University of Kentucky

UKnowledge

2012

FACTORS RELATED TO SIBLING INVOLVEMENT IN EARLY CHILDHOOD INTERVENTION

Julie Harp Rutland
University of Kentucky, julie.rutland@uky.edu

Right click to open a feedback form in a new tab to let us know how this document benefits you.

STUDENT AGREEMENT:

I represent that my thesis or dissertation and abstract are my original work. Proper attribution has been given to all outside sources. I understand that I am solely responsible for obtaining any needed copyright permissions. I have obtained and attached hereto needed written permission statements(s) from the owner(s) of each third-party copyrighted matter to be included in my work, allowing electronic distribution (if such use is not permitted by the fair use doctrine).

I hereby grant to The University of Kentucky and its agents the non-exclusive license to archive and make accessible my work in whole or in part in all forms of media, now or hereafter known. I agree that the document mentioned above may be made available immediately for worldwide access unless a preapproved embargo applies.

I retain all other ownership rights to the copyright of my work. I also retain the right to use in future works (such as articles or books) all or part of my work. I understand that I am free to register the copyright to my work.

REVIEW, APPROVAL AND ACCEPTANCE

The document mentioned above has been reviewed and accepted by the student's advisor, on behalf of the advisory committee, and by the Director of Graduate Studies (DGS), on behalf of the program; we verify that this is the final, approved version of the student's dissertation including all changes required by the advisory committee. The undersigned agree to abide by the statements above.

<div align="right">

Julie Harp Rutland, Student

Dr. Lee Ann Jung, Major Professor

Dr. Robert McKenzie, Director of Graduate Studies

</div>

FACTORS RELATED TO SIBLING INVOLVEMENT
IN EARLY CHILDHOOD INTERVENTION

_____

DISSERTATION

_____

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in the
College of Education
at the University of Kentucky

By
Julie Harp Rutland

Lexington, Kentucky

Director: Dr. Lee Ann Jung, Professor of Interdisciplinary Early Childhood Education

Lexington, Kentucky

2012

ABSTRACT OF DISSERTATION

FACTORS RELATED TO SIBLING INVOLVEMENT
IN EARLY CHILDHOOD INTERVENTION

Professionals in early intervention have little information about the levels of sibling involvement in intervention, factors that contribute to sibling involvement, or how sibling involvement is related to families' perceptions of self-efficacy. Few studies have investigated siblings in *early* intervention, and none have focused on relationships between sibling involvement in early intervention and parent self-efficacy. Using quantitative survey research this study investigated factors related to sibling involvement in early intervention strategies. Respondents completing the survey consisted of 129 parents who had a child enrolled in Michigan's early intervention program, and at least one sibling in the home. Results indicated a significant relationship between sibling use of early intervention strategies and 1) the region in which the family lives, and 2) the age difference between the siblings in each sibling dyad. Practical implications of the findings are discussed.

KEYWORDS: Early Intervention, Siblings, Families, Parent Self-efficacy, Early
           Childhood

           Julie Harp Rutland
           Student's Signature

           April 16, 2012
            Date

FACTORS RELATED TO SIBLING INVOLVEMENT
IN EARLY CHILDHOOD INTERVENTION

By

Julie Harp Rutland

Dr. Lee Ann Jung
Director of Dissertation

Dr. Robert McKenzie
Director of Graduate Studies

April 16, 2012

DEDICATION

It is with love that I dedicate this dissertation to the most important people in my life, my family. To my parents for providing me with a wonderful foundation. Your continued love and support have meant so much. Thank you for everything.

To my precious children, who have kept me grounded and shown me what is really important in each day. Thank you Hunter for humoring me when I needed to stop and laugh, Abby for the late night snuggles, Austin for your calming music, and Mason for pulling me *off*-task when needed. People often wonder how I manage it all with four children, but I wonder how I could possibly manage *without* them.

And most of all, to the love of my life, my husband. Words can not express my appreciation for being right by my side through all the late nights and long weekends. Thank you for the many "dances in the rain." I love you.

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my dissertation committee. Thank you Dr. Lee Ann Jung, my chair, for mentoring me and guiding me on this journey. To Dr. Jennifer Grisham-Brown, I thank you for your time and the many opportunities you have given me through this program. I am so grateful to Dr. Thomas Guskey for challenging and encouraging me and also to Dr. Harold Kleinert for the many hours of reading, and most importantly, cheering me on. I repeatedly share how fortunate I have been to have such a stellar committee. Your commitment of time and energy over the past few years will never be forgotten.

TABLE OF CONTENTS

LIST OF TABLES

Chapter I: Introduction

Factors Related to Sibling Involvement

in Early Childhood Intervention

Professionals in the field of early intervention have little information about the level of involvement of siblings in intervention, the factors that contribute to sibling involvement in intervention, and the relationship between sibling involvement in intervention and a family's perception of self-efficacy. Although research indicates the ability of siblings to successfully implement interventions, only a few studies have investigated siblings in *early* intervention. Of the studies that have focused on siblings in early intervention, none has focused on alterable variables and the relationship between sibling involvement in early intervention and family self-efficacy.

Sibling Interactions

Sibling interactions consume a large part of many families' everyday routines and during the early childhood years, siblings spend more time interacting with each other than with peers. Through these naturally occurring interactions, siblings influence one another's development and research suggests that this interaction between siblings impacts many areas of development including interpersonal skills, problem resolution, physical skills, and language (Azmitia & Hesser, 1993, Downey & Condron, 2004; Dunn, 1983; Lamb, 1978). Furthermore, it has been argued that siblings have an ability to recognize strengths and weaknesses in one another and instinctively provide guidance and feedback that is developmentally appropriate (Dunn & Kendrick, 1981; Howe, Brody, & Recchia, 2006; Klein, Zarur, & Feldman, 2003).

Siblings and Intervention

As a result of their greater shared experiences, siblings may have more opportunity to implement intervention strategies than any other individual, and siblings can be effective in implementing strategies. Early studies focused on behavior modification skills and reported improvement in outcomes (Lobato & Tlaker, 1985; Schreibman, O'Neill & Koegel, 1983; Swenson, Pierce, Kohl & Egel, 1987). More recent studies have focused on social interactions using a variety of naturalistic strategies, which include play and social praise (Celiberti & Harris, 1993), mand modeling (Hancock & Kaiser, 1996), and simultaneous prompting procedures (Tekin & Kircaali-Iftar, 2002). By enhancing the natural sibling teacher-learner experience, each of the above studies has shown positive outcomes for both siblings. Although there is a body of research that demonstrates sibling ability to implement intervention, few studies have investigated siblings in *early* intervention.

Siblings and Early Intervention

The inclusion of siblings in early intervention is a topic that is rarely discussed in the literature. Of the studies that have focused on siblings in early intervention (Kresak, Gallagher, & Rhodes, 2009; McBride, Brotherson, Joanning, Whiddon, & Demmitt, 1993; Rutland & Jung, 2008), none have focused on the relationship between sibling involvement in early intervention and the characteristics of the family that contribute to the involvement of siblings. Although little research exists, there is substantial evidence that suggests the importance of including siblings in intervention strategies.

Early Intervention Law

Families are a key focus of the federal early intervention legislation for young children with disabilities. Within the Individuals with Disabilities Education Act (IDEA),

the phrase "infants and toddlers with disabilities and their families" is used repeatedly (34 CFR Part 303). Although the term family seems inclusive of any person a family wishes, the term is not explicitly defined within IDEA, leaving states to develop guidelines based on their own interpretations. Some providers currently involve siblings in activities during home visits, and others have suggested they would like to learn more about including siblings in early intervention strategies (McBride, Brotherson, Joanning, Whiddon, & Demmitt, 1993). However, siblings are not specifically named in the verbiage of early intervention law.

Recommended Practice

Influenced by the intent of the legislation, the field of early intervention accepts and practices the family-centered approach, which (a) recognizes the child in the context of family, (b) acknowledges the needs of all family members, and (c) seeks to empower families so that they feel confident in their abilities to support the development of their child. The family-centered approach includes practices that conceptualize and implement early intervention focusing on the child within the relationships of the family. Therefore, as early intervention now recognizes the interdependence of the child and family (Bruder & Dunst, 2005), siblings should be an important component to intervention strategies. However, there is little guidance in policy, procedure, or the literature on how early interventionists should maximize this important resource possessed by most families.

Child and Family Outcomes

The family-centered approach yields heightened outcomes for children and families (Dunst, 1985; Dunst, Bruder, Trivette & Hamby, 2006). Families report better outcomes and higher levels of self-efficacy (perception of competence and confidence in ability to enhance child's development) when using informal supports such as family

members and those having close relationships with the child (Dunst, Trivette, & Hamby, 2007). However, there is no evidence that suggests siblings are being regularly included as supports in early intervention.

Professional Significance

Research and recommended practices (Sandall, Hemmeter, Smith, & McLean, 2005) indicate that services should be delivered in a way that supports the family's ability to implement intervention and maximize typical daily routines. When considering the typical routines of families, sibling interactions consume a great deal of time. Involving siblings in early intervention strategies would be consistent with recommended practice, occurring in the context of typical sibling interactions and play, and within daily routines. Siblings providing intervention, when compared to typical intervention of one to four hours of direct service provision, may afford many more hours of opportunity for learning (Jung, 2003).

