunteering, more hours engaged in educationally supportive behaviors, and fewer telephone calls with the teacher (Hoover-Dempsey, Bassler, & Brissie, 1992).

Parental understanding and efficacy for participating in school-related matters is confounded with parents' own educational experiences and level of education (Hoover-Dempsey, Bassler, & Brissie, 1992; Sheldon, 2002). Importantly, parental efficacy for engaging in educational matters (i.e., feelings about the positive outcomes as a result of engaging in educationally supportive

behaviors) may be less important for predicting parent participation in educational matters than parent beliefs about their role in educational matters (i.e., beliefs that they *should* be engaging in educationally supportive behaviors; Hoover-Dempsey, Whitaker, & Ice, 2010). Further, parental confidence in their ability to help their child succeed in school may differ across cultures as one study found European American parents reported greater levels of confidence than Latino and Asian American parents (Okagaki & Frensch, 1998). Given that PS/RtI implementation is a relatively new way of work in education, families may feel especially unskilled to participate in PS/RtI practices and activities, which may limit families' engagement with and participation in their child's education. Therefore, it is important for educators to share information to increase families' knowledge and understanding as well as implement strategies to improve families' skills so that families can meaningfully and effectively participate in educational matters (e.g., understanding progress reports, participating in problem-solving meetings).

Educators' perceptions of skills for family engagement. If educators perceive they have the skills necessary to implement family engagement practices, the likelihood of sustainable implementation is significantly increased (Epstein & Dauber, 1991; Garcia, 2004). Conversely, a lack of skills and training to work with families is a main barrier to the implementation of effective family engagement practices; educators report a lack of cultural competency as well as

report needing additional support (e.g., professional development) for reaching out to diverse families (Eberly, Joshi, & Konzal, 2007).

Studies investigating educators' perceived skills for family engagement practices find significant relationships between educators' perceived skills and the implementation of family engagement practices (Garcia, 2004). If educators believe their family engagement practices will positively impact the degree of successful family engagement behaviors, they are more likely to implement family engagement practices (Epstein & Dauber, 1991). Therefore, it is important to consider the influence of educators' perceived skill levels, in combination with their beliefs about the importance of family engagement, on the implementation of family engagement practices.

Garcia (2004) collected survey data from 110 teachers in 59 schools in a large, diverse, urban school district. Teachers completed the 35-item Family Involvement Teacher Efficacy Scale (Garcia, 2000 as cited in Garcia, 2004). Items on the survey include statements such as, "I don't have the necessary skills to offer training that may enable parents to serve as representatives in decision-making bodies" and "I am effective at providing opportunities for working parents to participate in school/classroom-related activities" (Garcia, 2004, pg. 300). The study also included measures of actual family engagement practices based on Epstein's model of family engagement representing six typologies. Results of Pearson product-moment correlations identified significant correlations

between The Family Involvement Teacher Efficacy Scale (Garcia, 2000 as cited in Garcia, 2004) and each of the six types of family engagement practices ranging from $r = .226$, $p < .05$ (Type 2) to $r = .376$, $p < .002$ (Type 6). Findings from multiple regression analyses found Teacher Family Involvement Efficacy significantly predicted five types of family engagement practices from the Type 3, 4, 5, and 6 domains. Additionally, teacher's general teaching efficacy scores were significantly correlated with scores on The Family Involvement Teacher Efficacy Scale (Garcia, 2000 as cited in Garcia, 2004). Findings suggest that teachers with higher efficacy (both general teaching efficacy and family involvement efficacy) also implement more family engagement practices. These findings imply a positive relationship between skill development (a key component of PS/RtI infrastructure) and family engagement such that teachers implementing PS/RtI would have greater teaching efficacy as a result of ongoing professional development, which would positively impact their practices to engage families.

Other studies have also found significant correlations between general teaching efficacy and teacher reports of parental engagement behaviors (Hoover-Dempsey, Bassler, & Brissie, 1987, 1992) as well as teacher reports of parents' efficacy for engaging in educationally supportive behaviors (Hoover-Dempsey, Bassler, & Brissie, 1992). In other words, teachers who report higher levels of teaching competence, implement more practices to engage families

thereby imparting their skills and knowledge on families, empowering them to engage in educational matters successfully.

Of note, the studies reviewed in the previous two sections have mainly included the concept of self-efficacy as a variable, rather than perceptions of skills, which is a variable of interest in the current study. Self-efficacy refers to one's belief in his or her ability to achieve success in a given situation or activity (Bandura, 1997). *Perceptions of skills* represent a component of the larger construct of self-efficacy. Given that families' reciprocation of educators' family engagement efforts is needed for educators' family engagement efforts to be considered successful, the current study is not focusing on the component of self-efficacy regarding "the likelihood of success" rather, the current study focuses only on educators' perceptions of their skills specific to family engagement.

Family Engagement Practices

Studies suggest that, by and large, the strongest predictor of successful family engagement is school practices to engage families (Cox, 2005; Henderson & Mapp, 2002; Hoover-Dempsey, Whitaker, & Ice, 2010; Patrikakou & Weissberg, 2000; Ritblatt, Beatty, Cronan, & Ochoa, 2002). Family engagement practices that (a) build positive relationships and establish effective communication between home and school, (b) ensure effective collaboration and problem-solving as a way of work together, (c) provide opportunities for families

to increase social capital and social networks, and (d) provide direct support to families including training and educational opportunities, represent effective family engagement practices (Christenson & Reschly, 2010; Clarke, Sheridan, & Woods, 2010; Cox, 2005; Henderson & Mapp, 2002; Marcon, 1999).

Communication. When schools establish an atmosphere welcoming family engagement (Hoover-Dempsey & Walker, 2002; Hoover-Dempsey et al., 2005) and when educators reach out to parents and keep the connection between home and school positive, students succeed (Cox, 2005; USDOE, 2001). Active and early outreach to families of struggling students is associated with improved student outcomes (USDOE, 2001). In fact, one study investigating high poverty schools implementing standards-based reform found early outreach to parents of underachieving students was one key school practice that contributed to improved student achievement in reading and math (USDOE, 2001).

As suggested in national and state policies, as well as best practices founded on empirical studies, communication between home and school should be two-way (Christenson & Reschly, 2010; Henderson & Mapp, 2002; NCLB, 2002). That is, educators should share information with parents, but they should also request and invite parents to share information with them. Sharing information leads to meaningful dialogue among educators and families regarding the activities that best support the student learner (Cooper, Chavira, &

Mena, 2005; Crosnoe, 2009; Sheldon, 2003). Studies support the notion that communication between home and school should be reciprocal (Bauch & Goldring, 1995; Cox, 2005; Crosnoe, 2009; Graham-Clay, 2005; NCLB, 2002; Rimm-Kaufman & Pianta, 2005; St. Clair & Jackson, 2006; Swap, 1993).

A comprehensive review of home-school collaboration interventions (e.g., daily report cards, school-to-home notes, etc.) identified effective two-way communication between home and school as the most important practice that contributed to the success and effectiveness of home-school collaboration interventions (Cox, 2005). Interestingly, although the interventions including two-way communication were important, those interventions that included only one-way communication (i.e., notes sent from school to home with no expectation or opportunity for immediate reciprocation) were also effective in demonstrating improved student outcomes (Cox, 2005). Despite the support for one-way communication, experts emphasize reciprocal communication practices with families to allow parents to have a voice and provide opportunities for parental input in educational matters (Christenson & Reschly, 2010).

School-wide invitations and specific invitations from teachers inviting families to be engaged influences the degree to which families participate in and support their child's education (Hoover-Dempsey, Whitaker, & Ice, 2010). When schools implement more active outreach practices, families reciprocate those efforts by communicating more with the school staff and participating more in

their child's education (Seitsinger, Felner, Brand, & Burns, 2008; Simon, 2004). Studies demonstrate the degree to which educators communicate with and engage families in educational matters is predictive of family engagement in education (Seitsinger, Felner, Brand, & Burns, 2008). Additionally, since communication between home and school predicts parent beliefs about appropriate roles for their involvement in schooling (Patrikakou & Weissberg, 2000; Ritblatt, Beatty, Cronan, & Ochoa, 2002), effective communication can facilitate broader, more diverse forms of family engagement. Reaching out to families has the potential to strengthen families' understanding of their important role for student success in school (Simon, 2004). Thus, a foundational component to all family engagement is active two-way communication between home and school (Cox, 2005; Marcon, 1999).

Investigations of communication between home and school find teachers contact families by telephone about three times per year, and send home notes or messages monthly (Hindman, Skibbe, & Morrison, 2010). Educators report the most common home-school communication is focused on progress, logistics and concerns, information sharing, questions, and social interaction (Farrell & Collier, 2010). Home-school communication should provide families with evidence-based strategies to implement at home to support children's learning and school success. Studies suggest that providing parents with specific strategies that they can implement at home to support student learning has the greatest impact

compared to providing families with general, vague strategies to support learners (Henderson & Mapp, 2002; Senechal, 2006).

One of the central elements of effective family engagement in PS/RtI models is providing information and resources to parents to help build parents' knowledge and skills to participate effectively in PS/RtI implementation (e.g., data-based problem-solving). Communicating with families about PS/RtI implementation and offering opportunities to improve families' skills in PS/RtI practices (e.g., data-based problem-solving) empowers families to actively participate in educational matters related to their child. Subsequently, communication with families about PS/RtI, as well as providing opportunities to build families' capacity to participate in PS/RtI practices, offers great potential to improve relationships among educators and parents (Adams & Christenson, 1998); allowing for effective, meaningful, and sustained family engagement.

Relationships. Effective educator-family relationships are founded on mutual respect and trust among educators and families (Adams & Christenson, 1998, 2000; Dunst, Johanson, Rounds, Trivette, & Hamby, 1992), and are characterized by honest and open communication (Dunst et al., 1992). Schools demonstrate respect and value for families by being considerate of and responding to families' differential needs, especially home-school communication needs (e.g., translation of information into first language; Pena 2000). Communication among educators and families is critical to developing trustful

relationships (Adams & Christenson, 2000) and is central to other, more intensive family engagement activities (e.g., collaborative problem-solving, parent training).

Research shows communication is essential to more intensive relationship-building activities among individual parents and teachers (Adams & Christenson, 1998, 2000). Trust is identified as a significant predictor of effective relationships among educators and families (Adams & Christenson, 2000; Dunst, Johanson, Rounds, Trivette, & Hamby, 1992) and when asked how to improve trust in school-family partnerships, the most commonly mentioned strategy by parents was communication (Adams & Christenson, 2000). Many of the items on the trust scale reflect family perceptions about the quality of teachers' family engagement practices (e.g., I am confident that teachers are doing a good job keeping me well-informed of my child's progress; I am confident that teachers are doing a good job encouraging my participation in my child's education, etc.). In other words, trust is indicated through teachers' consistent and high quality communication and family engagement practices. Educators' and families' efforts to develop relationships with one another for the purpose of supporting positive student outcomes are most effective when educators embrace a proactive approach that includes reaching out to families and consistently keeping the connection between home and school positive (Christenson & Reschly, 2010; Henderson & Mapp, 2002; USDOE, 2001).

Collaborative, data-based problem-solving. A core practice of PS/RtI is teams of individuals (representing educators and families) using a data-based problem-solving process to inform instructional decisions for students. Support for greater levels of family engagement in schools with greater levels of PS/RtI implementation is provided by a study that found schools that engage in teaming practices also had greater levels of family engagement (Flowers, Mertens, & Mulhall, 1999). Flowers, Mertens, & Mulhall (1999) investigated 155 middle schools that were part of a school improvement initiative and found schools with teaming practices (n = 101) reported more contact with parents about homework and more home-based parental engagement activities than schools that did not report teaming practices (n = 34); additionally teaming schools (i.e., teaming practices included common planning time among educators and opportunities for educators to collaborate) also had higher student achievement than those schools without teaming practices. These findings support the notion that schools implementing PS/RtI components with fidelity (i.e., teaming practices) might also implement greater levels of family engagement.

As part of PS/RtI implementation, teams use a four-step problem-solving process (including [1] problem identification, [2] problem analysis, [3] intervention development, and [4] response to intervention) and student data to ensure effective instructional and intervention services are provided to children. A similar process, known as Conjoint Behavioral Consultation (CBC), has been

established in the literature as an effective family engagement practice (Garbacz et al., 2008; Sheridan et al., 2004; Sheridan & Kratochwill, 1992; 2007; Sheridan, Eagle, Cowan & Mickelson, 2001). The following studies summarize the link between the problem-solving process and effective family engagement practices.

Esquivel, Ryan, and Bonner (2008) conducted a qualitative study investigating parents' positive and negative experiences on team meetings. Parents described elements and characteristics of team meetings that helped to make the meeting a positive experience. Responses were coded and Problem-Solving Factors emerged as one of the five central themes. Families reported more positive school-based team meetings experiences when educators implemented more components of the problem-solving process successfully (Esquivel, Ryan, & Bonner, 2008). Thus, findings suggest collaborative problem-solving meetings to address student concerns are associated with greater levels of family satisfaction and more positive experiences participating in educational decisions for their child.

The first step of the problem-solving process, problem identification, allows for multidisciplinary teams to identify concerns and establish goals for students. Harry (2008) reviews a number of studies investigating culturally diverse families' views on special education eligibility and labels concluding that the use of labels is often a source of confusion, miscommunication, and disagreement among families and educators (Harry, 2008). As part of PS/RtI

implementation, the use of data and a problem-solving process to discuss student difficulties maintains objectivity and reduces the use of labels; subsequently, alleviating conflict and tension among educators and families (Harry, 2008).

The use of a collaborative, data-based problem-solving approach to avoid conflict and tension among families and educators, specifically around special education eligibility, is further supported by a qualitative study conducted by Lake and Billingsly (2000). Parents who went through mediation appealing the special education process were asked about their perspectives on the issues with which they were concerned; results identified discrepant views among educators and parents regarding (a) student concerns, (b) a lack of a problem-solving approach, and (c) a lack of sufficient communication over service delivery options as sources of dissatisfaction and tension for parents (Lake & Billingsley, 2000).

The importance of educators and families working together to come up with mutually agreed upon goals for students is supported in the literature (Garbacz et al., 2008; Sheridan et al., 2004; Sheridan & Kratochwill, 1992; 2007; Sheridan, Eagle, Cowan & Mickelson, 2001). When educators and families work together to define student concerns and goals, as well as collaboratively develop and share responsibility for implementing interventions, students, families, and educators benefit (Childress, 2004; Hancock, Kaiser, & Delaney, 2002).

Interventions that are collaboratively developed and supported by educators and families are most effective for achieving student goals and outcomes (Morrow & Young, 1997). One study investigated a yearlong literacy program, comparing the effects of a school-based only program to a school-based plus home-based program on student outcomes. Twenty-eight first- through third-grade students and their parents in the control group received the school-based only literacy program that was intended to promote student interest and success with reading and writing. Twenty-eight first- through third-grade students and their families in the experimental group received the school-based program and also received a home-based literacy program. The home-based program was intended to support the school-based program and therefore, had identical goals and used identical materials and activities as the school-based program but was designed for parents to use at home.

The experimental and control groups were compared on a number of measures including student achievement, motivation, and interest in reading and writing, in addition to child and parent reports of engagement in literacy activities at home. The experimental group significantly outperformed the control group on literacy achievement measures including story retelling measure, story rewriting tests, probed recall comprehension tests, and teacher reports of student motivation and interest in reading and writing. Additionally, children and parents in the experimental group reported significantly more engagement in literacy

activities at home compared to the control group. Findings from the study suggest school-based interventions are more effective when they are supported by implementation in home settings (Morrow & Young, 1997).

Another study by McNamara, Telzrow, & DeLamtre (1999) investigated 185 parents regarding their perceptions of intervention-based assessment (IBA) team meetings. IBA team meetings utilize a problem-solving approach that is very similar to PS/RtI. Parents responded to survey items developed by the authors that reflected “important aspects of consumer satisfaction with the IBA process” (McNamara, et al., 1999, pg. 348) on a 5-point Likert-type scale from 1 (*strongly agree*) to 5 (*strongly disagree*). Results indicated parents reported high levels of satisfaction with IBA; parents felt they were involved (M = 1.74, SD = .96) and satisfied with the process (M = 1.39, SD = .77).

Parents reported learning about the intervention plan through multiple venues including their child (77.3%), involvement in the problem-solving team (49.2%), receiving written information (49.2%), and receiving a telephone call from an educator (47%). Parent reports of intervention implementation at home were predictive of student goal attainment. Importantly, parents who were more engaged in the problem-solving process, and intervention development specifically, also reported the intervention plan was more effective at addressing their child’s concerns and reported more positive perceptions of student progress. Parents who were involved in IBA from the start also gave higher

ratings to the adequacy of the intervention plan. Of note, when all items on the parent questionnaire were included in a stepwise multiple regression predicting student goal attainment, only parent support of intervention implementation at home was a significant predictor. Interestingly, parent involvement in problem-solving from the beginning was not a significant predictor of student goal attainment, suggesting that family involvement from the beginning may not be related to student outcomes. Having families engaged from the beginning is likely to be related to parent satisfaction with, and support for, the problem-solving process and intervention implementation, specifically (McNamara et al., 1999).

Family social networks. In addition to positive relationships among educators and families (Henderson & Mapp, 2002), research finds relationships among parents at the school also contribute to effective family engagement and positive student outcomes (Goddard, 2003; Sheldon, 2002). The importance of providing opportunities for families to get to know one another and to learn from other families at the school is an indicator of the degree to which the school is encouraging social capital among families; social capital is a significant predictor of student outcomes (Goddard, 2003).

Sheldon (2002) administered surveys to 195 parents of students enrolled in first through fifth grade at two elementary schools. Surveys included items about parents' role construction, parents' efficacy for helping their child with school, perceptions of others' expectations for their engagement, parents' social

networks (i.e., the number of other students' parents they know and other adults with whom parents discuss their child's school), and parent-reported levels of engagement at home and at school. Results of multiple regression analyses indicated that parent social network was a significant predictor of parent engagement in education at home ($\beta = .166$, $p \leq .04$) and at school ($\beta = .231$, $p \leq .005$). Parents learn about parent engagement behaviors from one another, which is likely to reinforce the importance of these behaviors. Findings suggest increasing parental ties with other parents of children enrolled at the school offers a potential strategy to increase parental engagement in education (Sheldon, 2002).

Goddard (2003) conducted a study involving 444 teachers in 45 elementary schools investigating the relationship between social capital and student outcomes. Social capital was measured through "teacher reports of (a) relational networks that connect parents and community members and facilitate student learning, (b) trusting relationships among students and parents, and (c) norms that support student-learning" (Goddard, 2003, pg. 64). Multilevel analyses were conducted with the responses measuring social capital averaged and entered as a school-level variable while student achievement data represented student-level variables. Results found social capital was significantly related to students passing high stake assessments in writing and math. Furthermore, one standard deviation increase in social capital was associated

with a 39% increase in students' odds of passing math assessments and a 35% increase in students' odds of passing writing assessments (Goddard, 2003). In conclusion, the studies reviewed above provide evidence to suggest that school practices to build families' social capital and positive relationships among families at the school is related to students' educational success.

Direct support, family training, and education. School practices to improve family knowledge and understanding of education and strategies for family engagement are important for increasing parent beliefs about the importance of their engagement and subsequent family engagement behaviors (Chrispeels & Gonzalez, 2004).

Jordon, Snow, and Porsche (2000) investigated the impact of a family literacy intervention on parent and student outcomes among 248 kindergarten students and their families (177 students were in the intervention group and 71 students were in the control group). The parent-training program included five monthly sessions that were supplemented with weekly at-home activities in between monthly training sessions. The training content focused on building children's literacy skills and provided opportunities for parents to engage in and practice learned skills. Parents' reports of their engagement in literacy-supporting activities at home and at school, in addition to student achievement measures, were collected prior to beginning and following the completion of the training program. Results demonstrated significantly higher student achievement scores

for the experimental group compared to the control group in general, and particularly, among those students who scored lowest on pretest achievement measures (Jordon, Snow, & Porsche, 2000).

Starkey & Klein (2000) conducted a two-part study assessing the impact of a parent-training program on the development of parents' skills to support their child's math development in a sample of predominately African American Head Start families (Study 1, *n* = 28 [26 African American families]) and a sample of Latino Head Start families (Study 2, *n* = 31). For each study, families in the experimental condition had access to a lending library of math-related educational materials in addition to participating in 8-biweekly educational classes where parents were given lessons which included modeling and practice with feedback on various activities to do with their child that would support the development of math skills. The second study involving Latino families differed from the first study in two ways: the addition of a bi-lingual parent trainer and bilingual assessors that administered skill assessments to Latino students. Findings from both studies comparing control and experimental group on math skills identified significantly higher math skills among the experimental group compared to the control group (Starkey & Klein, 2000).

Another study investigated the impact of a 9-week parent education program on 1,156 parents' knowledge, beliefs, and behaviors related to family engagement in education. Specifically, results of the study identified parent

knowledge as the strongest predictor of family engagement (Chrispeels & Gonzalez, 2004). Limitations of the study include limited information on the parent education program and on sample participants. In conclusion, effective family engagement practices include a range of behaviors and practices including communication, collaborative problem-solving, opportunities to build social capital, and opportunities to improve parents' knowledge and skill development and academic support at home. Efforts to build positive relationships, communicate, inform, and support families will be particularly important for the overall development of family engagement to support student outcomes within PS/RtI frameworks; yet there have been no published studies to date that have investigated family engagement practices among schools implementing PS/RtI.

Family reports of educators' family engagement practices. Including parent perceptions of educator practices to engage families in education is important because family perceptions of teacher outreach influences parent behaviors to become actively engaged with and supportive of students' educational success (Green, Walker, Hoover-Dempsey, & Sandler, 2007; Seitsinger, Felner, Brand, & Burns, 2008).

One study surveyed 853 parents of elementary students regarding their motivational beliefs (i.e., beliefs about how they should support their child's education and how active they are in that role), perceptions of general school

invitations to be involved, and specific invitations from their child's teacher to be involved. Results suggested that parents' school-based involvement was predicted by their perceptions of invitations from their child's teacher to be engaged in educational matters (Green et al., 2007).

Another study investigated the impact of teacher outreach behaviors on family engagement finding parents' educationally supportive behaviors were influenced by teacher outreach behaviors (Patrikakou & Weissberg, 2000). These researchers collected survey data from diverse families and educators in three different Midwestern elementary schools. Families of pre-K through third grade students were asked to complete a 37-item survey regarding family engagement at home and at school as well as parent perceptions of teacher outreach efforts and parental willingness to expand on engagement efforts. Family engagement at-home and at-school were measured through parent reports regarding the average days per week they engaged in educationally supportive behaviors at home and the frequency throughout the course of the year they engaged in educationally supportive behaviors at school.

Additionally, parents were asked to indicate the frequency rated on a 3-point scale (i.e., *never*, *sometimes*, or *usually*) of teacher outreach behaviors. Teacher outreach items assessed parent perceptions of the authenticity/climate of teacher outreach as well as the level and quality of information teachers provided. Patrikakou and Weissberg (2000) reported that results of regression

analyses suggested socio-demographic variables (i.e., race/ethnicity, parent education levels, parent employment, family structure) did not significantly predict family engagement at home (F = 1.49, p =. 17) suggesting that family support for education did not differ by parental status variables. Importantly, when parental perceptions of teacher outreach was added to the regression equation the R^2 changed significantly, accounting for 25% of the variance in family engagement at home (F=3.26, p = .0006; Patrikakou & Weissberg, 2000). Similarly, socio-demographic variables failed to significantly predict family engagement at school. Parent perceptions of teacher outreach explained a significant portion of the variance in family engagement at school (i.e., 20%). Thus, including family perceptions of educator behaviors to engage parents in educational activities is important in understanding family engagement behaviors.

Overstreet, Devine, Bevans, and Efreom (2005) surveyed 103 parents of elementary-aged children regarding their engagement in at-school activities (e.g., attendance at school events, visits to their child's classroom) and their perceptions of school receptivity to parent engagement (i.e., parent reports of whether the school listens to them and whether the school offers parent activities). Results found that parent reports of school receptivity were the strongest predictor of family engagement at school (Overstreet et al., 2005). Taken together, these studies find that when families perceive they are welcomed and valued by educators, they are more engaged and actively

supportive of their child's education (Dauber & Epstein, 1989; Overstreet, Devine, Bevans, & Efreom, 2005).

School and Family Characteristics

Beliefs, perceptions of skills, and practices specific to family engagement are likely influenced by school-level variables as well as individual variables of parents, educators, and students. Studies investigating the influence of school-level demographic variables and parent variables on family engagement are summarized below.

School-level demographic factors. Results of empirical studies suggest an inconsistent influence of various demographic school-level factors (i.e., school size, school grade, percentage of students receiving free or reduced-price lunch) on the development of effective family engagement efforts. One study found that a transient student population and higher percentages of students receiving free or reduced-price lunch were associated with lower levels of family participation (Griffith, 1998). Previous studies have found relationships between school size and composition of the student population (Griffith, 1998), finding that schools with smaller student enrollment had higher levels of family engagement. Others suggest that smaller schools are related to greater levels of family engagement in rural communities, but this relationship does not hold among smaller schools in urban and suburban communities (Dee, Ha, & Jacob, 2006/2007).

Family engagement has a greater impact on student achievement among schools with large numbers of under-performing students. One study found that family participation levels were greater among schools with lower quality curriculum and instructional practices (Griffith, 1998). Conversely, there is research to suggest that in general, schools' average achievement levels are positively related to family engagement levels (Epstein & Dauber, 1991). Including indices of average school achievement levels (i.e., school grade) in studies of family engagement adds to our understanding of family engagement in schools implementing PS/RtI.

Taken together, studies are inconsistent regarding school-level demographic factors' influence on family engagement and it is important to include these variables in studies on family engagement in order to better understand the influence of these variables on the family engagement in PS/RtI. Although there have not been any published studies focusing on family engagement in PS/RtI, the systems change literature would suggest that the length of PS/RtI implementation might be related to the degree of family engagement efforts implemented by the school (Hall & Hord, 2006).

Family-level demographic factors. Studies find that parent reports of engagement in various educationally supportive behaviors differ by demographic or parent status variables (Hoover-Dempsey, Bassler, & Brissie, 1992). Differences were found for hours of homework and telephone calls with teachers

by parent education level, family income, and marital status (Hoover-Dempsey, Bassler, & Brissie, 1992).

One study found that Latino, African American, and Asian families also reported lower levels of individual participation in school activities (Griffith, 1998); however, school-level analyses showed that the percentage of students receiving free or reduced-price lunch better explained levels of parent participation than percentage of ethnic/racial minority families enrolled at the school. These findings support the importance of including individual-level and school-level variables in analyses of nested data to obtain accurate estimates of relationships among variables.

Race and ethnicity are often confounded with SES. One study by Wong and Hughes (2006) investigated differences in “parent involvement” behaviors (i.e., defined as anything that parents do to support the academic success of their child at home or at school and also includes perceptions of home-school communication) across racial groups after controlling for SES (i.e., the highest employment and educational level of any adult in the household). Results of the study suggest differences across racial/ethnic groups with respect to domains of parent-reported involvement including communication, shared responsibility, and school-based involvement with White parents reporting higher levels than Black or Hispanic parents in each category and Black parents reporting higher levels than Latino parents in each category (Wong & Hughes, 2006). Furthermore,

racial differences in family engagement are confounded by differences in ratings for minority groups depending on the rater (i.e., teachers vs. parents; Wong & Hughes, 2006) as well as racial/ethnic differences for different behaviors of family engagement (Wong & Hughes, 2006). Wong and Hughes (2006) found significant differences across racial groups in teacher ratings of racial minority parents' engagement in education. There were also significant differences across racial groups in parents' self-reported ratings of parental engagement (Wong & Hughes, 2006).

Researchers hypothesize that neither SES nor race alone directly impact family engagement behaviors rather, it is the interaction among complex variables that result in fewer opportunities for successful engagement behaviors and practices among low SES minority families. In general, lower SES families have less flexibility with work hours and reap greater economic upset when missing work, resulting in fewer opportunities to engage with educators during school hours; language minority families face language barriers when communicating with educators; and culturally diverse families lack knowledge and understanding of the U.S. school system (Aaroe & Nelson, 2000; Carlisle, Stanley, Kemple, 2005). Additionally, studies find that parents' at-school involvement is most associated with parent educational levels (Fantuzzo, Tighe, & Childs, 2000), which is likely to be related to familiarity with educational terminology and comfort with interacting and conversing with educators in the

school setting. This hypothesis is supported by Griffith's (1998) research that found families reporting having a student enrolled in English as a second language (i.e., a child who is an English language learner; ELL) program also reported lower levels of participation in school activities.

Child characteristics also explain varying levels of family engagement, with levels of family engagement declining as a child progresses through the grades (Griffith, 1998; Henderson & Mapp, 2002). One study found parents of students who receive special education services report frequent (51% daily; 31% one to three times per week) communication with school staff (Spann, Kohler, & Soenksen, 2003). Increased communication among families and educators for students who are struggling is best practice and is related to improved student outcomes (USDOE, 2001). Therefore, including characteristics of the student in investigations of family engagement helps to inform a better understanding of the complex construct of family engagement.

Conclusion

Taken together, the research reviewed in this chapter demonstrates that families are important for student's educational success (Christenson & Reschly, 2010; Henderson & Mapp, 2002) and effective school reform and improvement efforts (Borman et al., 2003; Guhn, 2009; Haycock et al., 1999; McGee, 2004; Rutherford et al., 1995; Shannon & Bylsma, 2007). There are many, complex factors that are related to family engagement outcomes including family and

school-level demographic factors and educators' and families' beliefs and perceived knowledge and skills for family engagement, and family engagement practices (Green et al., 2007; Hoover-Dempsey, Whitaker, & Ice, 2010). Positive family engagement outcomes are more likely when educators and families believe in the importance of family engagement and perceive they have the knowledge and skills to implement and participate in family engagement activities successfully (Epstein & Dauber, 1991; Garcia, 2004; Hoover-Dempsey, Whitaker, & Ice, 2010).

Studies suggest that educators' active outreach and communication efforts are significant predictors of families' understanding of educational matters (Cooper, Chavira, & Mena, 2005; Chrispeels & Gonzalez, 2004; Crosnoe, 2009; Deslandes et al., 2009; Sheldon, 2003) and families' subsequent engagement in, and support for, their child's education (Ritblatt et al., 2002; Patrikakou & Weissberg, 2000; Seitsinger et al., 2008; Simon, 2004). Educators have a responsibility for informing and encouraging family participation with reform and improvement efforts such as PS/RtI so that families are knowledgeable and prepared to participate successfully (Rutherford et al., 1995). The degree to which schools are providing support to families and communicating with families about PS/RtI has implications for families' understanding of and participation with PS/RtI (Green et al., 2004). Educators can do many things to actively reach out to and support families to be engaged in their child's education including:

communicating information to families effectively (Cox, 2005; Hoover-Dempsey & Mapp, 2002; Marcon, 1999; USDOE, 2001), engaging families in collaborative problem-solving to support their child's learning success (Garbacz et al., 2008; McNamara et al., 1999; Sheridan et al., 2004; Sheridan & Kratochwill, 1992; 2007; Sheridan, Eagle, Cowan & Mickelson, 2001), providing opportunities for families to connect and learn from one another to grow their social capital (Goddard, 2003; Sheldon, 2002), and providing opportunities for families to receive direct training to learn new strategies to support their child's learning (Jordon et al., 2000; Morrow & Young, 1997; Senechal, 2006; Starkey & Klein, 2000).

Chapter III

Method

The purpose of this study was to investigate relationships among school-level factors, educator factors, family factors and families' and educators' family engagement practices in schools implementing PS/RtI. This chapter provides a description of the research design, participants, and the measures that were used for data collection, including the development and validation of two instruments designed for the current study. Finally, the procedures for collecting, entering, and analyzing data are described.

Research Design

A correlational survey research design was used for the purpose of the study. Data were collected from a district that implemented PS/RtI district-wide following participation in the Florida Problem-Solving/Response to Intervention (FL PS/RtI) demonstration Project.

Florida Problem-Solving/Response to Intervention (FL PS/RtI) Project Description

The purposes of the Florida Problem-Solving/Response to Intervention Project (FL PS/RtI) were twofold: (1) to build the infrastructure and conduct statewide training in PS/RtI, and (2) to provide training and evaluate PS/RtI implementation among selected demonstration sites. The Project hired regional

staff to provide training and technical assistance to the school districts that were selected to participate in a demonstration district/pilot school project. Project staff developed training modules and assessment instruments to monitor implementation of PS/RtI. In addition, Project staff provided the training and on-site technical assistance to the demonstration districts and pilot schools. The pilot schools were provided with support throughout the three years of the demonstration project. This support included funding for a building-level coach, ongoing professional development for School-Based Leadership Teams (SBLT), and ongoing technical assistance by both the building-level coach and Project staff. A comprehensive evaluation model was developed to evaluate the implementation process and outcomes. Pilot schools along with matched comparison schools in seven school districts participated in the multi-year data collection activities for the Project.

Participants

The sample for this study was selected from one of the seven school districts that participated in the FL PS/RtI pilot project. The local district was located in the west central region of Florida and reported a total enrollment of 93,612 students for the 2011-2012 school year (Pinellas County School Board, 2012).

The student population for the district consisted of 56.8% students eligible for free or reduced-price lunch, 41.2% non-white students, 12.8% students

eligible for Exceptional Student Education (ESE) services (excluding gifted), 7.1% students identified as gifted, and 4.9% students identified as English Language Learners (ELL). For the 2011-2012 school year, the school district received a grade of B from the Florida Department of Education.

Following the three-year pilot project, the district implemented PS/RtI in all of its 73 public (non-charter) elementary schools. For the 2011-2012 school year, the total enrollment for the 73 elementary schools was 43,175 students (Charlene Einsel, personal communications, 7/13/12). The elementary student population consisted of 63.3% students eligible for free or reduced-price lunch, 44.3% non-white students, 11.2% students with disabilities (excluding gifted), 8.7% students identified as gifted, and 9.7% of students identified as English Language Learners (ELL; Charlene Einsel, personal communications, 7/13/12).

A multi-step process was used to select schools and the educators and families belonging to each school, for participation in the study.

Step 1: In order to determine the sample size in terms of number of schools, educators, and families per school that were needed to yield statistical power of .80, a power analysis was conducted using the Optimal Design program (Raudenbush et al., 2011). Results of the power analysis suggested a sample of 80 schools and 20 educator responses and 20 family responses per school (α = .05, ES = .20, and Intra-Class Correlation Coefficients [ICC] = .05). The Optimal Design program (Raudenbush et al.) power analysis is based on experimental

research designs comparing an experimental group and control group and is therefore an overestimation of the sample needed for adequate power for the current study design. This was nonetheless used as a guide for sample selection.

Step 2: The following inclusion criteria for the selection of schools were used:

- The school was a public (non-charter) elementary school with students enrolled in grades K-5.
- The school implemented PS/RtI for a minimum of one year.
- The school completed a Self-Assessment of Problem-Solving Implementation ([SAPSI], a measure of PS/RtI implementation) for the 2011-2012 school year.

Step 3: It was determined that all 73 public (non-charter) elementary schools in the district met the inclusion criteria listed above and thus were asked to participate in the study.

Step 4: Principals of schools that consented for their school to participate in the study were asked to grant permission for all instructional staff (educators) at their school to participate in the study by completing an online educator survey. Principals were instructed that for the purpose of the study, all general and special educators, all instructional support staff (hourly teachers, interventionists), student services support personnel (school psychologists), administrators, and members

of the SBLT were to be considered their instructional staff. Additionally, principal consent granted access to survey families of students at each school. At each consenting school, families of 20 randomly selected students per grade level were asked to participate in the study, yielding a total of 120 families per school.

Principals of 42 of the 73 elementary schools consented for their school to participate in the study. However, two principals withdrew their school from participation prior to data collection; thus, 40 schools constituted the final sample. A total of 120 families per school (families of the 20 randomly selected students per grade level in each school) and all instructional staff from each of the 40 participating elementary schools were asked to complete surveys. Of note, principals determined the number of instructional staff for each school. Thus, educators and families were oversampled to ensure that there would be an adequate sample size for the final respondent sample. Information on the final respondent sample is reported in Chapter 4.

Measures

The Self-Assessment of Problem-Solving Implementation (SAPSI). The Self-Assessment of Problem-Solving Implementation (SAPSI) is a 27-item self-report instrument designed to measure a school's level of implementation of PS/RtI (see Appendix A). The instrument was initially developed by the Illinois State Board of Education's Statewide RtI Implementation Project (IL-ASPIRE) and was adapted by the Florida PS/RtI Project for use in Florida. Items on the

SAPSI were selected based on a review of the systems change literature (i.e., measuring consensus, infrastructure, implementation) and is aligned with the national *School Based Blueprint for Implementation of RtI* (National Association of State Directors of Special Education [NASDSE], 2008).

The SAPSI was designed to assess the extent to which schools were perceived to be implementing PS/RtI. The SAPSI measures three domains (1) *Consensus* - building consensus among key stakeholders, (2) *Infrastructure* - developing the infrastructure necessary to support implementation, and (3) *Implementation* - implementing PS/RtI practices and procedures (Castillo et al., 2010). Members of the school-based leadership team (SBLT) collaboratively completed the SAPSI for each school. For each item on the instrument, the team indicated the extent to which they perceived that the activity was being implemented in their school using the following response scale: N = *Not Started (The activity occurs less than 25% of the time);* I = *In Progress (The activity occurs approximately 25% to 74% of the time);* A = *Achieved (The activity occurs approximately 75% to 100% of the time);* or M = *Maintaining (The activity was rated as achieved last time and continues to occur approximately 75% to 100% of the time)*. Internal consistency reliability estimates (Cronbach alpha coefficients) for the three domains (subscales) on the instrument were computed for sample: Consensus, $\alpha = .61$; Infrastructure, $\alpha = .90$; and Implementation, $\alpha = .93$.

The SAPSI has been used in the Florida PS/RtI Project to evaluate self-reported levels of PS/RtI implementation for each school and to monitor the progress of implementation efforts over time in demonstration district pilot schools (Castillo et al., 2010). Since the PS/RtI Pilot Project, use of the SAPSI has increased statewide as a measure of PS/RtI implementation.

