

Interdependent Determinants of Parental Involvement among
Families of Children Receiving Early Intervention Services

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Dedication

This dissertation is dedicated to my family. To my ancestors, who worked and sacrificed for me to have the opportunities which have led me to where I am today. To my parents and siblings, who have always loved and supported me and made me feel accepted. To my wife, Monica, who is my best friend, my partner, and my mentor. To my daughter, Maggie, who is a constant light in my life. And to my family who will come after me, I dedicate this dissertation to you in hopes that you can find direction in your lives that will lead you to a life of service and prosperity.

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Abstract

Early intervention programs across the United States use a service delivery model that is strengths-based and family-centered. The purpose of this study was to examine how certain strengths among mothers and fathers of children receiving early-intervention services are related to parental involvement. I used the actor-partner interdependence model (APIM) with structural equation modeling to examine the actor (intrapersonal) and partner (interpersonal) effects of parenting self-efficacy, parental role salience, and couple relationship quality on parental involvement. The data used in these analyses were taken from a state-wide project which obtained reports from 131 mother-father dyads whose children were enrolled in a state-run early intervention system. Self-report questionnaires were distributed to families by their early intervention service coordinators and returned by mail. In the single-variable APIMs, actor effect pathways for mothers and fathers revealed significant effects of parenting self-efficacy and parental role salience on parental involvement, but not from couple relationship quality. These findings indicate that parental involvement among mothers and fathers of young children with disabilities is enhanced when mothers and fathers independently feel empowered in their parenting role and feel a strong sense of identity from their parenting role. Partner effects were found from mother couple relationship quality onto father involvement, but mother involvement was not predicted by any of the father characteristics. This partner effect reveals that levels of father involvement with young children with disabilities depend somewhat on mothers' satisfaction with the couple relationship, yet mother involvement remains uninfluenced by the father characteristics. In a final APIM which included all predictor variables, father involvement was predicted by father parenting self-efficacy, father role salience, and mother and father couple relationship quality, and mother involvement was predicted by mother parenting self-efficacy. Implications for research and practice are discussed regarding the measurement of parental involvement, the advantage of analytic approaches which account for family interdependence, and the importance of empowering families of young children with disabilities.

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Chapter 1

Introduction

The quality and consistency of parenting and parental involvement during the first few years of a child's life have been linked to a number of child developmental outcomes, such as cognitive development, social development, and overall well-being (Landry, Smith, & Swank, 2003; Newland, Coyl-Shepherd, & Paquette, 2013; Rinaldi & Howe, 2012; Tamis-LeMonda, Shannon, Cabrera, & Lamb, 2004). These findings help illustrate the commonly held understanding that parents play critical roles as providers, caregivers, and socializing agents in shaping and fostering their child's development. Similar patterns of findings have been demonstrated in the research on families of infants and toddlers with disabilities (Brown, McIntyre, Crnic, Baker, & Blacher, 2011; Cruz, Quittner, Marker, & DesJardin, 2013; Lomax-Bream et al., 2007). Thus, if the characteristics of parenting and its consequences for children are important to understand, it should be important to understand the various antecedents to parenting and parental involvement. This straightforward conclusion led to Belsky's (1984) model of parenting determinants, in which Belsky proposed that parenting is a function of the aggregate and interactive effects of individual parent background variables, child characteristics, and contextual and ecological conditions. Over the past 30 years, thousands have turned to this model as a basic guide to understanding "why parents parent the way they do" (Belsky, p. 83), including scholars who have studied the determinants of parenting among families of children with disabilities (e.g., Garner et al., 2013). However, the study of

parenting and parenting determinants among this population has been problematic for several reasons.

Gaps in the Literature

One of the foremost issues in the study of parents and families of children with disabilities is that a majority of studies have either focused solely on mothers, ignoring fathers altogether (e.g., Benson, Karlof, & Siperstein, 2008), or have been unable to recruit sufficient numbers of fathers for analyses that would allow for mother-father differentiation (e.g., Wade, Llewellyn, & Matthews, 2011; Woolfson & Grant, 2006). As a result, a significant portion of the understanding developed through research on parenting and parental involvement among families of children with disabilities is based on mothering and mother involvement. Some have attempted to explicitly deal with this issue, studying differences between fathers and mothers in their interactions with their children with disabilities over time (Crnic, Baker, Blacher, & Pederson y Arbona, 2009). Another problem is that many of these studies have used measures of parenting and parental involvement that were developed among parents of children without disabilities (e.g., Roach, Orsmond, & Barratt, 1999; Woolfson & Grant, 2006). Qualitative studies have demonstrated that parenting a child with special needs is simultaneously similar to and different from the experience of parenting a child without a disability (Johnson, 2000; Miles & Holditch-Davis, 1995). As a result, standard measures of parenting and parental involvement may not accurately depict parenting behaviors and types of involvement that may be more common and necessary when raising a child with special needs. For example, parents of deaf children need to find new strategies to promote

language development in their children due to the fact that typical strategies are less effective (Cruz et al., 2013). Parents of children with autism spectrum disorders (ASD), on the other hand, are expected to learn principles and practices of applied behavior analysis (ABA) in order to work more effectively with their child (Strauss, Mancini, & Fava, 2013). Overall, parenting and parental involvement appear to take on new meanings when raising a child with special needs, warranting the need for self-report measures that can attempt to capture some of these nuances. Comparisons between parents of children with disabilities and parents of children without disabilities based on traditional parenting measures may not accurately reflect the kinds of childrearing experiences that are unique to this population.

Finally, another problem in identifying determinants of parenting and parental involvement among families of children with disabilities is the lack of analyses that examine interdependence between mothers and fathers in their parenting and parental involvement with young children with disabilities. This is problematic because mother-father dyads who share a household experience interdependence in their thoughts, feelings, and actions which beget statistical interdependence in their self-report survey responses (Laursen, Popp, Burk, Kerr, & Stattin, 2008). The proposed study seeks to address each of these problems by examining determinants of parenting among mother-father dyads of young children with disabilities using a validated measure of parental involvement and analytic techniques that account for couple interdependence.

Background on Early Intervention

Early intervention systems have been established across the 50 United States and US territories to provide children under the age of three with identifiable delays and disabilities and their families with access to services that are individually tailored to each child's condition and needs (Adams & Tapia, 2013). Early intervention scholars have emphasized that the best method of serving children with delays or disabilities is to include parents in the service-delivery process (Guralnick, 2007). Moreover, the early-intervention service delivery model emphasizes family-centered practices and a strengths-based (also known as capacity-building) approach to research and intervention (Greeff & Nolting, 2013; Swanson, Raab, & Dunst, 2011; Woodman & Hauser-Cram, 2013). The primary aim of the proposed study is to investigate the patterns of effects of various individual and dyadic strengths and capacities on parental involvement among mother-father couples parenting children receiving early intervention services. The specific strengths and capacities of interest are parenting self-efficacy, parental role salience, and couple relationship satisfaction. Parenting self-efficacy has been linked to parental involvement among this population in previous studies (Trivette, Dunst, & Hamby, 2010). In addition, research on the effects of couple relationship quality have indicated that better relationship quality predicts greater involvement with children with disabilities (Gavidia-Payne & Stoneman, 1997; Hartley, Barker, Seltzer, Greenberg, & Floyd, 2011; Kersh, Hedvat, Hauser-Cram, & Warfield, 2006). Finally, although the research on parental role salience as a predictor of parental involvement among mothers and fathers of young children with disabilities has been sparse, a qualitative study found

that raising a child with a disability can have meaningful effects on how parents identify with their role as a parent, which had subsequent effects on their engagement with their children (Scorgie, Wilgosh, and McDonald, 1999). Overall, it appears that parents who exhibit individual strengths such as parenting self-efficacy and parental role salience, as well as dyadic strengths such as higher couple relationship quality, are more likely to be involved with their young children with disabilities.

Childhood disability terminology. The use of the term “special needs” to describe children with disabilities implies that these children require a quality and level of care, attention, and treatment that is unique and distinct in some ways from the experience of raising children without disabilities. Still, some educators and advocates use the term “exceptionalities” to identify children with disabilities as exceptional learners rather than by their disability diagnosis (Council on Exceptional Children [CEC], 2014). This stems from a belief that the descriptive labels used to identify children with disabilities should not focus on making these children appear demanding, challenging, or less able because of their conditions, but rather unique and extraordinary. Hereafter, the terms disabilities and special needs will be used interchangeably when discussing children diagnosed with conditions that cause impairment in physical, learning, language, or behavior areas that occur during the developmental period (i.e., birth to 18 years old; Centers for Disease Control and Prevention [CDC], 2014). “Developmental delays” is the term used to describe the signs or symptoms identified during the childhood monitoring and screening process that indicate the possibility of a disability (CDC, 2014). The reason for using special needs interchangeably with disabilities is during early childhood (i.e.,

birth to three), it may be too early to provide a formal disability diagnosis, but children may show signs of developmental delays or risk for developmental delays, in which cases early intervention services can be valuable for the children and their families (Center for Parent Information and Resources, 2014).

Part C of the Individuals with Disabilities Education Improvement Act.

Approximately one in six children in the United States have one or more developmental disabilities or other delays (CDC, 2014). To ensure that children with identifiable delays under the age of three and their families are able to receive early intervention services, Part C of the Individuals with Disabilities Education Act (IDEA; 2004) requires states to organize a statewide early intervention system. Examples of services coordinated and provided through Part C early intervention programs may include assistive technology (devices a child might need), audiology or hearing services, speech and language services, counseling and training for a family, medical services, nursing services, nutrition services, occupational therapy, physical therapy, and psychological services (Center for Parent Information and Resources, 2014). The services necessary for any infant or toddler are decided through the Individualized Family Service Plan (IFSP), a plan developed with the family-centered mindset that helping the child involves helping the entire family. Child screenings and evaluations, family assessments, and IFSPs must be completed by the early intervention system within 45 days of receiving a referral about a suspected disability or delay. These steps and service coordination are to be provided at no cost to families under Part C guidelines, while the actual intervention services may involve fees or may be covered by health insurance. In 2011, over 336,000 infants and

toddlers under the age of three and their families received services under Part C programs across all 50 states and U.S. territories (Data Accountability Center, 2014).

One of the primary aims of the early intervention system is to empower families by providing strengths-based, capacity-building services. Empowerment refers to an individual's capacity for activating and employing strategies that lead to a greater sense of control over one's life by influencing their interpersonal and social environments (Dempsey & Dunst, 2004). In the field of early intervention, the concept of empowerment involves the reorganization of traditional relationships between parents and professionals from one that historically has followed a more detached, clinical model to one in which professionals collaborate with parents in the decision-making process, treating them as partners and communicating with them in respectful and genuine ways (Adams & Tapia, 2013).

Another goal of the early childhood intervention system is to maximize the level and quality of parental involvement with children (Guralnick, 2007). As the primary caregivers, parents have the most frequent access to the child and are considered important team members in the early intervention process. However, fathers appear to be less involved than mothers throughout the early intervention process. As a result, scholars have attempted to illustrate and highlight important ways of helping fathers become more involved with their young children with disabilities (Dyer, McBride, & Jeans, 2009; Quinn, 1999; Simmerman, Blacher, & Baker, 2001). Perhaps even more promising, however, is the opportunity to examine father involvement as an interdependent function of individual characteristics, as well as the characteristics of the partner.

Study Purpose

The purpose of the present research is to apply a strengths-based perspective to the study of potential interdependent determinants of parental involvement among mother-father dyads whose children are enrolled in a statewide early childhood intervention program. The goal, in turn, is to discover whether individual and relational strengths of mothers and fathers are associated with higher levels of parental involvement, both within and between mother-father dyads. With an entire service-delivery model focused on enhancing the processes in families that are assumed to be interdependent, it is expected there will be a combination of both actor and partner effects in the models that will be tested. It is hoped that the proposed research can provide a foundation from which future studies can examine more complex pathways of interdependence among early intervention families. In addition, this research can help illustrate the importance of including fathers in studies of families receiving services through the early intervention system. Finally, this research can provide important practical implications for service-delivery by identifying the mechanisms and pathways that enhance and encourage mothers and fathers to become more involved with their young children with special needs.

The actor-partner interdependence model. A key feature of close relationships, such as co-residing mother-father dyads, is interdependence (Laursen et al., 2008). One method of accounting for the interdependence is through the use of the actor-partner interdependence model (APIM). The APIM is appealing because it examines the influence of an individual's own causal variable on his or her own outcome variable,

which is the actor effect, and on the outcome variable of his or her partner, which is the partner effect (Kenny & Ledermann, 2010). The APIM can examine both actor and partner effects while making statistical allowances for the non-independence of paired responses (Kenny, Kashy, & Cook, 2006). In the present study, the APIM is used to examine how mothers' and fathers' strengths and capacities might influence their own and one another's involvement with their children.

Chapter 2

Literature Review

Scholars of parent-child relations have recognized that parenting behaviors can largely be categorized into two main types: parental support and parental control (Barber, Stolz, & Olsen, 2005, Rollins & Thomas, 1979). These two main domains each include a variety of terms and concepts. For example, the domain of parental support includes terms such as responsiveness (e.g., Maccoby & Martin, 1983), nurturance (Baumrind, 1967), and warmth, acceptance, and affection (Rohner, 1986). Moreover, parental support has been studied using a variety of methods from multiple points of view. Studies have consistently shown that parental support is associated with positive outcomes among children, such as increased levels of prosocial behaviors and decreased levels of internalizing problems (Barber et al., 2005).

The link between supportive parenting behaviors and positive child outcomes also applies to children with disabilities (for a meta-analysis, see Dyches, Smith, Korth, Roper, & Mandelco, 2012). Indeed, the demands of raising children with disabilities heighten the need for supportive parenting practices and greater levels of parental involvement. Thus, it is important to understand the antecedents to supportive parenting among this population. Some important predictors of parental support of children with disabilities include parenting self-efficacy, parent well-being, characteristics of the child's disability, parent and family characteristics such as education and socioeconomic status, and formal social supports and services (Trivette et al., 2010). During the early years (i.e., birth-three), parents often show their support through their involvement in

caregiving activities and overall time spent engaged with their children. Thus, behavioral indicators of parental involvement with young children with disabilities provide an important view of how these parents support their children.

The purpose of this chapter is to provide conceptual, theoretical, and empirical understanding of the determinants of parental involvement among parents of young children with disabilities. The first section outlines the two theoretical frameworks that guide and support the current study. The next section provides a review of the literature related to the concept of parental involvement and the similarities and differences in parental involvement between mothers and fathers. In addition, literature is reviewed on parental involvement in families of children with disabilities. In the third section, I provide conceptual definitions and a review of the literature for the determinants of parenting being investigated in this study. Specifically, background on parenting self-efficacy (PSE), parenting role salience, and couple relationship satisfaction are provided, along with a review of the research related to how these variables are connected to parental involvement among families of young children with disabilities. The goal of reviewing the literature in these areas is to provide theoretical and empirical background illustrating how these constructs could be expected to relate to parental involvement in the context of an actor-partner interdependence model. In turn, reviewing these literatures will provide a sense of where the gaps in the literature are that the current study helps to fill. At the conclusion of this chapter, I present the major research questions and hypotheses under investigation in the current study.

Theoretical Frameworks

Belsky's determinants of parenting model. Belsky's (1984) determinants of parenting model (see Figure 1) provides an ecological model of parenting which emphasizes how certain individual and environmental conditions influence parenting behavior. Specifically, Belsky identified three domains of determinants of parenting behavior: (a) parent characteristics, such as personal background and personality, (b) child characteristics, such as temperament, and (c) contextual sources of stress and support, such as the parents' marital relationship, social network, and employment.

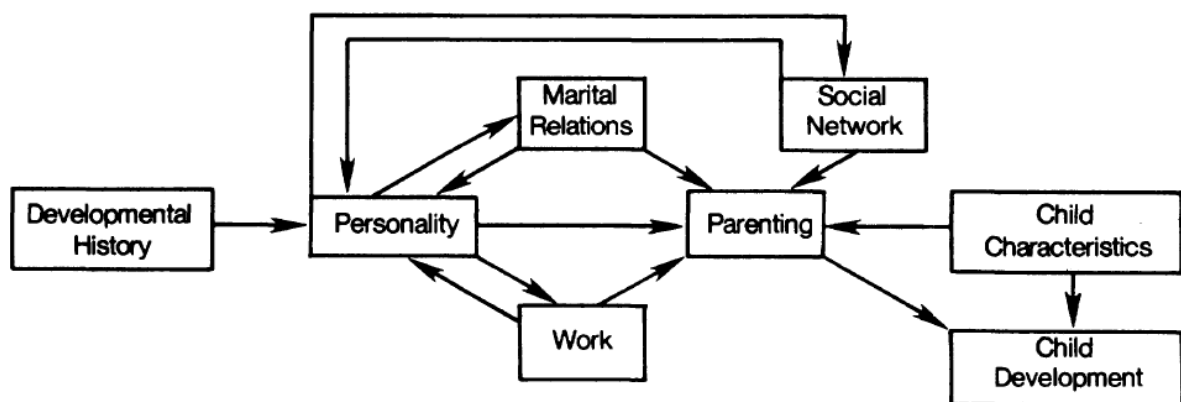


Figure 1. Belsky's (1984) Process Model of the Determinants of Parenting

In addition, Belsky's determinants model offered three conclusions: first, there are multiple determinants of parenting; second, not all three determinants are equally influential in supporting or threatening positive parenting practices; and third, a parent's developmental history has indirect effects on parenting by first shaping the broader context in which parenting takes place.

Regarding the parent's contribution to the parenting process, Belsky (1984) noted that a person's developmental history, personality, and psychological well-being shape the enduring characteristics which influence parenting. Specifically, Belsky reviewed studies indicating the importance of both psychological maturity and psychological well-being in predicting sensitive parenting practices that influence optimal child outcomes. Belsky hypothesized a chain of effects originating from a parent's developmental history, suggesting "supportive developmental experiences give rise to a mature healthy personality, that is then capable of providing sensitive parental care which fosters optimal child development" (Belsky, p. 86). In addition, Belsky suggested that out of all three determinants, a parent's developmental history and personal psychological resources were the most important to both predicting parenting and to buffering parent-child relations from stress.

In discussing the potential child characteristics that shape parenting, Belsky (1984) focused on the effects of child temperament. Belsky suggested that the more parents perceive their children to be difficult and demanding, the less involved, less responsive, and more negative parents behave. In other words, Belsky stated "characteristics of children hypothesized to make them more or less difficult to care for do indeed seem to shape the quantity and quality of parental care they receive" (p. 86). Belsky also noted that this finding may, perhaps, be an issue of "goodness-of-fit" between parent and child, which would explain the effects of child characteristics on parenting. Notably, Belsky did not comment on other potential child characteristics that

might influence parenting, such as child gender, age, intelligence, or disability. However, this does not preclude the inclusion of these as potential determinants of parenting.

Belsky (1984) also addressed how contextual sources of stress and support influence the parenting process. According to the theory, work, marital relations, and social network are depicted as directly influencing parenting, while also sharing bidirectional relationships with a parent's personality. Belsky suggested that to the extent that a parent's social network is supportive and responsive to a parent's needs, it enhances parenting and reduces negative parenting practices. More important, however, is the role of the marital relationship in shaping the quality of parent-child relations. Belsky proposed "the marital relationship is the first-order support system, with inherent potential for exerting the most positive or negative effect on parental functioning" (p. 90).

According to Belsky's theoretical model, the quality of marital relations were transmitted into the parent-child relationship such that higher quality marriages led to higher quality parenting, and that lower quality marriages led to lower quality parenting. However, Belsky left open the possibility that the effects of marital relations on parenting could be indirect by first influencing a parent's individual psychological well-being. Regarding the impact of work on parenting, Belsky offered several potential effects that might be observed. Most important and relevant of these are the effects of stress and dissatisfaction with work on parenting, wherein parents who experience greater stress or are dissatisfied with their work environment encounter more problems in their parenting and demonstrate more punitive and harsher discipline, whereas parents who are satisfied with their work are more responsive and less punitive. However, Belsky noted that of

three contextual influences on parenting, work played a less important role than a parent's social network, which was less important still than the quality of marital relations.

In sum, Belsky (1984) provided a model of parenting determinants illustrating that parenting is determined by individual parent characteristics, child characteristics, and the ecological context. Belsky prioritized the importance of individual parent well-being and marital relations in shaping the parenting practices that promote positive child outcomes.

The actor-partner interdependence model (APIM). One limitation of the determinants of parenting model (Belsky, 1984) is the lack of attention to how couples reciprocally influence one another's parenting practices. Although marital satisfaction is included as a contextual determinant in the model, the past 30 years have brought on advancements in scholarship and analytic techniques capable of accounting for the interdependent nature of parenting as it occurs in couple relationships. This allows for modeling the effects of husband characteristics on mother's parenting and vice versa. For the current study, the actor-partner interdependence model (APIM) provides an additional theoretical foundation and analytical technique that allows the study of determinants of parental involvement with young children with disabilities to take place at the dyadic (i.e., couple) level. Specifically, this study examines cross-sectional responses from mother-father (distinguishable) dyads using structural equation modeling (SEM). Testing an APIM with SEM provides the opportunity to measure latent (unobserved) constructs based on self-report questionnaire data (Peugh, DiLillo, & Panuzio, 2013).

Relationships are considered interdependent when one person's thoughts, emotions, and behaviors affect the thoughts, emotions, and behaviors of a partner (Cook & Kenny, 2005). As a result, observations from two or more individuals who share close relationships, such as within a family, become linked and non-independent. The non-independence of observations introduces bias into commonly used statistical procedures that assume independence, such as multiple regression. To resolve this issue, one must "treat the dyad (or group) rather than the individual as the unit of analysis" (Cook & Kenny, p. 101).

In treating the dyad as the unit of analysis, the sample size is based on the number of pairs of participants (Cook & Kenny, 2005). Distinguishable dyads are those which consist of paired relationships in which each member of the relationship can be differentiated based on characteristics such as age or gender (e.g., husband and wives or older and younger siblings). Indistinguishable dyads consist of pairs such as identical twins or same-sex couples, in which no clear distinction can be made between each individual (Laursen et al., 2008). Dyadic analysis techniques, such as the APIM, treat the individual scores as nested within the dyad, thereby allowing for estimation of factors that belong to both the individual and the dyad (Cook & Kenny).