Furthermore, the field of early intervention practices a family-centered approach using a consultative model. The consultative model is one in which the provider shares information with caregivers so that they are able to implement strategies throughout their typical daily routines. Outcomes for such a model include parental confidence in their roles, lower family stress and a higher level of parents' well-being (Dunst, Bruder, Trivette, & Hamby, 2006). This information suggests that the inclusion of siblings in early intervention strategies may not only impact opportunities for learning, but also levels of family self-efficacy.

In addition to the benefits for families and their young children with disabilities, information about the factors that affect the level of sibling involvement in early intervention may benefit experts in the field. The field of early intervention is still

relatively new and continues to evolve as we gain information on evidence-based practices. Understanding the factors that contribute to sibling involvement in early intervention may provide information that impacts how we train and educate pre-service and in-service professionals. Future training and education may include a specific focus on sibling interactions and strategies that support development within these naturally occurring interactions. When combined with higher levels of family self-efficacy, and the importance of maximizing learning opportunities, researchers are called to explore the inclusion of siblings in early intervention.

Overview of Methodology

Professionals in the field of early intervention have little knowledge of the level of involvement of siblings in early intervention, the characteristics of the siblings that impact their level of involvement, and the characteristics of the family that impact sibling involvement.   The purpose of this study was to describe factors related to sibling involvement in early intervention strategies. A quantitative survey was used to collect information from the families of children receiving early intervention and having at least one sibling. Information provided by these families included:

Child receiving early intervention services:

- Age of child

- Qualification (developmental delay or established condition)

- Sex of child

- Services received

Sibling information:

- Age of siblings

- Sex of sibling

- Level of sibling involvement in the early intervention strategies (reported as frequency)
- If siblings are involved, who introduced the concept to the sibling – parent, early intervention provider (specify), teacher, physician, or others

Parent information:

Parent is defined as a person who gives birth to or nurtures and raises a child (Farlex, 2012).

- Sex
- Relationship to child
- Age
- Education level
- Employment (part-time or full-time)
- Measure of self-efficacy in their ability to enhance the development of their child with a disability

Family:

- Region
- Length of time in the *Early On* program
- Single vs. dual care-giving
- Total siblings in home (including the child)

Specifically, the questions addressed in this study are below.

1. Are there specific characteristics of the siblings or children with disabilities that are related to the level of sibling intervention?

2. Are certain family characteristics related to the level of sibling involvement in early intervention?

3. Is there a relationship between the level of sibling involvement in early intervention and parent self-efficacy?

Question one elicited information about the child with disabilities and the siblings of this child. The information gathered included the sex and age of the siblings and the child receiving services. Additional information for the child receiving services included the qualification for services and specific services received. These data provided information on how sibling demographics relate to sibling involvement in early intervention strategies.

The second question addressed family characteristics such as total number of siblings in the home, and region of Michigan in which they receive early intervention. Information about the age, sex, education level, single versus dual care giving, relationship to child, and employment was collected from the parent. Additionally, the parent provided information about the person who taught the sibling to use early intervention strategies (i.e., parent or provider) and the length of time the family received services. This collection of data provided information pertinent to understanding family characteristics that are related to sibling involvement in early intervention.

Finally, question three required information about the sibling level of involvement in early intervention, which was determined by the number of times the sibling was involved in early intervention strategies per week. This perception, as reported by families, is important in that it lends opportunity for comparison of not just a level of involvement in early intervention, but a level that is unique to each sibling in the family. This unique level supports the inclination of self-efficacy, which is the second indicator in this question. A level of self-efficacy was collected using the Early Intervention Parenting Self-Efficacy Scale (EIPSES: Guimond, Wilcox, & Lamorey, 2008). Data

collected from this question provided information to make inferences about family, sibling, and child characteristics and how they relate to levels of parent self-efficacy.

Conclusion

This research is important for three reasons. First, although many studies have focused on siblings involved in intervention strategies, only a few have focused on siblings involved in *early* intervention. As the field of early intervention recognizes the interwoven nature of the child within the context of the family, siblings must then be recognized as participating family members. Second, as researchers, practitioners, and leaders in the field of early intervention, it is our responsibility to investigate all possibilities that may lead to best practices. Sibling relationships offer opportunity for learning, in natural environments, and within the context of typical everyday routines. Further investigation is necessary to better understand early intervention strategies in the context of sibling relationships. Finally, the inclusion of siblings may prove to be an untapped resource and further support a family's ability to enhance their child's development.

Chapter II: Literature Review

Factors Related to Sibling Involvement

in Early Childhood Intervention

In order to fully understand the importance of including siblings in early

intervention strategies, it is necessary to have an understanding of the basic premise of

early intervention and the provisions currently in place to guide these services. Secondly,

it is important to acknowledge that effective early intervention can only be achieved by

considering the child in the context of the family and within the natural environments of

the child and family. Finally, as sibling's interactions are a large component of the

interactions that occur in a family's natural environment, sibling relationships and sibling

involvement in intervention strategies will be discussed.

Early Intervention History

In 1975, the U.S. Congress passed Public Law 94-142, the Education for All

Handicapped Children Act. This Act ensured all children with disabilities, aged 6 to 17, a

free appropriate public education, including special education and related services

designed to meet their unique needs. Since its inception, Congress has reauthorized and

amended P.L. 94-142 to expand, now including ages 3 to 21, and improve early

intervention services. In the 1986 reauthorization, Congress established a program that

added provisions for statewide implementation of early intervention (PL 99-457, Part H).

Early Intervention Law

Early intervention, or Part C of what is now known as the U.S. Individuals with

Disabilities Education Act (IDEA) (P.L.108-446), is a federal grant program that assists

states in operating comprehensive statewide programs for infants and toddlers with

disabilities and developmental delays, and their families. Early intervention has four

primary goals: (1) to reduce educational costs by minimizing the need for special education through early intervention, (2) to minimize the likelihood of institutionalization, and maximize independent living, (3) to enhance the development of infants and toddlers with disabilities, and (4) to enhance the capacity of families to meet the special needs of their young children (NECTAC, 2006, Overview section, para. 1).

Under the IDEA, "infants and toddlers with disabilities" are defined as children from birth through age 2 who need early intervention services because they either 1) are experiencing developmental delays, as measured by appropriate diagnostic instruments and procedures, in one or more of the following areas: cognitive development, physical development, communication development, social or emotional development, adaptive development, or 2) have a diagnosed physical or mental condition that has a high probability of resulting in developmental delays. The definition may also include, if a state chooses, children who are at risk of having substantial developmental delays if early intervention services are not provided (34 *Code of Federal Regulations* §303.16). States have some discretion in setting the criteria for child eligibility, and, as a result, definitions of eligibility differ significantly from state to state. Although states have latitude in determining criteria for eligibility, once a child is determined eligible according to a state's criteria, the Individualized Family Service Plan and appointment of a service coordinator are mandatory.

Service coordination. The Individuals with Disabilities Education Act requires that a service coordinator be appointed for each eligible child and family. States vary in the way they choose to implement service coordination. In some states a dedicated model of service coordination is used in which the service coordinator for any given family does not provide any other early intervention service, only service coordination. In other

states, service coordination may be provided by a service provider, such as a special

instructor or related service provider. Furthermore, the model of service coordination

may vary within some states. Regardless of the specific model in place, the service

coordinator acts as a supportive, knowledgeable, advocate, and is responsible for

assisting families in understanding and exercising their rights and procedural safeguards.

The service coordinator also facilitates the delivery of needed early intervention

services. Currently, there are seventeen early intervention services that IDEA mandates

of participating states: assistive technology services/devices, audiology, family training

(including counseling, home visits and other support), health services, medical services,

nursing services, nutrition services, occupational therapy, physical therapy, psychological

services, respite care, social work services, special instruction, speech language

pathology, transportation and related costs, vision services, and other early intervention

services. In addition to the coordination of services, the service coordinator also plays an

important role in the development and implementation of the Individualized Family

Service Plan (Bruder, 2010).

Individualized family service plan. The Individualized Family Service Plan

(IFSP) is required by IDEA to assist families in the development of outcomes for their

child and family (P.L. 99-457). The IFSP functions not only as a written plan, but as a

process to guide supports and services for each infant or toddler and family. This written

plan, which is developed by the family and a multidisciplinary team of service providers

that have been selected based on their ability to contribute to the child and family

outcomes, serves to provide information about the child and family, and must include

several elements (child's present level of development, family priorities and concerns,

child and family outcomes, the intervention strategies that will be provided, who will be responsible for implementing strategies, and where the intervention will take place).

Theory and Philosophy

As important as *which* services are provided on the IFSP, is *how* they are provided to the child and family (Hanft & Pilkington, 2000). Early intervention is grounded by a strong theoretical and philosophical foundation (Bandura, 1977; Bronfenbrenner, 1979; Knowles, 1984; Maslow, 1954, Vygotsky, 1978) with a focus not only on the child as the learner, but also the child within a family, and the systems and factors that impact their lives. The common thread in the following foundational theories of Early Intervention is the recognition of the importance of social relationships as they relate to child development.