Family Engagement in PS/RtI Survey: Educator Version (FERS:E). The Educator Version of the Family Engagement in PS/RtI Survey (FERS:E) is a 32-item instrument that was developed for use with the current study and was designed to measure educator beliefs, perceptions of knowledge and skills and practices for engaging families in educational activities as part of PS/RtI implementation (see Appendix B).

Seven items were designed to measure educator beliefs about the importance of family engagement. Respondents were asked to rate their extent of agreement or disagreement with each item using a 5-point Likert-type response scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). For each respondent, the mean of the ratings on these seven items was computed and used as an indicator of the educator's beliefs about family engagement. Higher ratings indicated stronger beliefs about the importance of family engagement for student success.

Six items were designed to measure educator perceptions of his or her knowledge and skills for engaging families in PS/RtI activities. Respondents were

asked to indicate their extent of agreement or disagreement with each item using a 5-point Likert-type scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The mean rating across these six items was computed and provided an indicator of the educator's perception of his or her knowledge and skills for engaging families in their child's education as part of PS/RtI implementation. Higher ratings indicated greater levels of knowledge and skills for engaging families in their child's education.

Eleven items were designed to measure educator perceptions of his or her practices for engaging families in children's learning as part of PS/RtI implementation. Respondents indicated their extent of agreement or disagreement with each item using a 5-point Likert-type scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The eleven items reflect best practices of family engagement as well as those practices that would occur in schools implementing PS/RtI (e.g., collaborative problem-solving meetings). The mean rating across these eleven items provided an indicator of the educator's self-report of the degree to which he or she implemented practices to engage families in their child's education as part of PS/RtI implementation. Higher scores indicated educator perceptions that he or she implemented a greater amount of family engagement practices.

Finally, educators were asked to indicate the degree to which their *school* (i.e., staff at their school) implemented various practices and activities to engage

families in their child's education as part of PS/RtI implementation. Respondents were asked to rate their extent of agreement or disagreement with each of the eight items using a 5-point Likert-type scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The eight items reflected best practices of family engagement as well as those practices that would occur in schools implementing PS/RtI (e.g., collaborative problem-solving meetings). For each respondent, the mean rating across these eight items provided an indicator of the educator's perception of the degree to which his or her school implemented practices to engage families in their child's education as part of PS/RtI implementation. Higher averages indicated educator perceptions that his or her school implemented a greater amount of family engagement practices.

Educators were also asked to provide additional information about themselves, including their: (a) membership on the School-based Leadership Team (SBLT; yes or no), and (b) their current position in their school (primarily a general education teacher, special education teacher, student support services staff [e.g., school psychologists], instructional support staff [e.g., hourly teacher], administrator, or other. SBLTs are comprised of approximately six to eight staff members selected to take on a leadership role in facilitating PS/RtI implementation throughout the school. If educators worked with more than one school, they were asked to complete the survey for only one school and for the school with which most of their time was devoted.

Family Engagement in PS/RtI Survey: Family Version (FERS:F). The Family Engagement in PS/RtI Survey: Family Version (FERS:F) is a 52-item instrument that was developed for use with the current study and was designed to measure family beliefs, perceptions of their knowledge and skills for participating in educational activities, and perceptions of educator practices to engage families in educational activities as part of PS/RtI implementation (Appendix C). The term *family* was used to be inclusive of legal guardians and primary caregivers who may or may not be the child's biological parent. The Family Version of the instrument was designed to function as a corresponding form to the Educator Version of the measure. Changes in wording were made to reflect family-specific language and additional questions were added to gather information about family demographics and family self-report of engagement in various educational activities. If families had more than one child enrolled in the school, they were asked to respond to the survey based on their overall perception of the school's family engagement efforts.

Seven items were designed to gather information about family demographic characteristics (i.e., child's grade-level, child's Exceptional Student Education [ESE] eligibility status, child's participation in additional interventions in school, the family's race/ethnicity, respondent's highest level of education, and respondent's spouse's highest level of education). Eleven items were designed to measure families' self-reports of the frequency with which they engaged in

activities that supported their child's education. Respondents were asked to rate the frequency with which they engaged in each activity since the beginning of the 2011-2012 school year using a 4-point Likert-type scale: 1 (*Never)*, 2 (*Rarely*), 3 (*Sometimes*), or 4 (*Often*).

Four items were designed to measure families' beliefs about the importance of family engagement. Respondents were asked to rate their extent of agreement or disagreement with each item using a 5-point Likert-type scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The rating across these four items was used as an indicator of family beliefs about family engagement. Higher ratings indicated stronger, more positive beliefs about the importance of family engagement for student success.

Five items were designed to measure families' perceptions of their knowledge and skills for supporting their child's education as part of PS/RtI implementation. Respondents were asked to rate their extent of agreement or disagreement with each item using a 5-point Likert-type scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). The mean rating across these five items was used as an indicator of a family's perception of their knowledge and skills for participating in their child's education in the context of PS/RtI implementation. Higher ratings reflected greater levels of knowledge and skills for participating in their child's education in the context of PS/RtI implementation.

Finally, 16 items were designed to measure families' perceptions of the extent to which their child's school (i.e., staff at their child's school) implemented various practices and activities to engage the family in supporting their child's learning in the context of PS/RtI implementation. Respondents were asked to rate their extent of agreement or disagreement with each item using a 5-point Likert-type scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Seven items that were specific to a family with a child performing below grade-level standards included a *Not Applicable* response option if their child was performing on grade-level and therefore, the item did not apply to their interaction with the school. The mean ratings across these 16 items provided an indicator of the family's perception of the degree to which their child's school implemented various practices to engage the family in their child's education in the context of PS/RtI implementation. A higher average indicated the family perceived more family engagement practices implemented by educators.

Reliability and validity. The Family Engagement in PS/RtI Survey: Educator Version and Family Version (FERS:E and FERS:F) were developed for the PS/RtI Project using a multi-step process that included a thorough review of the literature, review and input from an expert panel, and feedback obtained from a small pilot study (Ramirez, 2002). Details of the multi-step process are outlined in Appendix D. Forms completed by the Expert Validation Panel (EVP) are provided in Appendix E (Educator Version EVP) and F (Family Version EVP).

Evidence of the reliability and validity of the instruments was investigated within the context of the current study using data obtained from the respondent sample. Results of Exploratory Factor Analyses (EFA) and internal consistency reliability estimates (Cronbach alpha coefficients) can be found later in this chapter in the Data Analysis section.

School Factors Data form. Principals were asked to provide the following information about their school (Appendix G):

(g) length of time of Response to Intervention for Behavior (RtI:B; i.e., Positive Behavior Support [PBS], Champs, etc.) implementation at their school (one year; two years; three years; or more than three years);

(i) length of time of PS/RtI implementation at their school (one year; two years; three years; or more than three years), and

(j) the number of instructional staff that each principal asked to complete the online survey. (This was used to calculate return rates for incentives for each school.)

School demographic records. Staff from the district office provided an electronic file containing data from the 2011-2012 school year for each of the participating schools for each of the following variables:

(a) school size (i.e., total number of students enrolled in the school),

(b) the percentage of the student population that was a racial/ethnic minority,

(c) the percentage of the student population that was eligible for free or reduced-price lunch,

(e) the percentage of the student population that was identified as an English Language Learner (ELL), and

(f) the percentage of the student population that was eligible for Exceptional Student Education (ESE) services.

Data Collection Procedures

Prior to data collection, approval for the proposed study was obtained from the Institutional Review Board (IRB) at the University of South Florida (USF) and the Research and Evaluation Department of the participating school district. Upon receiving school district approval, the researcher and principal investigator of the study, in collaboration with the researcher's district contact (i.e., one of the assistant superintendents for the school district) developed a data collection plan. During the planning phase it was decided that, based on the district's typical way of work with schools, principals would email links to the online survey, the Family Engagement in PS/RtI Survey: Educator Version, directly to their instructional staff. Additionally, it was decided that a financial incentive to participate in the study would be offered in order to promote participation. The financial incentives included $500.00 to the 10 schools with the highest combined (family and teacher) return rate. The planning team decided to tie incentives to educator and family return rates to encourage principals and educators to prompt parents to

return surveys if they received one in the mail. Educator encouragement and reminders for parent surveys were important because there were no pre- or follow-up mailings provided to parents.

In order to obtain principal consent for participating in the study, the researcher and the assistant superintendent of the school district presented the research study to the principals during a mandatory district meeting for all elementary school principals. If principals were interested in participating, they were asked to sign the consent form (Appendix H). Forty-two principals consented to participate in the study; however, two principals withdrew their school from participation prior to data collection and therefore, data were collected from a total of 40 schools. The district office provided the researcher the SAPSI data and school demographic data records. Procedures for collecting educator and family survey data are described below.

Data collection procedures for educators. The Family Engagement in PS/RtI Survey: Educator Version (FERS:E) was placed on Survey Monkey for completion by educator participants online. Each school had a separate survey link that was specific to the school to ensure educator responses were affiliated with the correct school. The educator responses required no staff identification. Therefore, educator responses were completely anonymous. The following steps were taken to facilitate staff completion of the survey at each school.

Step 1: Upon receiving principal consent, the researcher emailed participating principals and provided them with detailed instructions for participating in the study. The email included directions for each principal to forward an email, containing a link and directions for completing the survey, to their instructional staff (see Appendix I). Principals were informed that for the purpose of the current study, their instructional staff included: (a) all educators who provide direct instruction to students enrolled in K-5 (general and special educators), (b) student support services personnel (e.g., school psychologists, guidance counselors), (c) instructional support personnel (e.g., hourly teachers, interventionists), and (d) members of the SBLT.

Step 2. Principals were also asked to provide the researcher with the information from the School Factors Data Summary Form (Appendix G).

Step 3: Principals were given contact information for the researcher and assistant superintendent if they had questions regarding the study before initiating data collection.

Step 4: Principals were sent a follow-up email (two weeks after the initial email) notifying them that the family surveys were mailed to families (see Appendix J). Additionally, if the number of instructional staff for a given school was below 20 at the time of the email, the email also included a reminder for principals to ask their instructional staff to complete the online survey. The online

survey remained open for four weeks from the initial date principals were emailed survey links until the final day of school for educators.

Step 5: Once the online survey was closed, the principals were sent an email indicating that the survey window had ended. Principals were thanked for their school's participation in the study and were reminded that incentives would be distributed upon processing of funds (Appendix K).

Data collection procedures for families. Previous studies conducting survey research with families have primarily used two methods to collect survey data from parents: (a) sending the survey home with students, or (b) mailing the survey directly to the families' homes (Adams, Forsyth, & Mitchell, 2009; Anderson & Minke, 2007; Seitsinger, Felner, Brand, & Burns, 2008; Wong & Hughes, 2006). The response rates from studies sending surveys home with students range from approximately 24% to 80% (Anderson & Minke, 2007; Seitsinger, Felner, Brand, & Burns, 2008) while the response rates from studies mailing surveys directly to families' homes range from 49% to 64% (Adams, Forsyth, & Mitchell, 2009; Wong & Hughes, 2006). The mailing method was the preferred method of the district staff who facilitated data collection. Therefore, for the current study, the Family Engagement in PS/RtI Survey: Family Version was mailed directly to families' homes and survey responses were collected from families using a direct mailing method that included a stamped, pre-addressed return envelope to facilitate survey returns. In alignment with the requests of the

district's Research and Evaluation Department, the following steps were taken in order to collect data from families.

Step 1. Graduate students worked with the researcher to prepare 4,800 family survey packets. Each packet included a cover letter, the survey instrument, and a pre-paid, pre-addressed return envelope. The cover letter included an invitation to participate in the study by completing the survey, a description of the purpose of the study, detailed information about how their survey responses were going to be used, and directions for completing and returning the survey (Appendix L). The packets were then provided to the district staff to address and mail to families.

Step 2. The Research and Evaluation Department used their district-wide database to randomly select twenty students from each grade level (K-5) at each participating school (*N* = 40); yielding a total of 4,800 students (families) selected for participation in the study. The families (parents/caregivers) of the randomly selected students (*N* = 4,800) were mailed survey packets inviting their participation in the study.

Step 3. An independent contractor, who was also a district staff member, was hired by the school district to affix address labels and mail the survey packets to the families (parents/caregivers) of the randomly selected students (*N* = 4,800). The home addresses of the selected students were provided to the independent contractor who then printed addresses on labels, affixed labels to

packets, and mailed the survey packets. The researcher did not have any information that could identify the parents selected and no parent identification information was contained in the packets mailed back to the researcher.

Step 5. Packets were mailed to the families (parents/caregivers) of each of the 4,800 randomly selected students. In the cover letter included in the survey packets, families were instructed to return the completed surveys through the mail using the pre-addressed, pre-stamped return envelope provided in the packet. Parental consent to participate was determined based on the parent decision to return the completed survey.

Data Entry Procedures

Data were collected, entered, and checked for data entry errors during the spring and summer semesters of 2011-2012 academic school year. The SAPSI and school demographic data obtained from the Research and Evaluation Department from the local school district were formatted (e.g., variables renamed, data files were created for use in HLM software, etc.) for data analysis purposes. For the online survey data from educators, the individual school files were combined into one master file and then formatted and prepared for data analysis. For the family surveys, the researcher and Graduate Assistants (GA) employed by the PS/RtI Project, who were trained to enter survey data, entered the data for the returned family surveys. GAs manually entered the Family Engagement in PS/RtI Survey: Family Version data into the database.

Accuracy checks on data entered were regularly conducted by randomly selecting 10% of the family surveys to check the accuracy of data entry. In the event that a data entry error was found in any of the randomly selected surveys, the error was corrected and surveys before and after the identified error were re-checked for accuracy. In the event that additional errors were found in the surveys before or after the error, an additional 10 surveys preceding the error and 10 surveys following the error were re-checked for accuracy. If an error was found, it was corrected. Random data checks indicated that 95% of the data were entered accurately.

Data Analysis Procedures

Two phases of data analyses were conducted for the current study. In the first phase, Exploratory Factor Analyses (EFA) were conducted on each of the two versions of the Family Engagement in PS/RtI Survey (i.e., the Educator and Family Versions, respectively). EFAs were conducted to determine the underlying factor structure of the two instruments that were developed within the context of the current study. The second phase of the analyses focused on answering the research questions posed for the study and included use of scores on the factors that emerged from the EFAs performed on each of the two instruments in Phase 1 of the analyses.

Phase I: Exploratory Factor Analyses for the Family Engagement in PS/RtI Surveys. Given the non-independence of the data for both the Educator

and Family Version of the Family Engagement in PS/RtI survey (i.e., educators nested within schools), Exploratory Factor Analyses that accounted for the non-independence of the data were conducted to assess the underlying factor structure of each of the instruments. The EFA analysis was conducted using the Type = Complex command, Maximum Likelihood (ML) extraction procedure, and Geomin rotation method in Mplus Version 6.0 (Muthen & Muthen, 2010). The Type = Complex command takes into account the non-independence of observations when computing standard errors and chi-square tests of model fit (Muthen & Muthen, 2010). Maximum Likelihood (ML) was used as the factor extraction method as the purpose of the EFA was to identify the underlying factor structure of each instrument (Fabrigar, Wegener, MacCallum, & Strahan, 1999). Geomin, an oblique rotation, was used to allow for correlated factors and to facilitate interpretation.

Multiple criteria were considered when identifying the number of factors to be retained including: (a) visual analysis of the scree plot, (b) simple structure of the rotated factor solution (e.g., items designed to measure a similar construct loading on the same factor with factor loadings > .30, fewest number of items that cross-loaded on more than one factor, etc.), and (c) interpretability of the factor solution. The results of the factor analyses are reported below.

Results of the EFA for the Family Engagement in PS/RtI Survey: Educator Version. Educator responses to the Family Engagement in PS/RtI

survey were analyzed to determine the underlying factor structure of the instrument following the procedures for conducting exploratory factor analysis described above. Examination of the scree plot suggested retention of four to six factors. Four, five, and six factors were extracted and rotated using the oblique Geomin rotation method. The respective factor solutions were examined for simple structure and interpretability. Comparing across the four, five, and six-factor solutions, the four factor solution yielded the best fit of the data including simple structure and interpretability of factors. The rotated four-factor solution is provided in Table 1. The factors were labeled as follows: Factor 1 – *Educator Beliefs about Family Engagement*, Factor 2 – *Educator Knowledge and Skills for Family Engagement*, Factor 3 - *Educator Family Engagement Practices*, and Factor 4 - *School-wide Family Engagement Practices*. The inter-factor correlation matrix is provided in Table 2. As shown, the factors demonstrated moderate to low correlations. Internal consistency reliability estimates using Cronbach's alpha were computed for each of the four factors. The resultant reliability estimates were high: Factor 1 ($\alpha = .91$), Factor 2 ($\alpha = .92$), Factor 3 ($\alpha = .92$), and Factor 4 ($\alpha = .90$). Importantly, the final factor solution was consistent with the way in which the survey items were developed and organized.

Table 1

Rotated Factor Solution for EFA of the Family Engagement in PS/RtI Survey: Educator Version

Item	Factor [a] F1	F2	F3	F4
I believe…				
1. that family-school relationships have an important influence on how well a child does academically in school.	***.82****	-.08	.10	-.02
2. that family-school relationships have an important influence on how well a child does *behaviorally* in school.	***.79****	-.02	.02	-.01
3. that families want what is best for their child.	***.41****	.11	.04	.02
4. that if a child struggles in school, it is important to engage his or her family in developing a plan to help the child succeed.	***.87****	-.04	.05	-.00
5. that it's important to use a child's [a/b] data (information) when discussing student progress with his/her family.	***.82****	.10	-.05	.03
6. that it is important for families to receive frequent updates regarding their child's progress in school.	***.73****	.09	.03	.01
7. it's important for families to have a good understanding of what their child's [a/b] data mean for their child's success in school.	***.77****	.18	-.07	.00
I have …				
8. the skills to engage families in problem-solving using important data (information) about their child's performance.	-.02	***.79****	.04	.04
9. the skills to communicate with families effectively.	.16	***.74****	.01	.01
10 the skills to explain a child's [a/b] data to his/her family in a way the family can understand.	.03	***.87****	.02	-.07
11. the skills to listen to families and identify their concerns and priorities when it comes to their child.	.18	***.71****	-.01	.02
12. the skills to use data to examine a child's [a/b] progress with his/her family.	.02	***.82****	.05	-.02
13. the knowledge/skills to explain to families the intent of RtI is to develop plans to help the child, which may not require ESE.	-.03	***.53****	.11	.17
Thinking about *your* work with families…				
14. It is my regular practice to ask families for information about how their child learns best.	.00	.00	***.69****	.01
15. I always answer families' concerns and questions about Response to Intervention (RtI).	-.03	.25	***.40****	.13
16. I explain student progress data to families in a way that they can understand.	-.00	.26	***.62****	-.06
17. I use various methods (e.g., website, emails, etc.) to share student data with families.	.04	.04	***.61****	-.01
18. I provide families with frequent updates of their child's progress.	.01	.01	***.80****	-.05

Note: *N* = 933. Items loadings on each factor are shown in boldface italics and marked with an asterisk. F1 = Educator Beliefs about Family Engagement, F2 = Educator Knowledge and Skills for Family Engagement, F3 = Educator Family Engagement Practices, F4 = School-wide Family Engagement Practices.
[a] Type = Complex; Rotation Method = Geomin

Table 1 continued

Rotated Factor Solution for EFA of the Family Engagement in PS/RtI Survey: Educator Version

Item	Factor [a]			
	F1	F2	F3	F4
19. I provide families with frequent updates on changes that occur to their child's curriculum and instruction.	-.03	-.02	***.76****	.02
20. It is my regular practice to provide flexible meeting times to involve families in PS meetings about their child.	.09	.02	***.67****	.01
21. I include families in making decisions about the supports needed for their child to be successful in school.	.03	.01	***.72****	.09
22. I collaborate with families more frequently when their child is struggling.	.05	.01	***.65****	-.01
23. It is my regular practice to provide families with activities they can do at home to support their child's learning.	-.00	-.04	***.73****	.04
24. I use student data and ongoing problem-solving to engage families in supporting student learning.	-.00	.13	***.71****	.04
Thinking about *your school's* work with families…				
25. provides information to families about how they (families) are included in the schools' RtI activities.	-.01	.05	-.03	***.87****
26. provides families with information about RtI.	.02	.04	-.06	***.89****
27. includes families on teams implementing RtI.	-.01	-.00	.03	***.76****
28. provides families training in using the problem-solving process to help students.	-.01	-.11	.05	***.72****
29. provides families opportunities to connect with and learn from other families at this school.	-.02	-.04	.03	***.64****
30. teaches families skills they can use at home that will improve their child's success at school.	.02	-.01	.06	***.67****
31. asks families what types of assistance they may need (e.g., information, training) in order to help their child with school.	.02	-.02	.03	***.70****
32. ensures families feel welcome at this school.	.09	.11	-.02	***.50****

Note: *N* = 933. Items loadings on each factor are shown in boldface italics and marked with an asterisk. F1 = Educator Beliefs about Family Engagement, F2 = Educator Knowledge and Skills for Family Engagement, F3 = Educator Family Engagement Practices, F4 = School-wide Family Engagement Practices.
[a] Type = Complex; Rotation Method = Geomin.

Table 2

Interfactor correlation matrix for the Family Engagement in PS/RtI Survey: Educator Version

	Factor			
	F1	F2	F3	F4
F1	-			
F2	.45	-		
F3	.41	.23	-	
F4	.61	.59	.31	-

Note: F1 = Educator Beliefs about Family Engagement, F2 = Educator Knowledge and Skills for Family Engagement, F3 = Educator Family Engagement Practices, F4 = School-wide Family Engagement Practices.

Results of EFA for the Family Engagement in PS/RtI Survey: Family Version. Family responses to the Family Engagement in PS/RtI survey were analyzed to determine the underlying factor structure of the instrument following the procedures for conducting exploratory factor analysis described above. Examination of the scree plot suggested retention of four to seven factors. Four, five, six, and seven factors were extracted and rotated using the oblique Geomin rotation method. The respective factor solutions were examined for simple structure and interpretability. Comparing across the four, five, six, and seven-factor solutions, the six factor solution yielded the best fit of the data including simple structure and interpretability of factors. The rotated six-factor solution is provided in Table 3. The factors were labeled as follows: Factor 1 - *Family Engagement Activities*, Factor 2 - *Family Initiated School Communication*, Factor 3 - *Educators' Family Engagement Practices*, Factor 4 - *PS/RtI Engagement*, Factor 5 – *Family Beliefs about Family Engagement*, and Factor 6 – *Family*

Knowledge and Skills for Family Engagement. Importantly, the final factor solution was generally consistent with the way in which the survey items were developed and organized. The items that were designed to measure families' perception of educators' family engagement practices resulted in two factors, one measuring educators' practices to engage families in PS/RtI and one measuring educators' general family engagement practices. Furthermore, the items that were designed to measure families' engagement behaviors resulted in two factors, one measuring communication and one measuring more general family engagement activities. The inter-factor correlation matrix is provided in Table 4. As shown, the factors measuring families' engagement behaviors (Factor 1 and Factor 2) were moderately correlated while remaining inter-factor correlations were relatively low. Internal consistency reliability estimates using Cronbach's alpha were computed for each of the six factors. The resultant reliability estimates were high: Factor 1 ($\alpha = .77$), Factor 2 ($\alpha = .85$), Factor 3 ($\alpha = .66$), Factor 4 ($\alpha = .73$), Factor 5 ($\alpha = .91$), Factor 6 ($\alpha = .95$). The resultant reliability estimates were considered in the acceptable range (> .70) for all factors, except for Factor 3.

Table 3

Rotated Factor Solution for EFA of the Family Engagement in PS/RtI Survey: Family Version

Item[a]	Factor[b]					
	F1	F2	F3	F4	F5	F6
I believe that …						
23) family-school relationships have an important influence on how well children do in school.	-.06	.07	.04	.03	***.60****	.09
24) it would be important for me to be included in developing plans to help my child in school.	.01	.02	-.06	.08	***.77****	.07
25) it is important for teachers to use my child's [a/b] data when discussing my child's progress.	-.04	-.01	.12	-.09	***.56****	.05
26) it is important for me to get frequent updates regarding my child's progress in school.	.02	.08	.04	.01	***.50****	.12
I have..						
28) the skills to participate in problem-solving with the school using data re: my child's progress.	-.06	.28	.05	.03	.13	***.43****
29) the skills to talk with my child's teacher about my child's progress in school.	-.02	.01	-.04	-.00	.13	***.66****
30) a good understanding of my child's academic and behavioral data	.00	.01	.15	-.07	.18	***.55****
31) the skills to provide academic and/or behavioral support to my child at home.	.07	-.05	.03	-.01	.13	***.78****
32) the skills to help with interventions (extra help) for my child at home.	.09	-.03	-.01	.08	.01	***.77****
Rate how often you did each activity:						
12) I read information that is sent home from my child's school.	***.35****	.03	.03	.02	.01	.02
13) I communicate with my child's teacher about my child's progress in school.	.44*	***.38****	.07	-.05	.03	-.07
14) When invited, I participate in meetings with my child's teacher re: my child's progress	***.63****	.14	-.03	.00	.12	.01
15) I ensure a quiet place and time for my child to complete schoolwork at home.	***.80****	-.00	.00	.01	-.11	.24
16) I work with my child at home to help him/her to be successful in school.	***.74****	.02	.02	-.01	-.12	.26
22) I tell my child the expectations respect teachers) that I have of him/her in school.	***.81****	-.05	-.03	.03	.04	-.02
17) I talk with other parents at my child's school to get information about school-related topics.	.04	***.50****	.06	.08	-.00	.15
18) I ask my child's teacher for things that I can do at home to help my child with school.	.05	***.73****	-.05	-.02	-.05	-.02
19) I ask my child's teacher questions if I don't understand information the school has given me.	.15	***.55****	.06	-.05	.05	-.13
20) I let the school know what I think about the decisions the school makes about my child.	-.02	***.57****	-.03	.07	.09	.03

Table 3 continued

Item	Factor[b]					
	F1	F2	F3	F4	F5	F6
The staff (teachers, administrators, specialists) at my child's school…						
27) I have a good understanding of the basic principles of Response to Intervention (RtI).[c]	-.06	.13	-.18	***.65****	-.04	.13
34) gives me information about how families are included in the schools' RtI activities.	.09	-.04	.05	***.91****	.04	-.05
35) provides me with helpful information about RtI	.04	-.01	.03	***.96****	.01	-.00
36) includes me on teams implementing RtI	-.01	-.02	.03	***.88****	.04	-.03
38) answers any of my concerns and questions about RtI	-.05	-.02	.16	***.67***	-.03	.10
33) asks me for information about how my child learns best.	-.01	.05	***.39****	.34	.09	-.05
37) gives me training in using the problem-solving process to help my child.	.03	.04	***.51****	.31	-.01	-.00
39) explains my child's [a/b] data to me in a way that I can understand.	.01	.07	***.51****	-.04	.13	.22
40) gives me opportunities to connect and learn from other families at this school.	-.05	.19	***.54****	.13	-.09	.10
41) uses various methods to share my child's academic and behavioral data with me.	-.04	.02	***.72****	-.11	.02	.12
42) provides me with frequent updates on my child's progress in school.	.04	.02	***.76****	-.07	.04	.00
43) provides me with frequent updates on changes that occur to my child's curriculum.	.01	-.03	***.68****	.14	-.07	-.05
44) teaches me skills I can use at home that will improve my child's success at school.	-.04	.11	***.77****	.05	-.20	.05
45) asks me what types of assistance I may need in order to help my child in school.	-.06	.07	***.63****	.23	-.15	.07
46) is flexible with scheduling so I can be involved in problem-solving meetings about my child.	.04	-.00	***.64****	-.00	.20	-.09
47) includes me in decisions about the supports needed for my child to be successful in school.	.03	-.08	***.75****	.07	.13	-.13
48) communicates with me more frequently when my child is struggling.	.01	-.19	***.77****	.00	.01	-.01
49) provides me with things I can do at home to support my child's intervention.	-.04	-.06	***.76****	.05	-.07	.01
50) uses problem-solving to engage me in my child's education.	.04	.06	***.69****	.12	.03	-.09
51) values my insight about why my child needs additional interventions (extra help).	.02	-.06	***.81****	.03	.02	.01
52) uses my child's [a/b] data to help me understand my child's progress in school.	.07	-.02	***.82****	-.11	.03	.07

Note: *N* = 396. F1 = Family Engagement Activities, F2 = Family Initiated School Communication, F3 = Educators' Family Engagement Practices, F4 = PS/RtI Engagement, F5 = Family Beliefs about Family Engagement, F6 = Family Knowledge and Skills for Family Engagement.
[a] Some items were shortened to fit the table, see Appendix C for exact text of all items.
[b] Type = Complex; Rotation Method = Geomin.
[c] The lead for this item was "I have…"

Table 4

Interfactor correlation matrix for the Family Engagement in PS/RtI Survey: Family Version

	Factor					
	F1	F2	F3	F4	F5	F6
F1	-					
F2	.50	-				
F3	.14	-.02	-			
F4	.31	.06	.10	-		
F5	.23	.03	.04	.40	-	
F6	.19	.10	.19	.27	.31	-

Note: . F1 = Family Engagement Activities, F2 = Family Initiated School Communication, F3 = Educators' Family Engagement Practices, F4 = PS/RtI Engagement, F5 = Family Beliefs about Family Engagement, F6 = Family Knowledge and Skills for Family Engagement.

Phase II: Statistical Analyses Conducted to Answer the Research Questions

The following research questions were addressed in the study:

1a. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and educators' self-reported family engagement practices?

1b. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and educator reports of school-wide family engagement practices?

2a. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family perceptions of educators' family engagement practices?

2b. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family initiated school communication?

2c. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family engagement activities?

Hierarchical Linear Modeling (HLM), an inferential statistical analysis technique, was used to answer the research questions. HLM allows for inferential analysis of nested data that violate the assumption of independence that is essential to most inferential analyses. In the current study, educators and families were nested within schools, suggesting the need for a multi-level approach to the analysis of the data. Educators and families nested within a given school were more likely to have related responses to survey items compared to educators and families chosen at random from around the country. By nature of association with a single school, data obtained from educators (or families) within a single school were dependent and nested within school. HLM accounts for the correlations among responses at different levels of the model (Raudenbush & Bryk, 2002). The Intra-Class Correlation Coefficient (ICC) was calculated for each research question to determine the degree to which the data were nested within schools or group dependent. Higher ICCs indicated higher degrees of nesting, suggesting that HLM was an appropriate statistical analysis technique.

Data screening. The assumptions of HLM were investigated to determine the degree to which assumptions of this statistical procedure had been met and to ensure that HLM was the appropriate statistical analysis to be used for answering the research questions. The assumptions of HLM include normality and homogeneity of variance of the residuals. In order to assess normality, the residuals from the final models for each research question were examined. To examine normality of level-1 residuals, Q-Q plots and histograms of the residual were reviewed. Additionally, tests of homogeneity of variance were conducted to ensure constant variance for the residuals. For all models, variables that did not have a meaningful zero were grand-mean centered to facilitate interpretation of the models.

Model building. An exploratory approach to model building was used in order to investigate the relationships among variables of interest to the current study. This began with the simplest model, the unconditional model, and ended with the most complex in order to determine the best fitting and most parsimonious model to answer each research question (Luke, 2004; Raudenbush & Byrk, 2002). Following each change to the variables or effects included in the model, significance of predictors and fit indices were used to evaluate whether or not the variable was retained in the model.

First, the unconditional model that did not include any level-1 or level-2 predictors was examined to determine the ICC. Next, the level-1 variables were

added to the model and the significance of predictors and improvement in model fit was considered. Non-significant predictors were not retained in subsequent models. Interactions among significant level-1 predictors were also considered. The best-fitting level-1 model was used for all subsequent models. Next, groups of level-2 predictors were added to the intercept and only explored at the slopes of the level-1 model if they were significant in predicting the intercept. Non-significant predictors were not retained in subsequent models. Finally, interactions among significant level-2 predictors were explored. Following each iteration, improvements in the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) fit indices and significance of predictors were examined in addition to number of parameters estimated to determine the best-fitting, most parsimonious model to be retained as the final model. Together, smaller values for the AIC and BIC fit indices and a smaller number of significant parameters estimated, indicate a better fitting model. Finally, following the steps described by Luke (2004), the proportional reduction of prediction error was computed for each level of the multi-level model (level 1 and level 2) to determine the fit of the final model for each research question. The proportional reduction of prediction error provides an estimate of the reduction in the unexplained variance in the final model compared to the baseline (unconditional) model. Determining the proportion of reduction in residuals between the two models provides an estimate of the predictive power of the model as a result of including the

predictors in the model. Given the hierarchical nature of HLM, two equations were used to calculate the proportional reduction of prediction error for level-1 (R_1^2) and another for level-2 (R_2^2). The following equations were used to calculate the proportional reduction of prediction error:

Level 1 equation:

$$R_1^2 = 1 - \frac{(\hat{\sigma}_r^2 + \hat{\sigma}_{u0}^2)Comparison}{(\hat{\sigma}_r^2 + \hat{\sigma}_{u0}^2)Baseline}$$

Level 2 equation:

$$R_2^2 = 1 - \frac{(\hat{\sigma}_r^2 / \tilde{n} + \hat{\sigma}_{u0}^2)Comparison}{(\hat{\sigma}_r^2 / \tilde{n} + \hat{\sigma}_{u0}^2)Baseline}$$

where, $\tilde{n}$ = typical number of level-1 units in any level-2 unit.

R_1^2 and R_2^2 provide an estimate of the predictive power of the multilevel model for predicting an individual outcome (level-1) and predicting a group (level-2) mean, respectively.

Research Question 1a. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and educators' self-reported family engagement practices?

A two-level model was used to answer Research Question 1a. The dependent variable for this question was educators' self-reported family engagement practices as measured by the mean score on *Factor 3: Educator Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version.

The following individual-level variables were obtained through educators' self-report on the Educator Version of the Family Engagement in PS/RtI Survey and entered as level-1 predictors (please note the abbreviated label for each variable is provided in all caps in parentheses to clarify results summarized in text and tables in later chapters):

- educator role/position (1 = general education teacher, 0 = all other [special education, instructional staff, student support services personnel, administrator, or other; ROLE]);
- educator membership on the School-based Leadership Team ([SBLT]; 1 = member, 0 = non-member);
- *Educator Beliefs about Family Engagement* obtained as a mean score on Factor 1 – *Educator Beliefs about Family Engagement* on the Family Engagement PS/RtI Survey: Educator Version (EBELIEF);
- *Educator Knowledge and Skills for Family Engagement* obtained as a mean score on Factor 2 – *Educator Knowledge and Skills for Family*

Engagement on the Family Engagement in PS/RtI Survey: Educator Version (ESKILL).

The level-2 predictors included the following variables:

- School factors
  - school size: 2011- 2012 student enrollment (SIZE);
  - minority status: The percentage of the 2011-2012 student population that was non-white (%MIN);
  - SES: The percentage of the 2011-2012 student population that was eligible for free or reduced-price lunch (%LUN);
  - ELL: The percentage of the 2011-2012 student population that was identified as an English Language Learner (%ELL);
  - ESE: The percentage of the 2011-2012 student population that was eligible for Exceptional Student Education services (including gifted; %ESE).
- Implementation Factors
  - PS/RtI Implementation: Each school's mean score on the Consensus (CONS), Infrastructure (INFR), and Implementation (IMPL) subscales of the SAPSI (1 = Not Started, 2 = In Progress, 3 = Achieved, 4 = Maintaining);

- length of time of Response to Intervention for Behavior (RtI:B) implementation (i.e., Positive Behavior Support, CHAMPS, etc.; 1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [RtIB]);
- length of time of PS/RtI implementation (1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [PS/RtI]);
- school type: Title 1 school affiliation (1 = Title 1 school, 0 = Non-Title 1 school [TITLE]).

- Family factors
  - family level of education: The school-level mean of family's highest education level (the highest level of education between each parent respondent and their spouse was used to calculate the school-level mean [FAMEDU]);
  - *Family Beliefs about Family Engagement*: The school-level mean score on Factor 5 – *Family Beliefs about Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMBEL);
  - *Family Knowledge and Skills for Family Engagement*: The school-level mean score on Factor 6 – *Family Knowledge and Skills for Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMSKILL);

- *Family Engagement Activities*: The school-level mean score on Factor 1 - *Family Engagement Activities* from the Family Engagement in PS/RtI Survey: Family Version (FAMACT);
- *Family Initiated School Communication:* The school-level mean score on Factor 2 – *Family Initiated School Communication* from the Family Engagement in PS/RtI Survey: Family Version (FAMCOMM);
- *PS/RtI Engagement*: The school-level mean score on Factor 4 - *PS/RtI Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMPSRTI);
- *Educators' Family Engagement Practices*: The school-level mean score on Factor 3 - *Educators' Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Family Version (FAMEDPRC).

Research Question 1b. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and educator reports of school-wide family engagement practices?

A two-level model was used to answer Research Question 1b. The dependent variable for the research question was educator reports of school-wide family engagement practices as measured by the mean score on Factor 4 - *School-wide Family Engagement Practices* of the Family Engagement in PS/RtI

Survey: Educator Version. The same predictors for Research Question 1a were used for the two-level model that answered Research Question 1b.

Research Question 2a. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family perceptions of educators' family engagement practices?

A two-level model was used to answer Research Question 2a. The dependent variable for the research question was family perceptions of educators' family engagement practices as measured by the family's mean score on Factor 3 - *Educators' Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Family Version. The following individual-level predictors were obtained from families' reports on the Family Engagement in PS/RtI Survey: Family Version and were entered as level-1 predictors:

- Family factors
    - grade of child (0 = kindergarten, 1 = first grade, 2 = second grade, 3 = third grade, 4 = fourth grade, and 5 = fifth grade [GRADE]);
    - child's ESE eligibility status (0 = no, 1 = yes [ESE]);
    - child's participation in additional interventions (0 = no; 1 = yes [INT]);
    - race of the parent respondent (0 = white, 1 = non-white [RACE]);
    - family's highest level of education (the highest of the two items that asked about each family's highest level of education [the highest

between the parent respondent and their spouse's education level] was used as an indicator of the highest level of education for the household [EDU]);

- *Family Beliefs about Family Engagement* obtained as a mean score on Factor 5 – *Family Beliefs about Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FBELIEF);
- *Family Knowledge and Skills for Family Engagement* obtained as a mean score on Factor 6 – *Family Knowledge and Skills for Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FSKILL);
- *Family Engagement Activities* obtained as a mean score on Factor 1 - *Family Engagement Activities* of the Family Engagement in PS/RtI Survey: Family Version (FAMACT);
- *Family Initiated School Communication* obtained as a mean score on Factor 2 - *Family Initiated School Communication* of the Family Engagement in PS/RtI Survey: Family Version (FAMCOMM);
- *PS/RtI Engagement*: The mean score on Factor 4 - *PS/RtI Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMPSRTI).