The APIM framework consists of two central components: actor effects and partner effects. An actor effect examines intra-personal influences on specified outcomes, whereas a partner effect examines the influence of a partner's characteristics on a person's outcomes (see Figure 2). Through incorporating the influence of partner effects,

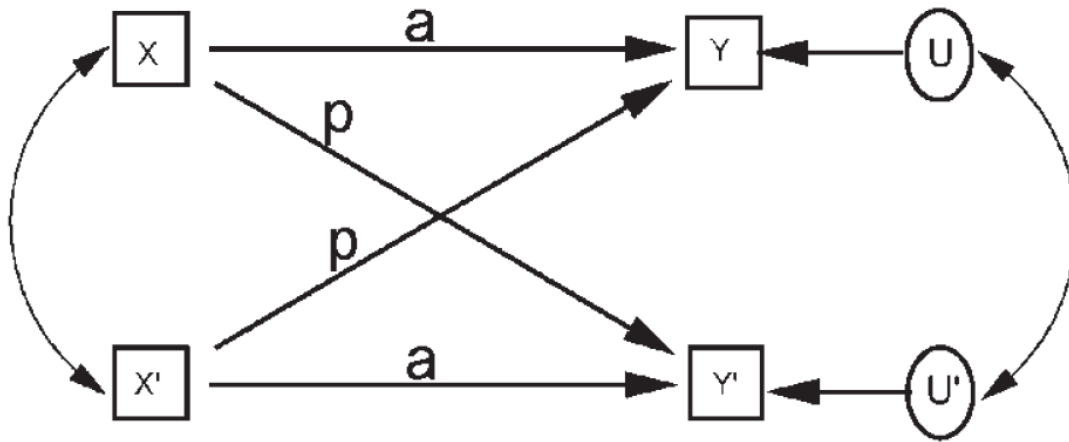


Figure 2. *The Actor-Partner Interdependence Model (APIM).*

X = data for person A; X' = data for person B; Y = data for person A; Y' = data for person B; U = residual (unexplained) portion of person A's Y data; U' = residual for person B's Y' data. Single-headed arrows indicate causal or predictive paths. Double-headed arrows indicate correlated variables. Paths labelled as a indicate actor effects and paths labelled as p indicate partner effects. (Adapted from Cook and Kenny [2005], p. 102)

the APIM is able to account for interdependence (Cook & Kenny, 2005). In addition, by correlating the independent variables and the residual variables within the APIM, both actor and partner effects are estimated while controlling for the other (Cook & Kenny).

There are four general APIM patterns (Kenny & Cook, 1999): the actor-only, the partner only, the couple, and the contrast patterns. The actor-only pattern consists of effects from a person's own causal variable on his or her own outcome variable without the instance of any partner effects. The partner-only pattern consists of partner effects without the presence of actor effects. Scholars who have written extensively about the

APIM have noted that the partner-only pattern is uncommon, especially when examining patterns of influence in family relationships (Kenny & Ledermann, 2010). The couple pattern occurs when a person's outcome variable is equally predicted by the actor and the partner causal variables. The contrast pattern is found when actor and partner effects are equal in size but have opposite signs, such as a positive actor effect in the presence of a negative partner effect (Kenny & Ledermann, 2010).

These patterns inform three major hypotheses investigated when using the APIM. First, the spillover hypothesis examines how a person's affect or behavior in one setting or relationship can carry over into other domains of the person's life (Nelson, O'Brien, Blankson, Calkins, & Keane, 2009). Within the APIM framework, the spillover hypothesis is investigated to examine the actor-only pattern, such as the intrapersonal effects of parenting stress on depressive symptoms (e.g., Ponnet et al., 2013b). The crossover hypothesis predicts a transfer of affect from one person to another within an interdependent relationship. The crossover hypothesis is examined when testing the partner-pattern within the APIM, such as the effects of mother depressive symptoms on father parenting practices (e.g., Nelson et al.). The simultaneous investigation of the spillover and crossover hypotheses within the APIM provides the basis of the couple pattern, where the causal variable is the sum of actor and partner predictor variables (Kenny & Ledermann, 2010). Finally, the compensatory hypothesis proposes an explanation for why certain relationships occur in directions opposite of what might be predicted, as seen in the contrast pattern. For example, couples would compensate for their low levels of marital satisfaction by showing higher levels of positive parenting

(Nelson et al.). As noted by Nelson et al. (2009), these processes occur simultaneously rather than in isolation. As a result, it is important to consider all possibilities when examining patterns of interdependence among dyads.

The APIM provides an approach to conceptual understanding and data analysis that favors the view of family relations as complex and integrated, with interdependent dyads as the unit of analysis (Laursen et al., 2008). In the present study, self-report survey data from distinguishable mother-father dyads were used in the analysis.

Foundations for the current study. Belsky's (1984) model of parenting determinants provides an ecological framework that guides the present study of predictors of parental involvement among families of children with disabilities. Specifically, the current study examined the potential influences of certain parent characteristics and the marital context in determining parental involvement. Thus, the goal of the current study is not to examine Belsky's model in its entirety, but to pull from it important linkages between individual and contextual factors that influence parental involvement. The actor-partner interdependence model, in turn, provides the analytical and conceptual foundation for examining models that fit the dyadic nature of the data from this study. Thus, the present study is grounded in both of these frameworks, each of which support the investigation of how strengths-based individual and contextual variables may interdependently predict mother and father involvement with their infants and toddlers with disabilities.

Parental Involvement

Before investigating the predictors of parental involvement, it is essential to understand how researchers have defined and studied parental involvement and why parental involvement matters for children and families. Parenting and parent-child relations have been studied for many years from a variety of perspectives, resulting in numerous lenses through which to view the relationship between parents and children. One element that scholars have identified as particularly important during a child's early developmental years is supportive parenting, which includes a high level of parental involvement in the child's life (Landry et al., 2003). In providing a definition of parental involvement, Simons, Johnson, and Conger (1994) asserted: "Involved, supportive parents show warmth and affection, demonstrate consistency, engage in monitoring and supervision, and use inductive reasoning to explain rules and expectations." (p. 597). According to this definition, parental involvement includes both supportive behaviors as well as monitoring and disciplinary behaviors, which are considered separate dimensions of parenting in the broader literature on parenting (Barber et al., 2005). Other conceptualizations of parental involvement have focused on multidimensional models of involvement. Lamb, Pleck, Charnov, & Levine (1985), identified three domains of involvement: engagement, responsibility, and accessibility. The multidimensional approach to studying parental involvement has become the favored approach in the literature on father involvement (see Pleck, 2007; Pleck, 2012).

Overall, the term *parental involvement* generally includes attempts by parents to support, engage with, and provide guidance to their children. When considering the

various domains and stages of life at which parents support, guide, and engage with their children, the construct of parental involvement becomes broad and fractured across multiple disciplines. Due the lack of consensus around the use of the term *parental involvement* or its substitutes, such as *parental engagement* (Lang, Schoppe-Sullivan, Kotila, & Kamp Dush, 2013; Schoppe-Sullivan, Kotila, Jia, Lang, & Bower, 2013), it has become the task of any scholar investigating parental involvement to provide a clear conceptual and operational definition in addressing the construct.

One example of how parental involvement has been studied and defined within a specific discipline is in the research on involvement of parents with their children's success in school. A search of the term *parental involvement* in scholarly databases, such as Google Scholar, PsychINFO, or Web of Science, reveals that the most common area of investigation related to the usage of the term *parental involvement* is the link between frequency or level of parental involvement and child academic outcomes (e.g., Fan & Chen, 2001). Thus, in these cases, *parental involvement* appears to be commonly used shorthand for *parental involvement in education* (LaRocque, Kleiman, & Darling, 2011). These studies examine specific types of involvement, such as the amount of time parents dedicate to encouraging and supervising the academic pursuits of their children (e.g., McNeal, 2014) or their level of involvement in school-based programs (e.g., Jeynes, 2012). Overall, these studies tend to demonstrate that higher levels of parental involvement lead to better child educational outcomes.

The connection between parental involvement and positive child outcomes extends beyond the domain of child academics and educational programs. During early

childhood, parental involvement has been linked to child developmental outcomes such as language development, cognitive development, social-emotional well-being, and child behaviors (Besnard et al., 2013; Tamis-LeMonda et al., 2004; van Bakel & Riksen-Walraven, 2002). In addition, the positive effects of parental involvement on child development have been observed whether parental involvement was examined using parental self-report (e.g., Besnard et al., 2013) or third-party ratings of parental involvement (e.g., Tamis-LeMonda et al., 2004; van Bakel & Riksen-Walraven, 2002). Parental involvement during adolescence has been linked with outcomes such as self-efficacy and subjective well-being (Yap & Baharudin, 2015), empathy and prosocial behavior (Day & Padilla-Walker, 2009; Yoo, Feng, & Day, 2013). Overall, empirical evidence supports the conclusion that developing children and adolescents benefit from having parents who are actively involved in their lives.

Definitions and measures of parental involvement vary by academic discipline and research foci. As previously noted, educators emphasize the importance of school-based and home-based parental involvement for child academic outcomes (W. Fan & Williams, 2010; X. Fan & Chen, 2001). Meanwhile, family scholars focus on the roles mothers and fathers play in supporting positive developmental outcomes for their children and adolescents (Gaunt & Scott, 2014; Lang et al., 2013). Overall, it is clear that parental involvement is a multi-dimensional construct, meaning that parents can be involved with their children in multiple ways and in multiple areas of life. This has led to a variety of approaches to measuring parental involvement. For example, Lang and colleagues (2013) used time diary assessments to assess the amount of time parents spent

engaged in proximity-focused behaviors (physical and emotional connection) and exploration-focused behaviors (didactic, stimulating behaviors) on weekdays and on weekends. In measuring parental involvement with adolescents, Gault-Sherman (2012) assessed the number of activities (such as conversations about school or friends) teens had engaged in with their parents over the previous month. Still, perhaps the most common approach to measuring parental involvement is the use of parent self-report questionnaires (e.g., Day & Padilla-Walker, 2009; Yap & Baharudin, 2015) in which parents provide assessments of their own perceived amount of involvement with their children. In sum, a broad conceptual definition of parental involvement is not readily available; instead, definitions and usage of the term appears to typically be attached to specific types of involvement.

Parental involvement with young children with disabilities. Early interventionists have identified parental involvement and cooperation as crucial elements to achieving early intervention program goals (Adams & Tapia, 2013; Eikeseth, 2011). As previously mentioned, parents play a critical role in maintaining and achieving the goals outlined in a family's individualized family service plan (IFSP). Indeed, parents and family characteristics appear to be the primary mechanisms by which early intervention services contribute to positive child developmental outcomes (Trivette et al., 2010). For instance, in a meta-analysis examining the effects of positive parenting practices (including parental involvement) on child outcomes, Dyches et al. (2012) determined that among the 576 participants across 14 studies, positive parenting (e.g., responsiveness, behavior regulation, authoritativeness, respect for child individuality) had

a statistically significant association with functional outcomes (i.e., social behavior, well-being) among young (1.6-6.4 years old) children with developmental disabilities. In a study of the effects of mother and father involvement in early intervention, rated by early interventionists on global scale of 1 to 5, on the language development of their children with hearing impairments, Moeller (2000) found that high levels of parent involvement were associated with significantly better language scores, and limited parental involvement was associated with language delays later in childhood. In addition, high parental involvement helped to offset the negative consequences of later enrollment in early intervention such that highly involved parents helped their children with hearing loss catch up with their early-enrolled peers. In examining the effects of parental involvement on children with intellectual disabilities, scholars have found higher levels of parental involvement to be predictive of child well-being outcomes (Wade et al., 2011). Specifically, Wade and colleagues used self-report measures of parental involvement, parenting warmth, and parent efficacy at child care tasks as indicators of a “parenting practices” latent variable, which was directly related to better scores on a screening measure for developmental and behavioral-emotional problems for young children. In a more recent study, researchers found that among children with mild to borderline intellectual disabilities, higher levels of self-reported parental involvement in activities to support their child were associated with lower levels of teacher-reported child externalizing behaviors (Schuiringa, van Nieuwenhuijzen, Orobio de Castro, & Matthys, 2015).

Although less developed than the research linking parental involvement with child outcomes among children without disabilities, available research suggests children with disabilities experience measurable benefits from having highly involved parents. However, parental involvement has been measured inconsistently and imprecisely. This becomes especially clear when considering the differences in the nature and effects of parental involvement between mothers and fathers. The conceptual definition of parental involvement used in the current study is participation and engagement of mothers and fathers with their young children with disabilities. Parental involvement includes general forms of engagement, such as playing, one-on-one time, dressing, bathing, etc., in addition to participation with the child engaging in activities specifically related to the child's special needs. This includes attending appointments with doctors, therapists, and interventionists, as well as carrying out the strategies outlined in the family's IFSP. The use of the term *parental involvement* in reference to the current study specifically refers to *parental involvement with young children with disabilities*. Thus, parental involvement in the current study is somewhat unique, but related to studies of parental involvement during early childhood (e.g., Giallo et al., 2013; Keown & Palmer, 2013, Tamis-LeMonda et al., 2004).

Mother-father involvement differences. Decades ago, scholars noted that the majority of studies on parenting tended to be, in reality, studies of mothering (Day & Mackey, 1989). The result of this focus on mothers was that the methods and measures used to study parenting were biased toward mothers' experiences and insensitive to the experiences of fathers (Day & Mackey, 1989). Since then, many scholars have attempted

to compensate by turning their attention to the roles of fathers, examining the nature and effects of their involvement with their children (e.g., Day & Lamb, 2004; Pleck, 2007). Indeed, entire theoretical models and perspectives have been developed to demonstrate how father involvement can benefit young children (see Pleck, 2007; Pleck, 2012). However, some have noted that this approach is limited by not attempting to differentiate between the shared and the unique predictive abilities fathering versus mothering (Stolz, Barber, & Olsen, 2005; Stolz, Olsen, Barber, & Clifford, 2010). Likewise, others have noted that although some studies have included both mothers and fathers, many have assumed similarity in how mothers and fathers parent (Adamsons & Buehler, 2007). Nevertheless, important differences between mothers and fathers have been found in both the predictors and outcomes of parental involvement. For example, Stolz and colleagues discovered that although mothers had a greater impact on adolescent sons' antisocial behavior, fathers' support was more important in explaining social initiative among adolescent children (Stolz et al., 2005). Others have found the opposite, such that father involvement predicted lower levels of internalizing and externalizing behaviors among early adolescent children, whereas mother involvement was linked to adolescents' prosocial behavior (Day & Padilla-Walker, 2009). Among parents of younger children, fathers tend to be more involved in physical play, while mothers spend more time caregiving, teaching, and socializing their children (Schoppe-Sullivan et al., 2013). Overall, as noted by Stolz et al. (2010), there appear to be no replicable patterns in the findings on the differences in how mother and father involvement affect children.

Nevertheless, these studies do provide an overall indication that mothers and fathers may influence their children in unique ways.

Measurement equivalence. One potential explanation for the lack of consistency in findings regarding the unique and shared effects of mother and father involvement on children has to do with the issue of measurement equivalence, also known as measurement invariance or factorial invariance. Broadly speaking, measurement equivalence addresses the question of whether the psychometric properties of a measure designed to measure a particular construct are generalizable across groups (Vandenberg & Lance, 2000). In terms of measuring parental involvement, a measure of parental involvement could be considered equivalent for mothers and fathers if each indicator of involvement did not differ significantly according to parent gender (Hoffman, 2015). The goal of examining measurement equivalence in the current study is to ensure that the items used to measure parental involvement have the same meaning for mothers and fathers.

Before addressing the types of measurement equivalence available for investigation, it is important to address an ongoing divergence in scholarly views related to the measurement of mothering vis-à-vis fathering. Two recent literature reviews have presented competing perspectives on this topic. According to Fagan, Day, Lamb, and Cabrera (2014), mothers and fathers do not engage in parenting behaviors that are gender specific. The authors posited “. . . there is not sufficient evidence to conclude that the constructs of fathering and mothering are unique” (Fagan et al., p. 390). Fagan and colleagues supported their position by reviewing studies which have successfully used

the same measures to examine mothering and fathering. The authors concluded that roles and behaviors which mothers and fathers engage in are becoming more similar over time and that mothers and fathers appear to influence their children in similar ways. Palkovitz, Sherif-Trask, & Adamsons (2014), on the other hand, suggested that perspectives from feminism, family systems theory, and qualitative research help illustrate the uniqueness of mothering and fathering behaviors. Palkovitz and colleagues discouraged using the same measures of parenting for mothers and fathers without attempting to address foundational differences in their experiences related to those roles:

We argue that employing the same measures to assess fathering and mothering behaviors will document considerable differences in the involvement of mothers and fathers while masking differences in the roles, meanings, and processes associated with those behaviors. The employment of convergent behavioral measures can profitably occur in conjunction with efforts to identify theoretically rich areas where mothering and fathering are distinct in terms of processes and meanings; this will allow us to document essential differences noted in the lived experiences of family members. (Palkovitz et al., p. 406)

Still, others have offered perspectives which fall somewhere in between the views presented by Fagan et al. and Palkovitz et al. Specifically, Stolz, Barber, and Olsen (2005) contended that the various theoretical frameworks which guide our understanding of mothering and fathering should not be examined separately for mothers and for fathers, asserting:

. . . [these frameworks] must be tested on mothers and fathers together, in a manner that evaluates the extent to which the theories are supported for mothers as well as the extent to which they are supported for fathers, taking into account rather than controlling away the contribution of the other parent. (pp. 1076-1077)

Overall, Stolz and colleagues suggested the need for “disentangling” the constructs of mothering and fathering by examining the extent to which men and women are simultaneously similar and unique in how they enact their respective parenting roles. The present study seeks to follow the recommendations from Stolz et al. (2005) by examining the measurement equivalence of a parental involvement measure used among mother-father dyads from a sample of families whose young children were enrolled in a part C early intervention program.

In their review of the measurement invariance literature, Vandenberg and Lance (2000) identified eight types of measurement equivalence, organized within the two broader domains of measurement invariance and structural invariance. Tests of measurement equivalence take place within the confirmatory factor analysis (CFA) framework and begin with the least-restrictive assessments, with each subsequent test being more restrictive. Tests in the domain of measurement invariance occur at the item-level, whereas, tests of structural invariance occur at the latent variable-level (Adamsons & Buehler, 2007). The five types of measurement invariance reviewed by Vandenberg and Lance included invariant covariance, configural invariance, metric invariance, scalar invariance, and invariant uniqueness. *Invariant covariance*, the broadest form of measurement invariance, examines the equivalence of the covariance matrices between

groups. *Configural invariance* tests whether items load onto the same configuration of factors between groups. *Metric invariance* assesses the relative strength of each individual item loading (measured in regression coefficients) between groups, establishing whether or not individual items load equivalently. The test for *scalar invariance* then assesses whether the measure systematically favors one group, which is indicated by variance in item intercepts across groups. The final test of measurement invariance is *invariance of unique variances*, which examines whether the error variances are comparable between groups, wherein equivalence in error terms across groups provides further confirmation of measurement equivalence (Adamsons & Buehler, 2007; Vandenberg & Lance, 2000).

Three additional tests are available at the latent variable-level which examine structural invariance: invariant factor variances, invariant factor covariances, and equal factor means (Vandenberg & Lance, 2000). The test for *invariant factor variances* assesses whether the variances of the latent constructs are equivalent between among groups, in essence testing whether the range of responses were dispersed differently for one group than the other. *Invariant factor covariances* is examined in a multi-factor structure (i.e., a scale with multiple subscales), in which the covariances between factors are tested for equivalence across groups. This test is not needed when examining structural equivalence for a single-factor model (Adamsons & Buehler, 2007). Finally, the most restrictive latent variable-level test of structural equivalence is *equal factor means*, which indicates whether the level of the underlying construct is invariant between groups. In all, these tests of structural invariance do not provide a critique of the

measurement of a construct, per se, but demonstrate “. . . differences in the distribution of the underlying construct between . . . groups.” (Adamsons & Buehler, p. 280).

To date, the most thorough investigation of measurement equivalence of parenting measures used for mothers and fathers was conducted by Adamsons & Buehler (2007). The authors tested the measurement equivalence of three measures of parenting behavior: *acceptance*, a measure of parental supportive behaviors; *psychological intrusiveness*, an assessment of parents’ attempts to control the thoughts and feelings of their child; and *harshness*, measured in terms of parents’ tendencies to get angry with and insult their children. Each of these measures were administered by self-report among 416 mothers and 416 fathers of pre-adolescents. Because each of the three parenting measures were considered unidimensional measures, tests for *invariant covariances* and *invariant factor covariances* were deemed unnecessary by the authors. However, Adamsons and Buehler also investigated the *functional equivalence* of the measures, which determines whether the constructs have invariant effects on outcome variables (adolescent internalizing and externalizing behaviors, in this study). The measure of acceptance was equivalent in terms of configural, factor mean, and functional invariance, although not metric, scalar, unique variance, or factor variance invariance. Psychological intrusiveness was equivalent across all assessments except for unique variance equivalence. Parental harshness was equivalent across all tests of invariance other than the test of factor variance equivalence. Adamsons and Buehler concluded that although the measure of acceptance did not appear to be equivalent for mothers and fathers, evidence suggested measures of harshness and intrusiveness could be measured equivalently for mothers and

fathers. Although other studies have examined and validated configural invariance of parenting measures between mothers and fathers through CFA techniques (e.g., Finley, Mira, & Schwartz, 2008; Prinzie, Onghena, & Hellinckx, 2007), the study by Adamsons and Buehler (2007) remains the most thorough and rigorous investigation of the equivalence of parenting measures. Notably, no studies are available which have explicitly investigated the measurement equivalence of scales designed to measure parental involvement among mother-father dyads.

The actor-partner interdependence model (APIM) assumes metric equivalence across measures used between dyads. As noted by Kenny and Ledermann (2010):

One often unrecognized assumption of the APIM is metric equivalence. When working with distinguishable dyads, it must be assumed that X and Y are the same variables for both members. Just by using the same measure for both does not ensure that in fact the measure has the same meaning for both members.

Differences between actor effects and between partner effects can sometimes be interpreted as differences in the meaning of the measures for the two members (e.g., when the variances of X1 and X2 differ substantially). (p. 365)

Among the few studies which have used the APIM to investigate the interdependence of determinants of parenting behavior, most have not investigated whether the parenting measures used were equivalent for mothers and fathers. For example, although study by Lang et al. (2013) assessed multiple dimensions of mother and father involvement in their APIM, the authors did not report whether any attempts were made to test for measurement equivalence. Ponnet et al. (2013b), on the other hand, investigated whether

the latent construct of parent-child communication was metric invariant between mothers and fathers by constraining all factor loadings in the CFA to be equal. Ponnet and colleagues found no significant difference in the fully constrained and freely estimated CFA models, indicating metric equivalence of the measure of parent-child communication for mothers and fathers. Although the study by Ponnet et al. did not investigate parental involvement, the authors demonstrated thorough analytical techniques that will be replicated in the current study.