Ecological systems theory. One of the foundational early intervention theories is the Ecological Systems Theory (Bronfenbrenner, 1979). Bronfenbrenner's theory explains both the relationships between social units and the broad impact of these social supports (1979). In early intervention this theory applies to the understanding of child development within the context of the relationships in the child and family's environment. This theory defines complex "layers" of the environment, each having an effect on a child's development. Bronfenbrenner depicts these layers as concentric, with the child and family in the innermost circle. The child and family unit is nested in a broader circle of informal social units that consist of relatives, friends, neighbors, childcare providers and other close acquaintances. The previous units are then nested in larger social units, which include neighborhoods, churches, social organizations, child care center, and so forth. Still further, the previous units are embedded in much larger social systems consisting of governments, and other decision-making bodies that could

potentially affect the child. A fundamental tenet of the Ecological Systems Theory is that there is interaction both within and between levels, so that events occurring in one unit will impact what occurs in another unit. The interaction between factors in the child's immediate family/community environment and the society in which that child lives steers his/her development. As changes or conflict in any one layer impacts the other layers, indirect influences bear upon a child's development as much as do the more direct influences. As Bronfenbrenner (1979) states, "A person's development is affected profoundly by events in settings in which a person is not even present" (p.3).

To study a child's development then, one must look not only at the child and the immediate environment, but at the interaction of the larger environment as well. Bronfenbrenner's ecological systems theory focuses on the quality and context of the child's environment. A parent's work schedule is an example of how a child may not be directly involved in the system which contains the parent work place, but certainly feels the positive or negative impact of work schedules or sick-leave policy.

Zone of proximal development. In addition to the consideration of the ecology of a family, Vygotsky's (1978) sociocultural theory describes learning within the context of social relationships. Vygotsky states that learning can not be separated from the social context and that children lead their own learning. The sociocultural theory recognizes the importance of social interaction in the cognitive development of young children and views children as active participants in the construction of learning within the interactions of caregivers, family members, and community. However, he believed that cognitive development was limited to a certain range during developmental stages. This range, or zone of proximal development, allows us to look at the skills a child currently has and determine what he or she might be able to do with assistance. This assistance, whether

13

from an adult or a peer, can help a child to attain skills that would not be possible to learn independently. Attempts to address skills that a child cannot do even with assistance are futile. Instead, practitioners should identify a child's emerging skills and implement evidence-based intervention to facilitate their mastery.

In terms of early intervention, the sociocultural theory supports the recognition of children as individual learners. Activities and strategies must enhance child development, but within the zone of proximal development, so as to maximize intervention time. Additionally this notion of providing services within a social context lends opportunity to include multiple family members and caregivers.

Social learning theory. Albert Bandura (1977) describes a child's learning through imitation of caregivers in the environment. Social learning theory suggests that children observe others as they perform actions and then imitate the actions. More recently, social learning theory emphasizes cognition, suggesting that children think about what they are imitating and select those elements that they wish to imitate. This suggests that children take an active role in their development.

This theory is important to professionals in the field of early intervention as it suggests those spending time with the child should be modeling appropriate or desired behaviors, so children will have an example to follow. Although most prominent in the area of social development, cognitive development strategies may provide models of curiosity and interest; speech and language development strategies may provide models of sounds, signs, or words; and motor development strategies may provide models of physical movements.

Recommended Practice

The aforementioned theory and philosophy, as well as legislation, have contributed to the foundation of service delivery in the field of early intervention. Recommended practice includes guidance on the provision of services, such as delivering in natural environment, considering the typical routines of the family and child, and using family-centered practices (Dunst, Bruder, Trivette, Raab, & McLean, 2001; Sandall, Hemmeter, Smith, & McLean, 2005).

Natural Environments. Natural environments, as defined in IDEA (1997), are "settings that are natural or normal for the child's age peers who have no disability" (34 CFR Part 303.18), meaning that services should be provided in the home, child care setting, community settings, and other environments that are a normal part of the child's and family's routine. Studies have shown that when working with children, natural settings are more effective than providing intervention in a separate therapy or instruction room (McWilliam, Young, & Harville, 1996), and provide rich learning experiences (Bruder & Dunst, 1999).

When selecting these natural environments, it is important to consider where the child and family spend much of their time and use the typical activities and interactions that occur within these familiar places as the context for intervention. Unfortunately, the legislative language on natural environments as the context for service delivery has been interpreted by many as *location* of services, rather than *how* services are delivered (Dunst, 2000; Hanft & Pilkington, 2000; Sheldon & Rush, 2001).

Routines-Based Intervention. The intent of the IDEA language on natural environments was to change not only where the services are provided, but to impact the approach of intervention to one of supporting caregivers rather than providing domain-

specific direct services (McWilliam, 2000). Research supports the use of a model of service delivery that focuses on the family's daily routines as the context for intervention and indicates that supporting families and caregivers in their typical daily routines and activities empowers families to meet the needs and enhance the development of the children in their care and leads to better outcomes (Dunst, 1999; McWilliam, 1995). The literature indicates that intervention in the context of everyday routines provides more opportunities for learning and is just as effective, if not more effective, as methods that serve children in segregated environments (McWilliam et al., 1996). Direct interventions that are not already a part of everyday activity settings and impose upon the natural routines of the family are potentially harmful (Dunst, Bruder, Trivette, & Hamby, 2006).

Children, when participating in the regular routines in their natural environments, have many opportunities to learn (Dunst et al., 2001). These activities and routines, when not interrupted, provide many occasions for teachable moments (Cripe & Venn, 1997; Rule, Losardo, Dinnebeil, Kaiser, & Rowland, 1998) in which families can promote their children's development. Researchers agree that the many opportunities for learning that parents and caregivers have in a given day can impact a child's development far more than the weekly visits from service providers (Dunst et al., 2001; Hanft & Pilkington, 2000; Jung, 2003; McWilliam, 2000).

In another study, Dunst et al. (2006) investigated delivery practices in the natural environment. The focus of this study was on the subtle difference in delivering services in a natural environment and using the natural environment for learning opportunities. In both the state and national samples, families who received services through a delivery model that used the natural environment of the individual family for learning opportunities reported more positive feelings when they perceived having control over

the supports, resources, and services that were provided. In addition, more positive feelings of parental competence, well-being, and judgment regarding child progress were reported.

<center>**Families and Early Intervention**</center>

Focusing on parent competence and well-being, the field of early intervention now recognizes the critical role of parents in a child's development. Furthermore, families are a now a key focus of the federal early intervention legislation for young children with disabilities. However, services have not always reflected this recognition. Legislation defines *the family*, not just children, as recipients of services and professionals are now concerned with methods of delivering services that support families and increase their perception of ability to enhance the development of their child with disabilities.

Family-Centered Philosophy

In response to research and shaped by the field's foundational theories and philosophies, the role of families in early intervention has shifted since Congress first included language on families in early intervention legislation (PL 99-457, Part H). Families are now a key focus of the federal early intervention legislation for young children with disabilities. Within the Individuals with Disabilities Education Act (IDEA) the phrase "infants and toddlers with disabilities and their families" is used repeatedly (34 CFR Part 303). By emphasizing the family in Part C of IDEA, legislation redefined the family, not just children, as recipients of services in recognition of their critical role in a child's development. However, services have not always reflected this expectation. Early intervention has evolved in its view of families, starting with a *professional-centered*

<center>17</center>

approach, moving to a *family-focused* approach, and finally arriving at *family-centered* practices.

Professional-Centered. Historically, early intervention used discipline-based, normative perspectives with assessment and intervention that focused heavily on developmental milestones. The desired outcome of these professional-centered approaches was to increase the number of developmental skills and milestones based on norm-referenced and criterion-referenced instruments (Atkins-Burnett & Allen-Meares, 2000). Professionals each focused on their own discipline and acted as the experts, determining the needs of the family from their own perspective. Families were not seen as capable, active participants in the provision of intervention, thus requiring help from professionals in the implementation of intervention (Dunst, Johanson, Trivette & Hamby, 1991).

Family-Focused. Over the past decade, the role of the family has evolved, with family involvement as key to the success of outcomes (Kontos & Diamond, 2002). The family-focused approach views families as an integral part of the intervention team. In this approach, professionals and families collaborated together to determine what is needed to help the family function in a manner that enhances the development of their child. However, families were still viewed as needing the professional for advice and guidance in order to meet their needs. For many professionals, this shift from professional-centered, to family-focused services challenged their training and current methods, but the need for families to be involved in the planning of goals and objectives has been widely accepted (Dunst et al., 1991).

Family-Centered. The field of early intervention has evolved further and now views a family-centered approach as recommended practice (Sandall, Hemmeter, Smith,

& McLean, 2005). The family-centered approach involves a set of beliefs, principles, values, and practices for supporting and strengthening the capacity of families to promote and enhance the development of their children (Dunst, 2002). The tenets of family-centered philosophy include the recognition and respect for (a) the family as the expert on the child; (b) the family as the ultimate decision maker for the child and family; (c) the family as the constant in the child's life with providers only being a temporary relationship; (d) the family's choice in amount of participation (e) the family's priorities and concerns as the propeller for goals and outcomes; (f) differences in cultural beliefs and values; and (g) the need for families to have a collaborative and trusting relationship with service providers (Baird & Peterson, 1997). With an emphasis on family and child strengths, such practices are driven by the priorities and concerns of the family with the professional's role being one of an agent to promote the strengths, capabilities, and decision making of the family (Dunst et al., 1991). Family-centeredness involves treating families with dignity and respect, individualizing services to meet their needs, and sharing information so that families can build both formal and informal networks of support.