The level-2 predictors included the following variables:

- School factors

- school size: 2011- 2012 student enrollment (SIZE);
- minority status: The percentage of the 2011-2012 student population that was non-white (%MIN);
- SES: The percentage of the 2011-2012 student population that was eligible for free or reduced-price lunch (%LUN);
- ELL: The percentage of the 2011-2012 student population that was identified as an English Language Learner (%ELL);
- ESE: The percentage of the 2011-2012 student population that was eligible for Exceptional Student Education services (including gifted [%ESE)).

- Implementation factors
  - PS/RtI Implementation: Each school's mean score on the Consensus (CONS), Infrastructure (INFR), and Implementation (IMPL) subscales of the SAPSI (1 = Not Started, 2 = In Progress, 3 = Achieved, 4 = Maintaining);
  - length of time of Response to Intervention for Behavior (RtI:B) implementation (i.e., Positive Behavior Support, CHAMPS, etc.; 1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [RtI:B]);
  - length of time of PS/RtI implementation (1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [PS/RTI]);

- school type: Title 1 school affiliation (1 = Title 1 school, 0 = Non-Title 1 school [TITLE]).

- Educator factors
  - *Educator Beliefs about Family Engagement*: School-level means on Factor 1 – *Educator Beliefs about Family Engagement* from the Family Engagement in PS/RtI Survey: Educator Version (EDUBEL);
  - *Educator Knowledge and Skills for Family Engagement*: School-level means on Factor 2 – *Educator Knowledge and Skills for Family Engagement* from the Family Engagement in PS/RtI Survey: Educator Version (EDUSKILL);
  - *Educator Family Engagement Practices*: The school-level mean score on Factor 3 – *Educator Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version (EDUPRC);
  - *School-wide Family Engagement Practices*: The school-level mean score on Factor 4 – *School-wide Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version (EDUSWPRC).

Research Question 2b. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family initiated school communication?

A two-level model was used to answer Research Question 2b. The dependent variable for the research question was family-initiated school communication as measured by the family's mean score on Factor 2 – *Family Initiated School Communication* of the Family Engagement in PS/RtI Survey: Family Version. The following individual-level predictors were obtained from families' reports on the Family Engagement in PS/RtI Survey: Family Version and were entered as level-1 predictors.

- Family factors
    - grade of child (0 = kindergarten, 1 = first grade, 2 = second grade, 3 = third grade, 4 = fourth grade, and 5 = fifth grade [GRADE]);
    - child's ESE eligibility status (0 = no, 1 = yes [ESE]);
    - child's participation in additional interventions (0 = no; 1 = yes [INT]);
    - race of the parent respondent (0 = white, 1 = non-white [RACE]);
    - family's highest level of education (the highest of the two items that asked about each family's highest level of education [the highest between the parent respondent and their spouse's education level]

was used as an indicator of the highest level of education for the household [EDU]);

- *Family Beliefs about Family Engagement* obtained as a mean score on Factor 5 – *Family Beliefs about Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FBELIEF);
- *Family Knowledge and Skills for Family Engagement* obtained as a mean score on Factor 6 – *Family Knowledge and Skills for Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FSKILL);
- *Family Engagement Activities* obtained as a mean score on Factor 1 - *Family Engagement Activities* of the Family Engagement in PS/RtI Survey: Family Version (FAMACT);
- *PS/RtI Engagement*: The mean score on Factor 4 - *PS/RtI Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMPSRTI);
- *Educators' Family Engagement Practices*: The mean score on Factor 3 - *Educators' Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Family Version (FAMEDPRC).

The level-2 predictors included the following variables:

- School factors
  - school size: 2011- 2012 student enrollment (SIZE);

- minority status: The percentage of the 2011-2012 student population that was non-white (%MIN);
- SES: The percentage of the 2011-2012 student population that was eligible for free or reduced-price lunch (%LUN);
- ELL: The percentage of the 2011-2012 student population that was identified as an English Language Learner (%ELL);
- ESE: The percentage of the 2011-2012 student population that was eligible for Exceptional Student Education services (including gifted [%ESE]).

- Implementation factors
  - PS/RtI Implementation: Each school's mean score on the Consensus (CONS), Infrastructure (INFR), and Implementation (IMPL) subscales of the SAPSI (1 = Not Started, 2 = In Progress, 3 = Achieved, 4 = Maintaining);
  - length of time of Response to Intervention for Behavior (RtI:B) implementation (i.e., Positive Behavior Support, CHAMPS, etc.; 1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [RtI:B]);
  - length of time of PS/RtI implementation (1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [PS/RTI]);
  - school type: Title 1 school affiliation (1 = Title 1 school, 0 = Non-Title 1 school [TITLE]).

- Educator factors
    - *Educator Beliefs about Family Engagement*: School-level means on Factor 1 – *Educator Beliefs about Family Engagement* from the Family Engagement in PS/RtI Survey: Educator Version (EDUBEL);
    - *Educator Knowledge and Skills for Family Engagement*: School-level means on Factor 2 – *Educator Knowledge and Skills for Family Engagement* from the Family Engagement in PS/RtI Survey: Educator Version (EDUSKILL);
    - *Educator Family Engagement Practices*: The school-level mean score on Factor 3 – *Educator Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version (EDUPRC);
    - *School-wide Family Engagement Practices*: The school-level mean score on Factor 4 – *School-wide Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version (EDUSWPRC).

Research Question 2c. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family engagement activities?

A two-level model was used to answer Research Question 2c. The dependent variable for the research question was family engagement activities as measured by the family's mean score on Factor 1 – *Family Engagement Activities* of the Family Engagement in PS/RtI Survey: Family Version. The following individual-level predictors were obtained from families' reports on the Family Engagement in PS/RtI Survey: Family Version and were entered as level-1 predictors.

- Family factors
    - grade of child (0 = kindergarten, 1 = first grade, 2 = second grade, 3 = third grade, 4 = fourth grade, and 5 = fifth grade [GRADE]);
    - child's ESE eligibility status (0 = no, 1 = yes [ESE]);
    - child's participation in additional interventions (0 = no; 1 = yes [INT]);
    - race of the parent respondent (0 = white, 1 = non-white [RACE]);
    - family's highest level of education (the highest of the two items that asked about each family's highest level of education [the highest between the parent respondent and their spouse's education level] was used as an indicator of the highest level of education for the household [EDU]);

- *Family Beliefs about Family Engagement* obtained as a mean score on Factor 5 – *Family Beliefs about Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FBELIEF);
- *Family Knowledge and Skills for Family Engagement* obtained as a mean score on Factor 6 – *Family Knowledge and Skills for Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FSKILL);
- *PS/RtI Engagement*: The mean score on Factor 4 - *PS/RtI Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMPSRTI);
- *Educators' Family Engagement Practices*: The mean score on Factor 3 - *Educators' Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Family Version (FAMEDPRC);
- *Family Initiated School Communication* obtained as a mean score on Factor 2 - *Family Initiated School Communication* of the Family Engagement in PS/RtI Survey: Family Version (FAMCOMM);

The level-2 predictors included the following variables:

- School factors
  - school size: 2011- 2012 student enrollment (SIZE);
  - minority status: The percentage of the 2011-2012 student population that was non-white (%MIN);

- SES: The percentage of the 2011-2012 student population that was eligible for free or reduced-price lunch (%LUN);
- ELL: The percentage of the 2011-2012 student population that was identified as an English Language Learner (%ELL);
- ESE: The percentage of the 2011-2012 student population that was eligible for Exceptional Student Education services (including gifted [%ESE)).

- Implementation factors:
  - PS/RtI Implementation: Each school's mean score on the Consensus (CONS), Infrastructure (INFR), and Implementation (IMPL) subscales of the SAPSI (1 = Not Started, 2 = In Progress, 3 = Achieved, 4 = Maintaining);
  - length of time of Response to Intervention for Behavior (RtI:B) implementation (i.e., Positive Behavior Support, CHAMPS, etc.; 1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [RtI:B]);
  - length of time of PS/RtI implementation (1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [PS/RTI]);
  - school type: Title 1 school affiliation (1 = Title 1 school, 0 = Non-Title 1 school [TITLE]).
- Educator factors:

- *Educator Beliefs about Family Engagement*: School-level means on Factor 1 – *Educator Beliefs about Family Engagement* from the Family Engagement in PS/RtI Survey: Educator Version (EDUBEL);
- *Educator Knowledge and Skills for Family Engagement*: School-level means on Factor 2 – *Educator Knowledge and Skills for Family Engagement* from the Family Engagement in PS/RtI Survey: Educator Version (EDUSKILL);
- *Educator Family Engagement Practices*: The school-level mean score on Factor 3 – *Educator Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version (EDUPRC);
- *School-wide Family Engagement Practices*: The school-level mean score on Factor 4 – *School-wide Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version (EDUSWPRC).

Chapter IV

Results

The purpose of this study was to investigate relationships among school-level factors, educator factors, family factors and families' and educators' family engagement practices in schools implementing PS/RtI. This chapter begins with a description of the respondent sample, the research questions addressed and univariate statistics for the non-demographic variables of interest to the current study. Next, the exploratory methods for model building are described. Finally, the results of analyses conducted to answer the research questions are reported.

Respondent Sample

The respondent sample included 933 educators and 396 families from 40 elementary schools. Although 42 principals consented for their school to participate in the study, two principals withdrew their school from participation in the study prior to data collection due time constraints according to the principals. Descriptive information about the participating schools is provided in Table 5. As shown, the average characteristics of the participating schools were comparable to the average characteristics of the district's elementary schools.

Table 5

Summary Characteristics of Participating Schools and All Elementary Schools in District

Characteristic	Sample Mean (*n* = 40)	All Elementary Schools Mean (*n* = 73)
Size (no. of students enrolled)	577.4	583
Percent minority students (%)	47.7	44.3
Percent students eligible for free or reduced-price lunch (%)	68.2	63.3
Percent students identified as eligible for ESE (%)	19.1	19.9
Percent students identified as ELL(%)	9.3	9.7
Length of Response to Intervention (RtI) Implementation [a]	2.3 years	-
Length of Response to Intervention for Behavior RtI:B) Implementation [a]	2.1 years	-

[a] Not available for all elementary schools in the district.

A summary of the characteristics of the educator and family samples is provided in Table 6 and Table 7, respectively. The number of instructional staff who completed the survey included 933 educators ranging from 5 to 49 educators per school with a mean of 23.32 educators per school. As shown in Table 4, most instructional staff were general educators (65.6%) followed by special educators (14.5%), instructional staff (e.g., hourly teachers, interventionists; 7.7%), student services support personnel (7.0%), and administrators (5.3%). Additionally, 22.5% (*n* = 210) of educator respondents reported membership on their School-based Leadership Team (SBLT).

Table 6

Summary Characteristics of Educator Respondent Sample

Characteristic	Number	Percent (%)
Role/Position		
General Educator	612	65.6
Special Educator	135	14.5
Student Support Services Personnel	65	7.0
Instructional Support Staff	72	7.7
Administrator	49	5.3
Membership on School-based Leadership Team (SBLT)[a]		
Members	210	22.5
Non-members	721	77.3

Note. N = 933.
[a] Missing values = 2.

The family respondent sample included a total of 396 families ranging from 2 families per school to 25 families per school with an average of 9.9 families per school. The sample was distributed across grades with 13.6% of the families having a child enrolled in kindergarten to 20.0% having a child enrolled in the fourth grade. Most families (76.3%) had children who were *not* receiving Special Education services and most (54.6%) reported that their child did *not* receive additional interventions (i.e., Tier 2 or Tier 3 interventions) during the 2011-2012 school year. Families in the respondent sample were mostly White (73.2%) and reported at least one parent/guardian having a Bachelor's degree or higher (45.2 %).

Table 7

Summary Characteristics of Family Respondent Sample

Characteristic	Number	Percent (%)
Child's grade-level		
Kindergarten	54	13.6
First grade	65	16.7
Second grade	67	16.9
Third grade	71	17.9
Fourth grade	79	20.0
Fifth grade	58	14.7
Child's ESE[a] Eligibility		
Eligible	86	21.7
Not Eligible	302	76.3
Child's Additional Interventions		
Receiving Additional Interventions	178	45.0
Not Receiving Additional Interventions	216	54.6
Race/Ethnicity		
White/Caucasian	286	72.2
Black/African-American	37	9.3
Asian/Asian-American/South-Asian/Middle-Eastern	24	6.1
Multi-racial/Multi-ethnic	21	5.8
Hispanic/Latino	17	4.3
Other	6	1.3
American-Indian/Native-American	5	1.3
Respondent Education Level		
High school diploma (or less)	82	20.7
More than Diploma, less than Bachelor's degree	132	33.3
Bachelor's Degree or higher	179	45.2
Spouse Education Level		
High school diploma (or less)	73	26.5
More than Diploma, less than Bachelor's degree	80	20.2
Bachelor's Degree or higher	147	37.1
Not Applicable (No Spouse)	64	16.2

Note. N = 396.
a. ESE = Exceptional Student Education

Two return rates were calculated for the family surveys. One return rate was calculated based on the number of surveys returned (*n* = 396) divided by the total amount of packets that were mailed (*n* = 4,800), which resulted in a 8.3% return rate. The second return rate was calculated based on the number of surveys returned divided by the number of packets that were mailed and *not* returned to the researcher due to problematic addresses of the family (396 / 4,616 = 8.6%). The return rate for the educator surveys was less accurate as it was based on principals' self-reports of the number of instructional staff they asked to complete the survey. Some principals did not provide this information while others reported an estimate (e.g., "about 40 instructional staff"). Based on the information provided, the return rate for the educator surveys was approximately 51%.

Descriptive Statistics

Descriptive statistics were calculated for the variables of interest to the current study that were not described by sample demographics. See Table 8 for the means and standard deviations for the subscale scores for the SAPSI and the Educator and Family Versions of the Family Engagement in PS/RtI Surveys for the entire sample. As shown, the non-participating schools and the participating schools did not significantly differ in their SAPSI subscale scores suggesting that perception of degree of PS/RtI implementation did not seem to influence principal's decision to participate in the study.

Table 8

Sample and Comparison Schools Means and Standard Deviations for Factor Scores on Self-Report Measures

	Sample Schools			Comparison Schools		
Factor/Subscale	N	M	SD	N	M	SD
Family Engagement in PS/RtI Survey: Educator Version						
Factor 1: Educator Beliefs about Family Engagement	933	4.67	0.49	-	-	-
Factor 2: Educator Knowledge and Skills for Family Engagement	933	4.32	0.63	-	-	-
Factor 3: Educator Family Engagement Practices	933	4.09	0.61	-	-	-
Factor 4: School-wide Family Engagement Practices	923	3.74	0.73	-	-	-
Family Engagement in PS/RtI Survey: Family Version						
Factor 1: Family Engagement Activities	393	2.94	0.23	-	-	-
Factor 2: Family Initiated School Communication	393	2.37	0.57	-	-	-
Factor 3: Educators' Family Engagement Practices	396	3.64	0.84	-	-	-
Factor 4: PS/RtI Engagement	395	2.73	1.01	-	-	-
Factor 5: Family Beliefs about Family Engagement	396	4.73	0.38	-	-	-
Factor 6: Family Knowledge and Skills for Family Engagement	396	4.52	0.53	-	-	-
Self-Assessment of Problem-Solving Implementation						
Consensus	40	2.76	0.59	33	2.75	0.52
Infrastructure	40	3.24	0.50	33	3.18	0.51
Implementation	40	3.31	0.60	33	3.25	0.58

Note. Comparison school means were only available for the SAPSI. Comparison schools refers to the district's non-participating elementary schools.

Model Building

HLM was the statistical procedure used to answer each of the research questions. An exploratory approach was taken to build each model beginning with the level-1 model and then moving to the level-2 model. For each unconditional model (level-1 model with no predictors), the Intraclass Correlation Coefficient (ICC) was calculated to determine the degree to which the data were nested (the degree to which the data violated the independence assumption). Higher ICCs indicated higher degrees of nesting, suggesting that HLM was an appropriate statistical analysis. Although the response rates for families and

educators differed across schools, HLM is appropriate for unequal sample sizes per school and for schools with few parent or educator participants per school as long as there are sufficient level-2 units (i.e., at least 30 schools; Bell, Ferron, & Kromrey, 2008). The empirical guidelines that were used to make decisions about variables to be retained in the final model are detailed later in this chapter for each research question.

For each research question, various models were explored beginning with the simplest model and ending with the most complex model that demonstrated best fit of the data with fewest number of predictors (Luke, 2004; Raudenbush & Bryk, 2002). Level-1 interactions, cross-level interactions, and level-2 interactions were also explored. The AIC and BIC fit indices were reviewed in order to identify the model that demonstrated best fit of the data. Lower values for the AIC and BIC fit indices suggested a better-fitting model. Finally, the assumptions of HLM were investigated to determine the degree to which the final model for each research question met the assumptions of HLM. The assumptions of HLM include normality and homogeneity of variance of the residuals (Luke, 2004; Raudenbush & Bryk, 2002). In order to assess normality, the residuals from the final models for each research question were examined through Q-Q plots and histograms. Additionally, tests of homogeneity of variance were conducted to ensure constant variance for the residuals. For all models, variables that did not

have a meaningful zero were grand-mean centered to facilitate interpretation of the models.

Research Question 1a. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and educators' family engagement practices?

Two-level models were examined to determine the extent to which various individual- and school-level variables predicted *Educator Family Engagement Practices*. Results from all models examined in the process of answering Research Question 1a can be found in Tables 9 and 10. First, level-1 predictors, including level-1 interaction terms, were added to the unconditional model. Non-significant variables were removed and improvement in model fit was determined to identify the best-fitting level-1 model. All intercepts and slopes were allowed to vary unless there was evidence to suggest the slopes should be fixed (i.e., unless the variance component for the slope was not significant). Next, groups of level-2 predictors were added to the intercept and significant predictors were also added to the slopes of the best-fitting level-1 model. Following each iteration, improvements in the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) fit indices were examined, in addition to consideration of the significance of variables and number of parameters estimated, in order to determine the best-fitting, most parsimonious model to be retained as the final model.

Level-1 Model. First, the unconditional model (Model 1) was estimated to determine the degree to which the data violated the independence assumption. The unconditional model partitions the variance in the data providing an estimate of the between school and within school variance known as the ICC. Greater ICCs suggested a greater degree of group dependence of the data. The ICC for Model 1, the unconditional model, was .018 (see Table 9). Although there is no strict cut-off score suggested, researchers recommend using HLM for ICCs greater than .05. Despite the low ICC for the unconditional model, educators were nested within schools and therefore violated the independence assumption that is necessary for traditional inferential analyses. In addition, a theoretical justification supported the use of HLM as an appropriate statistical analysis as the constructs of interest posed in the research questions are operating at multiple levels (Luke, 2004).

For Research Question 1a the level-1 variables (predictors) included:

(a) SBLT membership ([SBLT] 0 = non-member, 1 = member);

(b) educator role/position ([ROLE] 0 = general educator, 1 = other [special educator, school psychologist]);

(c) *Educator Beliefs about Family Engagement* (mean score on Factor 1 from the Family Engagement in PS/RtI Survey: Educator Version [EBELIEF]), and

(d) *Educator Knowledge and Skills for Family Engagement* (mean score on Factor 2 of the Family Engagement in PS/RtI Survey: Educator Version [ESKILL]).

The four level-1 predictors were added to the unconditional model (Model 2). The intercept and slopes were allowed to vary. As shown in Table 9, educator role/position (γ_{10} = -0.18, t = -4.66, p < .001) and *Educator Knowledge and Skills for Family Engagement* (γ_{40} = 0.59, t = 13.96, p < .001) were significant predictors of *Educator Family Engagement Practices*. SBLT membership (γ_{20} = 0.04, t = 1.17, p = .25) and *Educator Beliefs about Family Engagement* (γ_{30} = 0.10, t = 1.74, p = .08) were not significant. The variance components of the *Educator Beliefs about Family Engagement*, *Educator Knowledge and Skills for Family Engagement*, and educator role/position variables suggested significant variance across schools. Although the fixed effect of *Educator Beliefs about Family Engagement* was not significant, the predictor was retained in subsequent models because of the significant variance component. SBLT (which was non-significant) was removed and the model was re-analyzed resulting in a better fitting model (Model 3). Once SBLT was removed from the model, the variance component for educator role/position was no longer significant. The slope was fixed and the model was re-analyzed resulting in a more parsimonious, better fitting model (Model 4).

In Model 4, educator role/position remained a significant, negative predictor of *Educator Family Engagement Practices*. The negative coefficient suggested non-general educators reported implementing fewer family engagement practices. Additionally, the positive relationship between *Educator Knowledge and Skills for Family Engagement* and *Educator Family Engagement Practices* suggested educators who reported greater levels of knowledge and skills for family engagement also reported that they implemented more family engagement practices. This relationship was similar for educator beliefs about family engagement, suggesting that educators with more positive beliefs about family engagement tended to report that they implemented more family engagement practices; however, the relationship between educator beliefs and practices did not reach statistical significance. Model 4 was used in subsequent models that included level-1 interaction terms, level-2 predictors and level-2 interaction terms.

To further explore a level-1 model that best fit the data, the following interactions among level-1 predictors were explored: (a) *Educator Beliefs about Family Engagement***Educator Knowledge and Skills for Family Engagement,* (b) *Educator Beliefs about Family Engagement* *role, and (c) *Educator Knowledge and Skills for Family Engagement**role. All interaction terms were not significant. Therefore, the final level-1 model used to explore level-2 predictors and level-2

interactions was Model 4 as this model included significant predictors and parsimoniously demonstrated best fit of the data.

Table 9

Fixed Effects Estimates and Variance Estimates for Level-1 Models Predicting Educator Family Engagement Practices

Parameter	Model 1	Model 2	Model 3	Model 4
Intercept (γ_{00})	4.10(.02)***	4.14(.02)***	4.14(.02)***	4.14(.02)***
Level 1				
(γ_{10}) ROLE		-0.18(.04)***	-0.16(.03)***	-0.16(.03)***
(γ_{20}) SBLT		0.04(.04)		
(γ_{30}) EBELIEF		0.10(.06)	0.09(.06)	0.09(.06)
(γ_{40}) ESKILL		0.59(.04)***	0.59(.04)***	0.59(.04)***
Variances				
(σ^2)	0.3	0.18	0.19	0.19
(u_0) Intercept	0.01	0.01	0.01*	0.01*
(u_1) Slope		0.01*	0.00	
(u_2) Slope		0.01		
(u_3) Slope		0.06*	0.05*	0.05*
(u_4) Slope		0.03*	0.03**	0.03***
Deviance	1711	1172	1171	1172
Parameters	2	16	11	7
AIC		1204	1193	1186
BIC		1231	1211	1197
ICC	.018			

Note. Entries show parameter estimates with standard errors in parentheses.
* $p < .05$. ** $p < .01$. *** $p < .00$.

Level-2 Model. Using the exploratory model-building strategy described by Raudenbush & Bryk (2002), groups of level-2 predictors were initially added to the intercept and cross-level interactions were explored only if the level-2

predictor was statistically significant in the intercept. For Research Question 1a, the following groups of level-2 predictors were explored:

- School factors
    - school size: 2011- 2012 student enrollment (SIZE);
    - minority status: The percentage of the 2011-2012 student population that was non-white (%MIN);
    - SES: The percentage of the 2011-2012 student population that was eligible for free or reduced-price lunch (%LUN);
    - ELL: The percentage of the 2011-2012 student population that was identified as an English Language Learner (%ELL);
    - ESE: The percentage of the 2011-2012 student population that was eligible for Exceptional Student Education services (including gifted; %ESE).
- Implementation factors
    - PS/RtI Implementation: Each school's mean score on the Consensus (CONS), Infrastructure (INFR), and Implementation (IMPL) subscales of the SAPSI (1 = Not Started, 2 = In Progress, 3 = Achieved, 4 = Maintaining);
    - length of time of Response to Intervention for Behavior (RtI:B) implementation (i.e., Positive Behavior Support, CHAMPS, etc.; 1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [RtIB]);

- length of time of PS/RtI implementation (1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [PS/RtI]);
- school type: Title 1 school affiliation (1 = Title 1 school, 0 = Non-Title 1 school [TITLE]).

- Family factors
  - family level of education: The school-level mean of family's highest level of education (the highest level of education between each parent respondent and their spouse was used to calculate the school-level mean [FAMEDU]);
  - *Family Beliefs about Family Engagement*: The school-level mean score on Factor 5 – *Family Beliefs about Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMBEL);
  - *Family Knowledge and Skills for Family Engagement:* The school-level mean score on Factor 6 – *Family Knowledge and Skills for Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMSKILL);
  - *Family Engagement Activities*: The school-level mean score on Factor 1 - *Family Engagement Activities* from the Family Engagement in PS/RtI Survey: Family Version (FAMACT);

- *Family Initiated School Communication*: The school-level mean score on Factor 2 - *Family Initiated School Communication* from the Family Engagement in PS/RtI Survey: Family Version (FAMCOMM);
- *PS/RtI Engagement*: The school-level mean score on Factor 4 - *PS/RtI Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMPSRTI).
- *Educators' Family Engagement Practices*: The school-level mean score on Factor 3 - *Educators' Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Family Version (FAMEDPRC).

After the addition of each group of level-2 variables, significance of effects and improvement in model fit were considered and reviewed to determine the important level-2 predictors to be included in a final model to answer Research Question 1a.

First, the school factors were added to the intercept of the level-1 model (Model 5). As shown in Table 10, percentage of minority students (γ_{04} = -0.38, t = -2.90, p < .01) was the only significant predictor of *Educator Family Engagement Practices*. The significant, negative relationship between percentage of minority students and *Educator Family Engagement Practices* suggested that working in a school with a higher percentage of minority students

is associated with educators reporting they implemented fewer family engagement practices. Next, percentage of minority students was added to the slopes of each of the level-1 predictors (Model 6). Percentage of minority students did not significantly interact with any of the level-1 predictors. Percentage of minority students was the only school factors variable retained as a predictor of the intercept in subsequent models. Next, the implementation factors variables were added to the intercept (Model 7). Percentage of minority students remained a significant, negative predictor of *Educator Family Engagement Practices*, controlling for the implementation variables. All implementation factors variables were not significant; therefore, no implementation factors variables were retained in subsequent models.

Finally, the family factors variables were added to the intercept (Model 8). Percentage of minority students remained a significant predictor of *Educator Family Engagement Practices* (γ_{04} = -0.40, t = -5.27, p < .001). Additionally, school-level mean *Family Beliefs about Family Engagement* (γ_{03} = -0.27, t = -2.81, p < .01), school-level mean *Family Knowledge and Skills for Family Engagement* (γ_{04} = 0.22, t = 3.55, p < .001), and school-level mean family *PS/RtI Engagement* (γ_{06} = 0.08, t = 2.27, p < .05) were all significant predictors of *Educator Family Engagement Practices*. The significant, negative relationship between school-level average *Family Beliefs about Family Engagement* and *Educator Family Engagement Practices* was interesting, suggesting that

educators working in schools with families who have higher (stronger, more positive) beliefs for family engagement reported implementing fewer family engagement practices. The significant, positive relationship found between average *Family Knowledge and Skills for Family Engagement* and *Educator Family Engagement Practices* suggested educators who reported more family engagement practices tended to work in schools that had, on average, families with greater levels of *Family Knowledge and Skills for Family Engagement*. Additionally, family *PS/RtI Engagement* was associated with *Educator Family Engagement Practices*. In other words, families and educators agreed. When educators reported greater levels of outreach to families, families reported more PS/RtI Engagement, and specifically more practices implemented by educators to engage families in PS/RtI implementation.

Deletion of the non-significant family factors yielded a better fitting model (Model 9); however, family *PS/RtI Engagement* was no longer significant. Therefore, only school-level mean *Family Beliefs about Family Engagement* and school-level mean *Family Knowledge and Skills for Family Engagement* were retained in subsequent models (Model 10). In order to explore the cross-level interactions, school-level mean *Family Beliefs about Family Engagement* and *Family Knowledge and Skills for Family Engagement* were added to the slopes of the level-1 predictors; however, there were no significant relationships observed (Model 11). Therefore, the best fitting model was Model 10, with percentage of

minority students, school-level mean *Family Beliefs about Family Engagement*, and school-level mean *Family Knowledge and Skills for Family Engagement* significantly predicting *Educator Family Engagement Practices*.

To explore potential interactions among level-2 predictors, interaction terms among all significant level-2 predictors (FAMBEL*%MIN, FAMSKILL*%MIN, FAMBEL*FAMSKILL) were independently added to Model 10 to identify significant level-2 interactions. All three interactions were not significant. Therefore, the final model for Research Question 1a was Model 10. The equation for Model 10 follows:

$$\begin{aligned} INDPRAC_{ij} &= \gamma_{00} + \gamma_{01} * \%MIN_j + \gamma_{02} * FAMBEL_j + \gamma_{03} * FAMSKILL_j \\ &+ \gamma_{10} * ROLE_{ij} + \gamma_{20} * EBELIEF_{ij} + \gamma_{30} * ESKILL_{ij} + u_{oj} + u_{2j} * EBELIEF_{ij} \\ &+ u_{3j} * ESKILL_{ij} + r_{ij} \end{aligned}$$

Using the method outlined by Luke (2004) for calculating and interpreting R^2 in a multilevel model (summarized earlier in Chapter 3), the proportional reduction of prediction error was calculated for each level of the final multilevel model (Model 10). For Research Question 1a, the level-1 predictors (EBELIEF, ESKILL, ROLE), and the level-2 predictors (%MIN, FAMBEL, AND FAMSKILL), included in Model 10 improved the predictive ability of the model compared to the unconditional model with no predictors (Model 1) by approximately 49% to 57%.

Table 10

Fixed Effects Estimates and Variance Estimates for Models Investigating Level-2 Predictors of Educator Family Engagement Practices

Parameter	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Intercept (γ_{00})	4.39(.15)***	4.33(.05)***	4.32(.04)***	4.34(.04)***	4.31(.04)***	4.31(.04)***	4.31(.04)***
Level 1							
(γ_{10}) ROLE	-0.16(.03)***	-0.22(.09)*	-0.15(.03)***	-0.16(.03)***	-0.16(.03)***	-0.16(.03)***	-0.16(.03)***
(γ_{20}) EBELIEF	0.09(.06)	0.07(.09)	0.08(.06)	0.09(.06)	0.09(.06)	0.09(.06)	0.09(.06)
(γ_{30}) ESKILL	0.60(.04)***	0.57(.10)***	0.60(.04)***	0.59(.04)***	0.60(.04)***	0.60(.04)***	0.60(.04)***
Level 2							
(γ_{01}) SIZE	0.00(.00)						
(γ_{02}) %LUN	0.03(.17)						
(γ_{03}) %ESE	-0.41(.43)						
(γ_{04}) %MIN	-0.38(.13)**	-0.38(.10)***	-0.40(.08)***	-0.40(.08)***	-0.34(.08)***	-0.34(.08)***	-0.34(.08)***
(γ_{11}) %MIN*ROLE		0.12(.15)					
(γ_{21}) %MIN*EBELIEF		0.03(.15)					
(γ_{31}) %MIN*ESKILL		0.05(.15)					
(γ_{05}) %ELL	-0.02(.16)						
(γ_{01}) PS/RtI			-0.02(.01)				
(γ_{01}) RtI:B			0.00(.01)				
(γ_{01}) TITLE			0.03(.03)				
(γ_{01}) CONS			-0.00(.04)				
(γ_{01}) INFR			0.02(.07)				
(γ_{01}) IMPL			-0.07(.05)				
(γ_{02}) FAMEDU				0.00(.02)			
(γ_{03}) FAMBEL				-0.27(.10)**	-0.26(.12)*	-0.26(.11)*	-0.26(.08)**
(γ_{04}) FAMSKILL				0.22(.06)***	0.16(.06)*	0.16(.06)*	0.26(.06)***
(γ_{05}) FAMEDPRC				-0.09(.06)			
(γ_{06}) FAMPSRTI				0.08(.03)*	0.00(.03)		
(γ_{07}) FAMACT				0.09(.08)			
(γ_{08}) FAM COMM				-0.09(.05)			
(γ_{11}) FAMBEL*Role							-0.12(.18)
(γ_{12}) FAMBEL *EBELIEF							-0.09(.29)
(γ_{31}) FAMBEL *ESKILL							-0.26(.18)
(γ_{12}) FAMSKILL *ROLE							-0.13(.12)
(γ_{22}) FAMSKILL *EBELIEF							-0.08(.25)
(γ_{32}) FAMSKILL *ESKILL							-0.34(.17)
Variances							
(σ^2)	.19	.19	.19	.19	.19	.19	.19
(u_0) Intercept	.00	.00	.01*	.00	.00	.00	.00
(u_2) Slope	.05*	.05*	.05*	.05*	.05*	.05*	.05*
(u_3) Slope	.03***	.04***	.03***	.04***	.04***	.04***	.04***
Deviance	1172	1162	1185	1168	1161	1157	1158
Parameters	7	7	7	7	7	7	7
AIC	1186	1176	1199	1182	1175	1171	1172
BIC	1197	1187	1210	1193	1186	1182	1183

Note. Entries show parameter estimates with standard errors in parentheses
* $p < .05$. ** $p < .01$. *** $p < .00$.

Finally, the assumptions of HLM were investigated to determine the degree to which the final model met the assumptions of HLM. The normality and homogeneity of variances of the level-1 residuals was examined. Figure 2 displays the level-1 residuals in a Q-Q plot and Figure 3 displays the level-1 residuals in a histogram. As shown in Figures 2 and 3, the residuals were relatively normally distributed. Finally, a test of homogeneity of variance of the level-1 residuals suggested that the level-1 residuals demonstrated constant variance χ^2 (39, N = 40) = 44.06, p > .50.

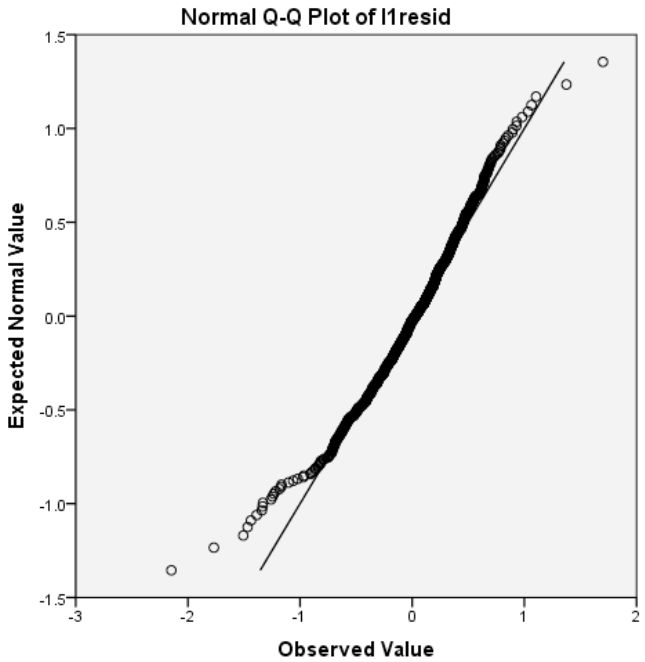

Figure 2. Q-Q Plot of Observed and Predicted Values (Research Question 1a)

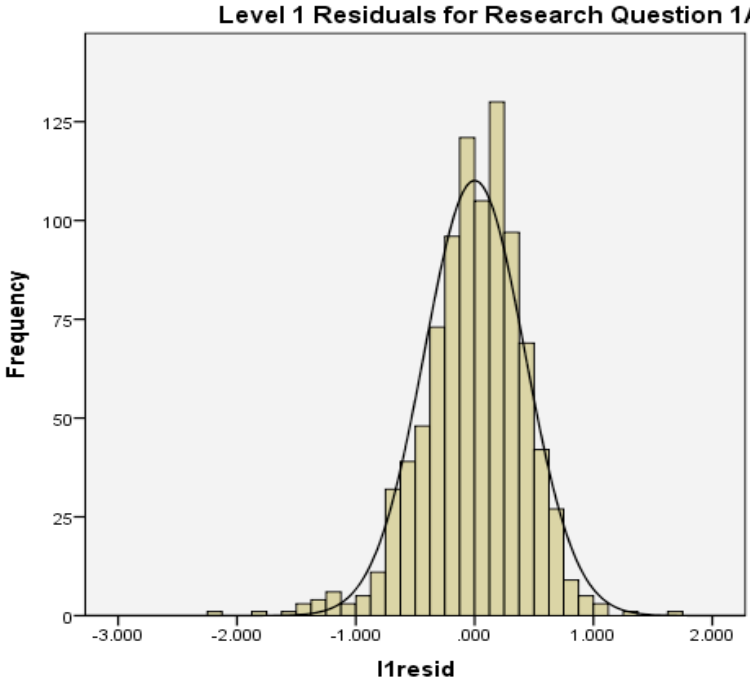

Figure 3. Histogram of Level-1 Residuals (Research Question 1a)

Research Question 1b. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and educator reports of school-wide family engagement practices?

Two-level models were examined to determine the extent to which various individual- and school-level variables predicted educator reports of *School-wide Family Engagement Practices*. The outcome for this research question was measuring educator reports of the entire school's effort to engage families. In other words, in responding to the items measuring the outcome variable for this research question educators were asked to indicate the practices that staff at their school implemented to engage families, even if they did not take on the responsibility themselves. Results from all models examined in the process of

answering Research Question 1b can be found in Tables 11 and 12. First, level-1 predictors, including level-1 interaction terms, were added to the unconditional model. All intercepts and slopes were allowed to vary unless there was evidence to suggest the slopes should be fixed (i.e., unless the variance component for the slope was not significant). Non-significant variables were removed and improvement in model fit was determined to identify the model that demonstrated best fit of the data. Next, groups of level-2 predictors were added to the best fitting level-1 model. Following each iteration, significance of variables included in the model and improvement in the Akaike Information Criterion (AIC), Bayesian Information Criterion (BIC) fit indices were examined. The number of parameters estimated was also considered in order to determine the best fitting, most parsimonious model to be retained as the final model.