Mother-father involvement differences among parents of children with disabilities. Some studies are available which can provide some insight into the differences in mother and father involvement among families of children with disabilities. Roach al. (1999) compared self-reported mother and father involvement among parents of children with Down syndrome, while also including a control group of parents of typically developing children. Parent involvement was assessed using three scales, the first measuring involvement in daily caregiving, the second measuring responsibilities for child-related tasks, and the third measuring involvement in child socialization. Mothers reported levels of involvement significantly higher than fathers across all three measures, following what the authors referred to as a traditional pattern of parental involvement in childcare. This pattern was the same for parents of children with Down syndrome as it was for parents of typically developing children. The finding that fathers are less involved with young children with disabilities has been established longitudinally, as well. Reporting on findings from a longitudinal study of 109 families of children with intellectual disability at ages 3, 4, 5, and 6, Crnic et al. (2009) found that mothers were

observed to put themselves in a position to be involved with their child more often than fathers. In addition, although both mothers and fathers decreased in their involvement with their children over time, fathers' involvement decreased more steeply across the four time points.

Others have investigated how individual and family factors may influence mother and father involvement with their young children with disabilities. Gavidia-Payne and Stoneman (1997) examined predictors of mother and father involvement in early intervention programs among 73 mother-father dyads. Involvement was assessed by the parents' early intervention service provider across the three domains of: attendance at service planning meetings and other appointments; parent knowledge of the child's disability; and parent cooperation in carrying out the service program goals in the home. Service provider ratings indicated levels of mothers' involvement were higher than fathers' across all three domains. In addition, the models examined by Gavidia-Payne and Stoneman revealed different patterns of predictors of involvement for mothers and for fathers (these models are discussed further below in the section on contextual factors that influence parenting).

In sum, the research on parental involvement with young children with disabilities has produced two overall findings that are important to the current study. First, studies have shown demonstrable positive effects of parental involvement on child developmental outcomes. This finding underscores the importance of investigating the antecedents of parent involvement, especially among families of children with disabilities. Second, research has indicated that among families of children with

disabilities, mothers are typically more involved with children than fathers. However, these studies have not accounted for the fact that mothers and fathers may be involved with their children with disabilities in different ways. Indeed, it is likely that measures of parent involvement have been biased to over represent mothering activities and underrepresent fathering activities (Day & Mackey, 1989; Pleck, 2012; Stolz et al., 2010). As noted by Crnic et al. (2009), fathers tend to be more involved in play activities with children, while mothers spend more time caregiving for children. In addition, no previous studies have examined measurement equivalence when comparing mother and father involvement with children with disabilities. The present study seeks to address this gap in the literature.

Determinants of Parental Involvement

The parenting determinants model introduced by Belsky (1984) provides a useful ecological framework for understanding how individual and contextual variables influence parental involvement. This section is organized according to the three primary antecedents to parenting behavior identified by Belsky: child characteristics, parent characteristics, and contextual factors. Each determinant domain will be considered broadly as it has been studied in relation to parent involvement or a construct closely related to parental involvement, such as parental engagement or caregiving behaviors. Then, I will introduce the specific constructs of interest in the present study and provide background on why and how each construct is expected to be related to parental involvement among parents of children receiving early intervention services.

Child characteristics. According to Belsky (1984, 2014) children who are more difficult to manage evoke hostile-intrusive and detached-uninvolved parenting, while children who demonstrate positive emotionality and social competence receive greater warmth and responsiveness from parents. From this perspective, the influence of child characteristics are dichotomized into positive and negative effects, with negative child characteristics hindering parent involvement and positive child attributes accentuating it. Others have found interaction effects in how child characteristics influence parental involvement. McBride, Schoppe, and Rane (2002) found that although child sociability did not influence father involvement with sons, fathers were more involved with highly sociable daughters than they were with daughters with low sociability. Likewise, child activity level did not influence mother involvement with sons, but mothers spent more time interacting with highly active daughters than with daughters who demonstrated low activity. In all, McBride et al. demonstrated how child gender can moderate the impact of child characteristics such as sociability and activity level on mother and father involvement.

Studies that have examined the effects of child characteristics of children with disabilities on parental involvement have primarily focused on aspects of the disability which could potentially influence involvement. A number of methods have been used to assess how child disability might influence parent involvement. For example, studies have compared levels of involvement between families of children with disabilities and control groups of families of typically developing children. Although results have been mixed, several studies have demonstrated that mothers and fathers are involved in similar

ways and at similar levels, regardless of whether or not their child has a disability (Crnic et al., 2009; Fenning, Baker, Baker, & Crnic, 2014; Roach et al., 1999). Others have studied the effects of the severity of a child's disability on parental involvement, with disability severity put on a continuum from mild, to moderate, and to severe based on parent, teacher, or researcher ratings. Some have found that parents are more involved with children with more severe disability symptoms (Bennett & Hay, 2007; Dallas, Stevenson, & McGurk, 1993), concluding that children with severe disabilities put greater demands on parents' time engaging in activities both at school and in the home. Finally, studies have shown the most salient and consistent child characteristic to impact parenting is the presence of child behavior problems, finding that child behavior problems predict a decrease in positive parenting and an increase in harsh, punitive parenting among families of children with disabilities (Garner et al., 2013; Schuiringa et al., 2015). Notably, these studies included indices of parental involvement as an indicator of positive parenting. Benson et al. (2008) found that mothers were less involved in educational activities with their young children with autism when behavior problems were more severe. Overall, child behavior problems, rather than disability status or diagnosis severity, appear to have a consistent negative impact on parenting behaviors.

Parent characteristics. As discussed previously, Belsky (1984, 2014) primarily focused on the roles of developmental history, personality, and psychological well-being as determinants of parenting that originate from the parent. While each of these broad characteristics have repeatedly been found to be related to parenting styles and behaviors (for a review, see Belsky, 2014), research on *parental involvement* has focused on the

roles of parent well-being and attitudes and beliefs about parenting as antecedents to parents' level of engagement with their children. In a meta-analysis investigating the link between maternal personality and psychopathology on parenting, McCabe (2014) found that mothers who demonstrated internalizing and externalizing behaviors were more uninvolved and less warm with their children, while mothers who were agreeable and extraverted showed higher warmth and involvement. However, these effects may be explained by parental attitudes and beliefs. For example, de Haan, Prinzie, and Deković (2009) found that the positive influence of personality characteristics such as extraversion and agreeableness on warm and involved parenting was mediated by parents' beliefs about their competence as a parent. Other studies have focused on how parent beliefs about their roles as parents influence parental involvement. For example, in a study of 112 mother-father dyads of pre-school aged children, Schoppe-Sullivan et al. (2013) found that fathers' non-traditional beliefs about their fathering role was associated with increased father involvement across four out of five domains of parental involvement, which were socialization, management, didactic (i.e., play), physical play, and caregiving. Schoppe-Sullivan et al. demonstrated that beliefs about the parenting role may influence mothers and fathers differently. In sum, studies examining the effects of parent characteristics on parental involvement tend to find that parents who are functioning well physically and emotionally and who have positive beliefs about their parenting roles and capabilities typically spend more time engaged with their children.

Gender. In addition to attitudes, beliefs, and well-being as determinants of parental involvement, studies which have compared mothers and fathers included gender

as a potential determinant of parental involvement. In the study by Schoppe-Sullivan et al. (2013), the authors measured parent engagement across the domains of socialization, caregiving, physical play, and didactic (i.e., teaching-focused) play. Mothers were more engaged than fathers in socialization, caregiving, and didactic play, while fathers were more engaged than mothers in physical play. The authors suggested this is consistent with previous research on mother and fathering. Furthermore, child characteristics influenced mother and father involvement differently. Child's effortful control (akin to self-regulation) predicted greater maternal engagement in socialization with daughters, but not sons. Fathers, on the other hand, were influenced by the child's birth order, demonstrating higher engagement in socialization with earlier- rather than later-born children.

One issue related to how gender acts as a determinant of parental involvement is the potentiality of maternal gatekeeping, which has been defined as:

. . . the mother's reluctance to relinquish responsibility for family matters by setting rigid standards, wanting to be ultimately accountable for domestic labor to confirm to others and to herself that she has a valued maternal identity, and expecting that family work is truly a woman's domain. (Allen & Hawkins, 1999, p. 205)

Allen and Hawkins identified three dimensions of maternal gatekeeping. The first is *standards and responsibility*, in which mothers act as “household managers” with husbands acting as “assistants” (p. 205). *Maternal identity confirmation* is described as instances in which mothers place primacy on their mothering role in defining themselves

and as a source of satisfaction and self-esteem. Finally, *differentiated family roles* has to do with gender-based beliefs about division of labor within the household. Overall, scholars often turn to the concept of maternal gatekeeping to explain why mothers seem to play such a crucial role in determining father involvement. For example, McBride and colleagues (2005) found that the effect of fathers' investments in their fathering role on actual levels of father involvement was moderated by mothers' beliefs about the father's role. In other words, fathers' beliefs about their parenting role only contributed to their involvement when mothers believed the father's fathering role was important. Due to maternal gatekeeping effects, one might expect to find lopsided results when investigating the interdependency of determinants of parental involvement where mother characteristics influence father involvement, but not vice versa.

Parenting self-efficacy. Part-C early intervention programs across the United States emphasize the importance of empowering and enhancing the self-efficacy of families receiving early intervention services (Dempsey & Dunst, 2004; Guralnick, 2007). The concept of parenting self-efficacy (PSE) is based on the broader concept of self-efficacy. Self-efficacy is a theoretical construct developed by the well-known psychologist Dr. Albert Bandura (Bandura 1977). According to Bandura (1977; 1997), self-efficacy consists of an individual's belief that he or she is capable of executing behaviors necessary for accomplishing certain tasks and goals. Self-efficacy is illustrated in an individual's sense of agency and control over his or her life, particularly in the domains of motivation, behavior, and social environment. Bandura (1982) suggested that self-efficacy influences individual cognitions, behaviors, and emotions such that higher

levels of self-efficacy leads to improved thought patterns and performance accomplishments, while reducing emotional arousal. Thus, self-efficacy has been considered an optimal characteristic in human beings and an important point of education and intervention for promoting healthy outcomes among individuals and families.

A sense of self-efficacy within the parenting role is known as parenting self-efficacy (PSE). PSE has been “broadly defined as the expectation caregivers hold about their ability to parent successfully” and “involves a parent’s beliefs in their ability to influence their child and the environment in ways that would foster the child’s development and success” (Jones & Prinz, 2005, p. 342). Thus, PSE has been linked to a number of parent and child outcomes. These linkages have varied in that self-efficacy has been considered a predictor, a mediator, outcome, and a transactional variable in a variety of processes (Jones & Prinz, 2005). In their review, Jones and Prinz suggested that as a predictor, PSE primarily has been linked to improved performance of parenting duties; as a mediator, PSE has been shown to be the primary mechanism by which ecological variables influence parenting practices; as an outcome, PSE has been shown to be influenced by a number of antecedents such as ecological context (e.g., neighborhood and community), parenting behaviors, and challenging child characteristics such as childhood disability or behavioral disorders. As a transactional variable, PSE is considered to be at the center of a feedback loop which links parenting success and greater child developmental outcomes, which then leads to a better sense of PSE.

Parenting self-efficacy and parental involvement with typically developing children. Research has consistently shown a positive connection between parenting self-

efficacy and parental involvement (de Haan et al., 2009; Giallo et al., 2013). In one conceptual model of PSE, parents with a greater sense of efficacy were thought to be more likely to engage in optimal parenting strategies, which would then increase their children's likelihood of succeeding in academic and psychosocial domains (Ardelt & Eccles, 2001). In addition, the conceptual model suggests the possibility of direct effects from PSE on children's success through modeling of favorable attitudes and beliefs. Thus, this model demonstrates how PSE can have both direct and indirect effects on child outcomes. Conversely, the Ardel and Eccles' model also suggests that parents with low PSE may be putting their child at risk for challenging child behavior, although they acknowledge the relationship is likely transactional in the sense that challenging child behavior makes parents feel less successful in their parenting role.

Results from a study in Australia by Giallo, Treyvaud, Cooklin, and Wade (2013) of 982 mothers and fathers of young (birth to four years old) children demonstrated a significant positive relationship between parenting self-efficacy beliefs and self-reported parental involvement in play, learning, and activities at home, all combined into one broad measure of involvement. Furthermore, the authors examined whether PSE would mediate the negative effects of parent well-being characteristics, measured in terms of stress and depression, on parent involvement. The authors found that higher levels of stress and depression had an indirect negative relationship on parental involvement through PSE, which was shown to promote parental involvement for both mothers and fathers. The authors interpreted this finding to indicate that when mothers and fathers experience distress, they may feel less capable as parents, which could then negatively

influence their level of involvement with their children. Using data from a later wave of the same study, Chau and Giallo (2014) conducted a study among 1,143 parents (1,003 mothers and 140 fathers) of birth to four year-old children in Australia in which they investigated their hypothesis that PSE would mediate the effects of parenting fatigue on parental warmth and hostility. Parents completed self-report measures assessing their physical and cognitive symptoms of fatigue, their sense of efficacy and satisfaction in their parenting role, the frequency of their demonstrations of warmth (i.e., affection) towards their children, and their levels of hostility and irritability with their children. Using path analysis, Chau and Giallo found that PSE fully mediated the relationship between fatigue and parental warmth, as well as the relationship between fatigue and parental hostility. The authors suggested parenting fatigue can be a major threat to parents' sense of efficacy by reducing the strength of the relationship between PSE and parental warmth and reduced parental hostility. Overall, these studies show that PSE primarily promoted beneficial parenting behaviors that are, in turn, related to positive child developmental outcomes.

Bandura's recent work has demonstrated how efficacy can also be studied at the interdependent family level (Bandura, Caprara, Barbaranelli, Regalia, & Scabini, 2011). In a study of 142 families in Milan, Italy, Bandura and colleagues investigated the effects of PSE on family functioning, parent-child relations, and family satisfaction. Using complex structural equation modeling techniques that paired mother, father, and child responses, the authors found that higher levels of PSE predicted improved family functioning and parent-child relationship quality, which mediated the effects of PSE on

overall family satisfaction. The takeaway message of this study is the centrality of a sense of efficacy for individual parents as well as for the family as a whole in creating a happy, satisfied family environment. Others have found evidence for partner effects of PSE. In a study of 83 socially and financially disadvantaged families with infant children, Sierau, Lehmann, and Jungmann (2011) found that father PSE had indirect effects on mother-infant interactions, mediated by couple relationship satisfaction. The studies by Bandura et al. and Sierau et al. highlight the need for further examination of how mother and father PSE may interdependently influence parental involvement, especially among families of children with disabilities.

Parenting self-efficacy and parental involvement with young children with disabilities. As mentioned previously, empowering families and enhancing PSE is part of the explicit aims of the early intervention system. As such, this topic area has received a good deal of attention from researchers. In one model designed to illustrate the role of PSE as an adaptive characteristic among early intervention families, PSE is proposed to be a function of early intervention services as well as child and family characteristics (Guimond, Wilcox, & Lamorey, 2008). PSE, in turn, is proposed to have a direct relationship with child outcome variables. This model demonstrates a general trend among early intervention researchers to study PSE as an outcome or else as a mediator of the effects of early intervention on child outcomes. The purpose of this section is to provide an illustrative review of the research in this area, focused on the primary findings that can help guide an understanding of how mothers and father might simultaneously

influence their own and each other's parental involvement via their individual PSE beliefs.

One study examined the relationship between father PSE and father involvement in a sample of 36 fathers of preschool children with hearing impairments and a matched sample of 38 fathers of children with normal hearing (Ingber & Most, 2012). Both mothers and fathers completed a global measure of father involvement in preschool and parenting self-efficacy. The authors found that fathers' and mothers' reported measures of father PSE correlated positively with father involvement in both the hearing impaired and matched group of typical hearing children. The authors suggested that the more confident and competent the fathers' beliefs about their parenting capability, the more likely they were to be involved with their children. However, this study also found a moderating effect of child disability status (hearing loss vs. normal hearing) on the relationship between PSE (father reported) and mother reports of father involvement. Fathers who experienced greater efficacy in their parenting role were only seen as more involved by mothers of children with normal hearing. The authors suggest this is an area in need of further research. Finally, Ingber and Most found evidence of maternal gatekeeping effects, wherein mothers' higher professional status and education levels were related to lower levels of father-reported paternal involvement. The authors suggested that mothers who are more educated and have a higher professional status may be less willing to relinquish their roles as mothers, thereby discouraging father involvement. Overall, the study by Ingber and Most provides evidence of how PSE

operates as an actor effect in predicting father involvement with young children with disabilities.

As noted in chapter 1, one of the primary aims of Part-C early intervention programs is to empower families; parenting self-efficacy (PSE) is a key indicator of family empowerment (Dempsey & Dunst, 2004). As a result, several studies have examined links between family-centered help-giving practices, PSE, parenting practices, and child development. Trivette, Dunst, and Hamby (2010) completed a meta-analytic structural equation model using data from eight studies that had investigated the link between family-centered early intervention practices, PSE, parent well-being, parent-child interactions, and child outcomes. Trivette and colleagues found that self-efficacy beliefs directly and indirectly affected parent-child interactions and child well-being, with parent well-being operating as a mediator. This is important for the proposed study because it provides evidence from multiple sources that PSE is a significant determinant of parenting among families of children receiving early intervention services. However, the participants in Trivette et al.'s analysis were primarily (89%) mothers, and no attempt was made to differentiate between effects of PSE on mothers versus the effects of PSE on fathers. Further, this analysis does not consider the possibility of interdependent effects, where one partner's PSE could be influencing the other's parenting behaviors.

Parental role salience. Role salience is a concept used in identity theory (Stryker, 1968), which is a subset of symbolic interaction theory. In Stryker's identity theory, the self consists of a set of internalized roles, or, identities, which are organized into hierarchies in which some identities are considered more important, or, salient, than

others. According to Stryker, identity salience is linked to commitment to a role and the enactment of behaviors related to a role. In other words, the more important a role is to an individual's identity, the more committed they will be to the role and more likely they will be to fulfill the duties related to that role. Salient identities are those that individuals invoke across a variety of situations and interactions as a defining element to the sense of self (Nuttbrock & Freudiger, 1991).

Parental role salience and parental involvement with typically developing children. The construct of role salience has primarily been invoked by scholars who study father involvement, particularly among those who utilize identity theory as a guiding framework (for a review, see Pasley, Petren, & Fish, 2014). As a result, fewer studies are available which demonstrate how role salience may influence parental involvement for mothers. In one exception, researchers examined the salience of the mothering role among first-time mothers as it relates to a number of other demographic variables and individual and child characteristics (Nuttbrock & Freudiger, 1991). Nuttbrock and Freudiger discovered that mother role salience predicted the extent to which mothers accept the burdens of motherhood (i.e., role commitment) and their willingness to make sacrifices for their child (i.e., role behavior). However, the study by Nuttbrock and Freudiger did not include any behavioral indicators of mother involvement. In a comparison of mothers' and fathers' perceived role investments (i.e., commitment) and parental involvement, McBride and Rane (1997) found significant correlations for mothers, but not for fathers, indicating that mother involvement might be significantly influenced by their commitment to their role as a mother. Others have investigated the

effects of imprisonment on mother role salience, finding that if mothers believe they will be able to perform their role as a mother now and in the future, they experience greater mother role salience (Barnes & Stringer, 2013).

The research on father role salience and father involvement is far more developed and recognized than it is for mothers. Overall, studies tend to show that the more important the fathering role is to a father's identity, the more likely he is to be committed to and likely to fulfill duties related to that role (e.g., Bronte-Tinkew, Carrano, & Guzman, 2006; Fox & Bruce, 2001). Indeed, in a review by Pasley et al. (2014), the authors identified 25 studies which found a positive relationship between father identity variables and various forms of father involvement. One exception is the study by McBride and Rane (1997) which found a link between parenting role salience and parental involvement for mothers, but did not find this link for fathers. However, more recent analyses have demonstrated the role of father identity in predicting father involvement longitudinally. Using data from the Fragile Families and Wellbeing Study, a nationally representative birth-cohort study with an oversample of children born in urban areas to unmarried parents, Goldberg (2013) tracked the trajectories of father involvement during the first five years of a child's life. Goldberg found that the importance of the father identity, measured at the time of the child's birth, predicted higher levels of father involvement over time, after controlling for a number of individual and family characteristics.

Few studies are available which have examined the effects of parental role salience on parental involvement among mother-father dyads. In a recent study however,

researchers investigated the effects of parental role salience on parental involvement in childcare among 148 couples raising children under the age of six in the United Kingdom (Gaunt & Scott, 2014). Using hierarchical regression analysis, authors found that for mothers and fathers, higher levels of parental role salience were associated with more hours spent caring for their children (actor effects). However, mother role salience was found to decrease the number of hours fathers spent in childcare tasks, while father role salience was not associated with the time mothers spent in childcare (partner effects). The authors suggested that mothers who feel highly attached to their mothering roles may engage in gatekeeping behaviors that reduce father involvement. This finding provides support to the compensatory hypothesis within the APIM framework due to the finding that greater mother role salience predicted a decrease rather than an increase father involvement.

Overall, a majority of the research on parental role salience and parental involvement supports the conclusion that the more prominent the parenting role is to an individual's identity, the more involved he or she will be with children. What remains to be established through interdependent modeling is whether parenting role salience has effects on a partner's involvement; that is, are there partner (i.e., crossover) effects of role salience on parental involvement between mothers and fathers? If so, what is the nature of those interdependent effects? While Gaunt and Scott (2014) provided evidence that greater mother role salience predicts a decrease in father involvement, this relationship remains to be established among parents of young children with disabilities.

Parental role salience and involvement with young children with disabilities.

Few studies are available which have investigated how parental role salience or other parenting role variables might influence parental involvement with young children with disabilities. In a qualitative study by Scorgie, Wilgosh, and McDonald (1999), the authors used open-ended interviews aimed at identifying effective life management strategies and transformational outcomes exhibited by parents of children with intellectual disability. The authors found that after discovering their child had a disability, parents underwent a transformative process wherein they developed “a new parent identity, which emphasized competence in parenting a child with a disability” (Scorgie et al., p. 401). According to Scorgie and colleagues, this identity transformation process was an important element in parents’ ability to manage life demands effectively. These findings have implications for how parental role salience may influence parental involvement among families of children with disabilities. In addition, analyses from the data used in the current study have demonstrated that father role variables, including role salience, are predictive of subsequent father involvement and that father role variables partially mediate the effects of fathering efficacy on father involvement (Fox, Nordquist, Billen, & Furst, in press). However, no known research is available to advise whether mother and father involvement with young children with disabilities could be considered an interdependent function of their parenting role salience. The present analysis seeks to explore the possibility that a parent’s role salience may influence their partner’s involvement with their child with a disability.