The family-centered approach yields better outcomes for children than the traditional child-centered approach (Dunst, 1985). Family-centered approaches use models that conceptualize and implement early intervention focusing on the child within everyday settings and social relationships. Family-centered services result in a higher level of parents' well-being (Dunst et al., 2006), which positively impacts child outcomes.

Family Self-Efficacy

Another factor that promotes child and family outcomes is parental self-efficacy. Self-efficacy refers to an individual's perceptions of his or herself as competent in a specific task based on how that person sets goals, faces challenges, and recovers in the event of failure (Bandura, 1977, 1986). Self-efficacy can be viewed as an opinion of personal effectiveness. The two related measures of self-efficacy are actual competencies or skills that are required to be successful in a task, and an individual's estimate of competence. These notions are important as they motivate behavior. Individuals are less likely to undertake a task in which they expect to perform poorly. In addition, less effort is spent on these same tasks or activities (Schunk, 1984).

In early intervention parental self-efficacy is defined as empowerment (Dunst, Trivette, & Hamby, 1988), or parents' perception of competence and confidence in their ability to enhance their child's development (Guimond, Wilcox, & Lamorey, 2008). This is important in that it may affect how a parent approaches intervention strategies. As professionals in the field of early intervention continue to adopt a family-centered approach, parent self-efficacy may be recognized as a possible alterable family outcome.

Consultative Family Support

One way to support parent perception of self-efficacy is by using a consultative model. Consultative support refers to the exchange of information between the provider and the family of a child with disabilities (McWilliam, 1995). This exchange of information and intervention strategies allows families to maximize the many learning opportunities available throughout their day. Through the use of a consultative approach, the child can have many more hours of opportunity for learning compared to hours available during direct service delivery (Jung, 2003).

McWilliam and Scott (2001) describe a consultative model for the delivery of early intervention that is based on a framework of the provision of *supports* rather than the typical provision of *services*. This model not only focuses on the delivery of services, but encompasses the entire process including intake, assessment, and service delivery. The expected outcomes for such a model are parental confidence in their roles, lower family stress, and positive outcomes for the child, including health and development. The authors place less emphasis on direct services and emphasize three types of support that interventionists should provide: informational, material, and emotional.

Informational support involves providing information on the disability or condition of the child, intervention strategies, typical child development milestones, and services and resources that address specific outcomes, goals, and family functioning (McWilliam & Scott, 2001). When providing this type of support to families, it is important to consider using a method that will best meet the unique needs of the family. Next, material supports may include finding resources for basic needs, adapting or developing materials for daily routines, or even financial resources. Finally, emotional support includes positive, responsive interactions, such as talking to families in a friendly manner and maintaining a positive attitude about the child and family. Psychological services, counseling, orientation to the whole family, building social networks, and facilitating parent groups are all examples of emotional support.

Findings show that families consider the quality of the support to be more important than the quantity of supports. Furthermore, families report social networks and supports such as family, friends, and relatives, having an equal or greater impact than more formal supports provided by professionals (Dunst, 1985). This suggests that

professionals investigate additional opportunities for maximizing informal supports, such as sibling.

<div align="center">**Siblings**</div>

Sibling interactions consume a large part of many families' everyday routines. Therefore, as early intervention must recognize the interdependence of the child and family (Bruder & Dunst, 2005), siblings are an important resource for delivering intervention. Siblings spend a significant amount of time together, and during early childhood, children spend more time interacting with older siblings than with peers.

Sibling Interactions

As a result of their greater shared experience, siblings may be more aware of each other's strengths and weaknesses and, thus, can be effective teachers and learners. Siblings' interactions are also more resistant to disruption by antagonistic behaviors. This tolerance for antagonistic behavior may allow children to refine their skills at negotiation and conflict resolution, two important mechanisms of cognitive development (Azmitia & Hesser, 1993). Young children may receive more explanations and feedback from their siblings than peers because they feel more comfortable asking them questions and requesting an active role in the problem-solving process. Also, young children may be more likely to challenge their siblings than they would peers or adults. This type of interaction and participation could improve the sibling's teaching ability and the learner's understanding of the task. Effective guidance produces effective learners and increases cognitive learning (Fry, 1992).

Lam (1992) compared children with siblings to children without siblings and found that children with siblings exhibited more autonomy and greater independence. This difference could be, in part, due to sibling interaction and instruction. Vygotsky

(1978) argues that a transfer of responsibility, that is, the process wherein the teacher gradually relinquishes control of the task to the learner so that he or she eventually controls the task and is solving the problem independently, is a key element of effective guidance. Two studies, (Azmitia & Hesser, 1993; Widmer & Weiss, 2000) found that siblings are more likely to allow this transfer of control than are peers. Azmitia and Hesser (1993) speculated that siblings would be more likely than peers to transfer responsibility to the learner. This transfer is not because of their own goals of enhancing their sibling's performance, but because the young child is more likely to pressure a sibling to give up control than the child would pressure a peer or adult. In general, the positive quality of their interactions and the high degree of mutual imitation suggest that they enjoy each other's company and are quite interested in each other's behavior. Although there has not been a great deal of focus on the role of siblings in intervention, they certainly play a significant role in each other's lives and may provide intervention for many years to come (Schwartz & Rodriquez, 2001).

Siblings and Intervention

Although we know that sibling relationships represent a safe context for children to explore and experiment (Aguilar, O'Brien, August, Aoun, & Hecktner, 2001), there is little research on the topic of siblings included in early intervention. Early sibling intervention studies focused on behavior modification skills, and improving domestic tasks and functional skills in children with autism (Lobato & Tlaker, 1985; Schreibman, O'Neill & Koegel, 1983; Swenson, Pierce, Kohl & Egel, 1987). Each of these studies found that siblings were able to master the teaching skills and their brothers and sisters showed improvement. However, these early studies did not focus on social behaviors.

More recently, there have been multiple studies where siblings of children with autism have been trained to use social skills intervention strategies. By continually approaching their sibling with social behaviors, prompting the sibling to respond to initiations and social play behaviors that included games, these siblings provided multiple opportunities for learning throughout their regular routines. There was a reported increase in initiations, responses, and generalization skills when compared to what was observed prior to including siblings (Baker, 2000: Strain & Danko, 1995).

In addition to the mandates of including families and natural environments, culture plays a role in the need for sibling involvement in intervention. In some cultures it is more natural for children to play and communicate more frequently with siblings than others. It can be seen as unnatural for adults and children to engage in the activities that promote social imitation and communication of feelings and thoughts. Therefore, alternative strategies that include siblings in the intervention are suggested to support these families (Wing, et al., 2007). Studies suggest that when children are engaged in pretend play, their discussions are likely to include feelings and mental states. Developing language skills, conversation, and social understanding are related to children's understanding of mental states and feelings (Astington & Jenkins, 1995; Hughes & Dunn, 1998). Lam (1992) compared children with siblings to children without siblings and found that children with siblings exhibited more autonomy and greater independence. This difference could be, in part, due to naturally occurring sibling interaction and instruction, which suggests that there is potential for planned and implemented instruction.

Of the few studies that have focused on siblings in early intervention (Kresak, Gallagher, & Rhodes, 2009; McBride, Brotherson, Joanning, Whiddon, & Demmitt,

1993; Rutland & Jung, 2008), none has focused on the relationship between sibling involvement in early intervention and the characteristics of the family that contribute to the involvement of siblings. Because a growing body of evidence suggests that there are positive outcomes when siblings are a planned part of the intervention, it is important that the field of early intervention study and develop this largely untapped resource.

Purpose of this Study

Although siblings are an integral part of family dynamics, it can not be assumed that the wealth of research demonstrating the value of family involvement in early intervention can be directly applied to sibling involvement in early intervention. The methods used to teach adults to implement intervention may need adapting for supporting children to implement. Given that little research exists on the inclusion of siblings in implementation of early intervention, there is a need for further investigation of this untapped resource. The purpose of this study was to determine the factors related to sibling involvement in the implementation of early intervention strategies by addressing the following questions:

1. Are there specific characteristics of the siblings or children with disabilities that are related to the level of sibling intervention?

2. Are certain family characteristics related to the level of sibling involvement in early intervention?

3. Is there a relationship between the level of sibling involvement in early intervention and parent self-efficacy?

Chapter III: Methodology

Factors Related to Sibling Involvement

in Early Childhood Intervention

Method

This chapter explains the methods used in the current study investigating factors

impacting sibling use of intervention strategies. A quantitative survey was used to collect

information from the families of children receiving early intervention services in the state

of Michigan. Details for carrying out the study are discussed.

Participants

Participants included 129 parents of children receiving early intervention in

Michigan. To be eligible for voluntary participation, families had to be English language

readers, have at least one child eligible for early intervention services in their home, and

at least one *sibling* in their home. The term sibling was not limited to biological siblings,

and parents determined who to consider as siblings in each individual family. The Early

On (statewide early intervention system) Director of Technical Assistance invited all

Service Coordinators (SCs) with full case loads to participate. Early On is divided into 57

districts, and each is categorized in one of five 5 regions: Urban, Metro, Medium-sized

cities, Small-sized cities, and Rural. Convenience sampling was used due to time

constraints and the availability of SCs. Three SCs were selected from each region (n=15).