Level-1 Model. First, the unconditional model was estimated to determine the degree to which the data violated the independence assumption. The unconditional model partitioned the variance in the data providing an estimate of the between-school and within-school variance known as the ICC. A greater ICC suggested a greater degree of dependence among observations within schools (nesting of the data). The ICC for Model 1, the unconditional model, was .06. Although there is no strict cut-off score suggested, researchers recommend using HLM for ICCs greater than .05. Therefore, HLM was an appropriate statistical analysis for Research Question 1b.

For Research Question 1b the level-1 variables included:

- educator role/position (1 = general education teacher, 0 = all other [special education, instructional staff, student support services personnel, administrator, or other; ROLE]);
- educator membership on the School-based Leadership Team ([SBLT]; 1 = member, 0 = non-member);
- *Educator Beliefs about Family Engagement* obtained as a mean score on Factor 1 – *Educator Beliefs about Family Engagement* on the Family Engagement PS/RtI Survey: Educator Version (EBELIEF);
- *Educator Knowledge and Skills for Family Engagement* obtained as a mean score on Factor 2 – *Educator Knowledge and Skills for Family Engagement* on the Family Engagement in PS/RtI Survey: Educator Version (ESKILL).

The four level-1 predictors were added to the unconditional model (Model 2). The intercept and slopes were allowed to vary. Educator role/position (γ_{10} = 0.16, t = 2.79, p < .01) and *Educator Knowledge and Skills for Family Engagement* (γ_{40} = 0.33, t = 6.75, p < .001) were significant predictors of educator reports of *School-wide Family Engagement Practices*. SBLT membership (γ_{20} = -0.06, t = -0.96, p = .34) and *Educator Beliefs about Family Engagement* (γ_{30} = 0.04, t = 0.60, p = .56) were not significant. The variance

components for all predictors were not significant, indicating there was not significant variability between schools. The non-significant variables were removed and the slopes for educator role/position and *Educator Knowledge and Skills for Family Engagement* were fixed in Model 3. In Model 3, educator role/position ($\gamma_{10} = 0.13$, $t = 2.47$, $p < .05$) and *Educator Knowledge and Skills for Family Engagement* ($\gamma_{20} = 0.33$, $t = 7.64$, $p < .001$) remained significant predictors of educator reports of *School-wide Family Engagement Practices* and demonstrated best fit of the data.

To further explore a level-1 model that best fit the data, the following level-1 interactions were explored: (a) EBELIEF*ESKILL, (b) EBELIEF*ROLE, and (c) ESKILL*ROLE. The interaction terms were not significant predictors of educator reports of *School-wide Family Engagement Practices.* Therefore, Model 3 demonstrated best fit of the data and was used as the final level-1 model investigating level-2 predictors and level-2 interaction terms.

Table 11

Fixed Effects Estimates and Variance Estimates for Level-1 Models Predicting School-wide Family Engagement Practices

Parameter	Model 1	Model 2	Model 3
Intercept (γ_{00})	3.74(.04)***	3.69(.04)***	3.69(.04)***
Level 1			
(γ_{10}) ROLE		0.16(.06)**	0.13(.05)*
(γ_{20}) SBLT		-0.06(.06)	
(γ_{30}) EBELIEF		0.04(.06)	
(γ_{40}) ESKILL		0.33(.05)***	0.33(.04)***
Variances			
(σ^2)	0.50	0.45	0.46
(u_0) Intercept	0.03***	0.04***	0.03***
Deviance	2028	1947	1953
Parameters	2	16	2
AIC		1979	1957
BIC		2006	1960
ICC	.06		

Note. Entries show parameter estimates with standard errors in parentheses
* $p < .05$. ** $p < .01$. *** $p < .001$.

Level-2 Model. Using the exploratory model-building strategy described by Raudenbush & Bryk (2002), groups of level-2 predictors were initially added to the intercept and cross-level interactions were explored only if the level-2 predictor was significant. For Research Question 1b, the following groups of level-2 predictors were explored:

- School factors
    - school size: 2011- 2012 student enrollment (SIZE);
    - minority status: The percentage of the 2011-2012 student population that was non-white (%MIN);

- SES: The percentage of the 2011-2012 student population that was eligible for free or reduced-price lunch (%LUN);
- ELL: The percentage of the 2011-2012 student population that was identified as an English Language Learner (%ELL);
- ESE: The percentage of the 2011-2012 student population that was eligible for Exceptional Student Education services (including gifted; %ESE).

- Implementation factors
  - PS/RtI Implementation: Each school's mean score on the Consensus (CONS), Infrastructure (INFR), and Implementation (IMPL) subscales of the SAPSI (1 = Not Started, 2 = In Progress, 3 = Achieved, 4 = Maintaining);
  - length of time of Response to Intervention for Behavior (RtI:B) implementation (i.e., Positive Behavior Support, CHAMPS, etc.; 1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [RtIB]);
  - length of time of PS/RtI implementation (1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [PS/RtI]);
  - school type: Title 1 school affiliation (1 = Title 1 school, 0 = Non-Title 1 school [TITLE]).
- Family factors

- family level of education: The school-level mean of family's highest education level (the highest level of education between each parent respondent and their spouse was used to calculate the school-level mean [FAMEDU]);
- *Family Beliefs about Family Engagement*: The school-level mean score on Factor 5 – *Family Beliefs about Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMBEL);
- *Family Knowledge and Skills for Family Engagement*: The school-level mean score on Factor 6 – *Family Knowledge and Skills for Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMSKILL);
- *Family Engagement Activities*: The school-level mean score on Factor 1 - *Family Engagement Activities* from the Family Engagement in PS/RtI Survey: Family Version (FAMACT);
- *Family Initiated School Communication:* The school-level mean score on Factor 2 – *Family Initiated School Communication* from the Family Engagement in PS/RtI Survey: Family Version (FAMCOMM);

- *PS/RtI Engagement*: The school-level mean score on Factor 4 - *PS/RtI Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMPSRTI);
- *Educators' Family Engagement Practices*: The school-level mean score on Factor 3 - *Educators' Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Family Version (FAMEDPRC).

After the addition of each group of level-2 variables, significance of predictors and improvement in model fit were considered and reviewed to determine the important level-2 predictors to be included in a final model to answer the research question.

First, the school factors were added to the intercept of the level-1 model (Model 4). As shown in Table 12, percentage of students eligible for free or reduced-price lunch (γ_{02} = -0.94, t = -2.17, p < .05) and percentage of students eligible for ESE services (γ_{03} = -1.51, t = -3.27, p < .01) were the only significant predictors. Next, the non-significant predictors were removed and the percentage of students eligible for ESE and percentage of students eligible for free or reduced-price lunch were added to the slopes of each level-1 predictor (Model 5). Both, the percentage of students eligible for free or reduced-price lunch (γ_{02} = -0.97, t = -4.06, p < .001) and percentage of students eligible for ESE (γ_{03} = -2.43, t = -3.65, p < .001) remained significant predictors of the intercept.

Additionally, the percentage of students eligible for free lunch (γ_{11} = 0.90, t = 2.99, p < .01) and the percentage of students eligible for ESE (γ_{12} = 3.24, t = 3.23, p < .001) significantly interacted with educator role/position, but not with *Educator Knowledge and Skills for Family Engagement.* Therefore, percentage of students eligible for free or reduced-price lunch and percentage of students eligible for ESE were the two school factor variables retained in subsequent models. Both of these variables were retained as predictors of the intercept and of the slope of the level-1 predictor, educator role/position (Model 6). Model 6 was the model used to explore implementation factors and family factors.

Next, the implementation factors variables were added to the intercept (Model 7). Percentage of students eligible for ESE (γ_{03} = -2.32, t = -2.93, p < .01) and percentage of students eligible for free or reduced-price lunch (γ_{02} = -0.87, t = -2.87, p < .01) remained significant predictors of the intercept, controlling for the implementation factors. All implementation factors variables were non-significant predictors. Additionally, percentage of students eligible for ESE (γ_{12} = 3.21, t = 3.23, p < .001) and percentage of students eligible for or reduced-price free lunch (γ_{11} = 0.89, t = 2.93, p < .01) remained significant interactions with the level-1 predictor of educator role/position. Since all implementation factors variables were non-significant, they were deleted prior to exploring subsequent models.

Finally, the family factors were added to the model (Model 8). Percentage of students eligible for ESE (γ_{03} = -1.76, t = -2.38, p < .05) and percentage of students eligible for free or reduced-price lunch (γ_{02} = -0.94, t = -3.53, p < .001) remained significant predictors of the intercept. Additionally, both of these variables were significant predictors of the slope of educator role/position (%ESE*ROLE: γ_{12} = 3.28, t = 3.33, p < .001; %LUN*ROLE: γ_{11} = 0.90, t = 2.91, p < .01). Family *PS/RtI Engagement* was the only significant family factors variable (γ_{07} = 0.23, t = 0.11, p < .05) predicting educator reports of *School-wide Family Engagement Practices*. This significant, positive relationship suggested educators and families agreed, that is, when educators reported they were doing more to engage families, families also reported educators were doing more to engage them and specifically, more PS/RtI engagement. Next, the non-significant family factors predictors were deleted and family *PS/RtI Engagement* was retained at the intercept and added to the slopes of the level-1 predictors (Model 9). All variables remained significant predictors of the intercept. However, family *PS/RtI Engagement* was not a significant predictor of the slopes of the level-1 predictors. Therefore, as shown in Table 12, Model 10, which excludes the interaction between family engagement in PS/RtI and the slopes of the level-1 predictors, demonstrated better fit of the data than Model 9 (AIC = 1939 vs. 1944). Percentage of students eligible for ESE and percentage of students eligible for free or reduced-price lunch demonstrated negative relationships with

School-wide Family Engagement Practices such that educators in schools with higher percentages of students eligible for ESE and schools with greater levels of poverty implemented fewer *School-wide Family Engagement Practices*.

Additionally, family *PS/RtI Engagement* was a significant, positive predictor of the *School-wide Family Engagement Practices* indicating agreement among educators and families with regard to the degree to which educators were engaging families in student learning and PS/RtI implementation, specifically. Percentage of students eligible for ESE and percentage of students eligible for free or reduced-price lunch demonstrated significant, positive interactions with educator role/position. The negative effect of being a non-general educator was lessened in schools with higher levels of poverty. In other words, non-general educators from schools with higher levels of poverty reported implementing more *School-wide Family Engagement Practices* than general educators in schools with lower levels of poverty. Similarly, non-general educators in schools with higher percentages of students eligible for special education services reported implementing more *School-wide Family Engagement Practices* than non-general educators in schools with a lower percentage of students eligible for special education services.

Table 12

Fixed Effects Estimates and Variance Estimates for Level-2 Models Predicting School-wide Family Engagement Practices

Parameter	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Intercept (γ_{00})	4.45(.21)***	4.82(.27)***	4.81(.27)***	4.71(.34)***	5.49(.73)***	4.57(.29)***	4.59(.28)***	4.40(.31)***
Level 1								
(γ_{10}) ROLE	0.13(.05)***	-1.10(.38)**	-1.11(.38)**	-1.09(.38)**	-1.10(.38)**	-1.05(.40)**	-1.12(.39)**	-1.05(.38)**
(γ_{20}) SBLT								
(γ_{30}) EBELIEF								
(γ_{40}) ESKILL	0.32(.04)***	0.49(.39)	0.33(.04)***	0.32(.04)***	0.32(.04)***	0.33(.04)***	0.33(.04)***	0.33(.04)***
Level 2								
(γ_{01}) SIZE	-0.00(.00)							
(γ_{02}) %LUN	-0.94(.43)*	-0.97(.24)***	-0.96(.24)***	-0.87(.30)**	-0.94(.27)***	-0.77(.26)**	-0.78(.24)**	-0.67(.26)*
(γ_{11}) %LUN*ROLE		0.90(.30)**	0.90(.31)**	0.89(.31)**	0.90(.31)**	0.87(.33)**	0.93(.32)**	0.87(.30)**
(γ_{21}) %LUN*ESKILL		0.02(.34)						
(γ_{03}) %ESE	-1.51(.46)**	-2.43(.67)***	-2.49(.65)***	-2.32(.79)**	-1.76(.74)*	-1.89(.71)*	-1.94(.69)*	-1.39(.80)
(γ_{12}) %ESE*ROLE		3.24(1.0)***	3.31(.99)***	3.21(1.0)***	3.28(.98)***	3.14(1.1)**	3.29(1.0)***	3.13(1.0)**
(γ_{22}) %ESE*ESKILL		-0.94(.97)						
(γ_{04}) %MIN	0.35(.27)							
(γ_{05}) %ELL	0.37(.35)							
(γ_{06}) PS/RTI				-0.04(.04)				
(γ_{07}) RTIB				-0.01(.04)				
(γ_{08}) TITLE				-0.06(.13)				
(γ_{09}) CONS				0.00(.09)				
(γ_{01}) INFR				0.20(.16)				
(γ_{02}) IMPL				-0.06(.12)				
(γ_{03}) FAMEDU					-0.04(.04)			
(γ_{04}) FAMBEL					0.27(.18)			
(γ_{05}) FAMSKILL					0.04(.17)			
(γ_{06}) FAMEDPRC					-0.01(.12)			
(γ_{07}) FAMPSRTI					0.23(.11)*	0.19(.08)*	0.17(.08)*	0.95(.26)***
(γ_{08}) FAMPSRTI*%LUN								-0.97(.31)**
(γ_{81}) FAMPSRTI*ROLE						-0.05(.11)		
(γ_{82}) FAMPSRTI*ESKILL						-0.03(.06)		
(γ_{09}) FAMACT					-0.10(.21)			
(γ_{010}) FAMCOMM					-0.15(.20)			

Table 12 continued

Fixed Effects Estimates and Variance Estimates for Level-2 Models Predicting School-wide Family Engagement Practices

Parameter	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Variances								
(σ^2)	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
(u_0) Intercept	0.03***	0.02***	0.02***	0.03***	0.03***	0.02***	0.02***	0.01**
Deviance	1962	1936	1939	1950	1944	1940	1935	1932
Parameters	2	2	2	2	2	2	2	2
AIC	1966	1940	1943	1954	1948	1944	1939	1936
BIC	1969	1943	1946	1957	1951	1947	1942	1939

Note. Entries show parameter estimates with standard errors in parentheses.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Finally, interactions among significant level-2 predictors were explored. Interaction terms among all significant level-2 predictors (%LUN*FAMPSRTI, (%LUN*%ESE, %ESE*%LUN) were independently added to Model 10 to determine significance of the interaction term and improvement in model fit. The interaction between percentage of students eligible for free or reduced-price lunch and family *PS/RtI Engagement* was the only significant predictor of the intercept (γ_{08} = -0.97, t = -3.12, p < .01; Model 11). When the significant interaction term was included in the model, the main effect of percentage of students eligible for ESE was no longer significant. However, percentage of students eligible for ESE services was retained as a predictor of the intercept in order to explore the cross-level interaction between %ESE*ROLE. Furthermore, the fit indices were slightly better when %ESE was included in the intercept (AIC = 1936 with %ESE vs. AIC = 1938 without %ESE). Model 11 was, therefore, considered the model that best fit the data.

The equation for Model 11 is provided below and represents the final model for Research Question 1b:

$$\begin{aligned} EDUSWPRC_{ij} &= \gamma_{00} + \gamma_{01} * \%LUN_j + \gamma_{02} * \%ESE_j + \gamma_{03} * FAMPSRTI_j \\ &+ \gamma_{04} * \%LUN * FAMPSRTI_j + \gamma_{10} * ROLE_{ij} + \gamma_{11} * \%LUN * ROLE_{ij} \\ &+ \gamma_{12} * \%ESE * ROLE_{ij} + \gamma_{20} * ESKILL_{ij} + u_{0j} + r_{ij} \end{aligned}$$

Using the method outlined by Luke (2004) for calculating and interpreting R^2 in a multilevel model (summarized earlier in Chapter 3), the proportional reduction of prediction error was calculated for each level of the final multilevel

model (Model 11). For Research Question 1b, the level-1 predictors (ESKILL, ROLE), the level-2 predictors (%ESE, %LUN, FAMPSRTI), the cross level interactions (%LUN*ROLE, %ESE*ROLE), and the level-2 interaction term (%LUN*FAMPSRTI) included in Model 11 improved the predictive ability of the model compared to the unconditional model with no predictors (Model 1) by approximately 12% to 46%.

Finally, the assumptions of HLM were investigated to determine the degree to which the final model met the assumptions of HLM. The normality and homogeneity of variances of the level-1 residuals were examined. Figure 4 displays the level-1 residuals in a Q-Q plot and Figure 5 displays the level-1 residuals in a histogram. As shown in Figures 4 and 5, the residuals are relatively normally distributed. Finally, a test of homogeneity of variance of the level-1 residuals suggested that the level-1 residuals demonstrated constant variance χ^2 (39, N = 40) = 52.07, p > .07.

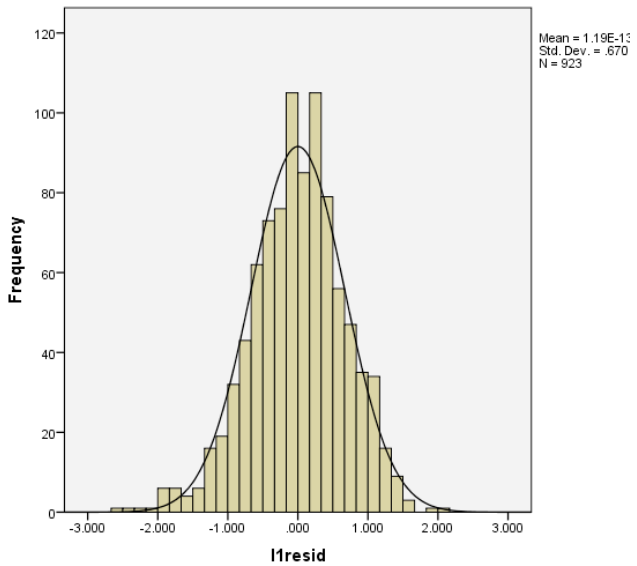

Figure 4. Q-Q Plot of Observed and Predicted Values (Research Question 1b)

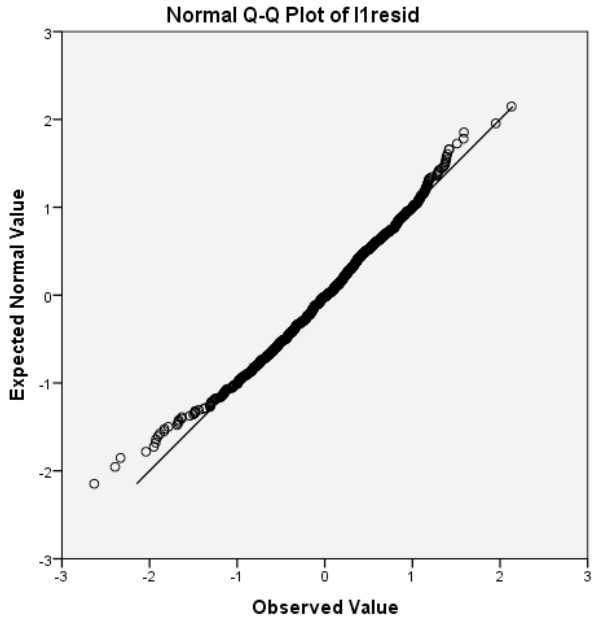

Figure 5. Histogram of Level-1 Residuals (Research Question 1b)

Research Question 2a. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family perceptions of educators' family engagement practices?

Two-level models were examined to determine the extent to which various individual- and school-level variables predicted family reports of educators' family engagement practices. The outcome variable for Research Question 2a is family reports (perceptions) of *Educators' Family Engagement Practices* as measured by the family mean score on Factor 3 - *Educators' Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Family Version. Results from all models examined in the process of answering Research Question 2a can be found in Tables 13 and 14. Of note, due to the number of models explored, only the important models are reported in the tables, models with minor changes in effects or variables are only described in text. First, level-1 predictors, including level-1 interactions, were added to the unconditional model. All intercepts and slopes were allowed to vary unless there was evidence to suggest the slopes should be fixed (i.e., unless the variance component for the slope was not significant). Non-significant variables were removed and improvement in model fit was determined to identify the best-fitting level-1 model. Next, groups of level-2 predictors were added to the best-fitting level-1 model. Following each iteration, significance of predictors, improvements in the AIC and BIC fit indices, in addition

to consideration for the number of parameters estimated, were considered in order to determine the best-fitting, most parsimonious model to be retained as the final model.

Level-1 Model. First, the unconditional model was estimated to determine the degree to which the data violated the independence assumption. The unconditional model partitioned the variance in the data providing an estimate of the between-school and within-school variance known as the ICC. A greater ICC suggested a greater degree of dependence of the data. The ICC for Model 1, the unconditional model, was .075. Although there is no strict cut-off score suggested, researchers recommend using HLM for ICCs greater than .05. Therefore, HLM was an appropriate statistical analysis for Research Question 2a.

For Research Question 2a the level-1 variables included:

- grade of child (0 = kindergarten, 1 = first grade, 2 = second grade, 3 = third grade, 4 = fourth grade, and 5 = fifth grade [GRADE]);
- child's ESE eligibility status (0 = no, 1 = yes [ESE]);
- child's participation in additional interventions (0 = no; 1 = yes [INT]);
- race of the parent respondent (0 = white, 1 = non-white [RACE]);
- family's highest level of education (the highest of the two items that asked about each family's highest level of education [the highest

between the parent respondent and their spouse's education level] was used as an indicator of the highest level of education for the household [EDU]);

- *Family Beliefs about Family Engagement* obtained as a mean score on Factor 5 – *Family Beliefs about Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FBELIEF);
- *Family Knowledge and Skills for Family Engagement* obtained as a mean score on Factor 6 – *Family Knowledge and Skills for Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FSKILL);
- *Family Engagement Activities* obtained as a mean score on Factor 1 - *Family Engagement Activities* of the Family Engagement in PS/RtI Survey: Family Version (FAMACT);
- *Family Initiated School Communication* obtained as a mean score on Factor 2 - *Family Initiated School Communication* of the Family Engagement in PS/RtI Survey: Family Version (FAMCOMM);
- *PS/RtI Engagement*: The mean score on Factor 4 - *PS/RtI Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMPSRTI).

The ten level-1 predictors were added to the unconditional model (Model 2). The intercept and slopes were allowed to vary. As shown in Table 13, family

level of education (γ_{40} = -0.04, t = -2.85, p < .01), *Family Beliefs about Family Engagement* (γ_{50} = 0.22, t = 2.55, p < .05), *Family Knowledge and Skills for Family Engagement* (γ_{60} = 0.26, t = 2.99, p < .01), family *PS/RtI Engagement* (γ_{70} = 0.42, t = 10.72, p < .001), *Family Initiated School Communication* (γ_{80} = 0.13, t = 2.59, p < .05), and *Family Engagement Activities* (γ_{90} = 0.69, t = 5.13, p < .001), were significant predictors of family perceptions of *Educators' Family Engagement Practices*. Non-significant level-1 predictors were removed and the slopes of variables with non-significant variance components were fixed in Model 3 (i.e., the slopes of family highest level of education, *Family Beliefs about Family Engagement*, *Family Initiated School Communication,* and *Family Engagement Activities* were fixed). In Model 3, all predictors remained significant and there was substantial improvement in model fit. Notably, the variance component for *Family Knowledge and Skills for Family Engagement* was non-significant so this was fixed in Model 4. In Model 4, all predictors remained statistically significant, however, the variance component for family *PS/RtI Engagement* was not significant so this was fixed in subsequent models. The final level-1 model that was used to explore level-1 interactions (Model 5) included family highest level of education, *Family Beliefs about Family Engagement*, *Family Knowledge and Skills for Family Engagement*, *PS/RtI Engagement*, *Family Initiated School Communication,* and *Family Engagement Activities*.

Next, level-1 interactions among significant predictors were explored. Each of the 15 possible interactions were independently added to Model 5. Of the possible interactions explored, only the FBELIEF*FSKILL interaction was significant ($\gamma_{101} = 0.51$, $t = 3.43$, $p < .001$). Once the FBELIEF*FSKILL interaction term was included in the model (Model 6), family highest level of education was no longer significant and there was evidence to suggest that the slope of the interaction term should be fixed. Therefore, the model was re-analyzed with family highest level of education removed and the slope of the interaction term fixed (Model 7). Model 7 was the final level-1 model used to explore groups of level-2 predictors. In Model 7, *Family Beliefs about Family Engagement* and *Family Knowledge and Skills for Family Engagement* both demonstrated significant, negative relationships with family perceptions of *Educators' Family Engagement Practices.* Families who reported stronger, more positive beliefs and skills for family engagement also reported that educators implemented fewer family engagement practices. *Family Initiated School Communication* and *Family Engagement Activities* were both positively related to family perceptions of *Educators' Family Engagement Practices* suggesting that families who reported that they were engaged in their child's learning also reported that educators were reaching out to families and engaging families in their child's learning.

Table 13

Fixed Effects Estimates and Variance Estimates for Level-1 Models Predicting Family Reports of Educators' Family Engagement Practices

Parameter	Model 1[a]	Model 2	Model 5	Model 7
Intercept (γ_{00})	3.63(.06)***	3.59(.05)***	3.64(.04)***	3.64(.03)***
Level 1				
(γ_{10}) GRADE		-0.01(.01)		
(γ_{20}) ESE		-0.26(.06)		
(γ_{30}) INT		0.12(.06)		
(γ_{40}) EDU		-0.04(.01)**	-0.04(.02)*	
(γ_{50}) FBELIEF		0.22(.09)*	0.27(.10)**	-1.94(.58)***
(γ_{60}) FSKILL		0.26(.09)**	0.25(.08)**	-2.29(.72)***
(γ_{70}) FAMPSRTI		0.42(.04)***	0.46(.04)***	0.46(.04)***
(γ_{80}) FAMCOMM		0.13(.05)*	0.15(.05)***	0.13(.05)**
(γ_{90}) FAMACT		0.69(.13)***	0.37(.13)***	0.37(.12)**
(γ_{100}) RACE		0.01(.08)		
(γ_{101}) FBELIEF*FSKILL				0.53(.15)***
Variances				
(σ^2)	0.65	0.26	0.36	0.36
(u_0) Intercept	0.05*	0.03*	0.01	0.01
(u_1) Slope		0.00		
(u_2) Slope		0.05		
(u_3) Slope		0.03**		
(u_4) Slope		0.00		
(u_5) Slope		0.05		
(u_6) Slope		0.13**		
(u_7) Slope		0.03*		
(u_8) Slope		0.02		
(u_9) Slope		0.18		
(u_{10}) Slope		0.07		
Deviance	975	693	744	736
Parameters	2	67	2	2
AIC	979	827	748	740
BIC	982	940	751	743
ICC	0.075			

Note. Entries show parameter estimates with standard errors in parentheses.
[a] Unconditional model.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Level-2 Model. Using the exploratory model-building strategy described by Raudenbush & Bryk (2002), groups of level-2 predictors were initially added to the intercept and cross-level interactions were explored only if the level-2 predictor was significant. The following groups of level-2 predictors were explored:

- School factors

- school size: 2011- 2012 student enrollment (SIZE);
- minority status: The percentage of the 2011-2012 student population that was non-white (%MIN);
- SES: The percentage of the 2011-2012 student population that was eligible for free or reduced-price lunch (%LUN);
- ELL: The percentage of the 2011-2012 student population that was identified as an English Language Learner (%ELL);
- ESE: The percentage of the 2011-2012 student population that was eligible for Exceptional Student Education services (including gifted [%ESE)).

- Implementation factors
  - PS/RtI Implementation: Each school's mean score on the Consensus (CONS), Infrastructure (INFR), and Implementation (IMPL) subscales of the SAPSI (1 = Not Started, 2 = In Progress, 3 = Achieved, 4 = Maintaining);
  - length of time of Response to Intervention for Behavior (RtI:B) implementation (i.e., Positive Behavior Support, CHAMPS, etc.; 1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [RtI:B]);
  - length of time of PS/RtI implementation (1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [PS/RTI]);

- school type: Title 1 school affiliation (1 = Title 1 school, 0 = Non-Title 1 school [TITLE]).

- Educator factors
  - *Educator Beliefs about Family Engagement*: School-level means on Factor 1 – *Educator Beliefs about Family Engagement* from the Family Engagement in PS/RtI Survey: Educator Version (EDUBEL);
  - *Educator Knowledge and Skills for Family Engagement*: School-level means on Factor 2 – *Educator Knowledge and Skills for Family Engagement* from the Family Engagement in PS/RtI Survey: Educator Version (EDUSKILL);
  - *Educator Family Engagement Practices*: The school-level mean score on Factor 3 – *Educator Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version (EDUPRC);
  - *School-wide Family Engagement Practices*: The school-level mean score on Factor 4 – *School-wide Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version (EDUSWPRC).

After the addition of each group of level-2 variables, significance of the variable and improvement in model fit were considered and reviewed to determine the

important level-2 predictors to be included in a final model to answer Research Question 2a.

First, school factors variables were added to the intercept of the level-1 model. As shown in Table 14 (Model 8), only the percentage of students identified as ELL was a statistically significant ($\gamma_{05} = 1.50$, $t = 2.33$, $p < .05$) predictor of family perceptions of educators' family engagement practices. The non-significant school factors variables were removed and percentage of ELL students was added to the slopes of the level-1 variables (Model 9). The %ELL*FBELIEF cross-level interaction was significant ($\gamma_{11} = 2.75$, $t = 2.35$, $p < .05$) suggesting that the relationship between *Family Beliefs about Family Engagement* and family perceptions of *Educators' Family Engagement Practices* was higher in schools with higher percentages of ELL students. Additionally, *Family Engagement Activities* significantly interacted with %ELL ($\gamma_{51} = 1.22$, $t = 2.50$, $p < .05$). The significant cross-level interaction suggested that families from schools with higher percentages of ELL students reported more *Family Engagement Activities*.

Next, ELL was removed from the non-significant slopes and reanalyzed (Model 10). Once the non-significant slopes were removed, the previously significant cross-level interaction between %ELL and *Family Beliefs about Family Engagement* was no longer significant. ELL was removed from the slope of *Family Beliefs about Family Engagement* and the model was re-analyzed

resulting in ELL as a significant predictor of the intercept and the slope of *Family Engagement Activities* (Model 11). Model 11 was used to explore implementation factors.

Next, in Model 12 (see Table 14), implementation factors were explored at the intercept of Model 11. Among the implementation factors explored, length of time of PS/RtI implementation (γ_{06} = -0.12, t = -3.31, p < .01), Title 1 status (γ_{08} = -0.27, t = -3.25, p < .01), and SAPSI Implementation subscale score (γ_{011} = 0.18, t = 2.25, p < .05) were significant predictors of the intercept. Interestingly, the longer schools reported implementing PS/RtI, the fewer *Educators' Family Engagement Practices families* perceived. Additionally, being in a Title 1 school was associated with lower scores on *Educators' Family Engagement Practices*. Next, the non-significant implementation variables were removed and the model was reanalyzed (Model 13). In Model 13, SAPSI implementation was no longer significant, so it was removed and the model was reanalyzed (Model 14). Next, length of PS/RtI and Title 1 status were explored in the slopes of the level-1 predictors (Model 15). Both Title 1 status and length of PS/RtI were significant predictors of the slope of *Family Engagement Activities*. The non-significant cross-level interactions were removed and the model was re-analyzed (Model 16). In Model 16, length of PS/RtI implementation was no longer a significant predictor of the slope of *Family Engagement Activities*, so it was removed and

the model was reanalyzed (Model 17). Model 17 was the model used to explore educator factors.

The third group of variables explored was educator factors which included educator school-level mean scores on the (1) *Educator Beliefs about Family Engagement,* (2) *Educator Knowledge and Skills for Family Engagement*, (3) *Educator Family Engagement Practices*, and the (4) *School-wide Family Engagement Practices* factors of the Family Engagement in PS/RtI Survey: Educator Version. All educator school-level predictors were non-significant predictors of the intercept (Model 18). Therefore, the educator factor predictors were not retained in subsequent models. Finally, interactions among significant level-2 predictors were explored. Specifically, interactions among %ELL*TITLE, %ELL*PS/RtI, and %ELL*TITLE were explored in the intercept. None of the interaction terms were significant. Therefore, the following equation for Model 17 demonstrated best fit of the data:

$$
\begin{aligned}
&FAMEDPRC_{ij} = \gamma_{00} + \gamma_{01} * \%ELL_j + \gamma_{02} * PSRtI_j + \gamma_{03} * TITLE_j \\
&+\gamma_{10} * FBELIEF_{ij} + \gamma_{20} * FSKILL_{ij} + \gamma_{30} * FAMPSRTI_{ij} + \gamma_{40} * FAMCOMM_{ij} \\
&+\gamma_{50} * FAMACT_{ij} + \gamma_{51} * \%ELL_j * FAMACT_{ij} \\
&+\gamma_{52} * TITLE_j * FAMACT_{ij} + \gamma_{60} * FBELIEF * FSKILL_{ij} + u_{oj} + r_{ij}
\end{aligned}
$$

Table 14

Fixed Effects Estimates and Variance Estimates for Level-2 Models Predicting Family Perceptions of Educators' Family Engagement Practices

Parameter	Model 8	Model 11	Model 12	Model 17	Model 18
Intercept (γ_{00})	3.54(.19)***	3.62(.05)***	3.70(.03)***	3.66(.04)***	3.69(.05)***
Level 1					
(γ_{10}) FBELIEF	-2.13(.59)***	-1.93(.60)***	-1.93(.55)***	-1.80(.59)**	-2.10(.78)**
(γ_{20}) FSKILL	-2.53(.59)***	-2.27(.73)**	-2.25(.66)**	-2.15(.72)**	-2.47(.09)**
(γ_{30}) FAMPSRTI	0.45(.04)***	0.46(.04)***	0.46(.04)***	0.46(.04)***	0.46(.03)***
(γ_{40}) FAMCOMM	0.11(.05)*	0.14(.05)**	0.13(.04)**	0.12(.04)**	0.11(.06)
(γ_{50}) FAMACT	0.40(.16)*	0.24(.12)*	0.16(.13)	0.99(.34)**	0.40(.14)**
(γ_{60}) FBELIEF*FSKILL	0.57(.15)***	0.52(.15)***	0.52(.14)***	0.49(.15)***	0.56(.19)**
Level 2					
(γ_{01}) SIZE	-0.00(.00)				
(γ_{02}) %LUN	-0.00(.00)				
(γ_{03}) %ESE	0.42(.33)				
(γ_{04}) %MIN	0.23(.22)				
(γ_{05}) %ELL	1.50(.64)*	0.33(.50)	1.20(.50)*	1.29(.57)*	1.12(.58)
(γ_{51}) %ELL*FAMACT		0.88(.36)*	1.34(.41)***	1.65(.31)***	1.66(.31)***
(γ_{06}) PS/RTI			-0.12(.04)**	-0.10(.03)**	-0.10(.04)**
(γ_{07}) RTIB			0.01(.04)		
(γ_{08}) TITLE			-0.27(.08)**	-0.24(.09)*	-0.25(.09)*
(γ_{52}) TITLE*FAMACT				-0.94(.35)**	-0.92(.36)*
(γ_{09}) CONS			-0.03(.06)		
(γ_{010}) INFR			-0.12(.11)		
(γ_{011}) IMPL			0.18(.08)*		
(γ_{012}) EDUSKILL					0.32(.31)
(γ_{013}) EDUBEL					0.08(.30)
(γ_{014}) EDUPRC					-0.33(.29)
(γ_{015}) EDUSWPRC					-0.10(.11)
Variances					
(σ^2)	0.36	0.36	0.36	0.35	0.36
(u_0) Intercept	0.01	0.01	0.00	0.00	0.00
Deviance	744	733	738	724	734
Parameters	2	2	2	2	2
AIC	748	737	742	728	738
BIC	751	740	745	731	741

Note. Entries show parameter estimates with standard errors in parentheses.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Using the method outlined by Luke (2004) for calculating and interpreting R^2 in a multilevel model (summarized earlier in Chapter 3), the proportional reduction of prediction error was calculated for each level of the final multilevel model (Model 17). For Research Question 2a, the level-1 predictors (FBELIEF, FSKILL, FAMPSRTI, FAMCOMM, FAMACT, and FBELIEF*FSKILL interaction), level-2 predictors (%ELL, PS/RtI, and TITLE), and cross level interactions

(FAMACT*%ELL, FAMACT*TITLE), included in Model 17 improved the predictive ability of the model compared to the unconditional model with no predictors (Model 1) by approximately 49.5% to 79.8%.

Finally, the assumptions of HLM were investigated to determine the degree to which the final model met the assumptions of HLM. The normality and homogeneity of variances of the level-1 residuals were examined. Figure 6 displays the level-1 residuals in a Q-Q plot and Figure 7 displays the level-1 residuals in a histogram. As shown in Figures 6 and 7, the residuals were relatively normally distributed. Finally, a test of homogeneity of variance of the level-1 residuals suggested that the level-1 residuals demonstrated constant variance χ^2 Finally, a test of homogeneity of variance of the level-1 residuals suggested that the level-1 residuals demonstrated constant variance χ^2 (39, N = 40) = 26.81, $p > .50$.