Contextual factors. In identifying the important contextual factors that influence parenting, Belsky (1984) included marital relations, parents' employment, and parents' social network as key determinants. In more recent writings, Belsky (2014) has acknowledged that the quality of marital/partner relationships can produce spillover and crossover effects (both positive and negative) on parenting, while also recognizing that some families exhibit compensatory patterns wherein parents become more involved with their children despite having problems in their couple relationship.

In the research on families of young children with disabilities, some have utilized Belsky's (1984) determinants model to guide their study of contextual factors that influence parental involvement. Gavidia-Payne and Stoneman (1997) studied family-level effects on mother and father involvement in early intervention programs. In this study, involvement was measured by the early intervention service coordinators, while parents completed self-report surveys of social support and family variables such as family functioning and marital quality. Using structural equation modeling, Gavidia-Payne and Stoneman found differential determinants of involvement for mothers and for fathers. For mothers, involvement was predicted by social support, family demographics (i.e., socioeconomic status), and their ability to cope with stress productively. For fathers, adaptive coping behaviors and family demographics predicted higher levels of parental involvement. For both mothers and fathers, stress and family functioning indirectly influenced parental involvement via coping strategies, with stress predicting a decrease in adaptive coping strategies and family functioning enhancing coping strategies. Notably, however, Gavidia-Payne and Stoneman (1997) modeled these effects

separately for mothers and fathers, not providing any insight into potential partner effects of contextual determinants such as couple relationship quality.

Couple relationship quality. Among the contextual sources of stress and support featured in Belsky's (1984) parenting determinants model, the couple's (marital) relationship is considered to be a significant contributor to the parenting process. Specifically, Belsky suggests that the quality of the marital relationship plays a key role in directly and indirectly influencing the quality of parenting and its effects on child outcomes. For decades since, scholars have acknowledged the direct link between marital/couple relationship quality and parent-child relationship quality (Carlson, Pilkauskas, McLanahan, & Brooks-Gunn, 2011; Erel & Burman, 1995; Krishnakumar & Buehler, 2000). This linkage of effects from the marital/couple subsystem into the parent-child subsystem has primarily been explained through the spillover hypothesis, which suggests that the qualities and feelings present in one system (e.g., the parent dyad) are transferred into another system (e.g., the parent-child dyad). Thus, the quality of marital or couple relations spill over into the relations between parents and children, for better or for worse. However, scholars have been careful to acknowledge that these linkages may, in fact, be spurious, due to a lack of control variables that could potentially be explaining this connection (Carlson et al., 2011; Krishnakumar & Buehler, 2000).

Couple relationship quality and parental involvement with typically developing children. Longitudinal studies have provided evidence that couple relationship quality leads to greater parental involvement with young children. In a study by Carlson and colleagues (2011), the authors used data from the Fragile Families and Child Wellbeing

Study to examine the relationship between couple relationship satisfaction and parental involvement throughout the early years of a child's life. Using fixed effects regression models and structural equation models, the research investigated the effects of couple relationship quality on parental engagement over time among 1,376 couples. Carlson et al. found significant effects of couple relationship quality on parental engagement, particularly during the infancy, toddler, and preschool years, such that greater levels of couple relationship quality predicted higher levels of mother and father engagement with young children. However, parental engagement did not predict an increase in couple relationship satisfaction over time. In addition, marital status was not found to moderate these relationships; rather, the effects of couple relationship quality on parenting were consistent whether couples were married or cohabiting. Finally, Carlson and colleagues only found evidence for spillover effects from couple relationship quality onto parental engagement and no evidence for the compensatory hypothesis. In other words, greater couple relationship quality predicted an increase in parental involvement (spillover), whereas no evidence was found that lower couple relationship quality was associated with an increase in involvement, as is suggested by the compensatory hypothesis.

A recent study investigated how marital quality can interdependently influence mother and father parenting behavior (Ponnet et al., 2013a). Researchers used structural equation modeling to examine an APIM in which actor and partner effects of marital quality, measured by parent self-report, were linked to parental responsiveness and demandingness, measured by child-report. Within the APIMs investigating the actor and partner effects of marital quality on mother and father demandingness and

responsiveness, the authors only found evidence for a partner-only pattern in predicting mother and father responsiveness. In other words, as one partner was more satisfied with the marriage, the other partner demonstrated more responsiveness to the child. However, no actor effects were found from marital quality onto parenting outcomes, highlighting the need for future studies to examine the crossover effects of marital quality onto parental involvement. Although the study by Ponnet et al. (2013a) was conducted among parents of school-age children without disabilities, the implications are important for understanding how relational process in the parent subsystem may influence relational processes in the parent-child subsystem. Moreover, this study illustrates the importance of accounting for interdependence among mother-father dyads in predicting parenting outcomes.

Couple relationship quality and parental involvement with young children with disabilities. Those interested in understanding couple relationship quality among parents of children with disabilities primarily have focused on investigating how raising a child with a disability influences the couple relationship. Findings have been mixed, with some showing no difference in quality of the relationship between parents of children with a disability and parents of children without a disability (e.g., Abbott & Meredith, 1986; Holmbeck et al., 1997; Kazak, 1987), whereas other studies have demonstrated a deleterious effect of caring for a child with a disability (e.g., Bristol, Gallagher, & Schopler, 1988; Florian & Findler, 2001). Several studies also have examined how certain child characteristics, such as problem behaviors, are related to couple relationship quality, often finding that it is the frequency and intensity of problem behaviors

associated with the child disability that is distressful for couple relationships rather than simply the presence of a child with a disability (e.g., Baker, Blacher, & Olsson, 2005; Simmerman et al., 2001). However, as noted by Hartley and colleagues (Hartley et al., 2011) few researches have studied how the couple relationship influences parenting practices when the child has a disability.

When narrowing down the field of studies to parents of children receiving early intervention services, the number of studies examining the connection between couple relationship quality and parenting outcomes becomes even smaller. In one study, researchers examined the contribution of the marital relationship to the well-being (conceptualized in terms of mental health, parenting stress, and parenting efficacy) of both mothers and fathers of children with developmental disabilities (Kersh et al., 2006). Participants were recruited from community-based early intervention programs in the northeastern United States. Using hierarchical regression analysis, the authors found evidence that for both mothers and fathers, an increase in marital quality predicted lower levels of depression and lower levels of parenting stress. For mothers, marital quality also predicted an increase in parenting efficacy. In Belsky's (1984) model of parenting determinants, marital quality is shown to have a bidirectional relationship with parent well-being, so the study by Kersh et al. provides an indication that marital quality could indirectly enhance parental involvement by first improving mother and father well-being.

The extent to which couple relationship quality among parents of young children with disabilities is related to parental involvement remains in question. In the study by Gavidia-Payne and Stoneman (1997) reviewed previously, couple relationship quality

was not directly related to mother or father involvement. However, Gavidia-Payne and Stoneman did find that mother and father marital quality indirectly influenced parental involvement via mother and father coping strategies. The authors suggested that mothers and fathers who view their partner relationships in healthy ways are likely better prepared to cope with stress, which in turn helps mothers and fathers become more involved in their child's early intervention program. It is important to note, however, that these models only accounted for actor effects, overlooking the possibility that a partner's relationship quality might influence the other parent's level of involvement. Thus, the goal of the current investigation in this regard is to account for both actor and partner effects of couple relationship quality on parental involvement. The findings from research on families of typically developing children provide evidence that greater couple relationship quality can lead to greater parental involvement via actor effects (Carlson et al., 2011), as well as through partner effects (Ponnet et al., 2013a). These findings guide the current investigation into the interpersonal and intrapersonal effects of couple relationship quality on mother and father involvement with young children with disabilities.

The Present Study

Research questions and hypotheses. The primary aim of the current investigation is to better understand how individual and family strengths may enhance mother and father involvement with their children receiving early intervention services. I utilize the APIM framework and determinants of parenting model (Belsky, 1984) to assess potential actor and partner effects of parenting self-efficacy (PSE), parenting role

salience, and couple relationship quality on parental involvement. The following research questions and hypotheses outline the specific approach of the current study.

The first research question seeks to address potential mother-father differences in parental involvement by asking: Do mothers and fathers of young children with disabilities differ in the nature of their parental involvement as reported in a self-report measure? In other words, can a self-report measure of parental involvement be used equivalently between mothers and fathers? Due to a lack of conclusive evidence that self-report measures of parental involvement among this population could be expected to measure involvement equivalently for mothers and fathers, no specific hypotheses will be advanced related to this question.

The second research question addresses the potential actor effects of the variables identified in this study, asking: Are there actor effects of parenting self-efficacy, parental role salience, and couple relationship satisfaction on mother and father involvement? This question provides the basis for an examination of the spillover hypothesis, wherein intrapersonal characteristics and experiences in one area of life are proposed to carry over into other areas of life. Based on the literature on parenting self-efficacy (PSE) among families of children receiving early intervention services (e.g., Trivette et al., 2010), it is hypothesized that greater PSE will have significant actor effects on mother and father involvement with children with disabilities. In addition, although few studies have considered the importance of parental role salience as a predictor of parental involvement among families of young children with disabilities, it is hypothesized that higher levels of parental role salience will demonstrate significant actor effects (i.e., within-person) on

parental involvement. This hypothesis is based in the common finding in the empirical research on parents of typically developing children that parents who experience greater role salience in their parenting role are more involved with their children (e.g., Gaunt & Scott, 2014; Pasley et al., 2014). Finally, although several studies have shown how couple relationship quality can positively influence parenting behaviors (e.g., Carlson et al., 2011; Krishnakumar & Buehler, 2000) no formal hypotheses will be made due to a lack of overall consensus within the empirical research.

The third research question aims to fill a gap in the literature on determinants of parental involvement with young children with disabilities, asking: Will partner effects be found for PSE, parenting role salience, and couple relationship satisfaction on parental involvement? In addressing partner effects, this question raises the possibility of evidence for either the crossover hypothesis, wherein partner effects occur in the same direction as the hypothesized actor effects, or the compensatory hypothesis, in which partner effects would occur in a direction opposite of the hypothesized actor effects. Scholars have suggested that from an ecological systems perspective, greater levels of individual, couple, and family functioning among families of children with disabilities lead to more successful parenting outcomes (Algood, Harris, & Hong, 2013). However, because of the possibility of compensatory effects, such as the limited evidence that maternal role salience could potentially decrease father involvement via a gatekeeping mechanism (Gaunt & Scott, 2014), no formal hypotheses will be made regarding the potential partner effects of PSE, parenting role salience, and couple relationship quality. Instead, this study will examine the partner effects of these variables acknowledging the possibility of both

crossover effects and compensatory effects, as others have done (see Carlson et al., 2011).

The fourth and final research question asks: When controlling for the actor and partner effects of each of the determinants investigated in this study simultaneously, which relationships will remain significant? This question addresses Belsky's (1984) hypothesis that individual characteristics (PSE and parental role salience in this study) are more influential and important to promoting positive parenting than contextual issues (couple relationship quality in this study), which are still more important than child characteristics. In other words, if Belsky's hypothesis regarding the relative importance of each of the three categories of parenting determinants is accurate, then mother and father PSE and role salience should maintain the same actor and partner relationships with parental involvement in a fully integrated model that examines the effects of each determinant within the same model.

Chapter 3

Methods

Participants

Mother and father participants were selected from active and recently transitioned cases across the entire Tennessee Early Intervention System (TEIS). Parents were eligible for the study if they had a child with special needs between zero to four years of age and had been given an individualized family service plan (IFSP). Data collection began late in 2004 and continued until 2007, a span of over three years. Participants were excluded from this study if parents were under the age of 18, if parents were not fluent in English, if the family's service coordinator was not part of the TEIS staff, or if the child was in foster care. Approximately 1,000 families were invited to participate in the study using a stratified, probability proportionate to size sampling method (PPS). The sample was randomly selected from each of the nine TEIS districts based on the percentage of families served within that district proportionate to the overall number of families served across the state. The total number of families who agreed to participate in the study was 430, a response rate of 43.0% of the original 1,000 asked to participate. Among the 430 families who participated, 430 mothers participated and 137 father participated, meaning 137 cases were available which provided data for both mothers and fathers.

The actor-partner interdependence model assumes that mother-father dyads are in an ongoing close relationship (Laursen et al., 2008). Thus, although data are available from 137 families in which both mothers and fathers completed surveys, only 132 dyads were eligible for this analysis due to five couples not living within a shared household.

The median age was 33.33 (SD = 7.12) for mothers and 35.59 (SD = 8.14) for fathers.

The majority of couples were married (97%) and Caucasian (93% of fathers, 95% of mothers). Most families demonstrated traditional employment arrangements, with approximately 80% of fathers working full-time and 75% of mothers unemployed.

Demographic information for mother-father dyads is presented in Table 1.

Regarding the children who were receiving early intervention services, ages ranged from birth to age four, with a mean age of 28.5 months. Thirty-five per cent of the children were first-born. In addition, first-born children primarily (85%) were only children, meaning that they had no younger siblings. The average number of children in the family was two, with a range of one to four. Boys comprised 63% of focal children, which is expected in a sample of children diagnosed with a developmental delay or disabling condition. Approximately 20% of the children were diagnosed with developmental delays, 23% of the children had speech and/or hearing delays, 6% were diagnosed with cerebral palsy, 7% were diagnosed with Down syndrome, 5% with autism, 2% with spina bifida, and 29% of the children had “other” forms of disabilities (see Table 2 for child ages and diagnoses).

Table 1. *Demographic Characteristics of Mother-Father Dyads (n = 131)*

Characteristic	Mother		Father	
	Number	%	Number	%
Race				
Caucasian	126	(95.4)	123	(93.2)
African American	3	(2.3)	4	(3.0)
Asian	2	(1.5)	2	(1.5)
Other	1	(0.8)	3	(2.3)
Marital status				
Married – Living together	128	(97.0)	128	(97.0)
Unmarried – Living together	4	(3.0)	4	(3.0)
Education level				
Did not complete high school	5	(3.8)	18	(13.6)
High school diploma	33	(25.0)	31	(23.5)
Some college or	39	(29.5)	41	(31.1)
Associate/Technical degree				
Bachelor's degree and above	55	(41.7)	42	(31.8)
Family income (annual)				
Less than \$15K	11	(9.4)	25	(20.2)
\$15K - \$30K	20	(17.1)	15	(12.1)
\$30K - \$45K	26	(22.2)	24	(19.3)
\$45K - \$60K	21	(17.9)	19	(15.3)
\$60K - \$75K	16	(13.7)	16	(12.9)
More than \$75K	23	(19.7)	25	(20.2)
Employment status (last 6 months)				
Full-time	17	(11.5)	104	(80.0)
Part-time	34	(27.0)	12	(9.2)
Unemployed	75	(59.5)	14	(10.8)
Residence type				
Urban	29	(22.1)	36	(27.5)
Suburban	56	(42.7)	48	(36.6)
Rural	46	(35.1)	47	(35.9)

Table 2. *Child Ages and Diagnoses (n = 131)*

Characteristic	Number	%
Ages		
Birth – 12 months	10	(7.3)
12 – 24 months	29	(21.2)
24 – 36 months	64	(46.7)
36 months and older	25	(18.2)
Diagnoses		
Autism	7	(5.1)
Cerebral palsy	8	(5.8)
Developmental delay	27	(19.7)
Down syndrome	9	(6.6)
Speech/Hearing disorder	32	(23.4)
Spina Bifida	3	(2.2)
Other	40	(29.2)

Procedure

A packet containing a battery of paper and pencil survey items was delivered to participants by the family's TEIS service coordinator during a meeting at the participants' home. During the meeting, service coordinators met with parents, described the project, obtain informed consent, and distributed the survey packets. Families who met with a service coordinator received a \$5 gift card to Walmart. Fathers and mothers completed the questionnaires independently and returned them directly to the investigators via U.S. Mail using pre-paid, self-addressed envelopes.

Measures

Questionnaire packets completed by mothers and fathers included several measures of individual and family functioning, as well as an evaluation of TEIS. The

current study will focus on measures of parenting self-efficacy (PSE), couple relationship satisfaction, parent role salience, and parental involvement. The complete list of items for each measure is included in Appendix A.

Parenting self-efficacy. The Family Empowerment Scale (FES; Koren, DeChillo, & Friesen, 1992) was developed and revised (Curtis & Singh, 1996) using samples of children with serious emotional and behavior problems, and also has been used in a number of studies in which parents of young children with disabilities or identifiable delays completed the scale. The FES is comprised of 34 items. Four dimensions of empowerment emerged from the factor analysis completed in the revision by Curtis and Singh. A parallel exploratory factor analysis of the FES items for mothers and fathers in a previous analysis of the data used in the current study yielded a “systems advocacy” subscale and a “parenting self-efficacy” subscale (Nordquist, Higgins, Coulter, & Olsen, 2008). The current study used the 13 items from the parenting self-efficacy scale identified by Nordquist et al. to measure PSE for mothers and fathers. Some sample items include: “I know the steps to take when I am concerned my child is receiving poor services,” “I feel my family life is under control,” “I am able to make good decisions about what services my child needs,” “I feel I am a good parent,” and “I am confident in my ability to help my child grow and develop.” Parents responded on a 5-point Likert-type scale from 0 = *never true* to 4 = *always true*. The internal consistency of the PSE measure was $\alpha = .86$ for mothers and $\alpha = .91$ for fathers. Total scale scores for PSE were computed using the mean item scores for mothers and fathers.

Parental role salience. Parental role salience was initially measured using 10 items from Father Role Salience Scale (Fox & Bruce, 2001), with the wording modified so that it matched the parenting role of the participant. Each of the items was measured on a 5-point scale from 1 = *strongly disagree* to 5 = *strongly agree* with higher scores indicating greater salience of the parent role to a mother or father's identity. Sample items include "I like being known as a parent," and "The word 'mother'/'father' completely captures who I am." Mothers and fathers were asked to complete each of the items twice – once with their child with special needs in mind and once thinking of their children without special needs. Responses to the items assessing parental role salience vis-à-vis the child with special needs are used in this analysis. This measure has been shown to be valid and reliable as a measure of father role salience in another analysis of the data used in the current study (Fox et al., in press). However, because this was the first time this scale was used as a measure of mother role salience, dyadic confirmatory factor analysis (CFA) was used to verify the validity of the measure for mother-father dyads. Using dyadic CFA, mother and father role salience were modeled separately, but within the same measurement model. When all 10 items were included separately for mothers and for fathers, each item loaded significantly onto a single factor measuring mother role salience and father role salience. However, one of the items ("Before I spend money on myself, I ask myself if my child(ren) need something more") had a standardized loading of less than .40, indicating that it was a poor indicator of mother role salience (Schmitt, 2011). As a result, this item was removed from the measure for both mothers and fathers used in subsequent analysis. In the dyadic CFA model of the

remaining nine items measuring mother and father role salience, all items loaded significantly with standardized loadings above .40. Overall, the model showed acceptable fit with the data ($\chi^2[134] = 240.03, p < .000$; $\chi^2/df = 1.79$; comparative fit index [CFI] = .93; Tucker-Lewis index [TLI] = .92; root mean square error of approximation (RMSEA) = .08). Cronbach's alpha for the nine-item version of this scale was .84 for fathers and .75 for mothers. Total scale scores for parental role salience were computed using the mean item scores for mother and father responses.

Couple relationship quality. Couple relationship quality was measured using the Kansas Marital Satisfaction Scale (KMS; Schumm, Nichols, Schectman, & Grigsby, 1983). The KMS is a 3-item measure designed to quickly assess couple relationship satisfaction. Participants respond to each item on a 7-point scale ranging from 1 (*extremely dissatisfied*) to 7 (*extremely satisfied*). The three items ask “How satisfied are you with your marriage?”, “How satisfied are you with your husband/wife as a spouse?”, and “How satisfied are you with your relationship with your husband/wife?” Cronbach's alpha coefficients for the KMS were .96 for mothers and .84 for fathers. Total scale scores for couple relationship quality were computed using the mean item scores for mothers and fathers

Parental involvement. Parental involvement was assessed in terms of frequency of engagement with the children with and without special needs. Parents were given the following directions when completing this section of the questionnaire, titled *Parenting Activities*:

Parents spend varying amounts of time with their children. The statements below relate to different activities that parents and children sometimes do together.

Please fill in the circle that best describes how often you participate in the activities with your child who has special needs (Column 1) and your child(ren) who does (do) not have special needs (Column 2). (TEIS Codebook, p. 59)

Only responses to the items measuring involvement with the child with special needs are used in this analysis. Twelve items assessed involvement on a scale of 0 (*rarely/never*) to 3 (*daily/almost daily*), with higher scores indicating higher levels of involvement. Seven of the items were adapted from a measure of father involvement used by Bruce and Fox (1999). Five additional items were developed and piloted to measure parental involvement. These items measured general forms of involvement (e.g., “I help my child[ren] prepare for bedtime”) as well as forms of involvement specific to raising a child with a disability (e.g., “I attend my child’s therapy sessions”). Three of the twelve items were removed due to a lack of conceptual relevance to the issue of parental involvement with an infant or toddler with special needs. These items include “I watch TV with my child(ren)”, “I attend church with my child(ren)”, and “I do household chores with my child(ren).” These items did not appear to be good indicators that a mother or father is engaged in the life of the life of their young child. Specifically, watching TV and doing chores with children under the age of three may be irrelevant, if not developmentally inappropriate. In addition, attending church with a young son or daughter would not be a good indicator of involvement for mothers and fathers who do not attend church in the first place. The exact configuration of the mother involvement

and father involvement measures, as well as the factor analyses that support the selection of items and the resulting reliability information, are all results related to the first research question. As such, the analyses involved are discussed in detail below and the results from research question 1 are presented at the beginning of chapter 4. For the full list of items used in the parental involvement measure, see Appendix A.

Plan of Analysis

Data cleaning and preparation. The first step in preparing the data to run as an APIM in Mplus is to ensure that the data have been properly cleaned. This involved initial screening of the data in SPSS by running descriptive and frequency statistics to check for any outliers. Tests of normality were conducted to ensure multivariate normality assumptions were not violated.

Next, any reverse-coded items were recoded to the same direction as the other items in the measure. Then, observed variables were computed in SPSS from the original survey items for each of the predictor variables. To prepare the data for analysis with Mplus, the SPSS file was converted to a comma delimited (.csv) file. Prior to doing so, any system-missing values in the original data file were recoded as -999 to make them easily identifiable in the dataset.