Participating SCs were asked to provide the study information to the first 10 families on

their case loads that met the requirements. SCs had a typical standing date and time in

which they planned to visit individual families, so as not to disrupt family schedules by

randomizing visits, SCs asked families in the order of their visits. One parent in each

family that elected to participate filled out the survey.

Instrumentation

A survey was used to collect information from each family (see Appendix A). The survey was developed by the principal investigator and included child and family demographics, along with the Early Intervention Parenting Self-Efficacy Scale (EIPSES; Guimond, Wilcox, & Lamorey, 2008). The survey consisted of five sections: 1) About your child receiving services through Early On, 2) About your family, 3) About you (the family member filling out the survey), 4) About the siblings of your child receiving services through Early On, and 5) the EIPSES items.

The first section focused on information about the child receiving services. Specifically, the age and sex of the child were requested. Additional information was requested based on how the child qualified for early intervention services and the services the child was receiving. Family members were asked if the child qualified for services based on developmental delays or an established condition. Services that the child and family may receive included family training and counseling/home visits, special instruction, occupational therapy, physical therapy, speech and language, health services, nutritional services, assistive technology, vision services, and audiology services. Families were able to select all services that applied.

The second section focused on specific characteristics of the family unit. The first question requested the amount of time the family had been receiving services through Early On. The next question was related to care-giving. Families were asked to select the option that best represented their family: single care-giving, dual care-giving, or other. Single care-giving was defined as one person providing all the care-giving in the home. Dual care-giving was defined as two people sharing the responsibility in the home. As these characteristics are unique to each family, an option was available for "other" than

single or dual care-giving. Additionally, the number of siblings in the home was identified from the sibling section, and the region in which the family lived was identified from the return envelopes. Each of these items was considered to be characteristic of the family unit.

The third section of the survey addressed characteristics specific to the parent filling out the survey. Sex and age were requested along with education level, relationship to the child, and employment status. Education level was reported as the highest level of education completed: middle school, high school, associate's degree, bachelor's degree, master's degree, doctoral degree. Employment status was reported as full-time outside of the home, part-time outside of the home, full-time at home, or other.

The fourth section of the survey focused on the sibling(s) of the child receiving services through Early On. In order to guide family members in thinking about specific early intervention strategies, the first question provided examples of strategies, and then asked for an example that an Early On provider taught their child. The next questions asked the age, sex, and frequency of sibling involvement for each individual sibling. Finally, this section requested information on the person who taught the strategy to the sibling: Me (family member filling out the survey), Early On provider, Sibling figured it out on their own, or other.

In the last section of the survey, a parent self-efficacy level was determined by the EIPSES. This scale contained 16 items using a 7-point Likert-type scale with responses ranging from *strongly disagree* (1) to *strongly agree* (7). The EIPSES score was the sum of all items on the scale minus 16 so that scores were reported on a scale of 0-96 (sum of all items – 16 = EIPSES score). In an evaluation of the psychometric properties, the EIPSES was found to be a suitable measure of self-efficacy for parents of infants and

toddlers receiving early intervention services with a Cronbach's alpha coefficient of .80

indicating a small to moderate amount of variance in item responses (Guimond, Wilcox,

& Lamorey, 2008).

Procedure

  Pilot. Using paper surveys, a pilot survey was conducted with a convenience

sample of 10 people associated with Early On. The pilot sample included one expert

professional of early intervention in higher education, five parents of children receiving

services, two training and technical assistants, one service coordinator, and one teacher.

The pilot survey was mailed to each participant along with a self-addressed, stamped

envelope for return. Each participant was asked to review the pilot and respond with

feedback regarding the organization, clarity, ease or difficulty in reading or

understanding items, terminology, and amount of time it took to complete the survey.

Participants were encouraged to write directly on the survey or to write feedback in the

space provided at the bottom of the pilot feedback cover letter (see Appendix B).

Feedback from the pilot was collected and changes were made based on

recommendations. Changes made to the survey consisted of correcting one typographical

error, and adding examples of strategies in section 4 of the survey. The approximate time

needed to complete the survey was reported to be 15 min.

  SC selection. Using a convenience sample, three SCs were selected from each

region. The Early On Director of Technical Assistance invited all full-time SCs. Service

coordinators with an interest in participating were asked to contact the principal

investigator via email (see Appendix C). The first three SCs to respond in each of the 5

regions were selected to participate. Service coordinators who elected to participate were

contacted by the principal investigator to discuss the study. The SCs were provided with

a letter describing the study, providing instructions for an online human subjects training, and opportunities to ask questions (see Appendix D). Prior to distributing the surveys, SCs were asked to complete an online human subjects training with a reported completion time of 1 to 5 hours. Each SC received a packet containing cover letters (see Appendix E), surveys for 10 families, and a self-addressed, postage-paid envelope in order to return the surveys to the principal investigator.

Survey distribution. So as not to disturb the regularly scheduled visits, SCs invited families in the order in which they visited families. The first 10 families that agreed to participate were included in the study. This method did not interrupt the typical schedules of the SCs or families. Families that accepted the invitation to participate were provided with a survey. Service Coordinators provided the invitation and survey during a regularly scheduled home visit and the families completed the surveys in their homes during the home visit. Each family was provided with an envelope in which to place their completed survey. The envelopes were sealed with a mark placed across the seal to assure the confidentiality of the responses. Service Coordinators collected completed surveys in their sealed envelopes, placed them in an addressed, postage-paid envelope, and mailed to the principal investigator. The only identifying information was the Early On region in the state of Michigan, as the SCs were asked to mark the envelope with the region: Urban, Metro, Medium-sized City, Small-sized City, and Rural. The survey data collection period was 10 weeks. Reminders were sent weekly via email to SCs during this window of time. Because there is an approximate 50% response rate for surveys with this population (Archer, 2008), if a family chose not to participate, SCs selected the next visited family from their caseload to support reaching the goal of 150 responses.

Data collection. Upon receipt of the surveys, the principal investigator transferred data from the paper surveys into Microsoft Excel. When the survey closed, the principal investigator exported the raw data from Microsoft Excel to SPSS for analysis. The information will be kept on the personal computer of the principal investigator with password protection. All participants, including SCs, will receive a narrative of the results.

Analysis

Measures of central tendency were reported for age of the child receiving early intervention, age of each sibling, and age of parent. Birth order of siblings, birth order of the child receiving services, number of siblings in the home, and age differences in siblings were reported. Sibling use of strategies was reported using measures of central tendency. As related to the child receiving early intervention services, frequencies were reported for sex, qualification for services, the number of services received, and types of services received. Frequencies were reported for sibling sex, and who taught the sibling strategies. Frequencies were also reported for parent sex, relationship to the child receiving services, and employment status.

Family demographics were reported next. Measures of central tendency were reported for the parent level of education, along with the number of services received, and length of time the family has been receiving early intervention services through Early On. Frequencies were reported for the region of Michigan in which they live, and the care-giving arrangement.

Finally, the results of the EIPSES were reported in measures of central tendency. Total scores were computed by summing all 16 items of the scale and subtracting 16.

31

Scoring for items 3, 5, 6, 8, 10, 12, 13, 15, and 16 were reversed so that higher scores reflected a greater perception of self-efficacy on all items.

Pearson correlation analysis was conducted to determine if relationships existed between variables. All variables were included in the analysis. The criterion for significance was set at the .01 level. Significant relationships between variables were reported.

Using linear regression models, univariate analyses of variance were used to determine if the frequency of sibling involvement in strategies was significantly impacted by age of the sibling, sibling age difference, sex of the child, and region. The amount of variance of sibling involvement in strategies explained by the model was discussed.

To summarize, this study used a quantitative survey to collect information from the families of children receiving early intervention in *Early On*. The survey consisted of a self-efficacy scale and demographic items specific to each individual family, and sibling. Families that elected to participate completed the surveys, which were then mailed to the principal investigator for analysis.

Chapter IV: Results

Factors Related to Sibling Involvement

in Early Childhood Intervention

Results

Professionals in the field of early intervention have little information about sibling

involvement in early intervention. The purpose of this study was to investigate the factors

potentially impacting sibling involvement in early intervention strategies by focusing on

characteristics of the child and family, parent self-efficacy scores, and the amount of time

siblings were involved in intervention strategies. Participants in this study were families

receiving early intervention services in the state of Michigan. The design of the study

included 15 Service Coordinators (SCs) from Early On, the early intervention system in

Michigan, completing 10 surveys each, for a total of 150 surveys.

Upon completion of this study, 129 surveys were returned. One SC in the Rural

region left her place of employment near the end of the survey window and did not return

the surveys. Also, SCs in both the Rural and Small-sized cities had smaller case loads in

their areas and were not able to each distribute 10 surveys. Table 4.1 provides the total

surveys returned in each region. The results of this study are organized by the order of

analysis: descriptive statistics, relationships among variables, and inferential statistics.

Descriptive Statistics

   Demographics.