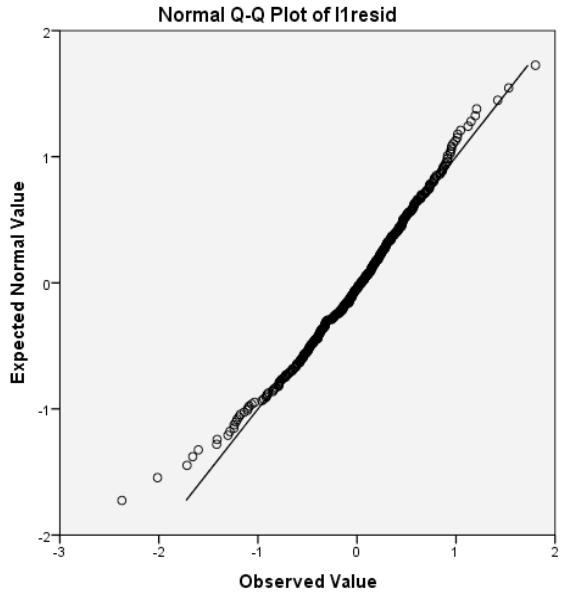

Figure 6. Q-Q Plot of Observed and Predicted Values (Research Question 2a)

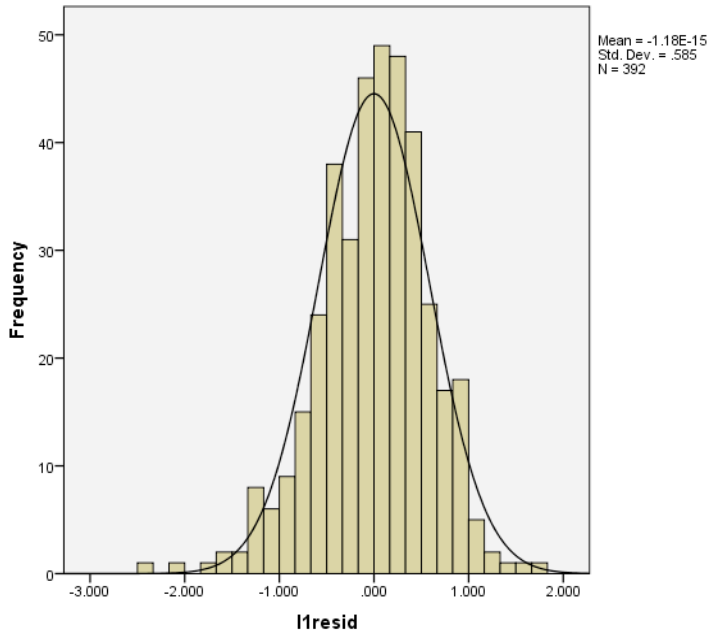

Figure 7. Histogram of Level-1 Residuals (Research Question 2a)

Research Question 2b. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family initiated school communication?

Two-level models were examined to determine the extent to which various individual- and school-level variables predicted the self-reported outcome variable *Family Initiated School Communication*. The outcome variable for Research Question 2b was measured by the family mean score on Factor 2 - *Family Initiated School Communication* of the Family Engagement in PS/RtI Survey: Family Version. Results from all models examined in the process of answering Research Question 2b can be found in Tables 15 and 16. Of note, due to the number of models explored, only the important models are reported in the tables; models with minor changes in effects or variables are only described in text. First, level-1 predictors, including level-1 interactions, were added to the unconditional model. All intercepts and slopes were allowed to vary unless there was evidence to suggest the slopes should be fixed (i.e., unless the variance component for the slope was not significant). Non-significant variables were removed and improvement in model fit was determined to identify the best-fitting level-1 model. Next, groups of level-2 predictors were added to the best-fitting level-1 model. Following each iteration, significance of predictors, improvements in the AIC and BIC fit indices, in addition to consideration for the number of parameters estimated, were considered in order to determine the best-fitting, most parsimonious model to be retained as the final model.

Level-1 Model. First, the unconditional model was estimated to determine the degree to which the data violated the independence assumption. The unconditional model partitioned the variance in the data providing an estimate of the between-school and within-school variance known as the ICC. A greater ICC suggested a greater degree of dependence of the data. The ICC for Model 1, the unconditional model, was .057. Although there is no strict cut-off score suggested, researchers recommend using HLM for ICCs greater than .05. Therefore, HLM was an appropriate statistical analysis for Research Question 2b.

For Research Question 2b the level-1 variables included:

- grade of child (0 = kindergarten, 1 = first grade, 2 = second grade, 3 = third grade, 4 = fourth grade, and 5 = fifth grade [GRADE]);
- child's ESE eligibility status (0 = no, 1 = yes [ESE]);
- child's participation in additional interventions (0 = no; 1 = yes [INT]);
- race of the parent respondent (0 = white, 1 = non-white [RACE]);
- family's highest level of education (the highest of the two items that asked about each family's highest level of education [the highest between the parent respondent and their spouse's education level] was used as an indicator of the highest level of education for the household [EDU]);

- *Family Beliefs about Family Engagement* obtained as a mean score on Factor 5 – *Family Beliefs about Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FBELIEF);
- *Family Knowledge and Skills for Family Engagement* obtained as a mean score on Factor 6 – *Family Knowledge and Skills for Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FSKILL);
- *Family Engagement Activities* obtained as a mean score on Factor 1 - *Family Engagement Activities* of the Family Engagement in PS/RtI Survey: Family Version (FAMACT);
- *PS/RtI Engagement*: The mean score on Factor 4 - *PS/RtI Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMPSRTI);
- *Educators' Family Engagement Practices:* The mean score on Factor 3 – *Educators' Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Family Version (FAMEDPRC).

The ten level-1 predictors were added to the unconditional model (Model 2). The intercept and slopes were allowed to vary. As shown in Table 15, family perceptions of *Educators' Family Engagement Practices* ($\gamma_{80} = 0.13$, $t = 3.67$, $p < .001$), and *Family Engagement Activities* ($\gamma_{90} = 0.56$, $t = 3.51$, $p < .001$) were significant predictors of *Family Initiated School Communication*. Although the following fixed effects for the following variables child's ESE eligibility status,

child's intervention status, family highest level of education, and *Family Beliefs about Family Engagement* were not statistically significant, the variance component for each variable was significant, suggesting the effect of these variables was significantly different across schools. Child grade and race of parent respondent were deleted and not retained in subsequent models, as the fixed effect *and* variance components for these variables were not significant. The slopes of the two significant fixed effects, family perceptions of *Educators' Family Engagement Practices* and *Family Engagement Activities*, were fixed as the variance component for these variables were not statistically significant. The next model analyzed, Model 3 included child ESE eligibility status, child intervention status, family highest level of education, *Family Beliefs about Family Engagement*, family perceptions of *Educators' Family Engagement Practices*, and *Family Engagement Activities* as predictors of *Family Initiated School Communication*. In Model 3, family highest level of education ($\gamma_{40} = 0.04$, $t = 2.14$, $p < .05$), *Family Beliefs about Family Engagement* ($\gamma_{50} = 0.23$, $t = 2.66$, $p < .05$), family perceptions of *Educators' Family Engagement Practices* ($\gamma_{80} = 0.14$, $t = 4.22$, $p < .001$), and *Family Engagement Activities* ($\gamma_{90} = 0.72$, $t = 4.14$, $p < .001$) were all significant predictors of the outcome variable. The variance component for child's ESE eligibility status, and child's intervention status were no longer significant *and* the fixed effects remained non-significant, so these variables were deleted and not retained in subsequent models. Additionally, the slopes for family perceptions of *Educators' Family Engagement Practices* and

Family Engagement Activities were non-significant so these were fixed in subsequent models. The variables retained in Model 4 included: family highest level of education, *Family Beliefs about Family Engagement*, family perceptions of *Educators' Family Engagement Practices*, and *Family Engagement Activities*. In Model 4, all previously significant fixed effects remained statistically significant, however, the variance component for family highest level of education was no longer significant so this was fixed and the model was re-analyzed (Model 5). In Model 5, the variance component for *Family Beliefs about Family Engagement* became non-significant, so all slopes were fixed and the model was re-analyzed (Model 6). Model 6 was the final model used to explore interactions among level-1 predictors. Beginning with Model 7, interaction terms between each of the level-1 predictors were independently added to Model 6. Of the possible interactions, only the interaction between family highest level of education and *Family Engagement Activities* was statistically significant and negative ($\gamma_{110} = -0.10$, $t = -3.28$, $p < .01$; Model 9). The variance component for the interaction term was not significant so this was fixed in subsequent models (Model 10). Model 10 was the final level-1 model used to explore level-2 predictors and level-2 interactions.

Table 15

Fixed Effects Estimates and Variance Estimates for Level-1 Models Predicting Family Initiated School Communication

Parameter	Model 1[a]	Model 2	Model 3	Model 4	Model 6	Model 9	Model 10
Intercept (γ_{00})	2.35(.04)***	2.32(.04)***	2.13(.10)***	2.17(.08)***	2.19(.08)***	2.36(.02)***	2.37(.03)***
Level 1							
(γ_{10}) GRADE		-0.00(.01)					
(γ_{20}) ESE		0.11(.06)	0.10(.06)				
(γ_{30}) INT		0.09(.06)	0.10(.06)				
(γ_{40}) EDU		0.03(.02)	0.04(.02)*	0.04(.02)*	0.04(.02)*	0.33(.09)***	0.31(.09)***
(γ_{50}) FBELIEF		0.20(.11)	0.23(.08)*	0.22(.08)**	0.22(.08)**	0.22(.08)**	0.22(.08)**
(γ_{60}) FSKILL		0.04(.07)					
(γ_{70}) FAMPSRTI		0.01(.03)					
(γ_{80}) FAMEDPRC		0.13(.04)***	0.14(.03)***	0.15(.03)***	0.15(.03)***	0.15(.03)***	0.15(.03)***
(γ_{90}) FAMACT		0.56(.16)***	0.72(.17)***	0.62(.13)***	0.61(.13)***	1.05(.16)***	1.00(.15)***
(γ_{100}) RACE		-0.05(.07)					
(γ_{110}) EDU*FAMACT						-0.10(.03)**	-0.09(.03)**
Variances							
(σ^2)	0.31	0.20	0.22	0.26	0.27	0.26	0.26
(u_0) Intercept	0.02**	0.02	0.13**	0.04	0.00	0.00	0.00
(u_1) Slope		0.00					
(u_2) Slope		0.02***	0.01				
(u_3) Slope		0.03**	0.02				
(u_4) Slope		0.00***	0.00*	0.00			
(u_5) Slope		0.22*	0.09*	0.04*			
(u_6) Slope		0.06					
(u_7) Slope		0.01					
(u_8) Slope		0.01	0.01				
(u_9) Slope		0.29	0.34				
(u_{10}) Slope		0.06					
(u_{11}) Slope						0.00	
Deviance	677	589	593	611	613	612	612
Parameters	2	67	29	7	2	4	2
AIC	681	723	667	625	617	620	616
BIC	684	836	729	636	620	624	619
ICC	.057						

Note. Entries show parameter estimates with standard errors in parentheses.
[a] Unconditional model
* $p < .05$. ** $p < .01$. *** $p < .001$.

Level-2 Model. Using the exploratory model-building strategy described by Raudenbush & Bryk (2002), groups of level-2 predictors were initially added to the intercept and cross-level interactions were explored only if the level-2 predictor was statistically significant. The following groups of level-2 predictors were explored:

- School factors

- school size: 2011- 2012 student enrollment (SIZE);
- minority status: The percentage of the 2011-2012 student population that was non-white (%MIN);
- SES: The percentage of the 2011-2012 student population that was eligible for free or reduced-price lunch (%LUN);
- ELL: The percentage of the 2011-2012 student population that was identified as an English Language Learner (%ELL);
- ESE: The percentage of the 2011-2012 student population that was eligible for Exceptional Student Education services (including gifted [%ESE)).

- Implementation factors
  - PS/RtI Implementation: Each school's mean score on the Consensus (CONS), Infrastructure (INFR), and Implementation (IMPL) subscales of the SAPSI (1 = Not Started, 2 = In Progress, 3 = Achieved, 4 = Maintaining);
  - length of time of Response to Intervention for Behavior (RtI:B) implementation (i.e., Positive Behavior Support, CHAMPS, etc.; 1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [RtI:B]);
  - length of time of PS/RtI implementation (1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [PS/RTI]);
  - school type: Title 1 school affiliation (1 = Title 1 school, 0 = Non-Title 1 school [TITLE]).

- Educator factors
    - *Educator Beliefs about Family Engagement*: School-level means on Factor 1 – *Educator Beliefs about Family Engagement* from the Family Engagement in PS/RtI Survey: Educator Version (EDUBEL);
    - *Educator Knowledge and Skills for Family Engagement*: School-level means on Factor 2 – *Educator Knowledge and Skills for Family Engagement* from the Family Engagement in PS/RtI Survey: Educator Version (EDUSKILL);
    - *Educator Family Engagement Practices*: The school-level mean score on Factor 3 – *Educator Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version (EDUPRC);
    - *School-wide Family Engagement Practices*: The school-level mean score on Factor 4 – *School-wide Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version (EDUSWPRC).

After the addition of each group of level-2 variables, significance of the variable and improvement in model fit were considered and reviewed to determine the important level-2 predictors to be included in a final model to answer Research Question 2b.

First, school factors variables were added to the intercept of the level-1 model. As shown in Table 16 (Model 11), all school factors variables were non-significant predictors. Therefore, no school factors variables were retained in subsequent models. Next, in Model 12 (see Table 16), implementation factors were explored at the intercept of Model 10. Among the implementation factors explored, length of time of PS/RtI implementation (γ_{06} = 0.05, t = 2.17, p < .05), length of time of RtI:B implementation (γ_{07} = -0.06, t = -2.53, p < .05) and Title 1 status (γ_{08} = -0.11, t = -2.12, p < .05) were significant predictors of the intercept. Interestingly, more years of RtI:B implementation was associated with less family initiated school communication while more years of PS/RtI implementation was associated with more family initiated school communication reported by families. Additionally, being in a Title 1 school was associated with less family initiated school communication enacted by families.

Next, the non-significant implementation variables were removed (i.e., CONS, INFR, IMPL subscales from the SAPSI) and the model was reanalyzed (Model 13). In Model 13, length of PS/RtI implementation and length of RtI:B implementation were no longer significant, so these predictors were removed from subsequent models. Title 1 remained a significant predictor of the intercept and was then explored in the slopes of the level-1 predictors (Model 14). Title 1 status remained a significant predictor of the intercept and significantly interacted with family highest level of education (γ_{81} = -0.06, t = -2.01, p < .05) and family beliefs (γ_{82} = -0.33, t = -2.37, p < .05). Title 1 status was removed from the non-

significant slopes of the level-1 predictors and the model was reanalyzed (Model 15). The previously significant cross-level interactions remained significant in Model 15. In Model 16, educator factors were added to the intercept of Model 15; however, there were no significant predictors among the educator factors entered into the model and the AIC for Model 16 (618) was larger than that for Model 15 (614). Therefore, Model 15 demonstrated best fit of the data and is represented by the equation:

$$FAMCOMM_{ij} = \gamma_{00} + \gamma_{01} * TITLE_j + \gamma_{10} * EDU_{ij} + \gamma_{11} * Title_j * EDU_{ij} +$$
$$+\gamma_{20} * FBELIEF_{ij} + \gamma_{21} * TITLE_j * FBELIEF_{ij} + \gamma_{30} * FEDPRC_{ij} +$$
$$\gamma_{40} * FAMACT_{ij} + \gamma_{50} * EDU * FAMACT_{ij} + u_{oj} + r_{ij}$$

Table 16

Fixed Effects Estimates and Variance Estimates for Level-2 Models Predicting Family Initiated School Communication

Parameter	Model11	Model 12	Model 15	Model 16
Intercept (γ_{00})	2.39(.21)***	2.41(.04)***	2.40(.03)***	2.40(.03)***
Level 1				
(γ_{10}) EDU	0.28(.12)*	0.31(.10)*	0.41(.09)***	0.41(.09)***
(γ_{20}) FBELIEF	0.23(.08)**	0.24(.07)**	0.37(.11)***	0.37(.11)***
(γ_{30}) FAMEDPRC	0.14(.03)***	0.14(.03)***	0.14(.03)***	0.14(.03)***
(γ_{40}) FAMACT	0.97(.19)***	1.01(.16)***	1.16(.15)***	1.13(.16)***
(γ_{50}) EDU*FAMACT	-0.06(.04)*	-0.10(.03)*	-0.12(.03)***	-0.12(.03)***
Level 2				
(γ_{01}) SIZE	0.00(.00)			
(γ_{02}) %LUN	-0.30(.26)			
(γ_{03}) %ESE	0.26(.44)			
(γ_{04}) %MIN	0.18(.22)			
(γ_{05}) %ELL	0.29(.56)			
(γ_{06}) PS/RTI		0.05(.02)*		
(γ_{07}) RTIB		-0.06(.02)*		
(γ_{08}) TITLE		-0.11(.05)*	-0.13(.05)*	-0.13(.05)*
(γ_{11}) TITLE*EDU			-0.06(.03)*	-0.06(.03)*
(γ_{12}) TITLE*FBELIEF			-0.29(.14)*	-0.33(.14)*
(γ_{09}) CONS		0.06(.05)		
(γ_{010}) INFR		0.02(.10)		
(γ_{011}) IMPL		-0.11(.08)		
(γ_{012}) EDUSKILL				-0.24(.23)
(γ_{013}) EDUBEL				0.29(.21)
(γ_{014}) EDUPRC				-0.01(.22)
(γ_{015}) EDUSWPRC				0.06(.10)

Table 16 continued

Parameter	Model11	Model 12	Model 15	Model 16
Variances				
(σ^2)	0.27	0.26	0.26	0.26
(u_0) Intercept	0.00	0.00	0.00	0.00
Deviance	627	626	610	614
Parameters	2	2	2	2
AIC	631	630	614	618
BIC	634	633	617	621

Note. Entries show parameter estimates with standard errors in parentheses
* $p < .05$. ** $p < .01$. *** $p < .001$.

Using the method outlined by Luke (2004) for calculating and interpreting R^2 in a multilevel model (summarized earlier in Chapter 3), the proportional reduction of prediction error was calculated for each level of the final multilevel model (Model 15). For Research Question 2b, the level-1 predictors (EDU, FBELIEF, FAMEDPRC, FAMACT, EDU*FAMACT interaction), level-2 predictors TITLE), and cross level interactions (TITLE*EDU, TITLE*FBELIEF), included in Model 15 improved the predictive ability of the model compared to the unconditional model with no predictors (Model 1) by approximately 22% to 49%.

Finally, the assumptions of HLM were investigated to determine the degree to which the final model met the assumptions of HLM. The normality and homogeneity of variances of the level-1 residuals were examined. Figure 8 displays the level-1 residuals in a Q-Q plot and Figure 9 displays the level-1 residuals in a histogram. As shown in Figures 8 and 9, the residuals were slightly non-normal. Finally, a test of homogeneity of variance of the level-1 residuals suggested that the level-1 residuals demonstrated constant variance χ^2 (39, N =

40) = 22.30, $p > .50$. Given the slight departures from normality, caution should be taken when interpreting findings from this research question.

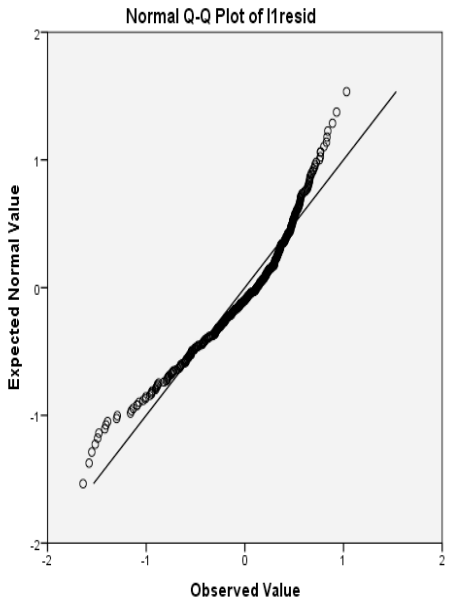

Figure 8. *Q-Q* Plot of Observed and Predicted Values (Research Question 2b)

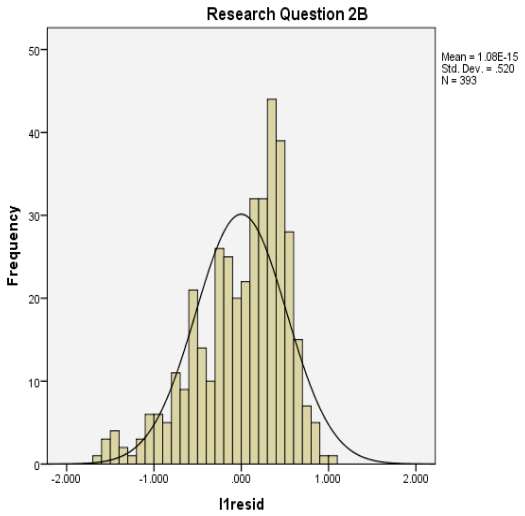

Figure 9. Histogram of Level-1 Residuals (Research Question 2b)

Research Question 2c. What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family engagement activities?

Two-level models were examined to determine the extent to which various individual- and school-level variables predicted *Family Engagement Activities*. The outcome variable for Research Question 2c was measured by the family mean score on Factor 1 - *Family Engagement Activities* of the Family Engagement in PS/RtI Survey: Family Version. Results from all models examined in the process of answering Research Question 2c can be found in Tables 17 and 18. Of note, due to the number of models explored, only the important models are reported in the tables, models with minor changes in effects or variables are only described in text. First, level-1 predictors, including level-1 interactions, were added to the unconditional model. All intercepts and slopes were allowed to vary unless there was evidence to suggest the slopes should be fixed (i.e., unless the variance component for the slope was not significant). Non-significant variables were removed and improvement in model fit was determined to identify the best-fitting level-1 model. Next, groups of level-2 predictors were added to the best-fitting level-1 model. Following each iteration, significance of predictors, improvements in the AIC and BIC fit indices, in addition to consideration for the number of parameters estimated, were considered in order to determine the best-fitting, most parsimonious model to be retained as the final model.

Level-1 Model. First, the unconditional model was estimated to determine the degree to which the data violated the independence assumption. The unconditional model partitioned the variance in the data providing an estimate of the between-school and within-school variance known as the ICC. A greater ICC suggested a greater degree of dependence of the data. The ICC for Model 1, the unconditional model, was 0.2. Although there is no strict cut-off score suggested, researchers recommend using HLM for ICCs greater than .05. Therefore, HLM was an appropriate statistical analysis for use in Research Question 2c.

For Research Question 2c the level-1 variables included:

- grade of child (0 = kindergarten, 1 = first grade, 2 = second grade, 3 = third grade, 4 = fourth grade, and 5 = fifth grade [GRADE]);
- child's ESE eligibility status (0 = no, 1 = yes [ESE]);
- child's participation in additional interventions (0 = no; 1 = yes [INT]);
- race of the parent respondent (0 = white, 1 = non-white [RACE]);
- family's highest level of education (the highest of the two items that asked about each family's highest level of education [the highest between the parent respondent and their spouse's education level] was used as an indicator of the highest level of education for the household [EDU]);
- *Family Beliefs about Family Engagement* obtained as a mean score on Factor 5 – *Family Beliefs about Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FBELIEF);

- *Family Knowledge and Skills for Family Engagement* obtained as a mean score on Factor 6 – *Family Knowledge and Skills for Family Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FSKILL);
- *Family Initiated School Communication* obtained as a mean score on Factor 2 - *Family Initiated School Communication* of the Family Engagement in PS/RtI Survey: Family Version (FAMCOMM);
- *PS/RtI Engagement*: The mean score on Factor 4 - *PS/RtI Engagement* of the Family Engagement in PS/RtI Survey: Family Version (FAMPSRTI).
- *Educators' Family Engagement Practices:* The mean score on Factor 3 – *Educators' Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Family Version (FAMEDPRC).

The ten level-1 predictors were added to the unconditional model (Model 2). The intercept and slopes were allowed to vary. As shown in Table 17, the significant predictors of the intercept were *Family Initiated School Communication* ($\gamma_{90} = 0.08$, $t = 2.54$, $p < .05$) and family perceptions of *Educators' Family Engagement Practices* ($\gamma_{80} = 0.04$, $t = 1.98$, $p = .05$). However, the variance components for child's ESE eligibility status, family highest level of education, *Family Beliefs about Family Engagement*, *Family Knowledge and Skills for Family Engagement*, family *PS/RtI Engagement,* and *Family Initiated School Communication* were statistically significant. Child's grade-level, child's

intervention status, and race of the parent respondent were removed and not retained in subsequent models since the fixed effects *and* variance components for both of these variables were not statistically significant. Since the variance component for family perceptions of *Educators' Family Engagement Practices* was equal to .059, so this variable was but fixed in Model 3 in order to explore the most parsimonious model. The next model, Model 3, included child's ESE eligibility status, family highest level of education, *Family Beliefs about Family Engagement*, *Family Knowledge and Skills for Family Engagement*, family *PS/RtI Engagement*, and *Family Initiated School Communication* with varying slopes and family perceptions of *Educators' Family Engagement Practices* with a fixed slope. In Model 3, the fixed effect for family highest level of education ($\gamma_{40} = 0.01$, $t = 2.09$, $p < .05$), family perceptions of *Educators' Family Engagement Practices* ($\gamma_{80} = 0.02$, $t = 3.23$, $p < .01$) were significant predictors of *Family Engagement Activities*. The fixed effect for child's ESE eligibility status, *Family Beliefs about Family Engagement*, *Family Knowledge and Skills for Family Engagement*, and family *PS/RtI Engagement* were all non-significant; however, the slopes for all variables remained significant at < .001. The non-significant fixed effects were retained in the model because these variables had significant variance components indicating that the effect of these variables was significantly different across schools and exclusion of these variables would result in substantial unexplained variance in the final model. Next, the interaction between the significant level-1 predictors (i.e., family highest level of education and family

perceptions of *Educators' Family Engagement Practices*) was explored, however, this variable was not significant (Model 4). Therefore, Model 3 was used to explore level-2 predictors and interactions among level-2 predictors.

Table 17

Fixed Effects Estimates and Variance Estimates for Level-1 Models Predicting Family Engagement Activities

Parameter	Model 1[a]	Model 2	Model 3	Model 4
Intercept (γ_{00})	2.93(.02)***	2.93(.02)***	2.97(.01)***	42.95(.01)***
Level 1				
(γ_{10}) GRADE		-0.01(.01)		
(γ_{20}) ESE		-0.04(.04)	-0.01(.01)	-0.05(.03)
(γ_{30}) INT		0.01(.02)		
(γ_{40}) EDU		0.01(.01)	0.01(.01)*	0.01(.03)
(γ_{50}) FBELIEF		-0.03(.02)	-0.08(.05)	-0.08(.04)
(γ_{60}) FSKILL		0.02(.03)	0.03(.04)	0.03(.03)
(γ_{70}) FAMPSRTI		-0.01(.01)	-0.02(.01)	-0.01(.01)
(γ_{80}) FAMEDPRC		0.04(.02)*	0.02(.01)**	0.04(.02)
(γ_{90}) FAMCOMM		0.08(.03)*	0.12(.07)	0.09(.04)*
(γ_{100}) RACE		-0.03(.03)		
(γ_{110}) EDU*FAMEDPRC				0.00(.01)
Variances				
(σ^2)	0.05	0.00	0.01	0.01
(u_0) Intercept	0.01***	0.01***	0.00***	0.00***
(u_1) Slope		0.00		
(u_2) Slope		0.04***	0.05***	0.03***
(u_3) Slope		0.02		
(u_4) Slope		0.00***	0.00***	0.01***
(u_5) Slope		0.01***	0.09***	0.06***
(u_6) Slope		0.03***	0.06**	0.02***
(u_7) Slope		0.00***	0.00***	0.00***
(u_8) Slope		0.01		
(u_9) Slope		0.04***	0.17***	0.06***
(u_{10}) Slope		0.03		
(u_{110}) Slope				0.00
Deviance	-47	-440	-447	-479
Parameters	2	66	29	37
AIC	-43	-440	-389	-405
BIC	-40	-384	-360	-342
ICC	0.2			

Note. Entries show parameter estimates with standard errors in parentheses
[a] Unconditional model
* $p < .05$. ** $p < .01$. *** $p < .001$.

Level-2 Model. Using the exploratory model-building strategy described by Raudenbush & Bryk (2002), groups of level-2 predictors were initially added to the intercept and cross-level interactions were explored only if the level-2

predictor was statistically significant. The following groups of level-2 predictors were explored:

- School factors
    - school size: 2011- 2012 student enrollment (SIZE);
    - minority status: The percentage of the 2011-2012 student population that was non-white (%MIN);
    - SES: The percentage of the 2011-2012 student population that was eligible for free or reduced-price lunch (%LUN);
    - ELL: The percentage of the 2011-2012 student population that was identified as an English Language Learner (%ELL);
    - ESE: The percentage of the 2011-2012 student population that was eligible for Exceptional Student Education services (including gifted [%ESE)).
- Implementation factors
    - PS/RtI Implementation: Each school's mean score on the Consensus (CONS), Infrastructure (INFR), and Implementation (IMPL) subscales of the SAPSI (1 = Not Started, 2 = In Progress, 3 = Achieved, 4 = Maintaining);
    - length of time of Response to Intervention for Behavior (RtI:B) implementation (i.e., Positive Behavior Support, CHAMPS, etc.; 1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [RtI:B]);

- length of time of PS/RtI implementation (1 = 1 year, 2 = 2 years, 3 = 3 years, 4 = more than 3 years [PS/RTI]);
- school type: Title 1 school affiliation (1 = Title 1 school, 0 = Non-Title 1 school [TITLE]).

- Educator factors
  - *Educator Beliefs about Family Engagement*: School-level means on Factor 1 – *Educator Beliefs about Family Engagement* from the Family Engagement in PS/RtI Survey: Educator Version (EDUBEL);
  - *Educator Knowledge and Skills for Family Engagement*: School-level means on Factor 2 – *Educator Knowledge and Skills for Family Engagement* from the Family Engagement in PS/RtI Survey: Educator Version (EDUSKILL);
  - *Educator Family Engagement Practices*: The school-level mean score on Factor 3 – *Educator Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version (EDUPRC);
  - *School-wide Family Engagement Practices*: The school-level mean score on Factor 4 – *School-wide Family Engagement Practices* of the Family Engagement in PS/RtI Survey: Educator Version (EDUSWPRC).

After the addition of each group of level-2 variables, significance of the variable and improvement in model fit were considered and reviewed to determine the important level-2 predictors to be included in a final model to answer Research Question 2c.

Next, in Model 5, school demographic factors variables were explored in the intercept of Model 3. Percentage of students eligible for ESE (γ_{03} = 0.25, t = 2.97, p < .01) and percentage of minority students (γ_{04} = -0.19, t = -2.96, p < .01) were the two statistically significant school demographic factors. Non-significant predictors were removed and the model was re-analyzed (Model 6); and the two predictors remained significant. Next, in Model 7, percentage of students eligible for ESE and percentage of minority students were explored in the intercepts of each of the level-1 predictors. The only significant cross-level interaction was the interaction between family *PS/RtI Engagement* and percentage of students eligible for ESE (γ_{31} = 0.16, t = 2.07, p < .05). The positive interaction effect suggests families in schools with higher percentages of students eligible for ESE report more *PS/RtI Engagement*. The non-significant cross-level interactions were removed and the model was re-analyzed (Model 8). All previously statistically significant relationships remained statistically significant in Model 8.

Next, in Model 9, implementation factors were explored at the intercept. Length of RtI:B implementation was the only statistically significant implementation factors variable (γ_{07} = 0.02, t = 3.01, p < .01). Non-significant predictors were removed and the model was re-analyzed (Model 10); all level-2

predictors remained significant. In Model 11, length of RtI:B implementation was explored at the slopes of each of the level-1 predictors; however, there were no significant cross-level interactions. The next group of variables, educator factors, was explored in the intercept (Model 12). School-level mean *Educator Knowledge and Skills for Family Engagement* (γ_{012} = 0.18, t = 3.32, p < .01) and school-level mean *Educator Family Engagement Practices* (γ_{014} = -0.15, t = -2.33, p < .05) were significant predictors of *Family Engagement Activities*. Interestingly, greater school-level mean *Educator Family Engagement Practices* was associated with *Family Engagement Activities* reported by families while greater school-level mean *Educator Knowledge and Skills for Family Engagement* was associated with more *Family Engagement Activities* reported by families. Next, non-significant predictors were removed and the model was re-analyzed (Model 13); all level-2 predictors remained significant in Model 13 except percentage of students eligible for ESE, however, this variable was retained due to the significant cross-level interaction. Next, in Model 14, school-level mean *Educator Knowledge and Skills for Family Engagement* and school-level mean *Educator Family Engagement Practices* were explored at the slopes of each of the level-1 predictors. There were no significant cross-level interactions in Model 14.

Finally, interaction terms were calculated for all possible pairs of significant level-2 predictors and were independently added to the intercept of Model 13. Of the possible interactions, the interactions between (a) percentage

of students eligible for ESE and percentage minority students (γ_{70} = -0.02, t = -2.25, p < .05; Model 15), (b) length of RtI:B implementation and percentage of ESE students (γ_{70} = -0.02, t = -2.25, p < .05; Model 16), (c) the percentage of ESE students and school-level mean *Educator Family Engagement Practices* (γ_{70} = -0.02, t = -2.25, p < .05; Model 18), (d) the percentage of minority students and school-level mean educator knowledge and skills (γ_{70} = -0.02, t = -2.25, p < .05; Model 20); (e) length of RtI:B implementation and school-level mean *Educator Knowledge and Skills for Family Engagement* (γ_{70} = -0.02, t = -2.25, p < .05; Model 22), and (f) *Educator Knowledge and Skills for Family Engagement* and school-level mean *Educator Family Engagement Practices* (γ_{70} = -0.02, t = -2.25, p < .05; Model 24) were significant level-2 predictors. Including more than one level-2 interaction term in a model is not recommended as interpretation becomes complex and deriving meaning from the model becomes difficult. In order to identify the final model for this research question, the fit indices were reviewed and compared across Models 15-24 listed above. Model 15, the model including the interaction between percentage of students eligible for ESE and percentage of minority students (see Table 18), demonstrated best fit of the data with the lowest AIC and BIC across the models. Therefore, the following equation for Model 15 demonstrated best fit of the data to answer the research question:

$$
\begin{aligned}
FAMACT_{ij} &= \gamma_{00} + \gamma_{01} * \%ESE_j + \gamma_{02} * \%MIN_j + \gamma_{03} * \%RtIB_j + \gamma_{04} * EDUSKILL_j \\
&+ \gamma_{05} * EDUPRC_j + \gamma_{06} * \%MIN * \%ESE_j + \gamma_{10} * ESE_{ij} + \gamma_{20} * EDU_{ij} + \\
&\gamma_{30} * FBELIEF_{ij} + \gamma_{40} * FSKILL_{ij} + \gamma_{50} * FAMPSRTI_{ij} + \gamma_{51} * \%ESE * FAMPSRTI_{ij} + \\
&\gamma_{60} * FAMEDPRC_{ij} + \gamma_{70} * FAMCOMM_{ij} + u_{0j} + u_{1j} * ESE_{ij} + + u_{2j} * EDU_{ij} \\
&+ u_{3j} * FBELIEF_{ij} + u_{4j} * FSKILL_{ij} + u_{5j} * FAMEDPRC_{ij} + u_{7j} * FAMCOMM_{ij} + r_{ij}
\end{aligned}
$$

Table 18

Fixed Effects Estimates and Variance Estimates for Level-2 Models Predicting Family Engagement Activities

Parameter	Model 5	Model 6	Model 8	Model 9	Model 10	Model 13	Model 15
Intercept (γ_{00})	2.94(.04)***	2.99(.03)***	3.00(.03)***	3.00(.02)***	3.00(.03)***	3.04(.03)***	3.20(.04)***
Level 1							
(γ_{10}) ESE	-0.05(.04)	-0.05(.04)	-0.05(.03)	-0.05(.03)	-0.05(.03)	-0.05(.03)	-0.05(.03)
(γ_{20}) EDU	0.01(.01)	0.01(.01)	0.01(.01)	0.01(.01)	0.01(.01)	0.01(.01)	0.01(.01)
(γ_{30}) FBELIEF	-0.09(.05)	-0.09(.05)	-0.08(.05)	-0.08(.05)	-0.08(.05)	-0.08(.05)	-0.08(.05)
(γ_{40}) FSKILL	0.04(.04)	0.03(.04)	0.03(.04)	0.03(.04)	0.03(.04)	0.03(.04)	0.03(.04)
(γ_{50}) FAMPSRTI	-0.02(.01)	-0.02(.01)	-0.08(.02)***	-0.08(.02)***	-0.08(.02)***	-0.08(.02)***	-0.08(.02)***
(γ_{60}) FAMEDPRC	0.02(.01)**	0.02(.01)**	0.02(.01)**	0.03(.01)**	0.03(.01)***	0.03(.01)***	0.02(.01)***
(γ_{70}) FAMCOMM	0.11(.06)	0.11(.06)	0.11(.06)	0.11(.05)*	0.11(.05)*	0.11(.06)	0.11(.05)
Level 2							
(γ_{01}) SIZE	-0.00(.00)						
(γ_{02}) %LUN	0.10(.05)						
(γ_{03}) %ESE	0.25(.09)**	0.17(.06)**	0.13(.05)*	0.12(.05)*	0.13(.05)*	0.06(.04)	-0.79(.20)***
(γ_{31}) %ESE*FAMPSRTI			0.27(.06)***	0.27(.06)***	0.27(.06)***	0.27(.06)***	0.23(.05)***
(γ_{04}) %MIN	-0.19(.07)**	-0.19(.07)**	-0.13(.05)*	-0.12(.05)*	-0.13(.05)*	-0.19(.05)***	-0.63(.09)***
(γ_{015}) %MIN*%ESE							2.35(.49)***
(γ_{05}) %ELL	-0.12(.10)						
(γ_{06}) PS/RTI				0.00(.01)			
(γ_{07}) RTIB				0.02(.01)**	0.02(.01)**	0.01(.01)***	0.01(.00)***
(γ_{08}) TITLE				-0.01(.01)			
(γ_{81}) TITLE*EDU							
(γ_{82}) TITLE*FBELIEF							
(γ_{09}) CONS				-0.01(.01)			
(γ_{010}) INFR				0.03(.01)			
(γ_{011}) IMPL				-0.01(.02)			
(γ_{012}) EDUSKILL						0.15(.06)*	0.13(.04)**
(γ_{014}) EDUPRC						-0.17(.07)*	-0.06(.07)

Table 18 continued

Parameter	Model 5	Model 6	Model 8	Model 9	Model 10	Model 13	Model 15
Variances							
(σ^2)	0.01	0.01	0.01	0.01	0.01	0.01	0.01
(u_0) Intercept	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
(u_1) Slope	0.05***	0.04***	0.04***	0.03***	0.03***	0.03***	0.03***
(u_2) Slope	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
(u_3) Slope	0.08***	0.09***	0.09***	0.08***	0.08***	0.08***	0.08***
(u_4) Slope	0.05***	0.05**	0.05**	0.05**	0.05**	0.05**	0.05**
(u_5) Slope	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
(u_6) Slope	0.14***	0.14***	0.13***	0.11***	0.11***	0.13***	0.11***
Deviance	-430	-450	-455	-420	-451	-451	-460
Parameters	29	29	29	29	29	29	29
AIC	-372	-392	-397	-362	-393	-393	-402
BIC	-343	-333	-368	-333	-364	-364	-373

Note. Entries show parameter estimates with standard errors in parentheses
* $p < .05$. ** $p < .01$. *** $p < .001$.