Missing data. Missing values analysis was completed in SPSS to examine the prevalence and patterns of missing data. Mplus uses full information maximum likelihood (FIML) estimation to estimate missing data. FIML uses all data available to estimate each parameter directly without imputing direct values for each individual (Muthén & Muthén, 2012).

Analysis to address research question 1. In order to answer the first research question (RQ1) regarding the equivalence of the measure of parental involvement between mothers and fathers of children with disabilities, the parental involvement instrument first needed to be factor analyzed using exploratory and confirmatory factor analytic techniques. Although the standard approach to establishing measurement equivalence involves using confirmatory factory analysis (Adamsons & Buehler, 2007; Byrne, 2012; Sass, 2011; Vandenberg & Lance, 2000), exploratory factory analysis (EFA) is useful for exploring factor structures that are not guided by strong hypotheses (Schmitt, 2011). In this study, EFA was considered necessary for the scale measuring parental involvement because (a) this was an augmented version of an existing measure of parental involvement without any previous assessments of reliability or validity, and (b) this measure was used to investigate parental involvement among a very specific population, namely, parents of young children enrolled in a Part C early intervention program. This was the first time this instrument has been factor analyzed among the subset of mother-father dyads in this dataset. The exploratory factor analyses were conducted separately for mothers and for fathers in order to determine the factor structure of the nine items measuring mother and father involvement. Results from the exploratory factor analyses are presented in chapter 4 and shown in Table 3. Decisions regarding the number of factors retained from the EFA were based on the fit indices provided by Mplus and by examining the scree plot for the point of inflexion, which is the point at which there are visibly noticeable distinctions in the number of factors generated by the EFA (Schmitt, 2011; see Appendix B for scree plots). Analyses were run using Mplus version

7.2, which is better suited for the current analysis than the techniques available in SPSS because (a) SPSS assumes indicators to be continuous, but Mplus provides the option of specifying indicators as categorical (which they are in the current study), (b) Mplus uses FIML data imputation rather than listwise or pairwise deletion methods, and (c) Mplus uses geomin rotation (extraction) methods, which is an oblique rotation method that allows factors to covary (Muthén & Muthén, 2012).

Results from the exploratory factor analysis determined the next steps in establishing the measurement equivalence of the measure of parental involvement. If the EFA for mothers and fathers produced differing factor structures from the nine items used to measure parental involvement, no further analyses would be necessary because the measure could be considered nonequivalent (Hoffman, 2015). This included any conditions wherein factor structures were not identical between mothers and fathers, such as if fathers produced a single-factor solution and mothers produces a multi-factor solution. In the condition that the EFA for mothers' and fathers' involvement produced identical, multi-factor structures, the CFA tests for measurement equivalence and subsequent structural equation models (SEM) would be examined with a multivariate outcome variable, as has been done in other studies (Garneau, Adler-Bader, & Higginbotham, 2015; Lang et al. 2013). Similarly, if mother and father involvement were unidimensional, CFA tests for measurement equivalence would proceed normally. Once EFA results were obtained which identified the items which loaded onto the same constructs for mothers and fathers as indicators of parental involvement, the next step

was to examine measurement equivalence through tests for configural and metric invariance.

Configural equivalence. As discussed in chapter 2, configural equivalence, or, configural invariance, is demonstrated when all items from a measure load significantly and fit adequately within a measurement model across groups (Adamsons & Buehler, 2007). It is important to test for configural equivalence because it establishes whether a measure can be trusted when used to examine characteristics across multiple groups. If a measure does not possess configural equivalence across groups, then any comparisons based on that measure cannot be trusted. In the present study, tests for configural equivalence were conducted through the use of confirmatory factor analysis (CFA). Confirmatory analyses were completed in Mplus through the construction of measurement models, which involves mapping observed variables onto latent constructs (Byrne, 2012). In CFA, scale items are treated as indicators that reflect a latent variable (Byrne, 2012). CFA provides factor loadings for each of the items in the analysis, with factor loadings appearing as standardized regression coefficients. Due to the dependent nature of the data, CFAs for mother and father measures were conducted conjointly (Kenny et al., 2006). This is distinct from the approach used to examine measurement equivalence across independent groups, which uses multigroup CFA methods (Hoffman, 2015). Dyadic confirmatory factor analyses (CFA) were completed for the mother involvement factor and the father involvement factor within same overall measurement model, allowing the latent constructs to covary (Kenny et al., 2006). Dyadic CFA also requires correlating the error terms of each pair of items between mothers and fathers,

controlling for systematic error in dependent couple data (Kenny et al.). Configural invariance was determined by allowing the parameters to estimate freely, generating a baseline model for the test of metric invariance. Factors were considered configurally equivalent if (a) the model fit the data adequately, as indicated by the goodness-of-fit indices, and (b) all items loaded significantly onto their assigned latent variables. In other words, if all standardized path coefficients were significant within the dyad CFA of parental involvement and the model demonstrated acceptable fit with the data, the model could be said to demonstrate configural equivalence. Full results from tests of configural equivalence are presented in Chapter 4.

Metric equivalence. Once configural equivalence was achieved in the measures of mother and father parental involvement, it was necessary to examine metric equivalence to assess whether the assumption of metric equivalence in the APIM had been violated (Kenny & Ledermann, 2010). Metric equivalence requires that each item loads similarly across groups (Adamsons & Buehler, 2007). Examining metric equivalence goes beyond configural equivalence by pairing individual items across groups to essentially determine whether individual items held similar meaning across groups. The test for metric equivalence involves constraining all paths in the model to be equal and then comparing the results from the constrained model to the freely estimated model (Kenny et al., 2006). The overall goal of examining the fully constrained model compared to the freely estimated model is to not worsen the model fit (Hoffman, 2015). Equivalent fit indices between the fully constrained and freely estimated models indicate metric invariance at a practical level (Sass, 2011). In addition, Mplus examines model

comparisons for categorical data through the Wald test for parameter constraints; a significant result from the Wald test indicates that items loaded differently for mothers and fathers, demonstrating nonequivalence (Muthén & Muthén, 2012). In the instance that the Wald test results indicated that items measuring mother and father involvement were nonequivalent, further tests of partial equivalence could be made by allowing pairs of items to estimate freely one at a time. If some of the items are equivalent but others are not, as determined by the Wald test, it can be concluded that the measure demonstrates partial metric equivalence (Sass, 2011). According to Sass (2011) partially invariant measures can be treated in several ways:

- (a) delete the noninvariant items and only use invariant items for statistical analyses, (b) apply a partial measurement invariance (PMI) model, (c) use all the items and assume any differences are small and do not influence the results, (d) interpret the scores independently and preclude group comparisons, or (e) simply avoid using the scale. (p. 352)

Sass suggests options a, b, and c are the most practical and that options “a” and “c” are most appropriate for longer scales in which the majority of items are noninvariant. Option “b”, the PMI model, involves only constraining equivalent items to be equal across groups while allowing the nonequivalent items to estimate freely. Sass encourages researchers to use caution when using any of these options due to the remaining issue of nonequivalence. In the current study, if the Wald test indicates nonequivalence but the fit indices do not worsen when constraining the paths to be equal, option “c” will be pursued

and all items will be retained. In the condition that model fit decreases in the fully constrained model *and* the Wald test is significant, the PMI model will be pursued.

Results from the CFAs examining configural and metric equivalence for mother and father involvement along with goodness-of-fit indices and the Cronbach's alpha for each of the factors are presented in the results section. Goodness-of-fit was determined based on the comparative fit index (CFI; Bentler, 1990), the Tucker-Lewis index (TLI), which is a non-normed fit index (NNFI; Bentler & Bonett, 1980), the root mean square error of approximation (RMSEA), and the chi-square to degrees of freedom ratio (χ^2/df). For the CFI and TLI, values above .90 are necessary for acceptable fit, while values above .95 indicate a good fit. For χ^2/df , values between 3 and 5 are considered acceptable fit, while values under 3 are seen as well fitting (Kline, 1998). Values below .05 for the RMSEA are considered a good fit, whereas values below .08 are acceptable (Kenny, 2014).

Preliminary analyses. Once scales had been identified to measure mother and father involvement, it was possible to move onto preliminary analyses. Initial frequency and descriptive sample statistics were examined for mother, father, and child demographic characteristics. Once analyses for RQ1 were completed, descriptive statistics were examined as for each of the scales included in this analysis. Each of the scales were also analyzed for their psychometric properties; specifically, internal consistency reliability was computed for each of the scales, reported as Cronbach's alpha. Bivariate correlations were run to examine the covariance of the variables within and

between mothers and fathers. In addition, paired samples *t*-tests were completed to investigate whether mother and father variables differed significantly.

Actor-partner interdependence models. Structural equation modeling (SEM) was used to examine the APIMs outlined in this study. The conceptual models presented in figures 3, 4, 5 and 6 provide a visual representation of how the data were modeled in Mplus. Due to the limited sample size and the number of parameters investigated in each model, only couple relationship quality was investigated as latent variable in the simple model (see Figure 5); other exogenous variables were treated as observed variables; the endogenous parental involvement variable retained its latent structure which emerged from analyses related to the first research question. As previously noted, mother and father predictor variables were correlated in each model, as were the error terms from the endogenous latent parental involvement constructs. This approach allows the opportunity to examine covariance and regression relationships between variables of interest, whether they are latent variables or observed variables.

Conceptual models. Research questions two, three, and four (RQ2, RQ3, and RQ4, respectively) were examined by testing the four actor-partner interdependence models depicted in Figures 3, 4, 5, and 6. For each of the models, the curved, double-headed arrows represent the correlations between the exogenous variables and the correlations between the residual (unexplained) variance in the endogenous variables, mother and father involvement. The single-headed arrows represent the main effect pathways examined in the model. The first APIM (see Figure 3) examined the effects of parenting self-efficacy on parental involvement. Significant, positive paths from father

PSE onto father involvement and from mother PSE onto mother involvement will provide evidence to supporting the hypothesis associated with RQ2 that actor effects would be present from PSE onto parental involvement for both mothers and fathers. Results from the paths from mother PSE onto father involvement and from father PSE onto mother involvement provide the answer to RQ3, which asked whether there would be any partner effects from PSE onto parental involvement.

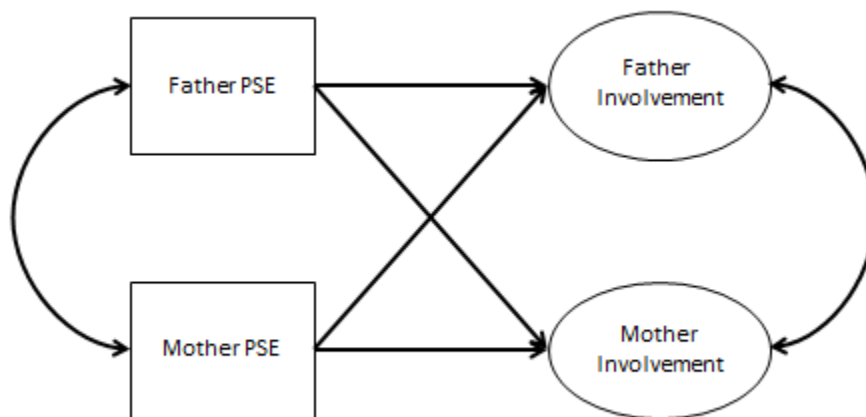


Figure 3. Conceptual Actor-Partner Interdependence Model of the Effects of Parenting Self-Efficacy (PSE) on Parental Involvement

The second APIM (see Figure 4) examined the effects of parent role salience on parental involvement. It was hypothesized in RQ2 that parent role salience would have significant, positive actor-effects for both mothers and fathers, indicated by the horizontal lines in Figure 4. The diagonal paths from mother role salience onto father involvement and from father role salience onto mother involvement provide the test of RQ3, which

asked whether there would be any partner effects from parent role salience on parental involvement.

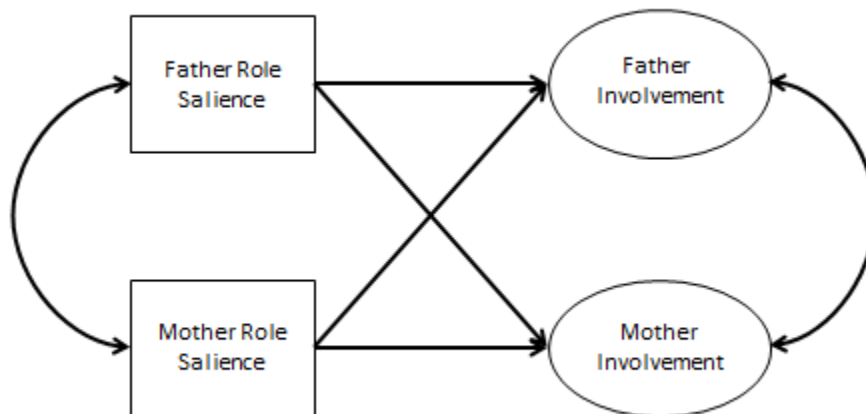


Figure 4. Conceptual Actor-Partner Interdependence Model of the Effects of Parental Role Salience on Parental Involvement

The third APIM (see Figure 5) tested the effects of couple relationship quality on parental involvement. As was the case in the prior two conceptual APIMs, the horizontal paths indicate the test of the hypothesized actor effects (RQ2) and the diagonal paths demonstrate the potential partner-effects of couple relationship quality on parental involvement.

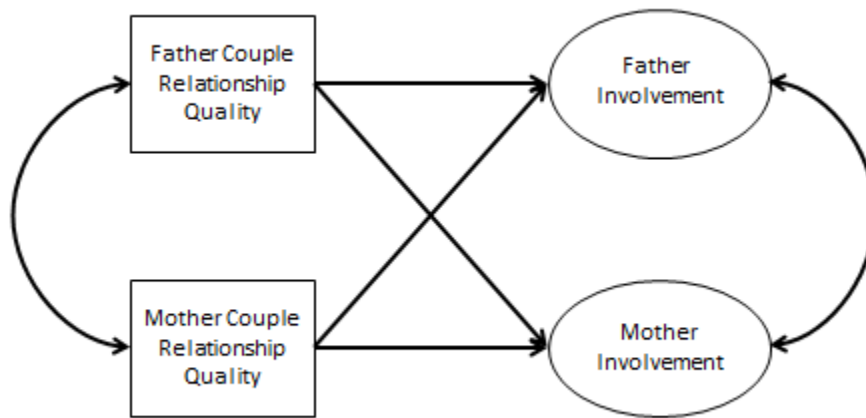


Figure 5. Conceptual Actor-Partner Interdependence Model of the Effects of Couple Relationship Satisfaction on Parental Involvement

The fourth and final APIM (see Figure 6) examined the actor and partner effects of all three exogenous variables on mother and father involvement simultaneously. The purpose of this model is to control for the covariance among each of the exogenous variables in this study to assess what impact this may have on the significant actor and partner effect pathways that emerge. The double-headed curved line between variable d1 and d2 represents the correlation in the residual variance in mother and father involvement. The advantage of this model is that it provides a multivariate test of the actor and partner effects of all variables of interest in this study. This allows for the interpretation of whether certain determinants of parental involvement investigated in this study will maintain the same significant paths on parental involvement, or whether certain paths will no longer be significant due to covariance among the determinants.

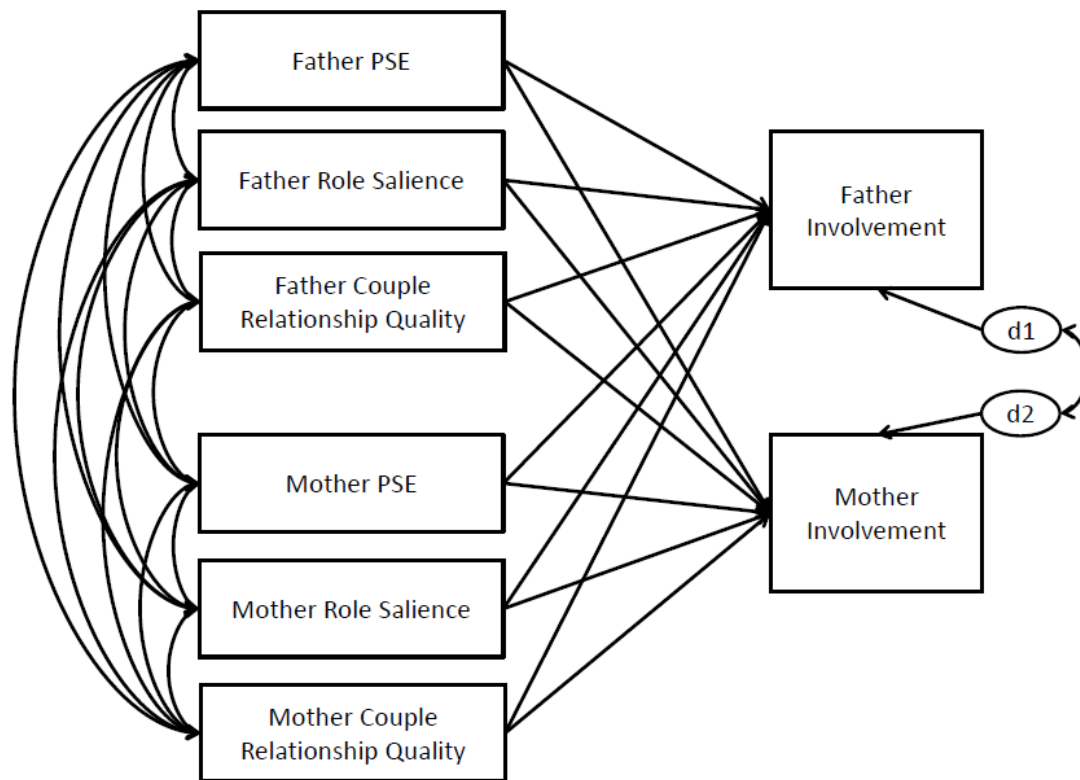


Figure 6. Conceptual Actor-Partner Interdependence Model of the Effects of Parental Role Salience, Parenting Self-Efficacy (PSE), and Couple Relationship Satisfaction on Parental Involvement

Chapter 4

Results

Analysis of missing data revealed that in one mother-father dyad, one mother was missing data for a majority of the items included in the present analysis. As a result, this dyad was removed from the present analysis, leaving a final n of 131. All items and variables were assumed to be missing at random and were missing at less than 10 percent.

Exploratory and confirmatory factor analyses were used to test for configural and metric equivalence among the items used to measure parental involvement for mothers and fathers. These analyses were conducted to answer RQ1 regarding the measurement of parental involvement among mother-father dyads. To answer research questions 2, 3, and 4, actor-partner interdependence models were conducted using structural equation modeling (SEM). In this chapter, I provide the results from these analyses.

Research Question 1: Tests for Measurement Equivalence

Exploratory factor analysis. The factorability of the nine items measuring parental involvement was examined separately for mothers and fathers using exploratory factor analysis. For mothers and fathers, a single-factor solution provided the best representation of the data. Results from the exploratory factor analysis, including the factor loadings and fit indices, are included in Table 3. Cronbach's alpha for the single-factor measure of parental involvement was .88 for fathers and .81 for mothers. A paired samples t-test revealed that mother involvement ($M = 2.66$) was significantly higher than father involvement ($M = 2.21$; $t = 7.29$, $p < .001$).

Table 3. Geomin Rotated Standardized Loadings and Eigenvalues from Exploratory Factor Analysis of Parental Involvement Measure for Mother-Father Dyads (n = 131)

Item	Mothers	Fathers
I spend time one-on-one with my child	.70	.84
My child(ren) and I play together	.93	.98
I join in activities my child(ren) like(s) at home	.98	.95
I teach my child(ren) new skills	.70	.80
I take my child(ren) to places (e.g. the mall, restaurants, and parks) and activities (e.g. soccer, swimming, and camping)	.46	.75
I help my child(ren) prepare of the day's activities (e.g. getting dressed and feeding)	.76	.73
I help my child(ren) prepare for bedtime	.90	.80
I attend my child's therapy sessions	.56	.60
I put into practice at home the recommendations of my child's therapists	.76	.58
Eigenvalues for single-factor solution	5.32	5.83

Note: Mother involvement fit indices: CFI = .98; TLI = .97; RMSEA = .07; $\chi^2(27) = 46.67$, $p < .05$; $\chi^2/df = 1.73$. Father involvement fit indices: CFI = .99; TLI = .99; RMSEA = .08; $\chi^2(27) = 51.66$, $p < .01$; $\chi^2/df = 1.91$. All loadings were significant at the $p < .05$ level

Confirmatory factor analysis. Once a single-factor structure was identified for the measures of mother and father involvement in separate EFAs, dyadic CFA was used to confirm the fit of this factor structure and establish configural invariance of the measure of parental involvement. In this model, all paths were estimated freely, with the first item fixed to 1. Because all standardized factor loadings loaded above .40 and were significant at the $p < .001$ level, the measures of parental involvement were determined to demonstrate configural equivalence for mothers and fathers. The latent variables of

mother and father involvement were significantly positively correlated ($r = .23, p < .05$).

Unstandardized and standardized loadings from this model are presented in Table 4.

To test the metric equivalence of the parental involvement measure, a CFA model was tested in which factor loadings were constrained to be equal and the Wald test for parameter constraints was examined to determine if the fully constrained model differed from the freely estimated model. The Wald test of parameter constraints ($df = 9$) was 20.59, $p < .05$, indicating metric nonequivalence of the measures of parental involvement between mothers and fathers. However, despite the results from the Wald test, the fit indices did not worsen when compared to the freely estimated model (CFI = .98; TLI = .98; RMSEA = .05; $\chi^2[134] = 179.17, p < .01$; $\chi^2/df = 1.34$). In addition, the fit indices of the fully constrained model were similar to the fit indices of the freely estimated model (see Table 4). In addition, the fit indices from the fully constrained model were still within the range of a good-fitting model. Thus, although the measure of parental involvement could not be determined to demonstrate metric equivalence statistically between mothers and fathers, these differences were assumed to be small based on the lack of change in model fit indices. As a result, it was decided to retain all the items and assume any differences in measurement were small and would have little influence on the results. However, as previously noted regarding this course of action, it was necessary to use caution when interpreting the findings related to these noninvariant items used to measure mother and father involvement (Sass, 2011).