   Parents. Fourteen service coordinators contacted families to invite their

participation in the study. One parent in each of 129 families completed and returned a

survey. The median age for the parents was 32.0 years (*M*=33.32; *SD*=8.12). The range in

age of parents was 20.0 to 63.0 years. Table 4.2 shows the ages of all participants. One

Table 4.1

Total Surveys Returned in Each Region

Region	*n*	%
Medium	30	100
Urban	30	100
Metro	28	93
Small	25	83
Rural	16	53
Total	129	

hundred and twenty respondents (93%) were female. Table 4.3 shows the sex of all

participants. Of these parents, 105 (81%) were biological parents, 17 (13%) were foster

parents, 4 (3%) were grandparents, and 1 (1%) was a step-parent. Two parents selected

"other" on the survey and indicated that they were adoptive parents. The employment

status of the parents was 67 (52%) full-time at home, 34 (26%) full-time outside the

home, and 18 (14%) part-time outside of the home. Ten (8%) reported "other". Forty-

eight of the parents (48%) reported the highest level of education completed as high

school. Table 4.4 shows the education level of all parents in the study. One hundred and

four parents (81%) reported a dual care-giving arrangement in their family. Twenty-three

parents (18%) reported single care-giving and only 2 parents (1%) reported "other".

Table 4.2

Age of Child, Parent, and Siblings by Birth Order

Participants	Age				
	N	*M*	*Median*	*SD*	*Range*
Child	129	1.87	1.80	0.87	0.1-3.0
Siblings	244	6.47	5.15	5.03	0.2-26.0
Birth Order 1	118	7.63	6.04	5.24	0.8-26.0
Birth Order 2	75	6.08	5.00	4.77	0.2-21.0
Birth Order 3	30	5.20	4.08	4.67	0.2-17.0
Birth Order 4	13	4.39	2.75	3.62	0.8-12.0
Birth Order 5	4	3.35	3.50	2.19	1.0-5.4
Birth Order 6	3	1.81	1.00	1.92	0.4-4.0
Birth Order 7	1	2.00	2.00	0.00	0.0
Parent	129	33.47	32.00	7.66	20.0-63.0

Early On is divided into 57 districts and each district is assigned to one of five regions: rural, small-sized cities, medium-sized cities, metro, and urban. Thirty families (23%) lived in medium-sized cities, 23 (30%) lived in urban regions, 28 (22%) lived in metro regions, 25 (19%) lived in small-sized cities, and 16 (13%) lived in rural regions.

Table 4.3

Sex of Child, Parent, and Sibling by Birth Order

		Sex			
		Male		Female	
Participants	*n*	*n*	%	*n*	%
Sex Child	129	67	52	62	48
Sex Siblings	244	104	43	140	57
Birth Order 1	118	48	41	70	59
Birth Order 2	75	32	43	43	57
Birth Order 3	30	12	40	18	60
Birth Order 4	13	8	62	5	38
Birth Order 5	4	2	50	2	50
Birth Order 6	3	2	67	1	33
Birth Order 7	1	0	0	1	100
Sex Parent	129	9	7	120	93

Children receiving services. Of the children receiving early intervention services, 67 (52%) were male and 62 (48%) were female. Recall in Table 4.3, the sex of all participants is included. The median age of the children was 1.80 years (*M*=1.87; *SD*=0.87), and the range in age was 0.1 to 3.0 years. Children qualify for early

Table 4.4

Parent's Highest Level of Education

Education	n	%
High School	48	37
Associates Degree	31	24
Bachelor's Degree	27	21
Master's Degree	17	13
Middle School	5	4
Doctoral Degree	1	1

intervention services in Michigan by either having a demonstrated developmental delay or by having a documented condition that has a high probability of resulting in developmental delay (MDE, 2012). In this sample, 67 (53%) of the children qualified for services based on demonstrated developmental delays, and 62 (47%) qualified based on a qualifying diagnosis.

The average duration of time that children and families received services through Early On was 1.14 years (*SD*=.84) with a range of 0.1 to 5.0 years. Some families had been receiving services with older siblings, which explain those receiving services longer than 3.0 years. Parents were asked to indicate which of ten possible services they received. The number of possible services selected ranged from one to eight, with an average per family of 2.29 (*SD*=1.56). The most frequently selected service was family

counseling, which was selected by 86 (67%) of responding parents. The least frequently

selected was assistive technology, which was selected by only 3 (2%). Eighty-six (67%)

of the children and families received family counseling, and 52 (40%) received speech

and language therapy. Occupational and physical therapy were both received by 40

(31%) of the children, and special instruction was received by 38 (29%). Remaining

services (health, nutritional, vision, and audiology) were received by 9 or fewer children

each (see Table 4.5).

Table 4.5

Summary of Early Intervention Services Received

Services Received	n	%
Family Counseling	86	67
Speech and Language	52	40
Occupational Therapy	40	31
Physical Therapy	40	31
Special Instruction	38	29
Health Services	9	7
Nutritional Services	9	7
Vision Services	8	6
Audiology Services	6	5
Assistive Technology	3	2

Siblings. Within the 129 families, there were 244 siblings in this study. The median age of the siblings was 5.15 years (*M*=6.47; *SD*=5.03). The age range of the siblings was 0.2 to 26.0 years, as siblings included both younger and older siblings. Refer to Table 4.2 for sibling age by birth order. Of the 244 siblings reported in this study, 104 (43%) were male, and 140 (57%) were female. Table 4.3 provides a breakdown of sibling sex by birth order. Of the total number of children in the home (n=373), the average number per household was 2.9 (*SD*=1.13) with a range of 2 to 8.

Siblings' use of strategies. For each sibling reported to be using intervention strategies, parents were asked to choose whether the parents or Early On provider directly taught a strategy, or if the sibling independently learned and implemented the strategy. One hundred and forty-five parents reported themselves as the person who taught the sibling to use intervention strategies (57%). Early On providers taught siblings to use intervention strategies for 74 (29%) of the siblings, and 22 (9%) were self-taught. Twelve (5%) were taught by someone other than the parent, provider, or self. Seventy-nine (32%) of the siblings were reported as using sibling strategies more than one time daily and 63 (26%) were reported as never using strategies. Not only did the frequency of sibling use of strategies vary, but also the use of strategies based on the sex of the sibling, with a higher percent of males using intervention strategies most often. Table 4.6 provides the frequency of sibling use of strategies.

Table 4.6

Frequency of Sibling Use of Strategies

| Frequency | n | % | Male | | Female | |
			n	%	n	%
Never	63	26	27	25	36	27
1 - 2 times per week	18	7	10	9	8	6
3 - 5 times per week	60	25	30	27	30	22
6 - 7 times per week	24	10	7	6	17	13
More than one time daily	79	32	36	33	43	32

(Header note: "Sex" spans the Male and Female columns)

Relationships Among the Variables

Pearson correlation coefficients among variables in the study are shown in Table 4.7. For this analysis, the criterion for significance was set at the ($\alpha < .01$).

Are there specific characteristics of the siblings or children with disabilities that are related to the level of sibling intervention?

Independent variables.

Sex of the sibling. Sex of the sibling and sibling age were negatively related r (127) = .25, $p < .01$. This means that in this population older siblings were more likely to be male (male =1, female =2) and younger siblings were more likely to be female. This is in agreement with another negative relationship between the sex of the sibling and sibling

age difference r (127) = -.26, $p < .01$, which tells us that, for this population, male

siblings are more likely to have larger positive age differences between themselves and

the child receiving services, and females are more likely to be closer in age to the child

receiving services.

Table 4.7

Pearson Correlation Coefficients

_____

Item	Sib Age	Sib Age Diff	Sib Birth Order	Child Birth Order	Sex Sib	Family Counseling	Employment Status	Parent Taught	Provider Taught	Self Learned	Other Taught	EIPSES Score	Region
Sib Age Diff	**0.99**												
Sib Birth Order	-0.13	-0.15											
Child Birth Order	0.02	0.00	**0.28**										
Sex Sib	**-0.25**	**-0.26**	**0.74**	0.11									
Family Counseling	0.16	0.17	0.05	-0.11	0.12								
Employment Status	-0.17	-0.16	0.07	0.05	-0.21	-0.04							
Parent Taught	-0.14	-0.13	**0.60**	**0.24**	**0.65**	0.01	0.07						
Provider Taught	-0.13	-0.13	**0.36**	-0.03	**0.43**	-0.11	0.15	**0.32**					
Self Learned	-0.09	-0.08	**0.18**	0.06	**0.26**	-0.07	0.03	**0.09**	0.08				
Other Taught	-0.09	-0.10	**0.12**	-0.08	**0.18**	0.18	**-0.24**	**0.13**	0.04	**0.11**			
EIPSES Score	0.04	0.06	-0.05	-0.02	-0.09	-0.20	0.01	0.14	0.06	-0.02	-0.01		
Region	-0.17	-0.22	**-0.24**	-0.03	-0.03	-0.08	-0.02	0.03	0.11	0.09	0.03	0.12	
Sib Use Strategies	**0.83**	**0.83**	-0.08	-0.03	**-0.25**	**0.25**	-0.17	**-0.17**	**-0.17**	**-0.12**	-0.09	-0.08	**-0.30**

The sex of the sibling was positively related to who taught the sibling to use

strategies. Sex of the sibling (male=1, female=2) was positively related to parent-taught r

(127) = .65, $p < .01$, provider-taught r (127) = .43, $p < .01$, self-learned r (127) = .26, $p <$

.01, and other-taught r (127) = .18, $p < .01$, meaning more female siblings are being

taught to use strategies than males. When considering the previous relationships, it would

41

make sense that the female siblings in this study, being closer in age to the children receiving services, would have more interactions as a sibling dyad than those with larger age gaps. This could lend some explanation as to why female siblings in this population were more likely to have learned strategies.