Using the method outlined by Luke (2004) for calculating and interpreting R^2 in a multilevel model (summarized earlier in Chapter 3), the proportional reduction of prediction error was calculated for each level of the final multilevel model (Model 15). For Research Question 2c, the level-1 predictors (ESE, EDU, FBELIEF, FSKILL, FAMPSRTI, FAMEDPRC, FAMCOMM), level-2 predictors (%ESE, %MIN, RtI:B, EDUSKILL, EDUPRC), and cross level interaction (%ESE*FAMPSRTI), included in Model 15 improved the predictive ability of the model compared to the unconditional model with no predictors (Model 1) by approximately 85% to 71%.

Finally, the assumptions of HLM were investigated to determine the degree to which the final model met the assumptions of HLM. The normality and homogeneity of variances of the level-1 residuals were examined. Figure 10 displays the level-1 residuals in a Q-Q plot and Figure 11 displays the level-1 residuals in a histogram. As shown in Figures 10 and 11, the residuals were slightly non-normal. Finally, a test of homogeneity of variance of the level-1 residuals suggested that the level-1 residuals did not demonstrate constant variance χ^2 (37, N = 40) = 67.36, $p < .05$. Given the slight departures from normality, caution should be taken when interpreting findings from this research question.

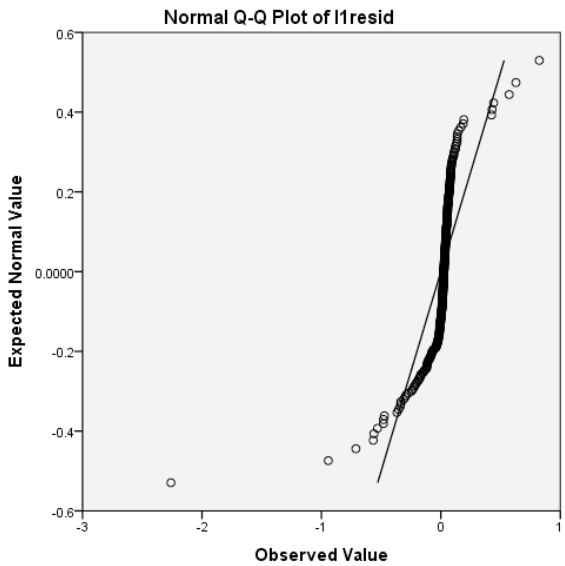

Figure 10. Q-Q Plot of Observed and Predicted Values (Research Question 2c)

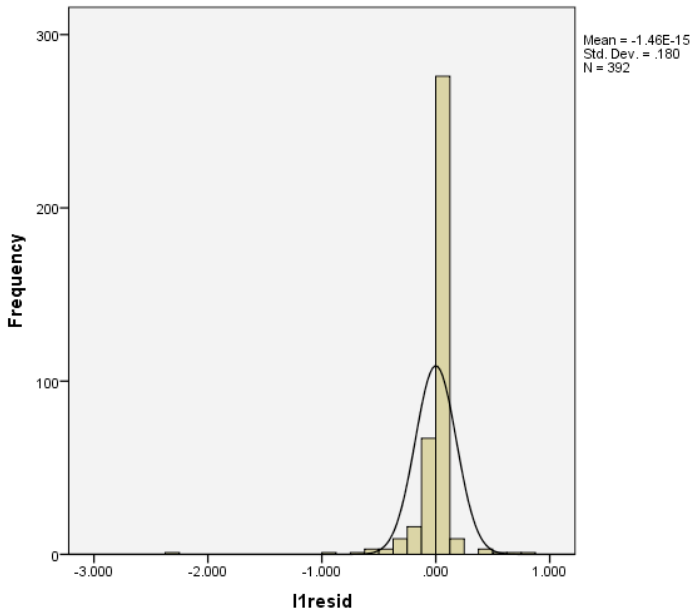

Figure 11. Histogram of Level-1 Residuals (Research Question 2c)

Chapter V

Discussion

This study explored relationships among PS/RtI implementation, selected school factors, educator factors, family factors and educator and family perceptions of family engagement practices in schools implementing PS/RtI. This chapter begins with a detailed discussion of the results of inferential analyses conducted to answer each research questions followed by a summary of contributions to the existing literature. Next, implications of findings for practice and future research are described, ending with a review of the limitations of the current study.

Research Question 1a - What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and educators' self-reported family engagement practices?

The results of Research Question 1a indicated that instructional support (e.g., school psychologists, school counselors, and administrators) educators reported implementing fewer family engagement practices compared to general educators. This finding is consistent with research that suggests families of students receiving special education services desire more information from special educators (Lake & Billingsley, 2000). One possible hypothesis for this

finding is that instructional support educators' typical contact and interaction with families is more likely to be dependent on and responsive to individual family and student needs (Sheridan, Eagle, Cowan, & Mickelson, 2001). General educators' family engagement and outreach efforts are more likely to be systematic and integrated into their everyday practice.

Educator knowledge and skills were significantly and positively related to educators' family engagement practices meaning that educators who reported more knowledge and skills for family engagement also reported implementing more family engagement practices. This finding is consistent with previous research that suggests educators who report having the knowledge and skills to effectively reach out to and engage families also report implementing more family engagement practices (Garcia, 2004; Hoover-Dempsey, Walker, Jones, & Reed, 2002; Hoover-Dempsey et al., 2005; Hoover-Dempsey, Whitaker, & Ice, 2010).

The percentage of minority students in a school was a significant predictor of educators' family engagement practices. The significant, negative relationship between percentage of minority students and educators' family engagement practices suggested that working in a school with a higher percentage of minority students was associated with educators reporting that they implemented fewer family engagement practices. This finding is consistent with previous research that suggests educators experience significant barriers to reaching out to and engaging families from diverse backgrounds (Eberly, Joshi, & Konzal, 2007; Harry, 2008; Joshi, Eberly, & Konzal, 2005; Lawson, 2003).

Furthermore, this finding is consistent with previous research that suggests minority families are typically engaged in student learning in ways (e.g., home support for student learning, conversations with students about the importance of school), that are not consistent with educators' traditional expectations for family engagement (e.g., volunteering at the school, attending meetings at the school) and therefore, are perceived as less engaged and less interested in their child's learning (Hoover-Dempsey et al., 2005; Lawson, 2003; Lopez, Scribner, & Mahitivanichcha, 2001; Pena, 2000). Furthermore, research suggests that when teachers believe that parents are less engaged, interested, or able to support student learning effectively, teachers make fewer attempts to engage these families in their child's education (Epstein & Dauber, 1991; Hoover-Dempsey, Bassler, & Brissie, 1987; Hoover-Dempsey, Bassler, & Brissie, 1992). Given the over-representation of minorities in high-poverty neighborhoods and schools (Taylor, 2011), educators' perceptions of minority families is likely influenced by educators' perceptions of low SES families. Research suggests that educators perceive low-SES, culturally diverse families as less engaged and supportive of their child's education, which is likely connected with the ways in which low-SES, culturally diverse parents are in engaged in their child's learning (i.e., home-support for student learning rather than attendance at school events; see Mapp & Hong, 2010).

In addition to educators' perceptions about diverse families' interest and efficacy for supporting student learning, real barriers impede the development of

cross-cultural family-school partnerships for both families and educators. For families, these barriers include primary language, inflexible work schedules, time, energy, and resources for engaging in their child's education in ways that are recognized, observed, and valued by educators (Chrispeels & Rivero, 2001; Griffith, 1998; Lawson, 2003; Pena, 2000; Weiss et al., 2003). For educators, these include a lack of training and preparation to engage and interact with diverse families effectively (Markow & Martin, 2005). Taken together, previous research is consistent with the findings of the current study that educators invest less time and fewer efforts to engage diverse families which is likely due to a lack of skills to engage diverse families, in addition to educator perceptions that these families are less interested and less engaged in supporting student learning.

School-level mean family beliefs about family engagement was significant and negative meaning that schools with families who have stronger, more positive beliefs about family engagement was associated with fewer family engagement practices as reported by educators. This finding is inconsistent with previous research that suggests educators implement more family engagement practices when they perceive families as supportive of student learning (Epstein & Dauber, 1991; Hoover-Dempsey, Bassler, & Brissie, 1987; Hoover-Dempsey, Bassler, & Brissie, 1992). Furthermore, this finding contradicts previous research that finds parental beliefs about their engagement in educational activities is related to parent perceptions of educator outreach efforts (Ames, 1993; Ames, de Stefano, Watkins, & Sheldon, 1995; Anderson & Minke, 2007; Drummond &

Stipek, 2004; Green, Walker, Hoover-Dempsey, & Sandler, 2007; Ritblatt, Beatty, Cronan, & Ochoa, 2002). Studies demonstrate parental perceptions of their role in supporting their child's education is highly influenced by school efforts to empower, engage, inform, and involve parents in all aspects of education (Ames, 1993; Ames, de Stefano, Watkins, & Sheldon, 1995; Anderson & Minke, 2007; Drummond & Stipek, 2004; Green, Walker, Hoover-Dempsey, & Sandler, 2007; Ritblatt, Beatty, Cronan, & Ochoa, 2002). One hypothesis for this finding could be that educators implement less intensive outreach efforts when they perceive students have a high level of family and community support for learning. Perhaps they believe that outreach efforts on the part of educators are not necessary when parents are engaged.

The school-level mean family knowledge and skills was a significant, positive predictor of educators' family engagement practices indicating that schools with families with stronger knowledge and skills were associated with educators reporting that they implemented more family engagement practices. This finding is consistent with previous research indicating that educators implement more family engagement practices when they perceive families as interested and equipped to support student learning (Epstein & Dauber, 1991; Hoover-Dempsey, Bassler, & Brissie, 1987; Hoover-Dempsey, Bassler, & Brissie, 1992).

Furthermore, this finding is supported by research that suggests educator family engagement practices results in families who are knowledgeable and

skillful in supporting student learning (Chrispeels & Gonzalez, M., 2004; Chrispeels & Rivero, 2001; Christenson & Reschly, 2010; Henderson & Mapp, 2002; Hoover-Dempsey, Whitaker, & Ice, 2010; Patrikakou & Weissberg, 2000; Ritblatt, Beatty, Cronan, & Ochoa, 2002). Studies suggest that, by and large, the strongest predictor of successful family engagement is school practices to engage families (Cox, 2005; Henderson & Mapp, 2002; Hoover-Dempsey, Whitaker, & Ice, 2010; Patrikakou & Weissberg, 2000; Ritblatt, Beatty, Cronan, & Ochoa, 2002). Effective family engagement practices include those practices that (a) build positive relationships and establish effective communication between home and school, (b) ensure effective collaboration and problem-solving as a way of work together, (c) provide opportunities for families to increase social capital and social networks, and (d) provide direct support to families including training and educational opportunities (Christenson & Reschly, 2010; Clarke, Sheridan, & Woods, 2010; Cox, 2005; Henderson & Mapp, 2002; Marcon, 1999), all of which are included in the measure used in the current study intended to measure educators' family engagement practices.

Correlation does not imply causation, so it is unknown whether higher outreach and engagement practices implemented by educators positively influenced families' skills or, whether working in a school with knowledgeable and skillful families resulted in educators implementing more family engagement practices. The latter hypothesis is in line with family engagement experts who suggest that when families are more knowledgeable and skillful in educational

matters (referred to as “demand parents”), these families request more information and active participation in their child’s learning (Weiss & Stephen, 2010).

Research Question 1b –What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and educator reports of school-wide family engagement practices?

Similar to Research Question 1a, instructional support educators reported implementing fewer school-wide family engagement practices. This finding is supported by research that suggests families of students receiving special education do not feel adequately informed and desire more information from special educators (Lake & Billingsley, 2000). Furthermore, this finding is consistent with the individualized nature of instructional support staff (e.g., school psychologists) and special educators’ work with families and students (Sheridan, Eagle, Cowan, & Mickelson, 2001) that is more individualized rather than school-wide.

Educators with greater knowledge and skills for family engagement reported implementing more school-wide family engagement practices. This is consistent with findings from Research Question 1a and with previous research that identifies knowledge and skills for family engagement as a significant predictor of effective family engagement practice (Garcia, 2004; Hoover-Dempsey, Walker, Jones, & Reed, 2002; Hoover-Dempsey et al., 2005; Hoover-Dempsey, Whitaker, & Ice, 2010).

The percentage of students receiving free or reduced-price lunch was a negative and significant predictor of educators' school-wide family engagement practices suggesting that educators working in schools with a high-poverty student population reported implementing fewer school-wide family engagement practices. This finding is consistent with previous research that finds schools with a high percentage of students from high poverty families are associated with less family engagement efforts reported by educators and families (Griffith, 1998; Marschall, 2006; Weiss et al., 2003). Furthermore, these findings are consistent with studies that find poorer families *perceive* fewer outreach and engagement invitations from educators than more affluent families (Vaden-Kiernan & Mcmanus, 2005).

Similar to Research Question 1a, this finding is consistent with research indicating that when educators perceive families to be interested and capable of supporting student learning, educators implement more outreach efforts. Furthermore, educators do not perceive that low-income parents have the capacity to adequately support student learning (Weinginger & Lareau, 2003). Educator perceptions of low-SES parents as incapable and uninterested in supporting student learning are reinforced by the numerous, real barriers that low-SES families experience that impede their full engagement and support in their child's education (Ritblatt, Beatty, Cronan & Ochoa, 2002). Furthermore, educators perceive families to be engaged when they participate in high-levels of *at-school* involvement (Taliaferro, DeCuir-Gunby, & Eckard, 2009). Research

finds that low-income families are not as engaged in activities at the school as their more affluent counterparts but are as engaged in supporting student learning at home (Griffiths, 1998; Green et al., 2007). Educators acknowledge and can observe family engagement in the form of at-school participation more readily than what parents do at home to support student learning (Taliaferro, DeCuir-Gunby, & Allen-Eckard, 2009), which often impacts teacher perceptions of families' true levels of involvement and their subsequent outreach efforts.

The percentage of special education students was a significant, negative predictor of school-wide family engagement practices. This finding is consistent with studies that suggest parents of students receiving special education services desire more information from educators (Angell, Stoner, & Sheldon, 2009; Lake & Billingsly, 200). Furthermore, this finding could be related to parent behaviors such that families of students receiving special education report less at school involvement compared to parents of general education students (Griffiths, 1998); which, as previously discussed, negatively influences educators' perceptions of families' support for their child's education and subsequent implementation of family engagement practices. Parents of students receiving special education services are often viewed by teachers as the cause of students' educational problems (Vernberg & Medway, 1981) and teachers who teach a higher proportion of students with significant needs have less positive views of students' families (Jones, White, Aeby, & Benson, 1997). This is consistent with findings that suggest educators implement family engagement practices when they

perceive families have the capacity to effectively support student learning. Unfortunately, this finding contradicts best practices that educators should be communicating with and reaching out to families of students with intensive needs more frequently in order to support student success (Vannest, Burke, Payne, Davis, & Soares, 2011; USDOE, 2001). One possible hypothesis for this finding may be due to the individualized nature of special education services such that educators working in schools with a high concentration of special education students implement more *individualized* family engagement efforts rather than general, *school-wide* family engagement efforts.

The significant, positive cross-level interaction between percentage of special education students and instructional support educators suggested that instructional support educators in schools with higher percentages of special education students reported more school-wide family engagement practices compared to instructional support educators in schools with lower percentages of special education students. In other words, in schools with higher percentages of special education students, the instructional support educators facilitated more general, school-wide family engagement efforts. This finding is consistent with special educators and other specialists being more involved in the educational services provided to students receiving special education services, which would include more intensive outreach to families to support student success (Vannest, Burke, Payne, Davis, & Soares, 2011; USDOE, 2001). Furthermore, special educators and other specialists have received additional training focusing on

engaging families beyond that received by general educators which results in greater preparation and knowledge and skills for engaging families of students with special needs (National Association for the Education of Young Children, 2012). This finding is also consistent with PS/RtI implementation practices such that resources (specialists, special educators) are allocated based on student need. In a school with a higher proportion of students with intensive needs, these educators are likely to be used in ways that help address student needs (i.e., facilitating family engagement).

The significant, positive cross-level interaction between students receiving free or reduced-price lunch and instructional support educators indicated that instructional support educators in schools with a higher percentage of students eligible for free or reduced-price lunch implemented more family engagement practices than instructional support educators in schools with a lower percentage of students eligible for free or reduced price lunch. In other words, working in a high poverty school had a positive impact on instructional support educators' efforts to implement school-wide family engagement practices. This finding contrasts with previous research that suggests educators working in low-SES schools implement fewer family engagement practices (Griffith, 1998; Marschall, 2006; Weiss et al., 2003). Furthermore, this finding is inconsistent with studies that find poorer families *perceive* fewer outreach and engagement invitations from educators than more affluent families (Vaden-Kiernan & Mcmanus, 2005). This finding may be related to the "Take it to the Streets" initiative, a recently

implemented district-wide effort (in the district where data collection was conducted) focused on individualized family engagement efforts targeting poorer communities to be engaged in student learning. The individuals responsible for this initiative were mostly instructional support educators who had time in their day to leave the school and make home visits (i.e., itinerant staff).

Additionally, family reports of educators' efforts to engage families in PS/RtI implementation was a significant, positive predictor of educators' school-wide family engagement practices indicating agreement among educators and families with regard to the degree to which educators engaged families in student learning and PS/RtI implementation, specifically. This finding was note-worthy, suggesting that educators' increased outreach and engagement efforts were associated with families reporting that educators were implementing more practices to engage families in PS/RtI implementation. This finding is consistent with previous research that suggests parents and educators report similar efforts on the part of educators to engage families (Seitsinger, Felner, Brand & Burns 2008).

Lastly, a significant, negative interaction between the level-2 predictors, percent of students eligible for free or reduced-price lunch and family engagement in PS/RtI, suggested educators and families had different perceptions regarding families' engagement in PS/RtI. In other words, in high-poverty schools educators and families were not reporting similar family engagement efforts by educators; and specifically, were not reporting similar

efforts with regards to the degree to which educators were engaging families in PS/RtI. This is consistent with previous research that finds a relationship between SES and parents' varying perceptions of teacher outreach (Griffith, 1998; Marschall, 2006; Vaden-Kiernan & Mcmanus, 2005; Weiss et al., 2003).

Research Question 2a –What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family perceptions of educators' family engagement practices?

Results suggest that families with stronger, more positive beliefs and knowledge and skills for family engagement reported that they perceived fewer family engagement practices implemented by educators. Interestingly, the significant and positive interaction between family beliefs and skills suggests that when families have above average beliefs *and* knowledge and skills for family engagement, they perceive more family engagement practices implemented by educators. This finding is consistent with research that suggests educators implement more engagement and outreach efforts when they perceive families as interested and capable of supporting student learning (Epstein & Dauber, 1991; Hoover-Dempsey, Bassler, & Brissie, 1987; Hoover-Dempsey, Bassler, & Brissie, 1992). Although correlation does not imply causation, one possible reason for this finding could be that educators' increased outreach efforts resulted in families having more positive beliefs and stronger knowledge and skills for engaging in student learning. This hypothesis is supported by research that suggests family beliefs and feelings of efficacy for engaging in and

supporting student learning is associated with family perceptions of educators' family engagement practices (Drummond & Stipek, 2004; Patrikakou & Weissberg, 2000; Ritblatt, Beatty, Cronan, & Ochoa, 2002; Simon, 2004).

Another finding of the level-1 model was a significant, positive relationship between family perceptions of educators' practices to engage families in PS/RtI and family perceptions of educators' general family engagement practices. Schools that implement more *general* family engagement practices would be better positioned to engage families in newer school improvement efforts such as PS/RtI implementation. This finding is in line with research that suggests establishing effective systems to support family engagement efforts results in higher levels of family engagement (Christenson & Reschly, 2010; Ferguson, Jordan, & Baldwin, 2010; Henderson & Mapp, 2002).

A greater level of family-reported engagement in student learning was associated with families perceiving more family engagement practices by educators. This finding is consistent with previous research that finds educator outreach to engage families is a strong predictor of family engagement in student learning (Anderson & Minke, 2007; Cox, 2005; Green et al., 2007; Henderson & Mapp, 2002; Hoover-Dempsey, Whitaker, & Ice, 2010; Patrikakou & Weissberg, 2000; Ritblatt, Beatty, Cronan, & Ochoa, 2002). Conversely, this finding could be a result of engaged families having a positive influence on the degree to which educators implement family engagement practices (Mapp & Hong, 2010).

The significant school-level predictors suggested that higher percentages of ELL students in schools was associated with families perceiving more engagement practices implemented by educators. This finding is inconsistent with much of the previous research that finds lower levels of effective educator outreach to diverse families (Eberly, Joshi, & Konzal, 2007; Epstein & Becker, 1982; Greenwood & Hickman, 1991; Harry, 2008; Joshi, Eberly, & Konzal, 2005). Interestingly, this finding is despite a limitation of the current study administering an English-only survey to all families and therefore was limited in the responses received from families who primarily speak a language other than English. One hypothesis for this finding is the recently implemented 'Take it to the Streets' initiative implemented by the school district that targeted poor and minority communities by making home visits to facilitate family engagement among these families who have been traditionally hard to reach.

Engaged families from schools with higher percentages of ELL students perceived more family engagement practices implemented by educators. This finding could also be associated with the recent "Take it to the Streets" initiative implemented by the district that targeted minority families who are traditionally hard to reach by making home visits to get these families engaged. This finding is consistent with previous research that suggests educator outreach efforts are associated with families who are more engaged in supporting student learning (Anderson & Minke, 2007; Cox, 2005; Green et al., 2007; Henderson & Mapp, 2002; Hoover-Dempsey, Whitaker, & Ice, 2010; Patrikakou & Weissberg, 2000;

Ritblatt, Beatty, Cronan, & Ochoa, 2002) and that educator efforts to involve diverse families are effective in improving families' engagement (Chrispeels & Gonzalez, 2004; Chrispeels, & Rivero, 2001). Furthermore, these findings have significant implications for student outcomes as engaged families provide additional support to culturally diverse students at-risk for underachievement (Henderson & Berla, 1996; Lee & Bowen, 2006; Mapp & Hong, 2010).

The duration of PS/RtI implementation was a significant, negative predictor of family perceptions of educators' family engagement practices. The longer a school reported implementing PS/RtI, the fewer family engagement practices and outreach efforts families perceived from educators. This finding is inconsistent with previous research that finds school reform efforts implemented longer (up to 5 years) are associated with greater quality, fidelity of implementation, and stakeholder engagement compared to newly implemented school reform efforts (Smrekar, Cohen-Vogel, & Lee, 2010). Furthermore, this finding is interesting in light of school reform efforts that focus on building educator knowledge and skills which have been associated with greater teaching efficacy and greater levels of family engagement practices (Hoover-Dempsey, Bassler, & Brissie, 1987, 1992). Systems change research suggests that the longer duration of the implementation of a reform effort such as PS/RtI would be associated with greater levels of educator knowledge and skills and with more family engagement practices implemented by educators. However, these findings

were not supported, and in fact were contradicted, by findings from the current study.

Finally, Title 1 status was associated with families perceiving fewer family engagement practices implemented by educators. This finding is inconsistent with the legislative intent of Title 1 schools to support family and community engagement efforts. Title 1 schools receive funding to support family engagement to support student achievement because these schools have a high percentage of low-SES students (i.e., students eligible for free or reduced-price lunch). Given the affiliation of SES status with Title 1 schools, this finding is consistent with previous research that finds low-SES families perceive fewer family engagement efforts from educators (Marschall, 2006; Vaden-Kiernan & McManus, 2005).

Finally, the negative interaction between schools designated as Title 1 and families' self-reported engagement activities suggests that more engaged families perceived even fewer family engagement practices implemented by educators. This finding might be due to the higher expectations that engaged families have for educators' outreach efforts compared to less engaged families. This finding is inconsistent with previous research that suggests educators' family engagement practices are associated with families' engagement in support their child's learning (Anderson & Minke, 2007; Cox, 2005; Green et al., 2007; Henderson & Mapp, 2002; Hoover-Dempsey, Whitaker, & Ice, 2010; Patrikakou & Weissberg, 2000; Ritblatt, Beatty, Cronan, & Ochoa, 2002). This finding is

consistent with high-poverty schools having less substantial family engagement (Marschall, 2006; Pena, 2000; Vaden-Kiernan & McManus, 2005).

Research Question 2b – What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family initiated school communication?

The final two research questions investigated predictors of *families'* engagement in student learning and specifically, families' engagement through *communication* with educators and participation in *activities* that support student school success. The level of education of the family and family beliefs for family engagement were both significantly and positively related to family initiated school communication. This finding is consistent with previous research that finds a similar relationships between higher levels of parent education and higher levels of family engagement (Grolnick & Slowiaczek, 1994; Kohl, Lengua, McMahon, & the Conduct Problems Prevention Research Group, 2000; Mapp, 2003; Mapp & Hong, 2010; Pena, 2000; Valdes, 1996; Weiss & Stephen, 2010). The results of the current study are consistent with previous research that suggests families with lower levels of education are less likely to engage in conversations with educators compared to more educated families (Fantuzzo, Tighe, & Childs, 2000). More positive family beliefs about the importance of family engagement has been found to be related to more family engagement in student learning and communication with educators (DePlanty, Coulter-Kern, &

Duchane, 2007; Drummond & Stipek, 2004; Green et al., 2007; Hoover-Dempsey, Whitaker, & Ice, 2010).

Family perceptions of educators' family engagement practices was a significant and positive predictor of family initiated school communication; that is, when families perceive greater levels of outreach from educators, families report more communication with educators about ways to support student learning. This finding is consistent with previous research that finds families' engagement behaviors are strongly associated with families' perceptions of educators' outreach efforts and receptivity to family engagement (Anderson & Minke, 2007; Cox, 2005; Dauber & Epstein, 1993; Green et al., 2007; Henderson & Mapp, 2002; Hoover-Dempsey, Whitaker, & Ice, 2010; Overstreet et al. 2005; Patrikakou & Weissberg, 2000; Ritblatt, Beatty, Cronan, & Ochoa, 2002; Vade-Kiernean 2003).

Family self-reported *activities* was positively associated with family self-reported *communication* suggesting that families who are engaged in one way (e.g., communicating with teachers) are more likely to be engaged in other ways (e.g., participating in activities at home to support student learning). Most previous research has organized family engagement into at-school versus at-home domains (Green et al., 2007; Griffiths, 1998; Overstreet et al., 2005) while the current study organized family engagement into *behaviors* that families and educators engage in regardless of whether these happen at home or at school.

The significant level-1 interaction between family level of education and family self-reported engagement activities suggests that families with higher levels of education, who engage in more educationally-supportive activities, also report more family initiated school communication. This finding is consistent with previous research that suggests more educated families are more engaged, and are engaged in supporting student learning in multiple ways (Grolnick & Slowiaczek, 1994; Kohl, Lengua, McMahon, & the Conduct Problems Prevention Research Group, 2000; Mapp, 2003; Mapp & Hong, 2010; Valdes, 1996; Weiss & Stephen, 2010).

Title 1 status was negatively associated with family self-reported communication. Similar to previous results of the current study, these findngs are more likely associated with poverty levels of Title 1 schools than with family engagement policies. That is, families in high-poverty schools report less family initiated school communication. This finding is supported by previous research that suggests low-SES families are less engaged in their child's education compared to higher-SES families (Griffith, 1998; Marschall, 2006; Weiss et al., 2003), and perceive fewer outreach and engagement invitations from educators (Vaden-Kiernan & Mcmanus, 2005). The cross-level interaction between Title 1 status and family level of education suggests families in high-poverty schools who possess higher education levels are more engaged in communications with school staff than families in high-poverty schools with lower levels of education. This finding is corroborated by research that suggests less educated families

report being less engaged in student learning at school and engage in fewer interactions with school staff, specially home-school conferencing (e.g., parent-teacher meetings; Fantuzzo, Tighe, & Childs, 2000; Grolnick & Slowiaczek, 1994; Kohl, Lengua, McMahon, & the Conduct Problems Prevention Research Group, 2000; Mapp, 2003; Mapp & Hong, 2010; Pena, 2000; Valdes, 1996; Weiss & Stephen, 2010).

Research Question 2c – What are the relationships among level of PS/RtI implementation, school factors, educator factors, family factors, and family self-reported engagement activities?

Family perceptions of educators' family engaement practices was a significant and positive predictor of family self-reported engagement activities. When families perceive greater levels of outreach by educators, families report greater levels of engagement in student learning. This finding is consistent with previous research that suggests families' engagement behaviors are strongly associated with families' perceptions of educators' outreach efforts and receptivity to family engagement (Anderson & Minke, 2007; Cox, 2005; Dauber & Epstein, 1993; Green et al., 2007; Henderson & Mapp, 2002; Hoover-Dempsey, Whitaker, & Ice, 2010; Overstreet et al. 2005; Patrikakou & Weissberg, 2000; Ritblatt, Beatty, Cronan, & Ochoa, 2002; Vade-Kiernean 2003). Conversely, family perceptions of educators' efforts to engage families in PS/RtI was negatively associated with family self-reported engagement activities. This finding is inconsistent with the above research as well as previous findings from

the current study that suggested educators who implemented more *general* family engagement efforts also implemented more PS/RtI engagement practices. Based on the research summarized throughout this chapter, it is unlikely that educators' practices to engage families in PS/RtI actually *cause* families to engage in fewer activities to support student learning. One hypothesis could be that families do less to support student learning when they are aware of and know the school is doing more to support their child.

Percentage of special education students was a significant and negative predictor of families' engagement activities meaning that families from schools with higher percentages of special education students report fewer engagement activities. This finding is consistent with previous research that suggests families of students receiving special education services are less engaged in student learning (Griffiths, 1998). Furthermore, this finding could be related to previous studies that find families of students receiving special education desire more information from educators on how to support their child's learning (Angell, Stoner, & Sheldon, 2009; Lake & Billingsley, 2000). Interestingly, the significant cross-level interaction between family perceptions of educators' efforts to engage families in PS/RtI and percentage of special education students was significant and positive. This finding suggests that the relationship between PS/RtI engagement and family self-reported engagement activities depends on the proportion of special education students in the school. Families from schools with higher percentages of special education students report they are more engaged.

The percentage of minority students was a significant, negative predictor of family self-reported engagement activities. This finding is consistent with previous research that finds educators perceive, and families report, less family engagement among culturally diverse families (Chrispeels & Rivero, 2001; Griffith, 1998; Lawson, 2003; Lee & Bowen, 2006; Markow & Martin, 2005; Pena, 2000; Weiss et al., 2003). Importantly, the interaction between percentage of minority students and percentage of special education students was positive. Families schools from schools with higher percentages of special education students and higher percentages of minority students report more engagement than families from schools with higher percentages of minority students, but lower percentages of special education students. The families who are least engaged are those in high minority schools with few special education students or families from schools with higher percentages of special education students and few minority students. This finding is inconsistent with previous research that suggests minority families and families of students receiving special education services are less engaged in supporting student learning (Chrispeels & Rivero, 2001; Griffith, 1998; Lawson, 2003; Lee & Bowen, 2006; Markow & Martin, 2005; Pena, 2000; Weiss et al., 2003). However, studies that report less family engagement among minorities and parents of special education students have often relied on educator reports of families' engagement.

School-mean knowledge and skills was significant and positive meaning that families from schools with more knowledgeable and skillful educators

reported they engaged in more educationally-supportive behaviors (e.g., read information that is sent home from their child's school, ensure a quiet place and time for their child to do homework at home). Previous research that suggests educators who are more effective at engaging families see positive outcomes (e.g., read information that is sent home from their child's school, ensure a quiet place and time for their child to do homework at home) as a result of their efforts (Chrispeels & Gonzalez, M., 2004; Chrispeels & Rivero, 2001; Christenson & Reschly, 2010; Henderson & Mapp, 2002; Hoover-Dempsey, Whitaker, & Ice, 2010; Patrikakou & Weissberg, 2000; Ritblatt, Beatty, Cronan, & Ochoa, 2002). The duration of RtI:B implementation was significant and positive. Length of RtI:B implementation was an interesting finding suggesting that schools that have a longer history implementing school-wide programs focusing on preventing, teaching, and reinforcing appropriate behavior also have families who report more engagement activities. This finding is consistent with school-wide programs that specifically focus on engaging stakeholders have more sustainable implementation and also experience more positive outcomes (Albright & Weissberg, 2010; Ferguson, Jordan, & Baldwin, 2010; Smrekar, Cohen-Vogel, & Lee, 2010).

Summary of Findings

One consistent finding, or lack thereof, throughout each of the research questions indicated a non-significant relationship between each of the SAPSI subscales and the outcomes explored in the current study. To date, there has

been no research investigating the relationship between family engagement and PS/RtI implementation. Furthermore, the existing research regarding family engagement in school reform efforts has been limited and of poor quality (see Smrekar, Cohen-Vogel, & Lee, 2010). Family engagement has been excluded from most evaluations of school-wide reform efforts and when included, the definitions of family engagement that are measured are extremely limited or one-dimensional (Desimone et al., 2000). One possible hypothesis for the lack of relationships found between PS/RtI implementation and family engagement could be related to the limitations of the SAPSI. The SAPSI, the measure of PS/RtI implementation used in the current study, is a self-report measure that is subject to social desirability bias. Additionally, little is known as to the extent of training that the individuals facilitating the completion of each school's SAPSI received. A lack of training to complete the SAPSI limits the validity of the instrument as an accurate measure of PS/RtI implementation.

Although findings from the current study did not provide support for the hypothesis that implementation of PS/RtI was associated with family or educators' family engagement perceptions or behaviors, the results of the current study do support the notion that families and educators are engaging with one another to support student success in the context of PS/RtI implementation. The items constituting the Family Engagement in PS/RtI Surveys included practices that reflect family engagement in problem-solving, communicating student progress to families using student data, providing frequent updates on student

progress to families etc., all of which reflect practices of a school implementing PS/RtI. In conclusion, although findings do not suggest the implementation of PS/RtI was associated with family engagement perceptions or behaviors, findings do suggest that educators and families are working together to support student success in the context of PS/RtI implementation.

The findings from the current study are consistent with the research that suggests educators' practices to engage families are positively related to family engagement levels. Furthermore, more knowledgeable and skillful educators are more likely to implement family engagement practices that result in higher levels of family engagement behaviors. As previously noted, existing research regarding the influence of demographic characteristics on family engagement is inconsistent; however, the findings from the current study suggest less educated, lower-SES, minority families may experience fewer invitations to be engaged and may enact fewer behaviors to engage in and support their child's learning. Of note, most of these findings were supported through aggregate, school-level variables of these characteristics. As such, it is likely that organizational influences (e.g., educational systems deplete of resources) are at play in such a way that hinder effective family-school partnerships in these contexts and for these families and educators. Furthermore, ineffective systems offer little, additional support to families with limited resources to support their child's school success. Theorists relate these findings to issues of cultural capital in that, low-SES, minority families often do not have the cultural capital (knowledge, skills,

resources) needed to navigate the educational system and engage with educators effectively (Mapp & Hong, 2010; Weiss & Stephen, 2010). These issues are further compounded by the ineffective systems in which these families often exist, which offer little in terms of resources to facilitate families' engagement in their child's learning.

Contributions to Existing Literature

The current study offers numerous contributions to the existing literature. First, this study represents the first investigation of family engagement in PS/RtI implementation. As such, the researcher developed two measures for use within the current study; these instruments are designed to measure the construct of family engagement in schools implementing PS/RtI. To the author's knowledge, these instruments represent the first measures of family engagement in PS/RtI that have undergone a thorough development process including statistical analyses investigating their factor structures. Furthermore, the results of EFAs and investigations of the Internal Consistency reliability estimates using Cronbach's alpha support the use of these measures as valid and reliable tools for measuring family engagement in PS/RtI. These measures have the potential to facilitate future research investigating family engagement in PS/RtI to inform effective educational practice. Third, the current study addresses some of the limitations of existing research by using Hierarchical Linear Modeling that more accurately estimates relationships among non-independent data and by obtaining data on family engagement from multiple informants rather than relying on a

single informant. These contributions are notwithstanding limitations of the current study that will be discussed later in this chapter.

Implications for Future Research

Future research should continue investigations of family engagement in schools implementing PS/RtI. Importantly, given the possible limitations of the SAPSI used in the current study, future studies should ensure training participants on the use of the SAPSI and include multiple measures of PS/RtI implementation such as observations and permanent product reviews. Ensuring participants are trained and including more than one data source of PS/RtI implementation would help to address the social desirability limitations of relying solely on self-report. Furthermore, the current study did not include measures of student academic achievement. Future research should include measures of academic achievement in order to determine associations between PS/RtI implementation practices, family engagement, and positive student outcomes.

Given the correlational nature of the current study, future research is needed to further investigate the significant relationships found in the current study. Longitudinal and quasi-experimental designs that allow for the manipulation of variables that would identify potential cause-effect relationships would further our understanding of these relationships and help to inform intervention research designed to improve family engagement in student learning (Carlson, 2010).

Quasi-experimental designs that evaluate the impact of targeted professional development on educators' perceived skills and educators' practices would provide insight into an alterable variable that has the potential to increase family engagement. Additionally, similar studies investigating the impact of greater educator outreach on families' beliefs and knowledge and skills for family engagement would inform potential interventions for increasing family engagement and subsequent benefits for positive student outcomes.