Table 4. Unstandardized Loadings (Standard Errors) and Standardized Loadings for Single-Factor Confirmatory Model of Parental Involvement for Mother-Father Dyads (n = 131)

Item	Mothers		Fathers	
	Unstandardized	Standardized	Unstandardized	Standardized
I spend time one-on-one with my child	1.0 (--)	.70	1.0 (--)	.84
My child(ren) and I play together	1.31 (.13)	.92	1.17 (.06)	.98
I join in activities my child(ren) like(s) at home	1.38 (.14)	.98	1.13 (.05)	.95
I teach my child(ren) new skills	1.06 (.12)	.75	.96 (.06)	.81
I take my child(ren) to places (e.g. the mall, restaurants, and parks) and activities (e.g. soccer, swimming, and camping)	.71 (.12)	.50	.89 (.07)	.74
I help my child(ren) prepare of the day's activities (e.g. getting dressed and feeding)	1.07 (.17)	.75	.87 (.07)	.73
I help my child(ren) prepare for bedtime	1.25 (.15)	.88	.96 (.06)	.80
I attend my child's therapy sessions	.73 (.13)	.51	.69 (.08)	.58
I put into practice at home the recommendations of my child's therapists	1.07 (.11)	.75	.69 (.10)	.58

Note: Dashes (--) indicate the standard error was not estimated. CFI = .98; TLI = .98; RMSEA = .05; $\chi^2(134) = 179.17$, $p < .01$; $\chi^2/df = 1.34$. The correlation between the latent variables was .23 ($p < .05$). All loadings were significant at the $p < .001$ level

Preliminary and Descriptive Statistics

Responses from each scale were used to compute total scores for each of the variables in the current study. Means, standard deviations, bivariate correlations and Cronbach's alpha coefficients were calculated in SPSS and are presented in Table 5. Test of Skewness showed negatively skewed data regarding mother couple relationship quality = -1.66 (SE = .21), father couple relationship quality = -1.62 (SE = .22), and mother involvement = -1.77 (SE = .29). Test of Kurtosis showed mother couple relationship quality and mother involvement to be leptokurtic. Mplus, version 7.2, statistical software by Muthén and Muthén, was used to calculate the APIM parameters. Mplus has a default estimator WLSMV to help compensate for the negative skew.

Paired sample *t*-tests were conducted to compare means of the predictor variables between mothers and fathers. For the mean scores of PSE, mothers reported higher levels of PSE ($M = 3.36$) than fathers ($M = 3.12$; $t = 4.30$, $p < .001$). For parental role salience, mothers reported greater parental role salience ($M = 4.46$) than fathers ($M = 4.16$, $t = 4.89$, $p < .001$). Mean scores for mother ($M = 5.95$) and father ($M = 5.81$) couple relationship quality were not significantly different ($t = 1.10$, $p > .05$).

SPSS was used to test bivariate correlations with bootstrapping based on 1,000 bootstrap samples using the bias-corrected and accelerated option. Bootstrap results provided 95% confidence intervals for the correlations. This approach uses listwise deletion of missing variables (meaning any dyad with a single variable missing was excluded from the analysis), resulting in an n of 89 mother-father dyads. Correlations for father actor-effects (i.e., within-person effects) indicated that father involvement was

significantly correlated with father PSE ($r = .47, p < .01$) and father role salience ($r = .43, p < .01$). For mothers, the only significant actor-effect correlation was between mother PSE and mother involvement ($r = .34, p < .01$). Correlations for partner effects (i.e., between-person effects) on father involvement revealed a significant correlation with mother couple relationship quality ($r = .34, p < .01$). Mother involvement was not significantly correlated with any of the father actor-effect variables. Mother and father involvement shared a modest, significant correlation ($r = .22, p < .05$). Internal consistency reliability, measured by Cronbach's alpha, ranged from .75 (mother role salience) to .96 (mother couple relationship quality).

Table 5. Mother and Father Reports of Individual Strengths, Relational Strengths, and Parental Involvement: Correlations (Standard Errors), Confidence Intervals, and Descriptive Statistics (n = 89)

Variables	1	2	3	4	5	6	7	8
1. Mother parenting self-efficacy	-							
2. Father parenting self-efficacy	.20 (.11)	-						
BCa 95% Confidence interval	.00-.43							
3. Mother role salience	.29** (.10)	.33** (.09)	-					
BCa 95% Confidence interval	.08-.49	.13-.51						
4. Father role salience	.14 (.11)	.56** (.09)	.36** (.11)	-				
BCa 95% Confidence interval	-.07-.35	.36-.71	.14-.56					
5. Mother couple relationship quality	.29** (.11)	.34** (.11)	.33** (.13)	.41** (.12)	-			
BCa 95% Confidence interval	.07-.48	.10-.53	.09-.56	.17-.61				
6. Father couple relationship quality	-.05 (.12)	.29** (.13)	.17 (.14)	.46** (.09)	.44** (.14)	-		
BCa 95% Confidence interval	-.29-.07	.03-.57	-.08-.45	.27-.64	.18-.67			
7. Mother involvement	.34** (.11)	.05 (.09)	.06 (.11)	.05 (.11)	.03 (.10)	.05 (.12)	-	
BCa 95% Confidence interval	.10-.53	-.14-.24	-.17-.27	-.19-.26	-.18-.23	-.18-.27		
8. Father involvement	.17 (.11)	.47** (.11)	.17 (.09)	.43** (.09)	.37** (.12)	.11 (.11)	.22* (.12)	-
BCa 95% Confidence interval	-.04-.39	.24-.64	-.02-.36	.26-.60	.14-.60	-.10-.32	.00-.45	
<i>M (SE)</i>	3.34 (.05)	3.13 (.07)	4.37 (.05)	4.06 (.07)	5.88 (.14)	5.76 (.15)	2.67 (.03)	2.23 (.06)
<i>SD</i>	.40	.60	.48	.65	1.31	1.41	.32	.59
Potential Range	0 – 4	0 – 4	1 – 5	1 – 5	1 – 7	1 – 7	0 – 3	0 – 3
α	.86	.91	.75	.84	.96	.84	.81	.88

Note: Bootstrap results are based on 1,000 bootstrap samples. BCa = Bias-corrected and accelerated. * $p < .05$. ** $p < .01$.

Research Questions 2 and 3: Actor-Partner Interdependence Models Predicting Parental Involvement

Research questions 2 and three were addressed by testing three separate actor-partner interdependence models (APIMs) using structural equation modeling. The first three APIMs examined the actor and partner effects parenting self-efficacy, parental role salience, and couple relationship quality on parental involvement in three separate models. Research question 2 asked whether the predictor variables in these models would demonstrate significant actor effects on parental involvement. Research question 3 asked whether the predictor variables would result in significant partner effects. Results from the estimated actor and partner effect paths provided the answers to research questions 2 and 3. These findings are illustrated in structural models (see Figures 7, 8, and 9). In each of these three models, oval shapes represent latent variables and observed variables are rectangular. Horizontal paths illustrate the actor effects and diagonal paths illustrate partner effects, with solid lines representing significant pathways and dashed lines representing non-significant paths. Curved, double-headed arrows demonstrate the covariance between the exogenous variables and covariance between the residual variances in the outcome variables (mother involvement and father involvement.)

Effects of parenting self-efficacy. For the APIM examining the effects of parenting self-efficacy (PSE) on parental involvement, it was hypothesized that mother and father PSE would demonstrate significant positive actor effects (RQ2), but no hypotheses were made regarding potential partner effects (RQ3) of PSE. This hypothesis was fully supported by the data. The horizontal paths from PSE to parental involvement

were positive and significant for both mothers and fathers. The standardized path coefficients from the PSE model are provided in Figure 7, with measurement model estimates, unstandardized path coefficients, and goodness-of-fit indices provided in Table 6. The partner effect paths were not significant in this model, meaning that levels of PSE among mothers and fathers in this sample were not influential in predicting his or her partner's level of parental involvement. Overall, these findings confirm an actor-only pattern (Kenny & Ledermann, 2010) was present in the APIM of PSE predicting parental involvement. In other words, parenting self-efficacy was shown to demonstrate spillover effects onto parental involvement among this sample, but no crossover effects.

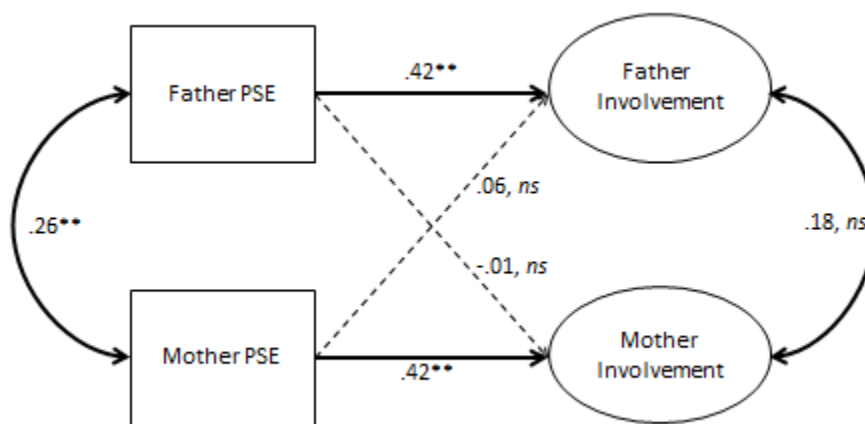


Figure 7. Standardized Path Coefficients for the Model of the Effects of Parenting Self-Efficacy on Parental Involvement

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

Table 6. Standardized, Unstandardized, and Significance Levels for Coefficients in Model in Figure 7 (Standard Errors in Parentheses; N = 131)

Parameter Estimate	Mothers	<i>p</i>	Fathers	<i>p</i>
Measurement model estimates				
I spend time one-on-one with my child	.71 (.07)	.00	.84 (.04)	.00
My child(ren) and I play together	.93 (.04)	.00	.98 (.02)	.00
I join in activities my child(ren) like(s) at home	.97 (.02)	.00	.94 (.02)	.00
I teach my child(ren) new skills	.75 (.06)	.00	.80 (.05)	.00
I take my child(ren) to places (e.g. the mall, restaurants, and parks) and activities (e.g. soccer, swimming, and camping)	.52(.08)	.00	.74 (.05)	.00
I help my child(ren) prepare of the day's activities (e.g. getting dressed and feeding)	.75 (.09)	.00	.72 (.06)	.00
I help my child(ren) prepare for bedtime	.89 (.09)	.00	.80 (.05)	.00
I attend my child's therapy sessions	.52(.09)	.00	.59 (.07)	.00
I put into practice at home the recommendations of my child's therapists	.75 (.07)	.00	.59 (.08)	.00
	Unstandardized		Standardized	<i>p</i>
Structural model				
Father PSE → Father involvement	.62 (.10)		.42 (.07)	.00
Father PSE → Mother involvement	-.01 (.11)		-.01 (.09)	.89
Mother PSE → Father involvement	.13 (.19)		.06 (.09)	.51
Mother PSE → Mother involvement	.76 (.19)		.42 (.10)	.00
Residual for Father involvement	.57 (.07)		.81 (.06)	.00
Residual for Mother involvement	.41 (.08)		.82 (.08)	.00
Covariance of residuals	.09 (.05)		.18 (.10)	.08

Note: PSE = parenting self-efficacy; $\chi^2(157) = 199.93$, $p < .01$; $\chi^2/df = 1.27$; CFI = .99; TLI = .98; RMSEA = .05.

Effects of parental role salience. For the APIM examining the effects of parental role salience on parental involvement, it was hypothesized that greater mother and father parental role salience would demonstrate significant positive actor effects (RQ2) on parental involvement, but no hypotheses were made regarding potential partner effects (RQ3) of parental role salience. As with the PSE model, this hypothesis was fully supported by the data. The horizontal paths from parental role salience to parental involvement were positive and significant for both mothers and fathers. The standardized path coefficients from this model are provided in Figure 8, with measurement model estimates, unstandardized path coefficients, and goodness-of-fit indices provided in Table 7. As with the APIM for PSE, the partner effect paths were not significant in this model, meaning that levels of parental role salience among mothers and fathers in this sample did not have an impact on their partner's level of parental involvement. Like the APIM for PSE, these findings discovered that the APIM of parental role salience predicting parental involvement operated according to actor-only pattern (Kenny & Ledermann, 2010).

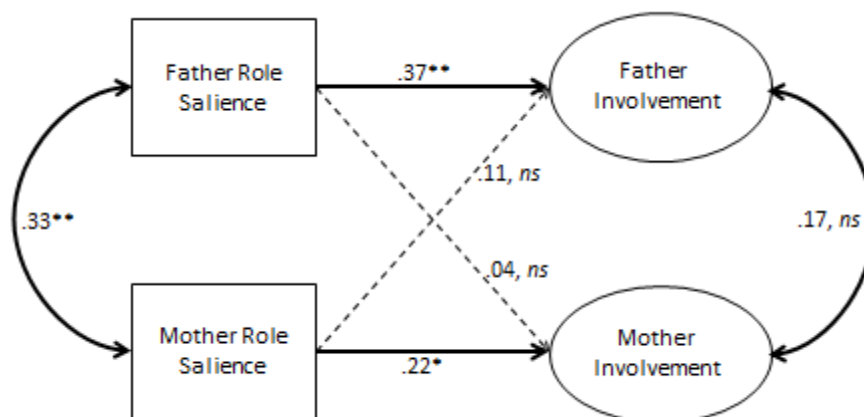


Figure 8. Standardized Path Coefficients for the Model of Parental Role Salience on Parental Involvement

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

Table 7. Standardized, Unstandardized, and Significance Levels for Coefficients in Model in Figure 8 (Standard Errors in Parentheses; N = 131)

Parameter Estimate	Mothers	<i>p</i>	Fathers	<i>p</i>
Measurement model estimates				
I spend time one-on-one with my child	.71 (.07)	.00	.84 (.04)	.00
My child(ren) and I play together	.92 (.04)	.00	.98 (.02)	.00
I join in activities my child(ren) like(s) at home	.98 (.02)	.00	.94 (.02)	.00
I teach my child(ren) new skills	.74 (.06)	.00	.79 (.05)	.00
I take my child(ren) to places (e.g. the mall, restaurants, and parks) and activities (e.g. soccer, swimming, and camping)	.50(.08)	.00	.73 (.05)	.00
I help my child(ren) prepare of the day's activities (e.g. getting dressed and feeding)	.75 (.09)	.00	.73 (.06)	.00
I help my child(ren) prepare for bedtime	.89 (.06)	.00	.81 (.05)	.00
I attend my child's therapy sessions	.52(.09)	.00	.57 (.07)	.00
I put into practice at home the recommendations of my child's therapists	.75 (.07)	.00	.59 (.08)	.00
	Unstandardized		Standardized	<i>p</i>
Structural model				
Father role salience → Father involvement	.51 (.11)		.37 (.08)	.00
Father role salience → Mother involvement	.04 (.12)		.04 (.11)	.72
Mother role salience → Father involvement	.22 (.18)		.11 (.09)	.22
Mother role salience → Mother involvement	.39 (.19)		.22 (.10)	.00
Residual for Father involvement	.58 (.05)		.82 (.06)	.00
Residual for Mother involvement	.48 (.09)		.94 (.05)	.00
Covariance of residuals	.09 (.05)		.17 (.09)	.07

Note: $\chi^2(157) = 196.57$, $p < .05$; $\chi^2/df = 1.25$; CFI = .99; TLI = .98; RMSEA = .04.

Effects of couple relationship quality. In the APIM examining the effects of couple relationship quality on parental involvement, no hypotheses were made regarding the potential actor effects (RQ2) or partner effects (RQ3). In the bivariate correlations, mother couple relationship satisfaction was significantly related to father involvement, but the other three potential correlations were not significant. Findings from the APIM for the effects of couple relationship quality on parental involvement mirrored the relationships from the bivariate correlations. Father couple relationship quality was not related to father involvement and mother couple relationship quality was not significantly related to mother involvement. In other words, no actor effects were found from couple relationship quality onto parental involvement. Results from the test for partner effects revealed a positive relationship between mother couple relationship quality and father involvement, but no relationship was found between father couple relationship quality and mother involvement. Father relationship quality did not have a significant influence on father or mother parental involvement in this model. The standardized path coefficients from this model are provided in Figure 9, with measurement model estimates, unstandardized path coefficients, and goodness-of-fit indices provided in Table 8. Findings from this model do not align with any of the four APIM patterns identified by Kenny and Ledermann (2010). Instead, as illustrated in Figure 8, the only significant effects found in this model were partner effects from mother couple relationship quality onto father involvement. Father's couple relationship quality was not related to mother or father involvement.

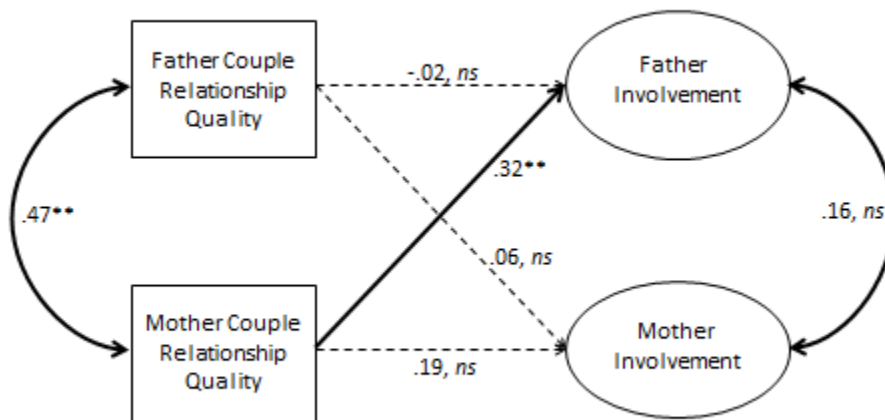


Figure 9. Standardized Path Coefficients for the Model of the Effects of Couple Relationship Quality on Parental Involvement

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

Summary of findings from RQ2 and RQ3. Three APIMs were conducted which investigated the actor and partner effects of PSE, parental role salience, and couple relationship quality on parental involvement among mothers and fathers of young children with disabilities. All three models demonstrated good fit with the data. The individual characteristics of PSE and parental role salience demonstrated actor-only patterns (Kenny & Ledermann, 2010), where only actor effects were found from these characteristics onto mother and father involvement. Couple relationship quality, a contextual characteristic, demonstrated partner effects from mothers onto fathers; father couple relationship quality was not a significant determinant of parental involvement for mother or fathers in this model.

Table 8. Standardized, Unstandardized, and Significance Levels for Coefficients in Model in
Figure 9 (Standard Errors in Parentheses; $N = 131$)

Parameter Estimate	Mothers	p	Fathers	p
Measurement model estimates				
I spend time one-on-one with my child	.70 (.07)	.00	.84 (.04)	.00
My child(ren) and I play together	.92 (.04)	.00	.98 (.02)	.00
I join in activities my child(ren) like(s) at home	.98 (.02)	.00	.95 (.02)	.00
I teach my child(ren) new skills	.74 (.07)	.00	.80 (.05)	.00
I take my child(ren) to places (e.g. the mall, restaurants, and parks) and activities (e.g. soccer, swimming, and camping)	.52 (.08)	.00	.75 (.05)	.00
I help my child(ren) prepare of the day's activities (e.g. getting dressed and feeding)	.75 (.10)	.00	.72 (.06)	.00
I help my child(ren) prepare for bedtime	.89 (.06)	.00	.80 (.05)	.00
I attend my child's therapy sessions	.52 (.09)	.00	.59 (.07)	.00
I put into practice at home the recommendations of my child's therapists	.75 (.07)	.00	.60 (.07)	.00
	Unstandardized		Standardized	p
Structural model				
Father couple relationship quality → Father involvement	-.04 (.06)		-.06 (.10)	.54
Father couple relationship quality → Mother involvement	.03 (.05)		.06 (.12)	.55
Mother couple relationship quality → Father involvement	.21 (.06)		.32 (.09)	.00
Mother couple relationship quality → Mother involvement	.11 (.06)		.19 (.11)	.07
Residual for Father involvement	.64 (.06)		.92 (.05)	.00
Residual for Mother involvement	.47 (.09)		.95 (.04)	.00
Covariance of residuals	.09 (.06)		.16 (.10)	.11

Note: $\chi^2(157) = 205.82$, $p < .01$; $\chi^2/df = 1.31$; CFI = .98; TLI = .98; RMSEA = .05.

Research Question 4: The Integrated Model

To examine the effects of all three of these characteristics simultaneously among mothers and fathers from this study, a final APIM was tested which included each variable in this study as an observed variable. The advantage of this approach is the ability to examine the potential actor and partner effects of each determinant of parental involvement included in this study all at once. In this multivariate model, effects from each determinant are estimated while controlling for the effects of the other determinants in the model. This approach provides a more complete and accurate test of Belsky's (1984) model, in which he emphasized that parenting is multiply (rather than singularly) determined. RQ4 asked whether the significant paths in the three previous APIMs would remain significant when included into an integrated model that would control for the effects of each predictor variable. In the previous models, father involvement was predicted by father PSE and father role salience (actor effects) and mother couple relationship quality (partner effect). In the integrated model, each of these paths remained significant (see Figure 10). In addition, father couple relationship quality emerged as a significant negative predictor of father involvement. In the previous models, mother involvement was predicted by mother PSE and mother role salience. In the integrated model, mother PSE remained a significant predictor of mother involvement, but the path from mother role salience on mother involvement was no longer significant. Standardized and unstandardized structural components are presented in Table 9, along with model fit indices, which indicated the model fit the data well. Correlations among the exogenous variables were all significant

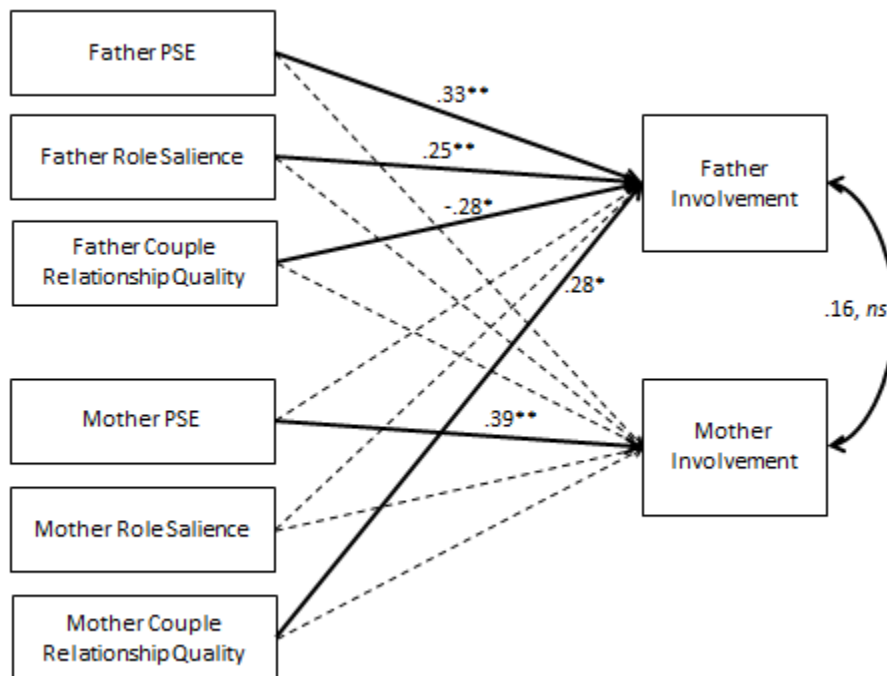


Figure 10. Standardized Path Coefficients for the Model of the Effects of Parenting Self-Efficacy, Parental Role Salience, and Couple Relationship Quality on Parental Involvement

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

with the exception of the relationship between mother PSE and father couple relationship satisfaction. The highest correlation among father variables was between father role salience and father couple relationship quality ($r = .59, p < .01$). The highest correlation among mother variables was between mother role salience and mother PSE ($r = .44, p < .01$). The highest correlation between mother and father variables was between mother and father couple relationship satisfaction ($r = .48, p < .01$).