Sibling birth order. There was another relationship (positive) between who taught the sibling to use intervention strategies and sibling birth order: parent-taught r (127) = .60, $p < .01$, provider-taught r (127) = .36, $p < .01$, self-learned r (127) = .18, $p < .01$, and other-taught r (127) = .12, $p < .01$. The higher the sibling birth order (furthest away from the first born), the more likely they were to be taught by parents, provider, others, and the more they self-learned. Similar to the previous results, the younger sibling group (those closer in age to the child and also further away from first born) were the siblings in this population to learn the strategies, whether taught by someone or self-learned.

Birth order of the child. There was an additional relationship (positive) between parents teaching sibling strategies and the birth order of the child receiving services r (127) = .24, $p < .01$. The higher the birth order of the child (furthest away from the first born), the more parents teach siblings to use strategies. This is interesting, but may be explained by parents of large families sharing responsibilities with siblings that are capable of helping, or it may be due to parents being more relaxed with each subsequent child, thus more comfortable in allowing these types of activities.

Independent and dependent variables.

Sibling age and sibling use of strategies. Sibling age showed a significant relationship to sibling use of strategies, r (127) = .83, $p < .01$. As the age of the sibling increased, the use of strategies increased. This is consistent with the literature on siblings

as teachers (Brody, 1998; Klein, Feldman, & Zarur, 2002; Howe, Brody, & Recchia, 2006; Maynard, 2002, Strauss & Ziv, 2004).

Sibling age difference and sibling use of strategies. Sibling age difference showed a significant relationship to sibling use of strategies, r (127) = .83, p < .01. As the age difference between the sibling and child increases, the use of strategies increases.

Sex of the sibling and sibling use of strategies. The sex of the sibling showed a significant relationship to sibling use of strategies r (127) = - .25, p < .01. There was a negative relationship between sibling use of strategies and the sex of the sibling (male =1, female= 2). This tells us that male siblings were more likely to use strategies than female siblings.

Who taught sibling to use strategies and sibling use of strategies. The person responsible for teaching siblings to use intervention strategies was negatively related to sibling use of strategies: parent-taught r (127) = -.17, p < .01, provider-taught r (127) = -.17, p < .01, self-learned r (127) = -.12, p < .01. This indicates that the more the sibling was taught, the less likely they were to use the strategies. This could mean that the methods for teaching are not effective, or it may tell us that other variables are responsible for the level of sibling use of strategies.

In summary, the specific characteristics of the siblings or children with disabilities that were related to the level of sibling intervention were sex of the sibling, sibling age, age difference between the sibling and child, and birth order of the siblings. In this study, the older siblings, those with the greatest age differences from the child, were more likely to be male. The male siblings in the study were also more likely to use strategies. However, the female siblings in this study were younger and were more likely to be taught the intervention strategies. This tells us that it is not necessarily those that are

43

taught to use the strategies that use strategies most often. Further analysis revealed which of these highly correlated variables were predictors of sibling use of strategies.

Are certain family characteristics related to the level of sibling involvement in early intervention?

Independent variables.

Parent employment status. Parent employment status was also negatively related to the selection of "Other" as who taught the sibling to use intervention strategies r (127) = -.24, $p < .01$. Parents who work more outside of the home selected "Other" as the ones that taught siblings to use intervention. This may indicate that those providing child-care were the ones teaching siblings to use intervention strategies.

Independent and dependent variables.

Region and sibling use of strategies. There was also a significant relationship between region and sibling use of strategies r (127) = - .30, $p < .01$, indicating that the more rural the region, the higher the level of sibling use of strategies.

Family counseling and sibling use of strategies. There was a positive relationship between family counseling and sibling use of strategies r (127) = .25, $p < .01$. This tells us that families who received family counseling were more likely to have siblings use strategies. If you recall from Table 4.4, 86% of the participants selected family services, which may account for it being the only service with a relationship to sibling use of strategies.

The family characteristics related to the level of sibling involvement in early intervention were the parent employment status, region, and family counseling. Parents in this population who work more outside the home were those that indicated "Others" as teaching the sibling intervention. However, we know from previous relationships that the

person teaching the strategies was not related to the level of sibling involvement in early intervention, which means that the relationship between parent employment status and "Others" teaching the strategies was not related to sibling involvement in intervention strategies. More importantly, families receiving family counseling and those living in more rural regions were both related to sibling use of strategies. Further analysis revealed which of these were predictors of sibling use of strategies.

Is there a relationship between the level of sibling involvement in early intervention and parent self-efficacy?

The measure of parent self-efficacy was derived from the Early Intervention Parenting Self-Efficacy Scale (EIPSES). The 16 item scale totals may range from 0-96. The average score in this study was 62.26 (*SD*=9.92) with scores ranging from 30 – 80 indicating moderate to high levels of self-efficacy in the parents of this study. This was slightly lower than those reported in Guimond, Wilcox, and Lamorey's (2008) original study (*M*=77.12). There was no statistically significant relationship between EIPSES scores and the independent variables. Furthermore, there was no statistically significant relationship between self-efficacy scores and sibling use of strategies.

Inferential Statistics

Of the two dependent variables in this study (sibling use of strategies and parent self-efficacy scores), the Pearson correlation analysis revealed that only one (sibling use of strategies) showed a statistically significant relationship to independent variables (region, sibling age, sex of the sibling, and age difference between sibling and child). Therefore, a univariate multiple regression analysis was used to develop a model for predicting sibling use of intervention strategies from their region, sibling age, sex of the sibling, and age difference between siblings for this population. Results indicated a

significant effect for the age difference between sibling and child, $F(1, 241) = 7.58$, $p <$ .01, $\eta^2 = .029$. However, based on the analysis, sibling age was not a significant predictor $F(1, 241) = 2.45$, $p = .119$, $\eta^2 = .009$. Although the two variables were highly correlated, this tells us that the age difference between siblings was a more powerful predictor of sibling use of strategies when compared to the age of the sibling. This may indicate that sibling use of strategies can be determined very early based on the age difference of the dyad when the younger sibling is born. The sex of the sibling was not found to be a significant predictor $F(1, 241) = 1.47$, $p = .434$, $\eta^2 = .002$.

Results indicated the greatest significant effect for region, $F(1, 241) = 11.02$, $p <$ .01, $\eta^2 = .042$. This tells us that, for this population, the region in which the sibling dyad lives had the most predictive value on whether or not siblings used intervention strategies. The overall model fit was $R^2 = .057$ accounting for approximately 6% of the variability. Regression coefficients are shown in Table 4.8.

Summary

The analysis of this study revealed that, although modest, two independent variables explained approximately 6% of the variance in sibling use of strategies for this population. The region in which a family lived impacted the level of sibling use of interventions. Findings indicated that the more rural a region, the more likely the siblings were to use intervention strategies. Additionally, the difference in the age of the sibling and the child receiving services impacted the level of sibling use of interventions in this population. Siblings with greater positive age differences were more likely to use intervention strategies.

Table 4.8

Univariate Multiple Regression for Sibling Use Strategies by Region,
Sibling Age, Sibling Age Difference, and Sibling Sex

Source	SS	df	MS	F	p
Region	26.31	1	26.31	11.02	0.001
Sibling Age	5.84	1	5.84	2.45	0.119
Sibling Age Difference	18.01	1	18.01	7.58	0.006
Sibling Sex	1.47	1	1.47	0.62	0.434
Error	575.31	241	2.39		
Total	3106.00	245			

Chapter V: Summary Discussion

Factors Related to Sibling Involvement

in Early Childhood Intervention

Discussion

In this study, family, child, and sibling variables were investigated to determine if relationships existed between such variables and sibling involvement in early intervention strategies. Specifically, three questions were addressed.

Are there specific characteristics of the siblings or children with disabilities that are related to the level of sibling intervention?

The findings of this study did provide some support for age *difference* between siblings impacting the sibling use of early intervention strategies. Although modest, age difference, or the amount of age between siblings, can make inferences about sibling involvement in intervention. Similar to previous research on older siblings (Brody, 1998; Klein, Feldman, & Zarur, 2002; Howe, Brody, & Recchia, 2006; Maynard, 2002, Strauss & Ziv, 2004), as the age difference increased with older siblings, there was an increase in the use of early intervention strategies. This, in part, may be due to older siblings having more advanced cognitive skills (Brody, 1998; Klein, Feldman, & Zarur, 2002) when compared to their younger sibling. This finding is consistent with the literature demonstrating that as a sibling gets older, thus a greater age difference, they provide more instruction, and positive guidance (Howe, Brody, & Recchia, 2006; Maynard, 2002, Strauss & Ziv, 2004). Although this study is consistent with the previous research, it is important to note that previous research did not include children in early intervention. Findings of this study begin to bridge a gap and provide information that can be useful when planning early intervention strategies.

Are certain family characteristics related to the level of sibling involvement in early intervention?