Future research should investigate possible reasons for the differences in family engagement practices by educators in schools with higher minority, lower-SES populations from both the educators' and families' perspectives. Additionally, using data collection methods beyond self-report can provide more insight into families' and educators' perspectives about family engagement (e.g., qualitative methods, observation, permanent product reviews). Gathering qualitative data on the construct of family engagement in PS/RtI would help to inform this new line of research by gathering more detailed information about the relationships identified in the current study. Additionally, continued use of the measures used in the current study will be important to further support their use with diverse populations. Extensions of this research could include translations of the measures developed in the current study.

Implications for Practice

Given the relationships between educator knowledge and skills for family engagement and family engagement practices, practitioners should offer

professional development opportunities targeting educator skill development for engaging diverse families (Eberly, Joshi, & Konzal, 2007; Hoover-Dempsey, Walker, Jones, & Reed, 2002). Although the correlation does not provide clear information on whether knowledge and skills increases practices or practices increases knowledge and skills, the use of professional development and on-site coaching would be consistent with the findings of the current study. Coaching would provide educators the opportunity to practice newly learned skills and receive feedback in order to strengthen newly learned skills. Thus, professional development combined with coaching support that targets educators' family engagement knowledge and skills for working with diverse families would be consistent with the findings of the current study. Furthermore, opening up professional development opportunities to families and offering opportunities for families and educators to learn problem-solving and communication skills together would allow for more genuine learning and practicing opportunities for both partners and would build the capacity of families to support student learning. Previous research suggests parent training focused on improving low-income, diverse families' knowledge and skills for family engagement results in more family engagement behaviors enacted by parents (Chrispeels & Gonzalez, 2004; Chrispeels & Rivero, 2001). Further, when families are provided support to be effectively engaged in their child's learning, students benefit from this support (Henderson & Mapp, 2002).

The measures developed as part of the current study offer tools to measure changes in educators' perceptions of knowledge and skills and practices for family engagement. Using the tools to measure changes as a result of professional development and coaching targeting educators' family engagement knowledge and skills has implications for changes in educators' family engagement practices and the extent to which educators are building the capacity of families to effectively support student learning. Furthermore, practitioners should work with leadership to develop effective systems that support positive family-school partnerships among low-SES, diverse school systems. Developing school-wide plans that clearly identify instructional support educators' roles and responsibilities for family engagement maximizes all educators' capacity for engaging families in student learning.

Limitations

A number of limitations exist with this study. First, the study is correlational in nature and therefore, the causal relationships among variables remain unknown. Second, the current study primarily relied on self-report data obtained from families and educators, which is subject to bias and social desirability. Notably, the study attempted to counteract effects of social desirability by maintaining anonymity of family and educator responses to alleviate the pressure of bias responding.

Third, a threat to internal validity exists because the degree to which the SAPSI for each school had been accurately completed and represented a true

measure of the school's PS/RtI implementation was unknown. The appropriate use of the SAPSI requires participant training to complete the measure. Although many of the district staff received training on how to complete the SAPSI through their participation in the PS/RtI Pilot Project, the degree to which training was given to the staff that did not participate in the PS/RtI Pilot Project could not be verified. Fourth, the measures of family engagement in PS/RtI did not exist and therefore had to be developed as part of the current study. Although analyses from the current study suggest these measured demonstrated adequate psychometric properties, the extent to which these findings would be replicable in diverse samples is unknown. Steps were taken to address this limitation, including a thorough review of existing measures to ensure items were consistent with existing measures of family engagement that demonstrate adequate psychometric properties. To address content validity of survey instruments, expert reviewers were asked to provide feedback on items in addition to obtaining additional feedback during a small pilot with families and educators.

Threats to external validity, or the degree to which findings can be generalized beyond the current study, also exist. First, the use of a convenience sample from a single school district in the state of Florida may have yielded a sample that is not a representative sample. Notably, 72% of the parent response sample was white which is higher than the average percent of white children across the district's elementary schools (55.6%). The unrepresentative sample may have biased the results of the current study. Second, the timing of the

survey mailing to parents, in addition to providing English-only versions of the measures, may have biased the parent response sample. Third, the current study did not directly contact educator respondents and relied on principals to facilitate educator participation. Although soliciting educator participation through principal requests was the preferred and recommended strategy of district personnel, the extent to which all principals followed the recommendations regarding his or her instructional staff to be included in the sample is unknown.

Conclusions

The current study represents the first investigation of family engagement practices in schools implementing PS/RtI. Results of the study suggest that knowledge and skills for family engagement are important, amenable characteristics of educators who implement family engagement practices. Furthermore, families who receive outreach efforts from knowledgeable and skillful educators report more engagement in student learning. As the first study of family engagement in PS/RtI results from the current study warrant further investigation but offer a solid foundation for future research and practice focusing on engaging families in PS/RtI implementation.

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Appendices

Appendix A
Self-Assessment of Problem-Solving Implementation

Self-Assessment of Problem Solving Implementation (SAPSI)*

PS/RtI Implementation Assessment

Directions:
In responding to each item below, please use the following response scale:

Not Started (*N*) — (The activity occurs less than 24% of the time)
In Progress (*I*) — (The activity occurs approximately 25% to 74% of the time)
Achieved (*A*) — (The activity occurs approximately 75% to 100% of the time)
Maintaining (*M*) — (The activity was rated as achieved last time and continues to occur approximately 75% to 100% of the time)

For each item below, please write the letter of the option (N, I, A, M) that best represents your School-Based Leadership Team's response in the column labeled "Status". In the column labeled "Comments/Evidence", please write any comments, explanations and/or evidence that are relevant to your team's response. When completing the items on the SAPSI, the team should base its responses on the grade levels being targeted for implementation by the school.

Consensus: ***Comprehensive Commitment and Support***	**Status**	**Comments/Evidence**
1. District level leadership provides active commitment and support (e.g., meets to review data and issues at least twice each year).		
2. The school leadership provides training, support and active involvement (e.g., principal is actively involved in School-Based Leadership Team meetings).		
3. Faculty/staff support and are actively involved with problem solving/RtI (e.g., one of top 3 goals of the School Improvement Plan, 80% of faculty document support, 3-year timeline for implementation available).		
4. A School-Based Leadership Team is established and represents the roles of an administrator, facilitator, data mentor, content specialist, parent, and teachers from representative areas (e.g., general ed., special ed.)		
5. Data are collected (e.g., beliefs survey, satisfaction survey) to assess level of commitment and impact of PS/RtI on faculty/staff.		

Additional Comments/Evidence:

* Adapted from the IL-ASPIRE SAPSI v. 1.6
Center for School Evaluation, Intervention and Training (CSEIT)
Loyola University Chicago

Appendix A continued
Self-Assessment of Problem-Solving Implementation

PS/RtI Implementation Assessment (Cont'd)

Scale: Not Started (*N*) — (The activity occurs less than 24% of the time)
In Progress (*I*) — (The activity occurs approximately 25% to 74% of the time)
Achieved (*A*) — (The activity occurs approximately 75% to 100% of the time)
Maintaining (*M*) — (The activity was rated as achieved last time and continues to occur approximately 75% to 100% of the time)

Infrastructure Development: *Data Collection and Team Structure*	**Status**	**Comments/Evidence**
6. School-wide data (e.g., DIBELS, Curriculum-Based Measures, Office Discipline Referrals) are collected through an efficient and effective systematic process.		
7. Statewide and other databases (e.g., Progress Monitoring and Reporting Network [PMRN], School-Wide Information System [SWIS]) are used to make data-based decisions.		
8. School-wide data are presented to staff after each benchmarking session (e.g., staff meetings, team meetings, grade-level meetings).		
9. School-wide data are used to evaluate the effectiveness of core academic programs.		
10. School-wide data are used to evaluate the effectiveness of core behavior programs.		
11. Curriculum-Based Measurement (e.g., DIBELS) data are used in conjunction with other data sources to identify students needing targeted group interventions and individualized interventions for academics.		
12. Office Disciplinary Referral data are used in conjunction with other data sources to identify students needing targeted group interventions and individualized interventions for behavior.		
13. Data are used to evaluate the effectiveness (RtI) of Tier 2 intervention programs.		
14. Individual student data are utilized to determine response to Tier 3 interventions.		
15. Special Education Eligibility determination is made using the RtI model for the following ESE programs:		
a. Emotional/Behavioral Disabilities (EBD)		
b. Specific Learning Disabilities (SLD)		

* Adapted from the IL-ASPIRE SAPSI v. 1.6
Center for School Evaluation, Intervention and Training (CSEIT)
Loyola University Chicago

Appendix A continued
Self-Assessment of Problem-Solving Implementation

PS/RtI Implementation Assessment (Cont'd)

Scale: Not Started (*N*) — (The activity occurs less than 24% of the time)
In Progress (*I*) — (The activity occurs approximately 25% to 74% of the time)
Achieved (*A*) — (The activity occurs approximately 75% to 100% of the time)
Maintaining (*M*) — (The activity was rated as achieved last time and continues to occur approximately 75% to 100% of the time)

Infrastructure Development: ***Data Collection and Team Structure (Cont'd)***	**Status**	**Comments/Evidence**
16. The school staff has a process to select evidence-based practices.		
a. Tier 1		
b. Tier 2		
c. Tier 3		
17. The School-Based Leadership Team has a regular meeting schedule for problem-solving activities.		
18. The School-Based Leadership Team evaluates target student's/students' RtI at regular meetings.		
19. The School-Based Leadership Team involves parents.		
20. The School-Based Leadership Team has regularly scheduled data day meetings to evaluate Tier 1 and Tier 2 data.		

Additional Comments/Evidence:

_____

_____

_____

_____

* Adapted from the IL-ASPIRE SAPSI v. 1.6
Center for School Evaluation, Intervention and Training (CSEIT)
Loyola University Chicago

Appendix A continued
Self-Assessment of Problem-Solving Implementation

PS/RtI Implementation Assessment (Cont'd)

Scale: Not Started (*N*) — (The activity occurs less than 24% of the time)
In Progress (*I*) — (The activity occurs approximately 25% to 74% of the time)
Achieved (*A*) — (The activity occurs approximately 75% to 100% of the time)
Maintaining (*M*) — (The activity was rated as achieved last time and continues to occur approximately 75% to 100% of the time)

Implementation: *Three-Tiered Intervention System and Problem-Solving Process*	**Status**	**Comments/Evidence**
21. The school has established a three-tiered system of service delivery.		
a. Tier 1 Academic Core Instruction clearly identified.		
b. Tier 1 Behavioral Core Instruction clearly identified.		
c. Tier 2 Academic Supplemental Instruction/Programs clearly identified.		
d. Tier 2 Behavioral Supplemental Instruction/Programs clearly identified.		
e. Tier 3 Academic Intensive Strategies/Programs are evidence-based.		
f. Tier 3 Behavioral Intensive Strategies/Programs are evidence-based.		
22. Teams (e.g., School-Based Leadership Team, Problem-Solving Team, Intervention Assistance Team) implement effective problem solving procedures including:		
a. Problem is defined as a data-based discrepancy (GAP Analysis) between what is expected and what is occurring (includes peer and benchmark data).		
b. Replacement behaviors (e.g., reading performance targets, homework completion targets) are clearly defined.		
c. Problem analysis is conducted using available data and evidence-based hypotheses.		
d. Intervention plans include evidence-based (e.g., research-based, data-based) strategies.		
e. Intervention support personnel are identified and scheduled for all interventions.		

* Adapted from the IL-ASPIRE SAPSI v. 1.6
Center for School Evaluation, Intervention and Training (CSEIT)
Loyola University Chicago

Appendix A continued
Self-Assessment of Problem-Solving Implementation

PS/RtI Implementation Assessment (Cont'd)

Scale: Not Started (*N*) — (The activity occurs less than 24% of the time)
In Progress (*I*) — (The activity occurs approximately 25% to 74% of the time)
Achieved (*A*) — (The activity occurs approximately 75% to 100% of the time)
Maintaining (*M*) — (The activity was rated as achieved last time and continues to occur approximately 75% to 100% of the time)

Implementation: *Three-Tiered Intervention System and Problem-Solving Process (Cont'd)*	**Status**	**Comments/Evidence**
f. Intervention integrity is documented.		
g. Response to intervention is evaluated through systematic data collection.		
h. Changes are made to intervention based on student response.		
i. Parents are routinely involved in implementation of interventions.		

Additional Comments/Evidence:

* Adapted from the IL-ASPIRE SAPSI v. 1.6
Center for School Evaluation, Intervention and Training (CSEIT)
Loyola University Chicago

Appendix B
Family Engagement in PS/RtI Survey: Educator Version

We are asking you to complete this survey in order to help us better understand more about family engagement in *Response to Intervention (RtI)* at your school. Schools in Florida have started using *Response to Intervention,* which is also called *RtI*. *RtI* is designed to help all students succeed in school by providing instruction and intervention (additional help) and educational support at different levels (called Tiers 1, 2, 3) based on their individual academic and/or behavioral needs. Schools implementing *RtI* use a data-based problem-solving process to make decisions about the help that students receive. A data-based problem-solving process includes 4 steps:

- (1) Identifying a student's academic or behavioral problem
- (2) Determining why the problem is occurring
- (3) Identifying what needs to be done in order to solve the problem, and
- (4) Determining how the student responded to the help or intervention.

Family engagement, including families' participation in the problem-solving process, is important for successful *RtI* implementation.

Directions: Please respond to each item in the survey by providing the information requested. If you work at more than one school, please respond based on your experiences at the school in which you devote most of your time.

Name of your school:

Your Current Job Position (select one):

- General Education Teacher
- Special Education Teacher
- Instructional Support Staff (Hourly teacher, Interventionist, etc.)
- Student Services Support Personnel (School Psychologist, Guidance Counselor, Social Worker, etc.)
- Administrator

Other (please indicate)

Are you a member of your school's School-Based Leadership Team (SBLT)?

- Yes
- No

Page 1

Appendix B continued
Family Engagement in PS/RtI Survey: Educator Version

Thinking about your work with families (i.e., parents, legal guardians) relative to *Response to Intervention (RtI)* implementation at your school for the 2011-2012 school year, please select the response option that best represents how much you agree or disagree with each statement below.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
1. I believe that family-school relationships have an important influence on how well a child does academically in school.	○	○	○	○	○
2. I believe that family-school relationships have an important influence on how well a child does behaviorally in school.	○	○	○	○	○
3. I believe that families want what is best for their child.	○	○	○	○	○
4. I believe that if a child struggles in school, it is important to engage his or her family in developing a plan to help the child succeed.	○	○	○	○	○
5. I believe that it is important to use a child's academic and/or behavioral data (information) when discussing student progress with his or her family.	○	○	○	○	○
6. I believe that it is important for families to receive frequent updates regarding their child's progress in school.	○	○	○	○	○
7. I believe that it is important for families to have a good understanding of what their child's academic and/or behavioral data mean for their child's success in school.	○	○	○	○	○
8. I have the skills to engage families in problem-solving using important data (information) about their child's performance.	○	○	○	○	○
9. I have the skills to communicate with families effectively.	○	○	○	○	○
10. I have the skills to explain a child's academic and behavioral data to his or her family in a way the family can understand.	○	○	○	○	○
11. I have the skills to listen to families and identify their concerns and priorities when it comes to their child.	○	○	○	○	○
12. I have the skills to use data to examine a child's academic and behavioral progress with his or her family.	○	○	○	○	○
13. I have the knowledge and skills to explain to families that the intent of *Response to Intervention (RtI)* is to develop a plan for helping the child, which may not require ESE consideration.	○	○	○	○	○

Appendix B continued
Family Engagement in PS/RtI Survey: Educator Version

Thinking about your work with families (i.e., parents, legal guardians) relative to *Response to Intervention (RtI)* implementation at your school for the 2011-2012 school year, please select the response option that best represents how much you agree or disagree with each statement below.

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
14. It is my regular practice to ask families for information about how their child learns best.	○	○	○	○	○
15. I always answer families' concerns and questions about *Response to Intervention (RtI)*.	○	○	○	○	○
16. I explain student progress data to families in a way that they can understand.	○	○	○	○	○
17. I use various methods (e.g., website, emails, etc.) to share student data with families.	○	○	○	○	○
18. I provide families with frequent updates of their child's progress.	○	○	○	○	○
19. I provide families with frequent updates on changes that occur to their child's curriculum and instruction.	○	○	○	○	○
20. It is my regular practice to provide flexible meeting times to ensure that families can be involved in problem-solving meetings about their child.	○	○	○	○	○
21. I include families in making decisions about the supports needed for their child to be successful in school.	○	○	○	○	○
22. I collaborate with families more frequently when their child is struggling.	○	○	○	○	○
23. It is my regular practice to provide families with activities they can do at home to support their child's learning.	○	○	○	○	○
24. I use student data and ongoing problem-solving to engage families in supporting student learning.	○	○	○	○	○

Thinking about your school's work with families (i.e., parents, legal guardians) relative to *Response to Intervention (RtI)* implementation for the 2011-2012 school year, please select the response option that best represents how much you agree or disagree with each statement below.

My school (or staff at my school):

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
25. provides information to families about how they (families) are included in the schools' *Response to Intervention (RtI)* activities.	○	○	○	○	○
26. provides families with information about *Response to Intervention (RtI)*.	○	○	○	○	○
27. includes families on teams implementing *Response to Intervention (RtI)*.	○	○	○	○	○
28. provides families training in using the problem-solving process to help students.	○	○	○	○	○
29. provides families opportunities to connect with and learn from other families at this school.	○	○	○	○	○
30. teaches families skills they can use at home that will improve their child's success at school.	○	○	○	○	○
31. asks families what types of assistance they may need (e.g., information, training, practice, parent mentor, etc.) in order to help their child with school.	○	○	○	○	○
32. ensures families feel welcome at this school.	○	○	○	○	○

Thank you

Thank you for completing this survey!

Appendix C
Family Engagement in PS/RtI Survey: Family Version

Family Engagement in RtI: Family Version

We are asking you to complete this survey in order to help us better understand how families and schools can work together to use Response to Intervention (RtI) at your child's school. Schools in Florida have been using Response to Intervention, which is also called RtI. RtI is designed to help all students succeed in school by providing instruction and intervention (additional help) and educational support at different levels (called Tiers 1, 2, 3) based on students' individual academic and/or behavioral needs. Schools implementing RtI use a data-based problem-solving process to make decisions about the help that students receive. A data-based problem-solving process includes 4 steps:

- (1) Identifying a child's academic or behavioral problem
- (2) Determining why the problem is occurring
- (3) Identifying what needs to be done in order to solve the problem, and
- (4) Determining how the student responded to the help or intervention.

Family engagement, including families' participation in the problem-solving process, is important for successful RtI implementation.

Please answer the following questions about your family. **Please complete this survey for only <u>one</u> child**. If you have more than one child enrolled in the same school, please think about your overall experiences with the school and answer the survey questions accordingly.

1) What school does your child currently attend?_____

2) In what grade is your child currently enrolled? (check one):
__Grade K ___Grade1 ___Grade 2 ___Grade 3 ___Grade 4 ____Grade 5

3) Does your child currently receive Exceptional Student Education (ESE-Special Education) services? (check one)
____Yes
____ No

4) During last school year (2010-2011) or this school year (2011-2012), did the school provide your child with additional interventions (any extra, intensive help or support) in addition to the regular instruction students receive in their classrooms? (check one)
____Yes
____No

5) Please indicate YOUR race/ethnicity (check one):
___American-Indian/Native-American
___Asian/Asian-American/South-Asian/Middle-Eastern
___ Black/African-American
___Hispanic/Latino
___White/Caucasian
___Multi-racial/Multi-ethnic
___Other

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Family Engagement in RtI: Family Version

6) Please indicate YOUR highest level of education (check one):
____Less than high school
____Attended but did not complete high school
____High school Diploma
____Less than an Associate degree (less than a 2-year degree)
____Associate degree (2-year degree)
____Associate degree plus additional credits, but did not complete a 4-year degree
____Bachelor's Degree (4-year degree)
____Post baccalaureate degree or diploma
____Other, please indicate:_____

7) Please indicate your spouses' highest level of education (check one or indicate N/A if this question does not apply to you):
____Less than high school
____Attended but did not complete high school
____High school Diploma
____Less than an Associate Degree (less than a 2-year degree)
____Associate Degree (2-year degree)
____Associate degree plus additional credits, but did not complete a 4-year degree
____Bachelor's Degree (4-year degree)
____Post baccalaureate degree or diploma
____Other, please indicate_____
____N/A

8) Have you heard the term Response to Intervention (RtI) before this survey? (check one)
_____Yes
_____No

9) Are you familiar with Response to Intervention (RtI)? (check one)
_____Yes, very familiar
_____Somewhat, I have a basic understanding of RtI.
_____No, I'm not familiar with RtI.

For each item below, **please rate how often you did each activity since the beginning of the current (2011-2012) school year** by circling the response option on the scale to the right of the statement that best matches your response**:** **N** = Never; **R** = Rarely; **S** = Sometimes; **O** = Often. Please circle **NA =** Not Applicable, if the item does not apply to your child or family.

Statement	Never	Rarely	Sometimes	Often	Not Applicable
10. When offered, I attend workshops to help me learn skills to support my child's educational success. (If not offered, circle "NA" for *not applicable*)	N	R	S	O	NA
11. When invited, I participate in meetings with school staff regarding the school's plans for *Response to Intervention (RtI)*. (If not invited, circle "NA" for *not applicable*)	N	R	S	O	NA

Appendix C continued
Family Engagement in PS/RtI Survey: Family Version

Family Engagement in RtI: Family Version					
Statement	**Never**	**Rarely**	**Sometimes**	**Often**	**Not Applicable**
12. I read information that is sent home from my child's school.	N	R	S	O	NA
13. I communicate with my child's teacher about my child's progress in school.	N	R	S	O	NA
14. When invited, I participate in conferences/meetings with my child's teacher regarding my child's progress in school.	N	R	S	O	NA
15. I provide a supportive environment (ensure a quiet place and time to complete homework) for my child to complete his/her schoolwork at home.	N	R	S	O	NA
16. I work with my child at home to help him/her to be successful in school.	N	R	S	O	NA
17. I talk with other parents at my child's school to get information about school-related topics.	N	R	S	O	NA
18. I ask my child's teacher for things that I can do at home to help my child with school.	N	R	S	O	NA
19. I ask my child's teacher questions if I do not understand information the school has given me.	N	R	S	O	NA
20. I let the school know what I think about the decisions the school makes about my child.	N	R	S	O	NA
21. I tell my child that school is important.	N	R	S	O	NA
22. I tell my child the expectations (complete school work, respect teachers) that I have of him/her in school.	N	R	S	O	NA

Please rate how much you agree or disagree with each of the following statements by circling the response option on the scale to the right of the statement that best matches your response**: SD =** Strongly Disagree**, D =** Disagree, **N =** Neutral, neither agree nor disagree**,** A = Agree, or **SA =** Strongly Agree.

Statement	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
23. I believe that family-school relationships have an important influence on how well children do in school.	SD	D	N	A	SA
24. I believe that if my child were struggling in school, it would be important for me to be included in developing plans to help my child in school.	SD	D	N	A	SA
25. I believe that it is important for teachers to use my child's academic and/or behavioral data (information from test scores, assessments, and progress reports) when discussing my child's progress in school.	SD	D	N	A	SA

Appendix C continued
Family Engagement in PS/RtI Survey: Family Version

Family Engagement in RtI: Family Version					
Statement	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
26. I believe that it is important for me to get frequent updates regarding my child's progress in school.	SD	D	N	A	SA
27. I have a good understanding of the basic principles of Response to Intervention (RtI).	SD	D	N	A	SA
28. I have the skills to participate in problem-solving with the school using data (for example, test scores, assessment results, and progress reports) about my child's progress.	SD	D	N	A	SA
29. I have the skills to talk with my child's teacher about my child's progress in school.	SD	D	N	A	SA
30. I have a good understanding of my child's academic and behavioral data (for example, test scores, assessment results, and progress reports).	SD	D	N	A	SA
31. I have the skills to provide academic and/or behavioral support to my child at home.	SD	D	N	A	SA
32. I have skills to help with interventions (extra help) for my child at home.	SD	D	N	A	SA
Thinking about your child's school, please rate how much you agree or disagree with each of the following statements by circling the response option on the scale to the right of the statement that best matches your response**: SD** = Strongly Disagree**, D** = Disagree, **N** = Neutral, neither agree nor disagree**, A** = Agree, or **SA** = Strongly Agree.					
Statement	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
33. The staff (teachers, administrators, specialists) at my child's school asks me for information about how my child learns best.	SD	D	N	A	SA
34. The staff (teachers, administrators, specialists) at my child's school gives me information about how families are included in the schools' Response to Intervention (RtI) activities.	SD	D	N	A	SA
35. The staff (teachers, administrators, specialists) at my child's school provides me with helpful information about Response to Intervention (RtI).	SD	D	N	A	SA
36. The staff (teachers, administrators, specialists) at my child's school includes me on teams implementing Response to Intervention (RtI).	SD	D	N	A	SA

Appendix C continued
Family Engagement in PS/RtI Survey: Family Version

Family Engagement in RtI: Family Version					
Statement	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
37. The staff (teachers, administrators, specialists) at my child's school gives me training in using the problem-solving process to help my child.	SD	D	N	A	SA
38. The staff (teachers, administrators, specialists) at my child's school answers any of my concerns and questions about Response to Intervention (RtI).	SD	D	N	A	SA
39. The staff (teachers, administrators, specialists) at my child's school explains my child's academic and behavioral data (for example, assessment results, test scores, and progress reports) to me in a way that I can understand.	SD	D	N	A	SA
40. The staff (teachers, administrators, specialists) at my child's school gives me opportunities to connect and learn from other families at this school.	SD	D	N	A	SA
41. The staff (teachers, administrators, specialists) at my child's school uses various methods (online access, website, emails, written documents, phone calls, etc.) to share my child's academic and behavioral data (test scores, assessment results, and progress reports) with me.	SD	D	N	A	SA
42. The staff (teachers, administrators, specialists) at my child's school provides me with frequent updates on my child's progress in school.	SD	D	N	A	SA
43. The staff (teachers, administrators, specialists) at my child's school provides me with frequent updates on changes that occur to my child's curriculum (changes to what my child is taught in school).	SD	D	N	A	SA
44. The staff (teachers, administrators, specialists) at my child's school teaches me skills I can use at home that will improve my child's success at school.	SD	D	N	A	SA
45. The staff (teachers, administrators, specialists) at my child's school asks me what types of assistance I may need (information, training, practice, parent mentor, etc.) in order to help my child achieve success in school.	SD	D	N	A	SA

Family Engagement in RtI: Family Version

Thinking about your child's school, please rate how much you agree or disagree with each of the following statements by circling the response option on the scale to the right of the statement that best matches your response**: SD** = Strongly Disagree**, D** = Disagree, **N** = Neutral, neither agree nor disagree**, A** = Agree, or **SA** = Strongly Agree. Please circle **NA** = Not Applicable, if the item does not apply to your child or family.

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Not Applicable
46. The staff (teachers, administrators, specialists) at my child's school is flexible with scheduling so that I can be involved in problem-solving meetings about my child.	SD	D	N	A	SA	NA
47. The staff (teachers, administrators, specialists) at my child's school includes me in decisions about the supports (interventions and extra help) needed for my child to be successful in school.	SD	D	N	A	SA	NA
48. The staff (teachers, administrators, specialists) at my child's school communicates with me more frequently when my child is struggling.	SD	D	N	A	SA	NA
49. The staff (teachers, administrators, specialists) at my child's school provides me with things (worksheets, books, games) I can do at home to support my child's intervention.	SD	D	N	A	SA	NA
50. The staff (teachers, administrators, specialists) at my child's school uses problem-solving to engage me in my child's education.	SD	D	N	A	SA	NA
51. The staff (teachers, administrators, specialists) at my child's school values my insight about why my child needs additional interventions (extra help).	SD	D	N	A	SA	NA
52. The staff (teachers, administrators, specialists) at my child's school uses my child's academic and behavioral data (for example, assessment results and progress reports) to help me understand if my child is making adequate progress in school.	SD	D	N	A	SA	NA

Thank you for completing the survey! Please remember to use the pre-paid envelope to return the survey in the mail to USF ☺

Appendix D
Development and Content Validation of the Family Engagement in PS/RtI Surveys

The Family Engagement in PS/RtI Surveys (FERS:E and FERS:F) were developed for the PS/RtI Project using a multi-step process including a thorough review of the literature, review and input from an expert panel, and a small pilot study (Ramirez, 2002). Details of the steps can be found below.

Step 1: The family engagement/school-family partnerships/family involvement literature was thoroughly reviewed along with a review of existing measures of family engagement (see Westmoreland, Bouffard, O'Carroll, & Rosenberg, 2009) to inform the development of items that measure family engagement in education. Items were constructed to be similar in content and wording to existing measures of family engagement (Westmoreland et al., 2009), however, items were adapted to reflect PS/RtI implementation language, content, and activities. An Educator Version was developed with items reflecting beliefs, perceptions of knowledge and skills, and practices of effective family engagement in PS/RtI. A Family Version was developed to parallel the Educator Version with slight changes in wording to be appropriate for family responses (e.g., changing an item from "This school ensures families and educators share information about how students learn best" [Educator Version] to "My child's school asks me for information about how my child learns best" [Family Version]). Similar parallel versions have been used in previous studies (see Chen, 2001).

Appendix D continued

Development and Content Validation of the Family Engagement in PS/RtI Surveys

The review of the literature and existing measures of family engagement yielded an initial set of 71 items for inclusion on the Family Version of the instrument and 50 items for the Educator Version of the instrument.

Step 2: Next, similar to a Q-sort method, items that reflected a similar idea or construct were grouped together. Each group of items was reviewed and redundant items were deleted. This resulted in rough draft versions that included 28 beliefs, perceptions of knowledge and skills, and family engagement practices items for both the Family and Educator Versions.

Step 3: The rough draft versions of the surveys were completed and prepared for review by the Expert Validation Panel (EVP). A panel of experts was convened to review and evaluate the content validity of the items on the instrument. Eight experts were recruited from the PS/RtI Project staff to review the Educator Version of the instrument. These individuals had received extensive training in PS/RtI content and had in-depth experience with implementation of PS/RtI in local school districts. In addition, all staff on the PS/RtI Project have been certified as public school educators. Six national, as well as state-level, family engagement content experts who are familiar with PS/RtI were recruited to review the Family Version. The majority of the family engagement content experts participated on the Florida Multi-tiered System of Support Family and

Community Engagement (MTSS-FACE) Workgroup. The MTSS-FACE Workgroup consisted of individuals familiar with multi-tiered systems of support (i.e., PS/RtI models) in Florida and who had a thorough understanding of the family engagement literature.

Step 5: The rough draft version of the survey (Appendices B and C) were provided to each member of the EVP. EVP members were asked to rate each item on two dimensions. The first dimension EVP members rated each item along included the Appropriateness of Content/Necessity of Content for measuring the domain of interest. The three response option included: Essential/Retain; Nonessential/Delete; or Redundant. The second dimension EVP members rated each item along included the Clarity of the Item. The three response option included: Good, Poorly Worded, or Ambiguous. In addition, each reviewer was asked to suggest revisions to improve the clarity of items and to suggest additional items he or she felt were essential for measuring each domain (i.e., beliefs, skills, or practices) that were not captured by the existing items in the survey. Reviewers provided their input by completing online versions of the Expert Validation Panel (EVP) Review Forms (Appendix E and Appendix F).

Step 6: An analysis of the data from the EVP Review Forms was conducted to inform subsequent modifications to each version of the measure.

The decision rules regarding the data obtained from the EVP feedback process follow:

- When 75% of reviewers indicated an item was *good* and *essential,* the item was retained.
- When the majority of reviewers indicated that an item was *redundant* with another item, it was deleted and/or reworded.
- When a majority of reviewers indicated an item was *non-essential*, it was deleted.
- When a majority of reviewers indicated an item was *poorly written* or *ambiguous*, it was edited.
- All additional items that were suggested to make the subscales more representative of the construct of interest (e.g., beliefs about family engagement) were considered.
- All suggested edits to make an item clearer were considered.

A summary of major revisions to each measure from EVP review follows:

(a) minor wording changes were made to address consistency and clarity (e.g., using family instead of parent throughout or adding qualifying statements to items),

(b) two items were created from a single item (e.g., the item "I believe that family-school relationships have an important influence on how well a child does in school" was changed into two items that read "I believe that family-school relationships have an important influence on how well a child does *academically* in school" and "…have an important influence on how well a child does *behaviorally* in school"), or

(c) items were added that provided a better measure of the construct (e.g., the item "I have the skills to explain a child's academic and behavioral data to his or her family in a way the family can understand" was added to the Knowledge and Skills subscale).

Step 7: Following the EVP, a pilot study was conducted with a small sample of parents and educators not involved in the validation process. The purpose of this pilot study was to receive feedback on the clarity of the directions, items, and the amount of time it takes to complete the survey.

Pilot Study. The pilot study was conducted with 10 parents and 10 educators from a local school district that did not participate in the overall study. Parents and educators from the local school district were recruited by district PS/RtI Project contacts. Participation was voluntary and the participants were asked to

provide feedback regarding the clarity of survey instructions and items, ease of completing the survey, length of time to complete the survey, and general suggestions for improvement. The feedback received from both the parent group and the educator group was that on average, time needed to complete the survey ranged from 10 minutes (educators) to 13 minutes (families). No significant content changes were suggested for either version of the survey. Formatting and slight wording changes were suggested from families and educators and those were taken into consideration for the final versions. Final versions of the surveys were used for data collection (see Appendix B and Appendix C).

Appendix E
Educator Expert Validation Panel (EVP) Form

Content Validation, Family Engagement in PS/RtI Survey: Educator Version

Directions

The *Family Engagement in Problem-Solving/Response to Intervention (PS/RtI) Survey: Educator Version* is intended to capture educators' beliefs, perceived skills, and practices specific to family engagement in Problem-Solving/Response to Intervention (PS/RtI) implementation. The items on the survey are designed to assess three domains specific to family engagement including:

- the degree to which educators endorse essential beliefs about the importance family engagement (items 1-6)
- the degree to which educators perceive they have the skills necessary to effectively engage families in PS/RtI (items 7 to 10), and
- the degree to which educators report implementing practices to engage families in PS/RtI. (items 11 to 28).

The data derived from the surveys will provide a foundation for future research and contribute to our understanding of family engagement in PS/RtI.

A good survey is concise, contains clearly and accurately written items that relate to the purpose of the survey, and avoids duplicate items. To evaluate the degree to which the attached survey meet these criteria, please rate each item on the basis of: (a) the appropriateness of content/ necessity relative to the domain being measured, and (b) the clarity of the item. Please read each question carefully and rate it by selecting one descriptor for *Appropriateness/Necessity of Content*, and one for *Clarity*.

Appropriateness/Necessity of Content Rating:
Essential/Retain (The content should be retained as the content is critical to the respective domain [it is an essential belief, skill, or practice] of family engagement in PS/RtI);
Nonessential/Delete (The item should be deleted as the content is non-related to the respective domain [it is not an essential belief, skill, or practice] of family engagement in PS/RtI);
Redundant (There are items with similar content and meaning. If you indicate an item is redundant, please specify the item with which it is too similar in the space provided).

Clarity Rating:
Good (Item is clearly and accurately written);
Poorly Written (Item has semantic or grammatical errors);
Ambiguous (Item has abstract or vague content, or it is a double-barreled item that poses two or more questions in one statement).

If you indicate *Poorly Written* or *Ambiguous* for the *Clarity* ratings, please suggest edits in the space *Rewrites/Comments* provided. Additionally, if you feel that an important item needed to assess *Family Engagement in PS/RtI* is missing from the set of items, please suggest an item to reflect the missing belief/perceived skill/or practice in the *Additional Items* space provided.

Appendix E continued
Educator Expert Validation Panel (EVP) Form

Content Validation, Family Engagement in PS/RtI Survey: Educator Version

Family Engagement Belief Items — CLARITY

Choose one for each statement.

Good — *Item is clearly and accurately written*
Poorly Written — *Item has semantic or grammatical errors*
Ambiguous — *Item has abstract or vague content, or it is a double-barreled item that poses two or more questions in one statement*

	Good	Poorly Written	Ambiguous
1. I believe that family-school relationships have an important influence on how well children do in school.	○	○	○
2. I believe that all families want what is best for their child.	○	○	○
3. I believe that if a student struggles in school, it is important for teachers to engage families in developing a plan to help their child succeed.	○	○	○
4. I believe that if a student struggles in school, it is important for teachers to obtain family input to help the student.	○	○	○
5. I believe that it is important to use student's academic and/or behavioral data (information) when discussing student progress with their parents.	○	○	○
6. I believe that it is important for families to receive frequent updates regarding their child's progress in school.	○	○	○

Please provide suggested rewrites and/or comments for items which you rated *Poorly Written* or *Ambiguous* above.

1. I believe that family-school relationships have an important influence on how well children do in school.
2. I believe that all families want what is best for their child.
3. I believe that if a student struggles in school, it is important for teachers to engage families in developing a plan to help their child succeed.
4. I believe that if a student struggles in school, it is important for teachers to obtain family input to help the student.
5. I believe that it is important to use student's academic and/or behavioral data (information) when discussing student progress with their parents.
6. I believe that it is important for families to receive frequent updates regarding their child's progress in school.

Appendix E continued
Educator Expert Validation Panel (EVP) Form

Content Validation, Family Engagement in PS/RtI Survey: Educator Version

Family Engagement Belief Items — Appropriateness/Necess...

Choose one for each statement.

Essential/Retain *— The content should be retained as the content is critical to the respective domain (it is an essential belief, skill, or practice) of family engagement in PS/RtI.*
Nonessential/Delete *— The item should be deleted as the content is non-related to the respective domain (it is not an essential belief, skill, or practice) of family engagement in PS/RtI.*
Redundant *— There are items with similar content and meaning.*

	Essential/ Retain	Nonessential/ Delete	Redundant
1. I believe that family-school relationships have an important influence on how well children do in school.	○	○	○
2. I believe that all families want what is best for their child.	○	○	○
3. I believe that if a student struggles in school, it is important for teachers to engage families in developing a plan to help their child succeed.	○	○	○
4. I believe that if a student struggles in school, it is important for teachers to obtain family input to help the student.	○	○	○
5. I believe that it is important to use student's academic and/or behavioral data (information) when discussing student progress with their parents.	○	○	○
6. I believe that it is important for families to receive frequent updates regarding their child's progress in school.	○	○	○

If you indicated *Redundant* for any item(s) above, please specify the item numbers that are too similar.