Because the integrated model had zero degrees of freedom, making it just-identified, no fit indices are available for the model. Father involvement was predicted by each of the three father variables (actor effects), and also was predicted by mother couple relationship quality (partner effect). Mother involvement was only predicted by mother PSE; mother role salience was no longer a significant predictor of mother involvement when controlling for the effects of the other variables in the model. Thus, in answering RQ4, one path which previously was significant was no longer significant in predicting mother involvement. However, all paths which previously predicted father involvement remained significant. Not only so, but father couple relationship quality emerged as a significant negative predictor of father involvement. This finding may be due to multicollinearity between father couple relationship quality and the predictor variables. Specifically, father couple relationship quality was correlated above .40 with father role salience and with mother relationship satisfaction. However, inspection of the unstandardized standard errors for each of the predictor variables did not reveal any inflation, which is an indicator of multicollinearity (Smolkowski, 2004). Nevertheless, parameter estimates related to these variables may be considered unstable with less power to measure effects.

Table 9. Standardized, Unstandardized, and Significance Levels for Coefficients in Model in Figure 10 (Standard Errors in Parentheses; N = 131)

Structural model	Unstandardized	Standardized	<i>p</i>
Father PSE → Father involvement	.33 (.10)	.28 (.10)	.00
Father PSE → Mother involvement	-.03 (.07)	-.04 (.10)	.71
Mother PSE → Father involvement	-.00 (.14)	-.01 (.10)	.98
Mother PSE → Mother involvement	.37 (.10)	.39 (.10)	.00
Father role salience → Father involvement	.23 (.11)	.25 (.12)	.03
Father role salience → Mother involvement	-.02 (.07)	-.04 (.12)	.76
Mother role salience → Father involvement	-.05 (.14)	-.04 (.10)	.74
Mother role salience → Mother involvement	.02 (.10)	.03 (.11)	.83
Father couple relationship quality → Father involvement	-.11 (.05)	-.28 (.11)	.01
Father couple relationship quality → Mother involvement	.03 (.03)	.13 (.11)	.26
Mother couple relationship quality → Father involvement	.12 (.05)	.28 (.10)	.01
Mother couple relationship quality → Mother involvement	-.01 (.03)	-.01 (.11)	.97
Residual for Father involvement	.23 (.02)	.70 (.07)	.00
Residual for Mother involvement	.12 (.03)	.80 (.07)	.00
Covariance of residuals	.03 (.02)	.16 (.10)	.09

Note: Fit indices not available for the just-identified model.

Chapter 5

Discussion

The purpose of this study was to apply a strengths-based perspective to the study of determinants of parental involvement among mother-father dyads whose children were enrolled in a statewide early childhood intervention program. This was accomplished by first addressing issues related to the measurement of parental involvement for mothers and fathers, and then using the actor-partner interdependence model (APIM) to examine the actor and partner effects of mother and father parenting self-efficacy, parental role salience, and couple relationship quality on mother and father parental involvement. This study has expanded the understanding of the determinants of parental involvement among families of young children with disabilities by using the APIM among mother-father dyads. Findings from this study support the need for empowering mothers and fathers as parents as individuals and as couples in an effort to encourage greater parental involvement among mothers and fathers of children receiving early intervention services.

Measuring Parental Involvement

The first research question asked whether the measure of parental involvement used in this study would demonstrate measurement equivalence between mothers and fathers. The measure of parental involvement was found to demonstrate configural equivalence, but not metric equivalence for mothers and fathers in this sample. However, although the measure of parental involvement did not demonstrate metric equivalence statistically, because the differences appeared to be small at a practical level, remaining analyses proceeded as planned using the full nine items originally included.

The finding of configural equivalence, in which all nine items measuring parental involvement for mothers and fathers all loaded significantly above .40 onto a single factor in a dyadic confirmatory factor analysis (CFA) model with good model fit indices, should not be overlooked. As reviewed in chapter 2, parents can be involved with their children in multiple ways, indicating that parental involvement is multidimensional. Other APIMs examining predictors of parental involvement have shown the value of including more than one measure of parental engagement as the outcome variables (see Lang et al., 2013). Nevertheless, both exploratory and confirmatory factor analysis results from this study indicated the nine items used to measure parental involvement were unidimensional. The use of a unidimensional index to measure a multidimensional construct is not ideal, but does occur in studies of parental involvement. For example, the Inventory of Father Involvement (Hawkins et al., 2002) has been used as both a multidimensional and unidimensional measure of parental involvement for mothers and fathers (Day & Padilla-Walker, 2009; Ingber & Most, 2012). Among studies examining parental involvement of mothers and fathers of children with disabilities, several have utilized unidimensional measures of parental involvement (Moeller, 2000; Schuiringa et al., ; Wade et al., 2011). As with the present study, these studies focused on a general form of parental involvement measured in terms of parents' frequency in engaging in specific activities with their child. Thus, although parental involvement is complex and multifaceted, this study fits with others which have been limited to a global view of involvement.

In addition, the finding of configural equivalence of a parenting measure used for mothers and fathers is important because it validates previous findings that measures of parenting can be shown to demonstrate equivalent configurations, or, factor structures, for mothers and fathers (Adamsons & Buehler, 2007; Finley et al, 2008; Prinzie et al., 2007). Results from this study related to the metric non-equivalence of the parental involvement, however, underscore the importance of considering that configural equivalence is a starting point rather than an end-point in establishing the equivalence of parenting measures.

As discussed previously, although the differences in the item loadings for parental involvement seemed small at the practical level based on minor changes in model fit indices, the finding of metric nonequivalence requires comment. As noted by Kenny and Ledermann (2010), just because the same nine items were used in the same configuration as indicators of parental involvement does not mean the items had the same meaning for mothers and fathers. This is consistent with the perspectives of Palkovitz et al. (2014), who asserted that despite the richness of the data generated by studies using convergent measures of mothering and fathering behaviors, these studies forfeit the opportunity to understand the fundamental differences in the meanings and processes of mothering and fathering. Palkovitz et al. concluded that perspectives from feminism, family systems theory, and qualitative research refute the notion that mothers and fathers are interchangeable in how they influence child development. In addition, this study demonstrated that mother and father involvement were not significantly correlated in any of the APIMs examined, which could indicate that mothers and fathers of children with

disabilities fulfill parenting tasks in different ways throughout the week that do not frequently co-occur. This could be to maximize efficiency within the family, such as having one parent work outside the home (typically the father) during the week while the other parent (typically the mother) cares for the child and arranges and participates in the early intervention process. The traditional “father as breadwinner” and “mother as caregiver” roles has led to lower rates of participation in early intervention services among fathers, highlighting the need for creating more opportunities for fathers (Dyer et al., 2009; Fox et al., in press; Quinn, 1999). Whether or not mothers and fathers could be considered interchangeable in fulfilling child caregiving tasks among this population, both in terms of execution and in outcomes for the child and family, remains a topic in need of future investigation.

The findings related to research question 1 also need to be interpreted in the context of the literature on the convergent measurement of mothering and fathering. In their comprehensive study of the measurement equivalence of three parenting measures, Adamsons and Buehler (2007) found partial support that parenting measures can be used equivalently between mothers and fathers. This evidence supports the line of reasoning offered by Fagan et al. (2014), who suggested that mothering and fathering behaviors are more similar than they are distinct and recommended that future studies avoid using separate conceptualizations of mothering and fathering. This study followed the recommendation of Fagan et al. by using the same conceptualization of parental involvement for mothers and fathers, finding partial support that these measures could be used equivalently among dyads.

Finally, it is important to consider the substantive contribution this study makes to the advancement of the study and measurement of parental involvement among mothers and fathers of young children with disabilities. The global measure of involvement used the current study taps both traditional types of involvement, such as helping the child prepare for the day, as well as involvement in activities specifically related to the child having a disability, such as attending therapy sessions. Thus, although the measure of parental involvement is unidimensional, this dimension was unique to the population of interest. This is consistent with findings from previous qualitative studies showing that parenting a child with a disability is simultaneously similar and distinct from parenting a child without a disability (see Johnson, 2000; Miles & Holditch-Davis, 1995). This study adds to the already complex field of studies of parental involvement introducing an additional measure to be used for a specific and unique population. Future research is needed to examine multiple dimensions of parental involvement that are specifically relevant to parents of children with disabilities.

Overall, though the configural equivalence of the measure of parental involvement used in this study supports the views of Fagan et al (2014) and the metric nonequivalence of the measure supports the views of Palkovitz et al. (2014), the overall finding that mother and father involvement were similar, yet distinct, supports the views offered by Stolz and colleagues (2005, 2010). Importantly, Stolz and colleagues have emphasized that understanding mother-father differences in parenting are important primarily for the sake of clarifying the connection of mothering and fathering behaviors to child outcomes. The tests for measurement equivalence used in the present study

demonstrated that mother and father involvement are likely more similar than they are distinct. Nevertheless, it is important to note that due to the noninvariance of the measure of parental involvement, all results related to the determinants of parental involvement must be interpreted with caution. Treating a measure of parental involvement as equivalent for mothers and fathers when there is evidence it is not risks the possibility of overlooking possibly meaningful differences in how mothers and fathers engage with their children and what those differences might mean for child outcomes among children with disabilities. Additional qualitative data from the sample used in the current study would be needed to interpret whether the items used to measure parental involvement took on different meanings for mothers and fathers.

Actor Effects

The second research question guided the investigation spillover hypothesis, in which individual characteristics and experiences are expected to transfer from one area of life into another. In this study, parental empowerment beliefs, measured as parenting self-efficacy, parental identity, measured as parental role salience, and couple relationship quality were examined as a test of the spillover hypothesis.

Hypotheses. It was hypothesized that parenting self-efficacy (PSE) and parental role salience would demonstrate significant, positive actor effects on parental involvement for both mother and fathers. Due to a lack of conclusive support from previous research, no hypotheses were made regarding the potential effects of couple relationship quality. The hypothesized effects of PSE and parental role salience were confirmed in the APIMs that were tested. In this sample, higher levels of PSE and

parental role salience were associated with greater levels of parental involvement for both mothers and fathers. The basic explanation for these findings is that parents who feel competent and capable (PSE) and who identify strongly with their parenting role are more likely to be involved with their young children with disabilities, regardless of parent gender. In the model demonstrating the actor effects of mother and father PSE on mother and father involvement, the standardized effect sizes were the same (.42), demonstrating moderate (i.e., greater than .30; Cohen, 1988) actor effects of PSE on parental involvement. In the parental role salience model, a moderate actor effect was found from father role salience onto father involvement and a modest effect was found from mother role salience on mother involvement. However, without additional tests, it can only be said that the effect size was greater for fathers than for mothers, not that parental role salience was a more important predictor of parental involvement.

In his model of parenting determinants, Belsky (1984, 2014) has focused on individual characteristics such as developmental history, personality, and well-being as important determinants of parenting behaviors. This study focused on the individual characteristics of parental beliefs and parental identity as determinants of parental involvement with young children with disabilities. The actor effects of PSE and parental role salience confirm findings from previous studies and are consistent with prevailing theories. According to Bandura (1997) and scholars of parenting self-efficacy (PSE), parents who believe in their ability to accomplish the goals and tasks associated with parenting are more likely to execute the behaviors associated with their parenting goals successfully (Jones & Prinz, 2005). PSE is considered a defining element of family

empowerment, which itself is one of the primary outcomes sought by Part-C early intervention programs (Dempsey & Dunst, 2004).

The findings from this study are consistent with previous studies showing direct actor effects of PSE on greater parental involvement with children receiving early intervention services (Fox et al., in press; Ingber & Most, 2012; Trivette et al., 2007). Ingber and Most (2012) also included mother reports of father involvement, an approach not available from the data used in the current study. Using this approach, Ingber and Most confirmed that father reports of their own PSE were positively related to father involvement, whether self-reported or partner reported. In addition, Ingber and Most used a standard measure of father involvement (Hawkins et al., 2002) and scored the responses unidimensionally, whereas the current study piloted parental involvement items developed specifically for the study. Finally, the current study was the first study to examine the actor effects of PSE within the context of the APIM, which treats the couple as the unit of analysis, controls for dependence within the sample, and examines the actor and partner effects simultaneously. It is important to note at this point that because mother and father involvement did not demonstrate metric equivalence, these actor effects of PSE must be interpreted with some caution.

Regarding the actor effects of parental role salience, identity theory suggests that the more strongly an individual identifies with a particular role, the more he or she will find himself engaging in the behaviors related to that role (Pasley et al., 2014; Stryker, 1968). Evidence from this study suggests the same to be true regarding parents who identify strongly with their role as the parent of a child with a disability. The study by

Fox et al. (in press), which used the same data used in the current study, demonstrated that father role salience was related to greater feelings of attachment and involvement in caregiving. The distinction between how the current study measured parental involvement and the study by Fox et al. is that Fox et al. generated three dimensions of involvement on a conceptual basis, whereas the current study used exploratory and confirmatory factor analysis to verify that the items used to measure parental involvement were unidimensional. In addition, Fox et al. found that father role salience partially mediated the effects of PSE on father involvement, indicating that parenting role salience may provide the mechanism by which parents experience some of the effects of PSE on their parental involvement. The significance of parental role salience in demonstrating actor effects in the current study underscores the relevance of identity theory when applied to the parenting role among parents of young children with disabilities. Future studies are needed to confirm and validate the effects of parental role variables on parenting behaviors among this population.

In the model of couple relationship quality, no actor effects from couple relationship quality onto parental involvement for either mother or fathers. Previous findings on the actor effects of couple relationship quality on parental involvement have been mixed, which is why no hypotheses were proposed with this model. In one APIM, researchers found that mothers and fathers who showed greater support toward their spouses also showed greater sensitivity in their parenting (Klausli & Owen, 2011). However, the study by Klausli and Owen focused on parenting sensitivity based on observations of parent-child interactions, providing a sense of how parents and children

related to one another. This approach could explain their finding that spousal relations were related to parent-child relations. In another APIM, researchers did not find any actor effects of couple relationship quality, measured in terms of both conflict and satisfaction, on parent demandingness or responsiveness with children (Ponnet et al., 2013a). In the study by Ponnet et al., (2013a), parents provided self-reports of their parenting styles, which is a behaviorally based measure similar to the items used to measure parental involvement in the present study. The findings of the current study more closely resemble the findings from Ponnet and colleagues (2013a) by not finding actor effects from couple relationship quality onto parental involvement. The finding from this model would indicate that couple relationship quality does not spillover into parental involvement among mothers and fathers of children with disabilities. Though previous studies have suggested that fathers are more susceptible than mothers to the influence of the couple relationship on parenting behaviors (e.g., Kershaw et al., 2014; Krishnakumar & Buehler, 2000), this finding was not validated in an examination of the actor effects from the singular model of couple relationship quality. Although one study has shown a lack of a relationship between father couple relationship quality and father involvement (Schober, 2012), this study did not provide an analysis related to mother involvement.

Overall, previous research does not sufficiently explain why couple relationship quality would not be related to increased parental involvement for mothers and fathers when looking at actor effects. One explanation is the possibility of a time of measurement effect. Because the mothers and fathers in this sample have young children with disabilities, they may still be in a “honeymoon” phase as they make adjustments and

transition to the demands and schedule of raising a child with a disability or delays. As a result, the quality of the marital relationship may have taken a temporary backseat and may be less influential in their parenting, which may have taken precedence. However, the items measuring mother and father couple relationship quality were highly endorsed and negatively skewed, which could indicate an effect of social desirability wherein mothers and fathers overestimated the quality of the relationship with their partner. Finally, it may be that relationship between couple relationship quality and parental involvement is non-linear. A u-shaped curvilinear relationship between couple relationship quality and parental involvement could exist, wherein mothers and fathers are more involved with their children when they are less satisfied in their marriage (compensatory effects) as well as when they are more satisfied in their marriage (spillover effects). A fuller treatment and explanation of this issue is provided in the following sections discussing the partner effects of couple relationship quality and the findings from the integrated model regarding the actor and partner effects of couple relationship quality.

Partner Effects

Research question 3 asked whether PSE, parental role salience, or couple relationship quality would demonstrate any significant partner effects. Because of the lack of research on the partner effects of these variables among families of children with disabilities, no hypotheses were made regarding the potential partner effects of these variables. Out of the six possible partner effects tested in the three models, the only significant partner effect that was found was from mother couple relationship quality onto

father involvement, indicating the fathers showed higher levels of parental involvement when their wives were more satisfied in their couple relationship. Thus, father involvement was related to couple relationship quality, but only when measured from the wives' perspectives. This exact pattern was demonstrated in the longitudinal study of British families conducted by Schober (2012), wherein father's child care frequency was predicted by mother's relationship quality, but not father's relationship quality. In the study by Schober, father involvement was measured similarly to the current study by focusing on fathers' involvement in child caregiving activities such as changing diapers and feeding (time 1), as well as putting children to bed and playing (times 2, 3, and 4). Schober did not attempt to explain why fathers' relationship satisfaction was not associated with participation in child caregiving, but did give some explanations for the partner effects from mothers' relationship satisfaction. According to Schober, mother relationship quality may be an important determinant of father involvement because mothers are often the ones "...responsible for organizing their children's time, juggling different types of child-care, and planning family activities." (p. 294). Schober suggested that mothers who experience greater relationship satisfaction may feel more comfortable leaving fathers to care for their young children and may facilitate activities to encourage father involvement. These same mechanisms may be operating among the families in the current study. Specifically, mothers of young children with disabilities who are more satisfied with the relationship with their partner may be making overt attempts to include fathers in time spent with children. In this scenario, mothers who are more satisfied in their couple relationship could be thought to incorporate quality time and caregiving

activities jointly with fathers, rather than making trade-offs. This could be interpreted as a maternal gatekeeping mechanism, whereby mothers who are more satisfied with their couple relationship facilitate and encourage, rather than inhibit and discourage, father involvement as “gate openers” rather than “gate closers” (Puhlman & Pasley, 2013).

Another explanation for the partner effect of mother couple relationship quality on father involvement in this sample has to do with directionality and a limitation of the study design. Because this was a cross-sectional study, it cannot be said for certain that mother couple relationship satisfaction preceded father involvement. Indeed, it could very well be that father involvement is the antecedent to mother couple relationship quality. Thus, this model may be misspecified, introducing bias and inconsistent results. The study by Schober (2012) demonstrated that over time, mother couple relationship satisfaction had reciprocal effects on father involvement, yet the longitudinal study by Carlson et al. (2011) found that the relationship between couple relationship quality and parental involvement occurred primarily in one direction from relationship quality onto parenting, concluding that “good partners make good parents.” (p. 329). This sentiment is echoed in Belsky’s (1984) model of parenting determinants. The relationship between couple relationship quality and parental involvement is explored further in the discussion of the results from the integrated model.

The lack of significant partner effects from parenting self-efficacy and parental role salience require some comments. Although no hypotheses were advanced regarding the potential partner effects of these variables, the crossover hypothesis from the APIM would suggest that because couple relationships are interdependent, the experiences and

attitudes of one partner in one area of life may crossover to the other partner in another area of life (Kenny & Ledermann, 2010). However, no evidence was found indicating a direct relationship between parenting self-efficacy and parental involvement or parental role salience and parental involvement among the mother-father dyads in this study.

However, because significant actor effects were found from these variables and because mother and father PSE and mother and father role salience were significantly correlated in their respective models, it is possible that mothers and father may be influencing one another's parental involvement indirectly. For example, mothers who believe they are competent as a parent may engender similar feelings and confidence among fathers, leading to greater father involvement. Similarly, fathers who identify strongly with their role as a parent of a child with a disability may influence their partner's mothering identity, thereby indirectly encouraging greater mother involvement. These possibilities and other potential indirect partner effects of PSE and parental role salience among mothers and fathers of young children with disabilities remains an important area for future investigation.

The Integrated Model

In the fourth and final research question, I asked which determinants of parental involvement would emerge as significant in an integrated model in which the actor and partner effects of each of predictor variables, examined separately in the previous models, were included in the same model simultaneously. In essence, this model sought to determine the most prominent determinants of parental involvement among mother-father dyads. The advantage of this model was the opportunity to control for effects of each of

the other variables included in this study. This approach provided a more accurate depiction of the relationships were among variables included in the present study by taking into account any overlap in the relationships among the predictor variables in their links to parental involvement. The previous models examined the actor and partner effects of each determinant separately, whereas the integrated model put each actor and partner effect into context of one another, providing a more accurate depiction of the variables which explain mother and father involvement from this study.

Findings were both similar and different from the findings of the previous models. The findings from this model which mimicked those from the previous model were that father involvement was predicted by father PSE, father role salience (actor effects), and mother couple relationship quality (partner effect), and that mother involvement was predicted by mother PSE (actor effect). What changed in this multivariate model was that mother involvement was no longer significantly related to mother role salience, and a negative relationship emerged between father couple relationship quality and father involvement.

Among the three potential actor effects for mothers investigated in the integrated model, mother PSE was the only significant predictor of mother involvement. Because the multivariate model controlled for the effects of all the determinants simultaneously, it is likely that the variance in mother involvement predicted by mother role salience in the singular model was shared with the effects of mother PSE. As a result, mother role salience did not predict a unique portion of variance in parental involvement for mothers. In other words, although mother role salience may have influenced mother involvement

somewhat when examined singularly, that effect no longer remained in the presence of mother PSE. Overall, mother PSE turned out to be a better predictor of mother involvement than mother role salience. Nevertheless, this does not mean mother role salience is not an important predictor of mother involvement.

One potential explanation for the finding that mother role salience no longer significantly predicted mother involvement is the possibility of PSE acting as a mediator variable. Specifically, the direct effect mother role salience on parental involvement found in the previous model may be explained via its relationship with PSE. If this were to be the case, then mothers who identify more strongly with their mothering role may feel more empowered in their mothering role, which in turn would lead to greater mother involvement. Future analyses should examine these potential mediation effects for mothers from this study and in future studies among this population. In the conceptual model examined in the study by Giallo et al (2013) in which Belsky's (1984) parenting determinants model was used as a primary foundation, the authors included PSE as a mediator of all potential determinants of parental involvement. Indeed, it is not uncommon for researchers to examine PSE as a mediator of the effects of individual and contextual variables on parenting behaviors (Jones & Prinz, 2005; Trivette et al., 2007). Although less research is available to support the possibility that PSE may be mediating the effects of mother role salience on mother involvement, it is conceptually plausible that a mother who identifies strongly with her role as the mother of a child with special needs will feel more empowered and competent in that role, and thereby show an

increase in the behaviors related to that role. Nevertheless, this remains an area in need of further investigation.

The finding from the integrated model that father couple relationship quality was negatively related to father involvement requires some careful treatment. As indicated in the results section, this finding may be due to multicollinearity of father couple relationship quality and the other predictor variables. Specifically, father couple relationship quality appears to be multicollinear with mother couple relationship quality and father role salience. This is indicated by a moderate correlation between the two variables and inflated standard errors (Smalkowski, 2004). As a result, father relationship quality may be acting as a suppressor variable in the integrated model. The bivariate correlation between father couple relationship quality and father involvement is not significant, yet in the integrated model, father couple relationship quality has a negative relationship with father involvement. If suppression is taking place, it is because father relationship quality is correlated with mother relationship quality, father role salience, and father PSE, each of which predicted a significant increase in father involvement. Due to the positive correlation among mother and father couple relationship variables, father couple relationship should have an effect on father involvement (Kenny, 2014). However, due to a lack of this expected relationship between father couple relationship satisfaction and father involvement, father couple relationship satisfaction emerged as a negative predictor of father involvement. Another way to explain this is that when controlling for the effects of all the other variables in this study, the residual variance of father involvement (i.e., the variance unaccounted for by the other variables included in the

model) had a negative relationship with father couple relationship quality, even though these two variables were previously unrelated. This would indicate that, in some cases, fathers who were more satisfied in their couple relationships were less involved with their young children with disabilities. However, these cases were not prevalent enough to warrant a significant negative relationship for the entire sample in bivariate correlations or in the singular model of the effects of father couple relationship quality on father involvement. One potential explanation for why some fathers would be less involved when they report higher couple relationship quality is that these fathers may hold more traditional beliefs about child caregiving and may feel more satisfied with their wives when they are required to spend less time taking care of children. Schoppe-Sullivan et al. (2012) found that fathers were more engaged with their young children when they held non-traditional beliefs about their parental role. If this were the case in the present study, then traditional beliefs about the fathering role would be acting as a moderator in the relationship between father couple relationship quality and father involvement such that fathers with higher relationship satisfaction would be less involved when they held more traditional beliefs about their fathering role. Overall, this finding highlights the need for future investigations of how father couple relationship quality might be related to father involvement among fathers of young children with disabilities.

Finally, Belsky (1984) proposed that individual characteristics were the most important predictors of parental involvement, followed by contextual variables. If this were true for the current study, then parental role salience and PSE should have maintained stronger links to parental involvement than couple relationship quality.

Results from the integrated model did not confirm this assumption for predictors of mother involvement, since mother PSE, an individual characteristic, was the only significant predictor of mother involvement. Although mother role salience was no longer significantly related to mother involvement as it was in the previous, simpler model, mother couple relationship quality was never related to mother involvement. Thus, it is unknown whether individual or contextual characteristics were better predictors of mother involvement. For fathers, evidence for Belsky's proposition is unclear due to the possible suppression effect of father couple relationship quality. Nevertheless, the individual father characteristics of PSE and father role salience maintained their significant relationships with father involvement, indicating that these characteristics were indeed important in determining father involvement. However, other couple relationship quality also predicted an increase in father involvement beyond the effects of father role salience and father PSE. This means contextual determinants of father involvement may be equally influential compared to individual determinants.

Overall, the integrated model demonstrated that four out of the six potential determinants (father PSE, father role salience, father couple relationship quality, and mother couple relationship quality) explained a unique portion of variance in father involvement, whereas only one determinant (mother PSE) explained unique variance in mother involvement. As noted previously, however, these findings must be interpreted with caution due to the nonequivalence of the measures of parental involvement and the Skewness and Kurtosis of some of the other variables. Nevertheless, these findings have important implications for research and practice.

Implications

This study had several important strengths, each of which has implications for research and practice related to experiences of families of young children with disabilities. First, this study included responses from both mothers and fathers of children with disabilities. The inclusion of fathers in this study helps fulfill the increasingly recognized need for examining both mothers and fathers together among this population (Crnic et al., 2009; Hartley et al., 2011). Furthermore, this study focused on mother-father dyads, which considered the couple as the unit of analysis rather than examining mothers and fathers separately. Second, this study utilized a measure of parental involvement which included items that were relevant and sensitive to the experiences of the early intervention population. Through the use of exploratory factor analysis and dyadic confirmatory factor analysis, this measure demonstrated internal consistency reliability and construct validity. This measure showed configural equivalence for mothers and fathers included in this study, an important stepping stone for conducting dyadic analyses (e.g., Garneau et al., 2015). Finally, this study used the actor-partner interdependence model (APIM) to control for the dependence of dyadic data and account for both actor and partner effects simultaneously. Although this analytic approach continues to grow in popularity, few studies have used the APIM among families of children with disabilities.

Future research. This study has several important implications for research and theory related to families of young children with disabilities, as well as for research on all families in general. First, this study found that parental involvement can be

conceptualized and measured similarly for mothers and fathers (Fagan et al. 2014). However, because this measure of parental involvement did not demonstrate statistical metric equivalence, there is likely some variation in how mothers perceived, interpreted, and understood the items (Palkovitz et al., 2014). As a result, differences in actor and partner effects shown in the model of couple relationship quality and in the integrated model could be interpreted as differences in the meaning of these measures for mothers and fathers from this study (Kenny & Ledermann, 2010). Future studies should continue developing and refining instruments designed to measure parental involvement that can be use equivalently between mothers and fathers. This is especially true for researchers studying mothers and fathers of children with disabilities, since these parents demonstrate their involvement in ways that are both similar and distinct from parents of typically developing children (Johnson, 2000; Miles & Holditch-Davis, 1995).

In addition, the measure of parental involvement from the current study included both traditional types of involvement, as well as involvement in the child's therapy and intervention. This could indicate that these types of involvement are not distinct for parents of children with disabilities. Nevertheless, due to the theoretical and empirical support that parental involvement is a multidimensional construct (Lamb et al., 1985), future research is needed to investigate which domains of parental involvement are relevant to this population. In particular, qualitative studies are needed which can provide a deeper and more meaningful of what *parental involvement* means when raising a child with a disability (Johnson, 2000).

This study also demonstrated how useful the APIM is for examining determinants of parenting (Belsky, 1984; 2014). Although it is becoming increasingly common to use the APIM to examine Belsky's proposed determinants of parenting (Klausli & Owen, 2011; Lang et al, 2013; Ponnet et al., 2013a), this is the first study to do so among families of children with disabilities. This is especially important when considering the early intervention population. Because the service delivery model in Part-C early interventions are required to be family-centered (Adams & Tapia, 2013), it is sensible to utilize an analytic approach that aligns with this perspective. The APIM does such by accounting for interdependence in family relationships. Moreover, this study focused on examining family strengths and capacities, which further aligns with the capacity-building and strengths-based practices utilized by early intervention service providers (Guralnick, 2007; Woodman & Hauser-Cram, 2013). Overall, this study demonstrated the importance of considering the context of care within which families are embedded when developing research questions and designing an analytic strategy to address those questions. Future studies should make similar considerations. Specifically, an abundance of studies have shown that families raising children with disabilities experience elevated levels of stress due to the demands of raising a child with a disability. Although researchers may want to continue controlling for the effects of the stress encountered by these families, future studies should incorporate a greater focus on the positive experiences of families of children with disabilities so as to avoid falling into the routine of investigating deficit models among this population.

Although the effects of PSE on parental involvement are unsurprising, the effects of parental role salience are somewhat noteworthy. Parental identity variables are not commonly studied among mothers and fathers of children with disabilities, despite evidence that being the parent of a child with a disability involves an identity transformation process (Scorgie et al, 1999). Future studies among this population should attempt to clarify and expand the understanding of how parental role variables operate within these families.

Findings from this study related to couple relationship quality underscore the complexity of including couple relationship factors as determinants of parenting. Although it seems logical to conclude, as Carlson et al. (2011) did, that “good partners make good parents” (p. 329), a variety of potential scenarios are available which are inconsistent with such a conclusion. To complicate issues further, couple relationship quality, like parental involvement, is multidimensional rather than singular on a continuum. For instance, parents can simultaneously report high distress as well as high affection or satisfaction within their couple relationships, but these differing reports may lead to inconsistent or confusing results. The present study used a more basic measure that focused on satisfaction within the couple relationship. Future studies should continue examining how the different indicators of couple relationship quality such as conflict, satisfaction, affection, support, and communication may demonstrate differential patterns of effects, whether it be the partner-only effects (Ponnet et al., 2013a), the actor-only effects (Carlson et al., 2011), or compensatory effects (Gaunt & Scott, 2014).

Working with early intervention children and families. The findings from this study have important implications for practitioners, such as doctors, teachers, therapists, and other service providers who work with families of young children with disabilities. In the simple APIM models, the individual characteristics of parental role salience and parenting self-efficacy (PSE) demonstrated significant within-person effects on parental involvement. Thus, practitioners seeking greater involvement from parents can target these areas as points of education and training. Although early interventionists already seek to empower families and thereby enhance parents' sense of PSE, practitioners may want to consider the importance of parental role salience and other role identity variables. Scorgie et al. (1999) found that parents of young children with disabilities fared best when they successfully created new identities related to their roles as parents of children with disabilities. Practitioners can assist parents as they adjust to their new and usually unforeseen role as a parent of child with a disability by encouraging them to embrace this role as a transformative process (Scorgie et al.).

Practitioners may also want to consider the importance of mother couple relationship quality when seeking to facilitate greater involvement fathers. As suggested previously, a mother's satisfaction with her couple relationship may act as a maternal gatekeeping mechanism, whereby mothers who are more satisfied with their partners make greater efforts to facilitate and encourage father involvement (Puhlman & Pasley, 2013). Practitioners could focus on identifying ways to help mothers of children with disabilities remain positive and satisfied in their couple relationships. Although father couple relationship satisfaction was not related to mother or father involvement in the

simple model and was negatively related to father involvement in the integrated model, father relationship satisfaction was positively correlated with all other predictors in the this study other than mother PSE. Thus, although less central to predicting parenting outcomes than mother couple relationship quality, father relationship quality appears to remain an element of maintaining a positive, harmonious atmosphere within the home.

Overall, practitioners should continue focusing on empowering mothers and fathers in their parenting behaviors, but also need to be mindful of other effects from the couple relationship and from parental role salience. Each of these variables may, in turn, be directly or indirectly related to higher levels of parental involvement for mothers and fathers of young children with disabilities.

Limitations

There are several limitations of the current study that are important to acknowledge. As previously noted, because these data are cross-sectional, the direction of effects found from the current analyses cannot be established with any certainty, nor can causality be proven. In addition, all measures used in this study were based on self-report, which can be unreliable. This study could have been improved by incorporating reports from the partner, the family's service coordinator, or by direct observation.

One major limitation of this study has to do with the measurement of parental involvement. In addition to not demonstrating statistical metric equivalence between mothers and fathers included in this analysis, this measure was unidimensional. As a result, this measure cannot be said to demonstrate content validity, wherein a measure represents all major facets of a theoretical construct. However, due to the multiple

perspectives and disciplines which study parental involvement in various domains of a child's life, achieving content validity in a measure of parental involvement may be an insurmountable task. Nevertheless, this study could have been improved by including at least one or two additional indices of parental involvement so as to capture a more complete understanding of how the determinants included in this study influence parents' involvement with young children with disabilities. Furthermore, this measure focused on level of parental involvement based on frequency of engagement in specific parenting tasks. Scholars have been critical of the approach, emphasizing that quality of time is more important than quantity (e.g., McBride et al., 2005). Indeed, a recent study showed that for mothers of children aged 3 to 11, time spent with children did not matter for key child outcomes (Milkie, Namaguchi, & Denny, 2015). In addition, this study could have been improved by measuring parental involvement via partner report (e.g., Ingber & Most, 2012), by service-coordinator report (e.g., Gavidia-Payne & Stoneman, 1997), or by using observational methods (e.g., Crnic et al., 2009).

Another limitation of this study is a low sample size of 131 mother-father dyads. This modest sample size limited the statistical power of the models estimated in this study, increasing the chance for Type II error. In addition, the response rate was very low number when considering 1,000 families were originally invited to participate in the study. Furthermore, responses were negatively skewed and some of the measures included in this analysis were very highly endorsed and non-normally distributed. These limitations can lead to reduced sample power to estimate the model parameters and a higher probability of committing a type I error. In addition, the interpretation of the

results from this study has largely been unidirectional when, in fact, it is possible and even likely that the relationship between the predictors and parental involvement is reciprocal.

Finally, this study violated the assumption of the APIM identified by Kenny and Ledermann (2010) that measures used for each variable were metrically equivalent for mothers and fathers. As a result, differences in the model may be due to measurement error rather than differences in the relationships among the variables included in the analysis. For example, if the measure of parental involvement held greater meaning and validity for mothers than for fathers from the current study, it is possible that, in a separate analysis with a more meaningful measure of father involvement, different patterns of effects may have emerged from the determinants.

However, it is important to mention that in previous studies, researchers have used results from the same test for metric equivalence to verify that the dyads in the analysis are, in reality, distinguishable (Klausli & Owen, 2011). Specifically, Klausli and Owen constrained each of their items measuring parental involvement to be equal for mothers and fathers. When the results indicated that the items were not equivalent, Klausli and Owen concluded this finding to be evidence of distinguishability between mothers and fathers. In this case, the assumption is that if dyad members respond to measures in patterns that are not statistically different, then they should be considered indistinguishable. From this perspective, mothers and fathers *should* respond differently if they are to be considered truly distinguishable. This point of view is rooted in the

assumption that distinguishability of dyads is determined through measurement models rather than by observable distinctions such as gender, race, or age.

Conclusion

This study used the actor-partner interdependence model (APIM) and Belsky's (1984) model of parenting determinants to examine the effects of individual and relational strengths on parental involvement among mothers and fathers of young children receiving early intervention services. Results indicated that mother and father involvement were primarily determined at the within-person level by the individual characteristics of parenting self-efficacy (PSE) and parental role salience. Mother couple relationship quality emerged as a more relevant determinant of parental involvement than father couple relationship quality, with the effect of mother couple relationship quality on father involvement being the only partner effect detected in the study. These results underscore value of utilizing the APIM to investigate the effects of individual and family strengths on parenting among mothers and fathers of children with disabilities. Researchers and practitioners can benefit from this knowledge by continuing to examine and implement strategies that focus on the capacities and strengths and families raising young children with special needs.

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Appendix

Appendix A. Measures

Parenting Self-Efficacy - 13 items from the Family Empowerment Scale (Koren et al, 1993)

1. "I feel confident in my ability to help my child grow and develop"
2. "I know the steps to take when I am concerned my child is receiving poor services"
3. "I know what to do when problems arise with my child"
4. "I feel my family life is under control"
5. "I am able to make good decisions about what services my child needs"
6. "I am able to work with agencies and professionals to decide what services my child needs"
7. "I am able to get information to help me better understand my child"
8. "I believe I can solve problems with my child when they happen"
9. "I know what services my child needs"
10. "I feel I am a good parent"
11. "When dealing with my child, I focus on the good things as well as the problems"
12. "When faced with a problem involving my child, I decide what to do and then do it"
13. "I have a good understanding of my child's special needs"

Parental Role Salience Scale – Nine items from the Father Role Salience Scale (Fox & Bruce, 2001)

1. "I like being known as a parent"
2. "I enjoy volunteering in my child(ren)'s activities, like sports or scouts"
3. "I want people to know that I have child(ren)"
4. "My attitude, feelings, and enthusiasm about being a parent increased after having my child(ren)"
5. "I feel competent being a parent"
6. "Being a parent makes me feel special somehow"
7. "I like the recognition I get from being someone's parent"
8. "I often talk about being a mother [father] with other women [men]"
9. "The word mother (father) completely captures who I am"

Couple Relationship Quality – Three items from the Kansas Marital Satisfaction Scale (Schumm et al., 1983)

1. "How satisfied are you with your marriage?"
2. "How satisfied are you with your husband or wife as a spouse?"
3. "How satisfied are you with your relationships with your husband or wife?"

Parental Involvement - Nine items, developed for the research project, four taken from Father Involvement Scale (Bruce & Fox, 1999)

1. "I spend time one-on-one with my child"
2. "My child(ren) and I play together"
3. "I join in activities my child(ren) like(s) at home"
4. "I teach my child(ren) new skills"
5. "I take my child(ren) to places (e.g. the mall, restaurants, and parks) and activities (e.g. soccer, swimming, and camping)"
6. "I help my child(ren) prepare of the day's activities (e.g. getting dressed and feeding)"
7. "I help my child(ren) prepare for bedtime"
8. "I attend my child's therapy sessions"
9. "I put into practice at home the recommendations of my child's therapists"

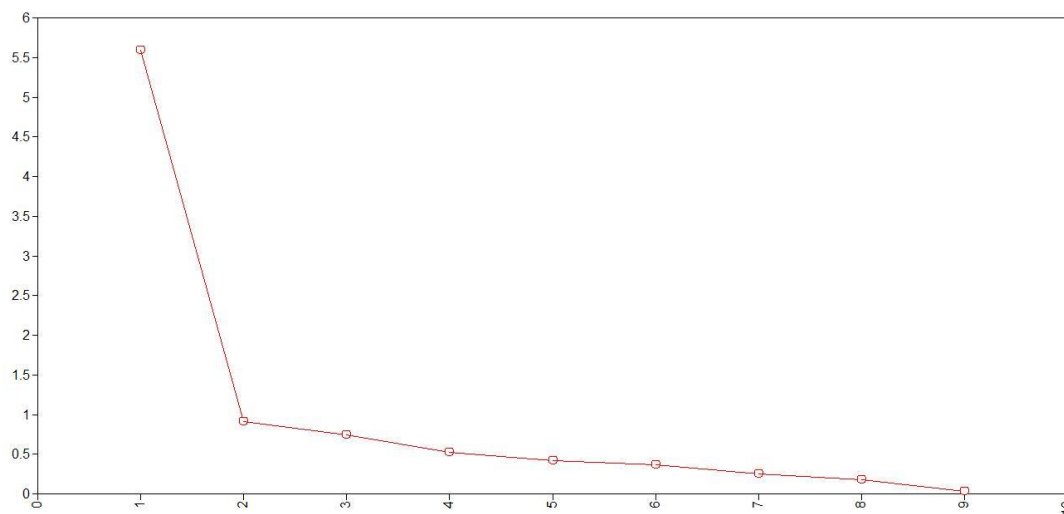
Appendix B. Additional Figures

Figure 11. Scree Plot of the Eigenvalues from the Exploratory Factor Analysis of Parental Involvement Measure for Fathers (n = 131)

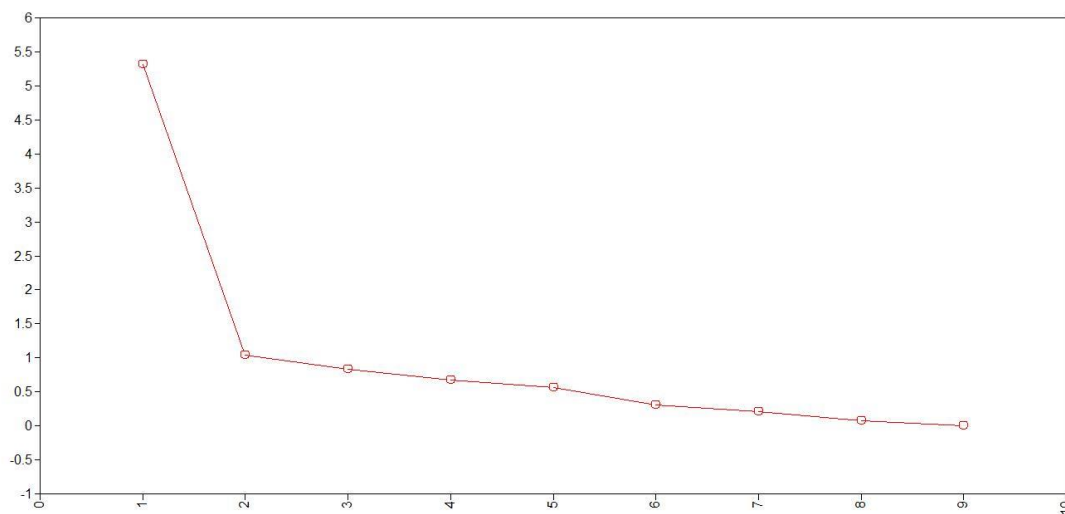


Figure 12. Scree Plot of the Eigenvalues from the Exploratory Factor Analysis of Parental Involvement Measure for Mothers (n = 131)

Vita

Rhett Billen was born in Huntington Beach, California, where he and his four siblings were raised by hardworking and loving parents. Prior to receiving a Bachelor of Science degree in Marriage, Family, and Human Development from Brigham Young University in 2010, Rhett Billen worked as an instructional aide using applied behavior analysis (ABA) among young children with autism spectrum disorders (ASD) in severely disabled children (SDC) preschools in California. This hands-on experience working with young children with disabilities sparked Rhett's interest in family dynamics and processes among this population. While pursuing his undergraduate education, Rhett furthered this experience and developed his interest in research by participating in an internship working in an orphanage and children's hospital in Romania. In the Fall of 2010, Rhett enrolled as a Master's student in the department of Child and Family Studies at the University of Tennessee, Knoxville. After completing the Master of Science program in December 2012, Rhett continued his graduate studies as a doctoral student in Child and Family Studies. As a graduate student, Rhett has had the opportunity to work with several faculty and other graduate students that has strengthened his knowledge and commitment to studying family processes and dynamics. After completing his Doctoral degree, Rhett plans to continue teaching courses related to child and family studies and conducting research on families of children with disabilities.