Please provide any additional items that you feel represent essential beliefs of family engagement in PS/RtI that are not captured in items 1-6.

Appendix E continued
Educator Expert Validation Panel (EVP) Form

Indicate whether or not the following response scale is appropriate for the Belief Items.

Response Scale
SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

- ○ Appropriate
- ○ Not Appropriate

Appendix E continued
Educator Expert Validation Panel (EVP) Form

Content Validation, Family Engagement in PS/RtI Survey: Educator Version

Family Engagement Skills Items — CLARITY

Choose one for each statement.

Good — *Item is clearly and accurately written*
Poorly Written — *Item has semantic or grammatical errors*
Ambiguous — *Item has abstract or vague content, or it is a double-barreled item that poses two or more questions in one statement*

	Good	Poorly Written	Ambiguous
7. I have the knowledge and skills to explain RtI to all families.	○	○	○
8. I have the skills to engage families in data-based problem-solving using important information (data) about their child's concerns.	○	○	○
9. I have the skills to communicate with all families effectively.	○	○	○
10. I have the skills to explain students' academic and behavioral data to all families.	○	○	○

Please provide suggested rewrites and/or comments for items which you rated *Poorly Written* or *Ambiguous* above.

7. I have the knowledge and skills to explain RtI to all families.	
8. I have the skills to engage families in data-based problem-solving using important information (data) about their child's concerns.	
9. I have the skills to communicate with all families effectively.	
10. I have the skills to explain students' academic and behavioral data to all families.	

Appendix E continued
Educator Expert Validation Panel (EVP) Form

Content Validation, Family Engagement in PS/RtI Survey: Educator Version

Family Engagement Skills Items — Appropriateness/Necess...

Choose one for each statement.

Essential/Retain — ***The content should be retained as the content is critical to the respective domain (it is an essential belief, skill, or practice) of family engagement in PS/RtI.***
Nonessential/Delete — ***The item should be deleted as the content is non-related to the respective domain (it is not an essential belief, skill, or practice) of family engagement in PS/RtI.***
Redundant — ***There are items with similar content and meaning.***

	Essential/ Retain	Nonessential/ Delete	Redundant
7. I have the knowledge and skills to explain RtI to all families.	○	○	○
8. I have the skills to engage families in data-based problem-solving using important information (data) about their child's concerns.	○	○	○
9. I have the skills to communicate with all families effectively.	○	○	○
10. I have the skills to explain students' academic and behavioral data to all families.	○	○	○

If you indicated *Redundant* for any item(s) above, please specify the item numbers that are too similar.

Please provide any additional items that you feel represent essential skills for family engagement in PS/RtI that are not captured in items 7-10.

Indicate whether or not the following response scale is appropriate for the Skills Items.

Response Scale
SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

○ Appropriate

○ Not Appropriate

Appendix E continued
Educator Expert Validation Panel (EVP) Form

Indicate whether or not the following response scale is appropriate for the Skills Items.

Response Scale
SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

- ○ Appropriate
- ○ Not Appropriate

You indicated that the response scale is not appropriate for the Skills Items. Please provide a suggestion for edits.

Appendix E continued
Educator Expert Validation Panel (EVP) Form

Content Validation, Family Engagement in PS/RtI Survey: Educator Version

Family Engagement Practice Items — CLARITY

Choose one for each statement.

Good — *Item is clearly and accurately written*
Poorly Written — *Item has semantic or grammatical errors*
Ambiguous — *Item has abstract or vague content, or it is a double-barreled item that poses two or more questions in one statement*

	Good	Poorly Written	Ambiguous
11. This school (the staff at this school) asks families for information about how their child learns best.	○	○	○
12. This school (the staff at this school) gives information about how families are included in the schools' Response to Intervention activities.	○	○	○
13. This school (the staff at this school) has provided families with information about Response to Intervention.	○	○	○
14. This school (the staff at this school) includes families on teams implementing Response to Intervention.	○	○	○
15. This school (the staff at this school) gives families training in using the problem-solving process to help students.	○	○	○
16. This school (the staff at this school) answers families' concerns and questions about Response to Intervention.	○	○	○
17. This school (the staff at this school) explains student progress data to families in a way that they can understand.	○	○	○
18. This school (the staff at this school) gives families opportunities to connect and learn from other families at this school.	○	○	○
19. This school (the staff at this school) uses technology (e.g., website, emails, etc.) to share student data with families.	○	○	○
20. This school (the staff at this school) provides families with frequent updates of student progress.	○	○	○
21. This school (the staff at this school) provides parents with frequent updates on changes that occur to their child's curriculum.	○	○	○
22. This school (the staff at this school) teaches families skills they can use at home that will improve their child's success at school.	○	○	○
23. This school (the staff at this school) asks families what types of assistance they may need (e.g., information, training, practice, parent mentor, etc.) in order to help their child with school.	○	○	○
24. This school (the staff at this school) provides flexible times to be sure that families can be involved in problem-solving meetings about their child.	○	○	○
25. This school (the staff at this school) includes families in decisions about the supports needed for their child to be successful in school.	○	○	○
26. This school (the staff at this school) collaborates with families more frequently when their child is struggling.	○	○	○
27. This school (the staff at this school) provides parents with things they can do at home to support their child's intervention.	○	○	○

Appendix E continued
Educator Expert Validation Panel (EVP) Form

Content Validation, Family Engagement in PS/RtI Survey: Educator Version

28. This school (the staff at this school) uses student data and ongoing problem-solving to engage families in student learning.

Please provide suggested rewrites and/or comments for items which you rated *Poorly Written* or *Ambiguous* above.

11. This school (the staff at this school) asks families for information about how their child learns best.

12. This school (the staff at this school) gives information about how families are included in the schools' Response to Intervention activities.

13. This school (the staff at this school) has provided families with information about Response to Intervention.

14. This school (the staff at this school) includes families on teams implementing Response to Intervention.

15. This school (the staff at this school) gives families training in using the problem-solving process to help students.

16. This school (the staff at this school) answers families' concerns and questions about Response to Intervention.

17. This school (the staff at this school) explains student progress data to families in a way that they can understand.

18. This school (the staff at this school) gives families opportunities to connect and learn from other families at this school.

19. This school (the staff at this school) uses technology (e.g., website, emails, etc.) to share student data with families.

20. This school (the staff at this school) provides families with frequent updates of student progress.

21. This school (the staff at this school) provides parents with frequent updates on changes that occur to their child's curriculum.

22. This school (the staff at this school) teaches families skills they can use at home that will improve their child's success at school.

23. This school (the staff at this school) asks families what types of assistance they may need (e.g., information, training, practice, parent mentor, etc.) in order to help their child with school.

24. This school (the staff at this school) provides flexible times to be sure that families can be involved in problem-solving meetings about their child.

25. This school (the staff at this school) includes families in decisions about the supports needed for their child to be successful in school.

26. This school (the staff at this school) collaborates with families more frequently when their child is struggling.

27. This school (the staff at this school) provides parents with things they can do at home to support their child's intervention.

28. This school (the staff at this school) uses student data and ongoing problem-solving to engage families in student learning.

Appendix E continued
Educator Expert Validation Panel (EVP) Form

Content Validation, Family Engagement in PS/RtI Survey: Educator Version

Family Engagement Practice Items — Appropriateness/Nece...

Choose one for each statement.

Essential/Retain — ***The content should be retained as the content is critical to the respective domain (it is an essential belief, skill, or practice) of family engagement in PS/RtI.***
Nonessential/Delete — ***The item should be deleted as the content is non-related to the respective domain (it is not an essential belief, skill, or practice) of family engagement in PS/RtI.***
Redundant — ***There are items with similar content and meaning.***

	Essential/ Retain	Nonessential/ Delete	Redundant
11. This school (the staff at this school) asks families for information about how their child learns best.	○	○	○
12. This school (the staff at this school) gives information about how families are included in the schools' Response to Intervention activities.	○	○	○
13. This school (the staff at this school) has provided families with information about Response to Intervention.	○	○	○
14. This school (the staff at this school) includes families on teams implementing Response to Intervention.	○	○	○
15. This school (the staff at this school) gives families training in using the problem-solving process to help students.	○	○	○
16. This school (the staff at this school) answers families' concerns and questions about Response to Intervention.	○	○	○
17. This school (the staff at this school) explains student progress data to families in a way that they can understand.	○	○	○
18. This school (the staff at this school) gives families opportunities to connect and learn from other families at this school.	○	○	○
19. This school (the staff at this school) uses technology (e.g., website, emails, etc.) to share student data with families.	○	○	○
20. This school (the staff at this school) provides families with frequent updates of student progress.	○	○	○
21. This school (the staff at this school) provides parents with frequent updates on changes that occur to their child's curriculum.	○	○	○
22. This school (the staff at this school) teaches families skills they can use at home that will improve their child's success at school.	○	○	○
23. This school (the staff at this school) asks families what types of assistance they may need (e.g., information, training, practice, parent mentor, etc.) in order to help their child with school.	○	○	○
24. This school (the staff at this school) provides flexible times to be sure that families can be involved in problem-solving meetings about their child.	○	○	○
25. This school (the staff at this school) includes families in decisions about the supports needed for their child to be successful in school.	○	○	○
26. This school (the staff at this school) collaborates with families more frequently when their child is struggling.	○	○	○

their child is struggling.

27. This school (the staff at this school) provides parents with things they can do at home to support their child's intervention.	○	○	○
28. This school (the staff at this school) uses student data and ongoing problem-solving to engage families in student learning.	○	○	○

If you indicated *Redundant* for any item(s) above, please specify the item numbers that are too similar.

Please provide any additional items that you feel represent essential practices of family engagement in PS/RtI that are not captured in items 11-28.

Indicate whether or not the following response scale is appropriate for the Practice Items.

Response Scale
SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

○ Appropriate

○ Not Appropriate

You indicated that the response scale is not appropriate for the Practice Items. Please provide a suggestion for edits.

Thank you

Thank you for your assistance with this important step in validating a measure to capture the beliefs, skills, and practices of effective family engagement within PS/RtI models of service delivery.

Appendix F
Family Expert Validation Panel (EVP) Form

Directions

The *Family Engagement in Problem-Solving/Response to Intervention (PS/RtI) Survey: Family Version* is intended to capture family members' (i.e., parents, legal guardians) beliefs, perceived skills, and practices specific to family engagement in Problem-Solving/Response to Intervention (PS/RtI) implementation. The items on the survey are designed to assess three domains specific to family engagement including:

- the degree to which families endorse essential beliefs about the importance family engagement (items 1-6)
- the degree to which families perceive they have the skills necessary to effectively engage families in PS/RtI (items 7 to 10), and
- families' reports of the schools' practices to engage families in PS/RtI. (items 11 to 28).

The data derived from the surveys will provide a foundation for future research and contribute to our understanding of family engagement in PS/RtI.

A good survey is concise, contains clearly and accurately written items that relate to the purpose of the survey, and avoids duplicate items. To evaluate the degree to which the attached survey meet these criteria, please rate each item on the basis of: (a) the appropriateness of content/ necessity relative to the domain being measured, and (b) the clarity of the item. Please read each question carefully and rate it by selecting one descriptor for *Appropriateness/Necessity of Content*, and one for *Clarity*.

Appropriateness/Necessity of Content Rating:
Essential/Retain (The content should be retained as the content is critical to the respective domain [it is an essential belief, skill, or practice] of family engagement in PS/RtI);
Nonessential/Delete (The item should be deleted as the content is non-related to the respective domain [it is not an essential belief, skill, or practice] of family engagement in PS/RtI);
Redundant (There are items with similar content and meaning. If you indicate an item is redundant, please specify the item with which it is too similar in the space provided).

Clarity Rating:
Good (Item is clearly and accurately written);
Poorly Written (Item has semantic or grammatical errors);
Ambiguous (Item has abstract or vague content, or it is a double-barreled item that poses two or more questions in one statement).

If you indicate *Poorly Written* or *Ambiguous* for the *Clarity* ratings, please suggest edits in the space *Rewrites/Comments* provided. Additionally, if you feel that an important item needed to assess *Family Engagement in PS/RtI* is missing from the set of items, please suggest an item to reflect the missing belief/perceived skill/or practice in the *Additional Items* space provided.

Appendix F continued
Family Expert Validation Panel (EVP) Form

Choose one for each statement.

Good — ***Item is clearly and accurately written***
Poorly Written — ***Item has semantic or grammatical errors***
Ambiguous — ***Item has abstract or vague content, or it is a double-barreled item that poses two or more questions in one statement***

	Good	Poorly Written	Ambiguous
13. I believe that family-school relationships have an important influence on how well children do in school.	○	○	○
14. I want what is best for my child.	○	○	○
15. I believe that if my child were struggling in school, it is important that my child's teacher include me in developing a plan to help my child.	○	○	○
16. I believe that if my child were struggling in school, my input would be important to help my child.	○	○	○
17. I believe that it is important for teachers to use my child's academic and/or behavioral data (information) when discussing my child's progress in school.	○	○	○
18. I believe that it is important for me to get frequent information regarding my child's progress in school.	○	○	○

Please provide suggested rewrites and/or comments for items which you rated *Poorly Written* or *Ambiguous* above.

13. I believe that family-school relationships have an important influence on how well children do in school.

14. I want what is best for my child.

15. I believe that if my child were struggling in school, it is important that my child's teacher include me in developing a plan to help my child.

16. I believe that if my child were struggling in school, my input would be important to help my child.

17. I believe that it is important for teachers to use my child's academic and/or behavioral data (information) when discussing my child's progress in school.

18. I believe that it is important for me to get frequent information regarding my child's progress in school.

Appendix F continued
Family Expert Validation Panel (EVP) Form

Family Engagement Belief Items — Appropriateness/Necess...

Choose one for each statement.

Essential/Retain — ***The content should be retained as the content is critical to the respective domain (it is an essential belief, skill, or practice) of family engagement in PS/RtI.***
Nonessential/Delete — ***The item should be deleted as the content is non-related to the respective domain (it is not an essential belief, skill, or practice) of family engagement in PS/RtI.***
Redundant — ***There are items with similar content and meaning.***

	Essential/ Retain	Nonessential/ Delete	Redundant
13. I believe that family-school relationships have an important influence on how well children do in school.	○	○	○
14. I want what is best for my child.	○	○	○
15. I believe that if my child were struggling in school, it is important that my child's teacher include me in developing a plan to help my child.	○	○	○
16. I believe that if my child were struggling in school, my input would be important to help my child.	○	○	○
17. I believe that it is important for teachers to use my child's academic and/or behavioral data (information) when discussing my child's progress in school.	○	○	○
18. I believe that it is important for me to get frequent information regarding my child's progress in school.	○	○	○

If you indicated *Redundant* for any item(s) above, please specify the item numbers that are too similar.

Please provide any additional items that you feel represent essential beliefs of family engagement in PS/RtI that are not captured in items 13-18.

Appendix F continued
Family Expert Validation Panel (EVP) Form

Indicate whether or not the following response scale is appropriate for the Belief Items.

Response Scale
SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

- ○ Appropriate
- ○ Not Appropriate

You indicated that the response scale is not appropriate for the Belief Items. Please provide a suggestion for edits.

Appendix F continued
Family Expert Validation Panel (EVP) Form

Family Engagement Skills Items — CLARITY

Choose one for each statement.

Good — *Item is clearly and accurately written*
Poorly Written — *Item has semantic or grammatical errors*
Ambiguous — *Item has abstract or vague content, or it is a double-barreled item that poses two or more questions in one statement*

	Good	Poorly Written	Ambiguous
19. I have a good understanding of the basic principles of Response to Intervention.	○	○	○
20. I have the skills to participate in data-based problem-solving with the school using important information (data) about my child's concerns.	○	○	○
21 I have the skills to talk with my child's teacher about my child's education.	○	○	○
22. I have a good understanding of my child's academic and behavioral performance data.	○	○	○

Please provide suggested rewrites and/or comments for items which you rated *Poorly Written* or *Ambiguous* above.

19. I have a good understanding of the basic principles of Response to Intervention.	
20. I have the skills to participate in data-based problem-solving with the school using important information (data) about my child's concerns.	
21 I have the skills to talk with my child's teacher about my child's education.	
22. I have a good understanding of my child's academic and behavioral performance data.	

Appendix F continued
Family Expert Validation Panel (EVP) Form

Family Engagement Skills Items — Appropriateness/Necess...

Choose one for each statement.

Essential/Retain — ***The content should be retained as the content is critical to the respective domain (it is an essential belief, skill, or practice) of family engagement in PS/RtI.***
Nonessential/Delete — ***The item should be deleted as the content is non-related to the respective domain (it is not an essential belief, skill, or practice) of family engagement in PS/RtI.***
Redundant — ***There are items with similar content and meaning.***

	Essential/ Retain	Nonessential/ Delete	Redundant
19. I have a good understanding of the basic principles of Response to Intervention.	○	○	○
20. I have the skills to participate in data-based problem-solving with the school using important information (data) about my child's concerns.	○	○	○
21 I have the skills to talk with my child's teacher about my child's education.	○	○	○
22. I have a good understanding of my child's academic and behavioral performance data.	○	○	○

If you indicated *Redundant* for any item(s) above, please specify the item numbers that are too similar.

Please provide any additional items that you feel represent essential skills for family engagement in PS/RtI that are not captured in items 19-22.

Indicate whether or not the following response scale is appropriate for the Skills Items.

Response Scale
SD = Strongly Disagree, D = Disagree, N = Neutral, A = Agree, SA = Strongly Agree

○ Appropriate

○ Not Appropriate

Appendix F continued
Family Expert Validation Panel (EVP) Form

Family Engagement Practice Items — CLARITY

Choose one for each statement.

Good — *Item is clearly and accurately written*
Poorly Written — *Item has semantic or grammatical errors*
Ambiguous — *Item has abstract or vague content, or it is a double-barreled item that poses two or more questions in one statement*

	Good	Poorly Written	Ambiguous
23. My child's school (the staff at my child's school) asks me for information about how my child learns best.	○	○	○
24. My child's school (the staff at my child's school) gives information about how families are included in the schools' Response to Intervention activities.	○	○	○
25. My child's school (the staff at my child's school) provides me with helpful information about Response to Intervention.	○	○	○
26. My child's school (the staff at my child's school) includes families on teams implementing Response to Intervention.	○	○	○
27. My child's school (the staff at my child's school) gives families training in using the problem-solving process to help students.	○	○	○
28. My child's school (the staff at my child's school) answers any of my concerns and questions about Response to Intervention.	○	○	○
29. My child's school (the staff at my child's school) explains my child's progress data to me in a way that I can understand.	○	○	○
30. My child's school (the staff at my child's school) gives me opportunities to connect and learn from other families at this school.	○	○	○
31. My child's school (the staff at my child's school) uses technology (e.g., website, emails, etc.) to share my child's data with me.	○	○	○
32. My child's school (the staff at my child's school) provides me with frequent updates of my child's progress.	○	○	○
33. My child's school (the staff at my child's school) provides me with frequent updates on changes that occur to my child's curriculum.	○	○	○
34. My child's school (the staff at my child's school) teaches me skills I can use at home that will improve my child's success at school.	○	○	○
35. My child's school (the staff at my child's school) asks me what types of assistance I may need (e.g., information, training, practice, parent mentor, etc.) in order to help my child achieve success in school.	○	○	○
36. Last school year (2010-2011) or this school year (2011-2012), did your child receive additional interventions in school? (circle one) YES NO *If you answered YES to #36, please continue on to section B. If you answered NO to #36, thank you for completing our survey- you are finished!*	○	○	○
37. My child's school (the staff at my child's school) provides flexible times to be sure that I can be involved in problem-solving meetings about my child.	○	○	○
38. My child's school (the staff at my child's school) includes me in decisions about the supports needed for my child to be successful in school.	○	○	○

39. My child's school (the staff at my child's school) collaborates with me more frequently when my child is struggling.	○	○	○
40. My child's school (the staff at my child's school) provides me with things I can do at home to support my child's intervention.	○	○	○
41. My child's school (the staff at my child's school) uses problem-solving to engage me in my child's education.	○	○	○

Please provide suggested rewrites and/or comments for items which you rated *Poorly Written* or *Ambiguous* above.

23. My child's school (the staff at my child's school) asks me for information about how my child learns best.

24. My child's school (the staff at my child's school) gives information about how families are included in the schools' Response to Intervention activities.

25. My child's school (the staff at my child's school) provides me with helpful information about Response to Intervention.

26. My child's school (the staff at my child's school) includes families on teams implementing Response to Intervention.

27. My child's school (the staff at my child's school) gives families training in using the problem-solving process to help students.

28. My child's school (the staff at my child's school) answers any of my concerns and questions about Response to Intervention.

29. My child's school (the staff at my child's school) explains my child's progress data to me in a way that I can understand.

30. My child's school (the staff at my child's school) gives me opportunities to connect and learn from other families at this school.

31. My child's school (the staff at my child's school) uses technology (e.g., website, emails, etc.) to share my child's data with me.

32. My child's school (the staff at my child's school) provides me with frequent updates of my child's progress.

33. My child's school (the staff at my child's school) provides me with frequent updates on changes that occur to my child's curriculum.

34. My child's school (the staff at my child's school) teaches me skills I can use at home that will improve my child's success at school.

35. My child's school (the staff at my child's school) asks me what types of assistance I may need (e.g., information, training, practice, parent mentor, etc.) in order to help my child achieve success in school.

36. Last school year (2010-2011) or this school year (2011-2012), did your child receive additional interventions in school? (circle one)
YES NO
If you answered YES to #36, please continue on to section B. If you answered NO to #36, thank you for completing our survey- you are finished!

37. My child's school (the staff at my child's school) provides flexible times to be sure that I can be involved in problem-solving meetings about my child.

38. My child's school (the staff at my child's school) includes me in decisions about the supports needed for my child to be successful in school.

39. My child's school (the staff at my child's school) collaborates with me more frequently when my child is struggling.	
40. My child's school (the staff at my child's school) provides me with things I can do at home to support my child's intervention.	
41. My child's school (the staff at my child's school) uses problem-solving to engage me in my child's education.	

Family Engagement Practice Items — Appropriateness/Nece...

Choose one for each statement.

***Essential/Retain** — The content should be retained as the content is critical to the respective domain (it is an essential belief, skill, or practice) of family engagement in PS/Rtl.*
***Nonessential/Delete** — The item should be deleted as the content is non-related to the respective domain (it is not an essential belief, skill, or practice) of family engagement in PS/Rtl.*
***Redundant** — There are items with similar content and meaning.*

	Essential/ Retain	Nonessential/ Delete	Redundant
23. My child's school (the staff at my child's school) asks me for information about how my child learns best.	○	○	○
24. My child's school (the staff at my child's school) gives information about how families are included in the schools' Response to Intervention activities.	○	○	○
25. My child's school (the staff at my child's school) provides me with helpful information about Response to Intervention.	○	○	○
26. My child's school (the staff at my child's school) includes families on teams implementing Response to Intervention.	○	○	○
27. My child's school (the staff at my child's school) gives families training in using the problem-solving process to help students.	○	○	○
28. My child's school (the staff at my child's school) answers any of my concerns and questions about Response to Intervention.	○	○	○
29. My child's school (the staff at my child's school) explains my child's progress data to me in a way that I can understand.	○	○	○
30. My child's school (the staff at my child's school) gives me opportunities to connect and learn from other families at this school.	○	○	○
31. My child's school (the staff at my child's school) uses technology (e.g., website, emails, etc.) to share my child's data with me.	○	○	○
32. My child's school (the staff at my child's school) provides me with frequent updates of my child's progress.	○	○	○
33. My child's school (the staff at my child's school) provides me with frequent updates on changes that occur to my child's curriculum.	○	○	○
34. My child's school (the staff at my child's school) teaches me skills I can use at home that will improve my child's success at school.	○	○	○
35. My child's school (the staff at my child's school) asks me what types of assistance I may need (e.g., information, training, practice, parent mentor, etc.) in order to help my child achieve success in school.	○	○	○
36. Last school year (2010-2011) or this school year (2011-2012), did your child receive additional interventions in school? (circle one) YES NO *If you answered YES to #36, please continue on to section B. If you answered NO to #36, thank you for completing our survey- you are finished!*	○	○	○
37. My child's school (the staff at my child's school) provides flexible times to be sure that I can be involved in problem-solving meetings about my child.	○	○	○

Appendix F continued
Family Expert Validation Panel (EVP) Form

Family Engagement Behaviors — CLARITY

Parents will also be completing demographic information about themselves and frequency of their own engagement behaviors. Please provide feedback on the items below regarding family demographics and family member participation in family engagement activities.

Response Scale
N=Never, R=Rarely, S=Sometimes, O=Often

Choose one for each statement.

Good — ***Item is clearly and accurately written***
Poorly Written — ***Item has semantic or grammatical errors***
Ambiguous — ***Item has abstract or vague content, or it is a double-barreled item that poses two or more questions in one statement***

	Good	Poorly Written	Ambiguous
1. When offered, I attend meetings to help me learn skills to support my child's educational success.	○	○	○
2. When invited, I participate in meetings with school staff regarding Response to Intervention.	○	○	○
3. When information is sent home from school, I read it.	○	○	○
4. I communicate with my child's teacher about my child's progress in school.	○	○	○
5. I attend conferences/meetings with my child's teacher.	○	○	○
6. I have a place and time for my child to complete his/her schoolwork at home.	○	○	○
7. I work with my child at home to help him/her to be successful in school.	○	○	○
8. I talk with other parents at my child's school to get information about school-related topics.	○	○	○
9. I ask my child's teacher for things that I can do at home to help my child with school.	○	○	○
10. I ask my child's teacher questions if I don't understand information the school provided me.	○	○	○
11. I let the school know what I think about the decisions the school makes about my child.	○	○	○
12. I tell my child that school is important.	○	○	○

Appendix F continued
Family Expert Validation Panel (EVP) Form

Please provide suggested rewrites and/or comments for items which you rated *Poorly Written* or *Ambiguous* above.

1. When offered, I attend meetings to help me learn skills to support my child's educational success.	
2. When invited, I participate in meetings with school staff regarding Response to Intervention.	
3. When information is sent home from school, I read it.	
4. I communicate with my child's teacher about my child's progress in school.	
5. I attend conferences/meetings with my child's teacher.	
6. I have a place and time for my child to complete his/her schoolwork at home.	
7. I work with my child at home to help him/her to be successful in school.	
8. I talk with other parents at my child's school to get information about school-related topics.	
9. I ask my child's teacher for things that I can do at home to help my child with school.	
10. I ask my child's teacher questions if I don't understand information the school provided me.	
11. I let the school know what I think about the decisions the school makes about my child.	
12. I tell my child that school is important.	

Appendix F continued
Family Expert Validation Panel (EVP) Form

Family Engagement Behaviors — Appropriateness/Necessity...

Choose one for each statement.

Essential/Retain — ***The content should be retained as the content is critical to the respective domain (it is an essential belief, skill, or practice) of family engagement in PS/RtI.***
Nonessential/Delete — ***The item should be deleted as the content is non-related to the respective domain (it is not an essential belief, skill, or practice) of family engagement in PS/RtI.***
Redundant — ***There are items with similar content and meaning.***

	Essential/ Retain	Nonessential/ Delete	Redundant
1. When offered, I attend meetings to help me learn skills to support my child's educational success.	○	○	○
2. When invited, I participate in meetings with school staff regarding Response to Intervention.	○	○	○
3. When information is sent home from school, I read it.	○	○	○
4. I communicate with my child's teacher about my child's progress in school.	○	○	○
5. I attend conferences/meetings with my child's teacher.	○	○	○
6. I have a place and time for my child to complete his/her schoolwork at home.	○	○	○
7. I work with my child at home to help him/her to be successful in school.	○	○	○
8. I talk with other parents at my child's school to get information about school-related topics.	○	○	○
9. I ask my child's teacher for things that I can do at home to help my child with school.	○	○	○
10. I ask my child's teacher questions if I don't understand information the school provided me.	○	○	○
11. I let the school know what I think about the decisions the school makes about my child.	○	○	○
12. I tell my child that school is important.	○	○	○

If you indicated *Redundant* for any item(s) above, please specify the item numbers that are too similar.

Please provide any additional items that you feel represent essential behaviors of family engagement in PS/RtI that are not captured in items 1-12.

Appendix F continued
Family Expert Validation Panel (EVP) Form

Indicate whether or not the following response scale is appropriate for the Practice Items.

Response Scale
N=Never, R=Rarely, S=Sometimes, O=Often

- Appropriate
- Not Appropriate

You indicated that the response scale is not appropriate for the Behavior Items. Please provide a suggestion for edits.

Demographic Information

Directions: Please answer the following questions about your family. Please complete this survey for only one child. If you have more than one child enrolled in the same school, please think about your overall experiences with the school and answer the survey questions accordingly.

Please provide suggested rewrites and/or comments for any of the items below.

a) What school does your child currently attend?
_____

b) In what grade is your child currently enrolled? (circle one): K 1 2 3 4 5

c) Does your child currently receive Exceptional Student Education (ESE) services? (circle one) Yes No

d) Please indicate your race/ethnicity (circle one): American Indian, Hispanic, Black, Asian, White, Other

e) Please indicate your highest level of education (circle one): Attended HS, Completed HS, Some College, Bachelors, +Bachelors

f) Please indicate your spouses' highest level of education (circle one): Attended HS, Completed HS, Some College, Bachelors Degree, +Bachelors

Please provide any additional items that you feel should be included with demographic information.

Additional Comments

Please share any additional comments:

Thank you

Thank you for your assistance with this important step in validating a measure to capture the beliefs, skills, and practices of effective family engagement within PS/RtI models of service delivery.

Appendix G
School Factors Data Form

Please complete the following based on information from your school for the current, 2011-2012, school year.

1. School Name:_____

2. Total number of Instructional Staff that you sent the link to in order to complete the online survey:_____

3. Total number of students enrolled in the school for 2011-2012:_____

4. Number of students for the 2011-2012 school year that fall within each of the following subgroups:

   4a. Number of American Indian students for 2011-2012:_____

   4b. Number of Asian students for 2011-2012:_____

   4c. Number of Hispanic students for 2011-2012:_____

   4d. Number of Black students for 2011-2012:_____

   4e. Number of White students for 2011-2012:_____

   4f. Number of English Language Learners (or Limited English Proficient) for 2011-2012:_____

   4g. Number of Students with Disabilities (SWD) for 2011-2012:_____

   4h. Number of Students Eligible for Free or Reduced-Price Lunch for 2011-2012: _____

5. Length of PS/RtI implementation (circle one):
   (a) 1 year, (b) 2 years, (c) 3 years, (d) 4 or more years

6. Length of RtI:B (Foundations, Positive Behavior Support) implementation (circle one):
   (a) 1 year, (b) 2 years, (c) 3 years, (d) 4 or more years

Appendix H
Principal Agreement Form

Request for School Principal Agreement to Conduct Research in School

Dr. Charlene Einsel is collaborating with George Batsche, Ed.D. and Devon Minch, Ed.S. to conduct a research project titled: "A preliminary investigation of the relationships among level of Problem-Solving/Response to Intervention (PS/RtI) implementation, school factors, educator factors, family factors, and family engagement in PS/RtI." Preliminary approval to conduct the above study has been granted by the PCS Research and Accountability Department. If you have questions or concerns about the study please contact Dr. Charlene Einsel at einselc@pcsb.org or Devon Minch at dminch@usf.edu.

The following information pertains to the above titled research proposal:

- **What are you planning to do at this school?**
  - Collect survey data from families and educators regarding family engagement in PS/RtI.
- **Who will you need to work with at this school?**
  - The principal via e-mail.
- **Who will participate in your research?**
  - All instructional staff at the school (e.g., administrators [principal, assistant principal], general and special education teachers, guidance counselors, school psychologists, social workers, hourly teachers, interventionists, etc.).
  - Families of 20 randomly selected students per grade K-5 (120 randomly selected families).
- **Does this research require parental consent?**
  - No.
- **How are you planning to collect the information you need?**
  - The staff will complete an online survey. Families will be mailed survey packets that include a pre-addressed, pre-paid return envelope and asked to complete the survey and return the survey to the researcher at the University of South Florida (USF).
- **How much time do you need?**
  - Approximately 4 weeks from start to finish.
- **What dates are you planning to work at this school?**
  - May 7, 2012 through June 7, 2012.

******Schools that have high participation rates will be placed in a drawing for the opportunity to receive a minimum of $500, if not more! ******

Next steps if you are interested in participating:

1. Fill out attached form and return to Dr. Einsel today.
2. You will receive an email from dminch@usf.edu in approximately one week containing a link to the online survey. The email will provide directions to forward the link to your instructional staff.
3. Complete an online demographic form about your school. The form includes six questions.
4. You may want to consider including something like the blurb below in your monthly parent newsletter to encourage parent participation!

   "Our school has an opportunity to win $500, or more! You may be one of the lucky parents asked to complete a survey. If you receive a survey in the mail from the University of South Florida, please complete and return the survey in the pre-paid envelope to the researchers at the University of South Florida."
5. Wait to hear if you will win $500, or more!!

Appendix H continued
Principal Agreement Form

Request for School Principal Agreement to Conduct Research in School

Please check the box and fill in the information below. Return only this page (page 2) to Dr. Einsel. Please keep Page 1 for your reference.

☐ I have reviewed the above request and agree for this school to participate. I understand that I will receive an email containing a SurveyMonkey link from dminch@usf.edu, which I will forward on to my instructional staff. I understand that I am to provide the researcher with demographic data about my school by completing the School Factors Data Form.

Principal Name: _____

School Name: _____

Appendix I
Initial Email to Consenting Principals

Hello Elementary Principal,

Thank you for agreeing to participate in the study on Family Engagement in Response to Intervention (RtI). Remember, schools with high rates of participation have the opportunity to win $500, or more! You're participation in the study will include:

1. Sending an email with the link to the online survey to your instructional staff. Your instructional staff would include:
    a. all educators who provide direct instruction to students enrolled in K-5 (general and special educators),
    b. student support services (e.g., guidance counselors, school psychologists),
    c. instructional support personnel (e.g., hourly teachers, interventionists, etc.), and
    d. members of the SBLT (e.g., assistant administrators).

    Your online survey Link: https://www.surveymonkey.com/s/FE06

2. Completing the online survey yourself.

3. Completing the attached School Factors Data Form and sending the information back to us either through: (1) email to dminch@usf.edu, or (2) fax to: (813) 974-7647. The School Information Form is also provided below for your convenience in responding to the questions.

4. The survey will remain open until 6/8/12. At that time, we will notify the winners.

If you have questions or concerns about the study please contact Dr. Charlene Einsel at einselc@pcsb.org or Devon Minch at dminch@usf.edu.

Thank you for agreeing to participate, your contributions will provide invaluable information!

Appendix J
First Follow Up Email to Principals

Dear Pinellas County Principal,

Thank you for participating in the family engagement in RtI study! Earlier this week the parent surveys were mailed to 120 randomly selected families at your school. Please let your parents know to be on the look out for a survey from USF in the mail and to complete and return the survey if they receive one (they were provided a pre-paid return envelope).

We will be providing updates on the winners of the cash prizes at the close of data collection. *Please be sure to remind your staff to complete the online survey and return your school factors data summary form in order to be included in the running for the cash prizes!* Thank you for your time- we know it is a busy time of year and we appreciate your assistance with the project. Have a great summer!

Devon Minch, George Batsche, and Charlene Einsel

Appendix K
Final Email to Principals

Hello Elementary Principals,
On behalf of Drs. Batsche and Einsel and myself, we would like to thank you for participating in data collection efforts focusing on Family Engagement in RtI. We know you are all very busy and we appreciate the time you took out of your schedule to assist us with this project. We are currently in the process of identifying the winners of the cash prizes. We will be contacting principals individually if they met the criteria for receiving the cash prize.

Have a wonderful summer!

Appendix L
Family Survey Cover Letter

Dear Parent or Guardian:

This letter provides information about a research study that will be conducted at your child's school by professors and graduate students from the University of South Florida. Our goal in conducting the study is to investigate family engagement in a school improvement effort at your child's school known as Problem-Solving/Response to Intervention (PS/RtI). ***By completing and returning the survey included in this packet, you will help to improve the chances your child's school wins $500!!***

Confidentiality of Your Responses: There is minimal risk for taking part in this research. We are **not** asking your name or other information that would allow us to identify you in any way. ***Your individual responses will not be shared with school system personnel*** or anyone other than researchers at University of South Florida.

Who We Are: We are George Batsche, Ed.D., professor in the College of Education at the University of South Florida (USF) and Devon Minch, Ed.S., doctoral student in the School Psychology program. We are planning the study in cooperation with Pinellas school administrators to ensure the study provides information that will be helpful to the school.

Why You Should Participate: ***Your child's school has the opportunity to win $500 dollars*!** By completing and returning the included survey, you will help to improve the chances your child's school wins! In addition to financial incentives for schools, families are important for student's success. We need to learn more about what leads to successful family engagement in PS/RtI.

What Participation Requires: Please complete the survey included in this packet. The survey should take about **15 minutes** of your time. Please use the pre-paid, pre-addressed return envelope included in this packet to return the survey to University of South Florida.

What We Will Do With Your Responses: We plan to use the information from the surveys to inform the field of the current status of family engagement in PS/RtI. The data obtained from you will be combined with data from other people in the study.

Questions? If you have any questions about this research study, please contact us at (813) 974-1898 (Devon Minch) or (813) 974-9472 (Dr. Batsche). If you have questions about your rights as a person who is taking part in a research study, you may contact a member of the Division of Research Integrity and Compliance of the University of South Florida at 813-974-9343.

Want to Participate? To participate in the study:
1. Complete the enclosed survey.
2. Place the completed survey in the envelope included in this packet.
3. Please seal the envelope with the survey inside and drop it in the mail to return the survey to the researchers at University of South Florida.

Thank You!!

George Batsche, Ed.D.
813-974-9472

Devon Minch, Ed.S.
813-974-1898

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