As the Ecological Systems Theory explains, in order to look at a child's development, it is necessary to understand that each child develops within the context of the relationships in the family environment (Bronfenbrenner, 1979). Bronfenbrenner suggests not only looking at the child in the immediate environment, but also the interactions of the larger environment. Specifically, this study investigated the length of the time the family received early intervention through Early On, the care-giving arrangement in the home, total number of siblings in the home, and region in which the family lived. The findings indicate no significant relationship between sibling use of intervention strategies and length of time receiving early intervention, care-giving arrangement, or total number of siblings in the home. However, region significantly impacted sibling use of strategies. Families in more rural regions reported higher levels of sibling involvement in intervention strategies.

An aspect that is specifically important to this study is *why* region may influence sibling use of intervention. We do know that access to services may be impacted by region, as many providers in rural areas have reported a shortage in providers (Bruder, 2004). Also, many rural areas require a large amount of travel time, thus decreasing the frequency of visits (Jung, McCormick, & Jolivette, 2004). However, this does not necessarily mean a decrease in intervention opportunities. It may indicate that providers are demonstrating the consultative model, which is a recommended practice in early intervention. As described earlier in the consultative model, providers support families through an exchange of information and intervention strategies (McWilliam, 1995). This exchange of information and strategies allows families to enhance their child's

development by maximizing the many learning opportunities available throughout their day. An expected outcome of the consultative model is parental confidence in their roles (McWilliam & Scott, 2001), thus higher self-efficacy scores. Although there was no relationship between region and self-efficacy scores in this study, the parent's scores were relatively high. This may imply that the families in rural areas in this study are experiencing the outcomes expected of the consultative model, which include shared knowledge, including sharing of knowledge with siblings, and heightened self-efficacy.

Is there a relationship between the level of sibling involvement in early intervention and parent self-efficacy?

This study did not demonstrate a relationship between parent self-efficacy and demographic variables, such as age or sex of child, siblings, or parents. Nor was there a relationship between the self-efficacy measure and sibling involvement in early intervention. This may be due to multiple factors. The first is the lack of variation in self-efficacy scores. The scores were clustered around moderately high scores indicating that the parents in this study had similarly high self-efficacy scores. This is somewhat consistent with the reports from a previous study when developing the Early Intervention Parenting Self-Efficacy Scale (EIPSES; Guimond, Wilcox, & Lamorey, 2008).

Another factor may be the validity of the EIPSES. The original study reported a limitation of homogeneity in population and recommended studying other samples. This study's population had some homogeneous characteristics: all English language readers, 93% female, 81% biological parents, and 81% dual care-giving households. However, without replication of the EIPSES with different samples, it is unknown if the scale lacks variability due to the population or if it simply does not provide a genuine measure of parent self-efficacy.

Finally, the EIPSES scores could have been impacted by the method of this study. Service coordinators that elected to participate may also be those that practice and collaborate with providers that use consultation. The consultative model of service delivery, which is considered best practice in early intervention, focuses on the provision of supports (informational, material, emotional) rather than typical provision of services (McWilliam & Scott, 2001). One of the expected outcomes for this model of service delivery is parent confidence in their roles and ability to enhance their child's development. This perception of confidence is an important, and possibly alterable, concept in that it may affect how a parent approaches early intervention, collaboration, and implementation of early intervention strategies. This may have contributed to families' similarity in scores; however, replication of the scale with different populations may provide more information on the instrument.

The role of families in promoting the development of infants and young children with special needs is recognized as one of great importance (Sandall, Hemmeter, Smith, & McLean, 2005), and is the emphasis of current research on best practices for serving families and their young children with disabilities (Bailey & Bruder, 2005). As this study focused on sibling involvement in early intervention, it was important to investigate the parent self-efficacy measure to determine if it was related to sibling involvement in early intervention strategies. How a parent approaches early intervention may be directly related to how siblings approach early intervention.

Limitations

One limitation of this study was the use of paper surveys. Paper surveys were selected so that all families, even those without Internet access, would have the opportunity to complete the forms. The use of paper surveys lend opportunities for errors

that may occur by manually coding and entering data. To adjust for this limitation, data entered were reviewed by a second person. The data reviewer was a data specialist and parent of a child having participated in early intervention, having experience with the terms on the survey. This reviewer checked the data for accuracy after each survey was entered.

The second limitation of this study was the sample. The sample size was small when compared to the approximate 10,000 children receiving early intervention in the state of Michigan (Michigan Department of Education, 2011). In some regions, SCs reported not having enough families who fit the criteria on their caseloads. Those regions did not meet the requested 10 surveys per SC. Additionally, the rural region in which the SC left her place of employment and did not return surveys, was underrepresented in this study. The sample was also widely homogeneous. Due to the voluntary nature of this study, we only have information on families motivated to take a voluntary survey, and in an effort to predetermine a selected sample, participants of this study were English language readers. The population of families who are not English language readers was also not represented in this study.

Another limitation was that SCs may have influenced the parents completing the survey. Service coordinators participating in this study completed human subject training and were provided with the appropriate information about treatment of participants. However, families develop relationships with SCs, and these relationships may have influenced how parents answered specific questions pertaining to the provision of services. Of the surveys that were returned, three included negative written comments about the EIPSES items. All of the parents were on the same SCs caseload.

Finally, there was a limitation in the selected method of inferential statistical analysis. A univariate multiple regression analysis was selected to develop a model for predicting sibling use of intervention strategies (one dependent variable) from their region, sibling age, sex of the sibling, and age difference between siblings (four independent variables). However, the siblings were nested within families and this was not recognized in the model used to analyze the data in this study. A hierarchical linear model (HLM) would control for errors based on common characteristics of the sample, such as recognizing the child within the family, but accounting for effects at the child level.

Recommendations for Future Research

In order to broaden the scope of this study, research that includes families from a variety of states, and those that are not English language readers, may further add to our understanding of factors that impact sibling involvement in early intervention. This would not only provide a greater and more diverse sample, but also information about differences between regions, states, and practices in our early intervention systems.

Another recommendation is to investigate additional sibling dyad characteristics. Sibling relationships were excluded from this study, but would have been valuable for the analysis. There may have been a significant relationship between sibling use of interventions and sibling dyad relationship. Similarly, the sibling feelings about their sibling with disabilities may have provided some insight into their use of strategies. Siblings of children with disabilities often have mixed feelings about their siblings, and we should respect the feelings and involvement level of siblings as we do parents.

Studying sibling dyads using early intervention strategies could also further the research. There is currently a wealth of research demonstrating that siblings can be

effective teachers, and can use intervention strategies appropriately. However, as noted previously, there is a gap in the research excluding early intervention strategies.

Finally, as there are limited tools for measuring parent self-efficacy in early intervention, it seems important to continue to improve upon the methods that are currently being used. Furthermore, given that negative comments were directed toward the self-efficacy tool used in this study, it may be beneficial to develop a focus group of parents and investigate the concerns documented in this study. A tool that lends opportunity for more variation in responses could provide meaningful information.

The current study contributes to our understanding of sibling involvement in early intervention; however, it leaves us with more unanswered questions. Part C programs and current research have a strong focus on the *family*; however, there is a gap in the literature addressing the role of siblings in early intervention. Further research is needed to determine factors that impact sibling involvement. Answers to such questions will not only inform the early intervention community, but tap into the valuable resource of siblings.

Implications for Practice

When considering the information gained in this study there are a few questions that need to be addressed. First, why is there limited inclusion of siblings in early intervention strategies and research? The provision of early intervention is intended to serve children *and* their families. We know this is important as children learn and develop within the context of the family. It is also understood that those having the closest relationship with young children have the greatest impact on their development. Siblings, then, seem to be the most logical people to include in early intervention

strategies. However, the term family has not explicitly included siblings as participants in the provision of early intervention.

Knowing that siblings have demonstrated the ability to use intervention strategies, and that siblings and children with disabilities both benefit from the interactions of the dyad, professionals in the field of early intervention should now recognize the inclusion of siblings as an untapped resource. Invite siblings to participate and teach them strategies rather than working solely with the adults in their lives. Siblings, with what seems to be an innate understanding of the zone of proximal development of their siblings with disabilities, could provide multiple opportunities for learning in the most natural of all environments: typical sibling play. Imagine the possibilities if, within the context of sibling play, intervention strategies were taking place in the back seat of the car, in the living room floor, and in the sand box.

Secondly, this study demonstrated that region was a predictor for sibling involvement in early intervention. It suggested that the more rural the region, the higher the levels of sibling involvement. Is this related to certain practices in more rural regions? We know that access to early intervention is a concern for families in rural areas and providers sometimes have great distances to travel in order to visit families, which results in limited visits. Research informs us that the consultative model is considered to be best practice. The benefits for families include heightened confidence in their abilities to enhance their child's development, lower stress, and more learning opportunities. However, this study leaves us wondering if the consultative model is being used in lieu of more frequent visits, rather than by choice.

Professionals in early intervention should revisit the basic premise of the consultative model and family-centered practices. If the goal of early intervention is to

enhance a family's capacity for supporting their child's development through their strengths and resources, siblings encompass all. Opportunities for implementation of strategies are endless when considering siblings as a resource.

Appendix A

Survey

About your child receiving services through *Early On*:

1. My child's birth date is _____ (month/day/year)
2. My child qualifies for services based on:
    o Developmental Delays
    o Established Condition
3. My child is:
    o Male
    o Female
4. Please select all of the services your child is currently receiving:
    o Family Training Counseling and Home Visits
    o Special Instruction
    o Occupational Therapy
    o Physical Therapy
    o Speech and Language
    o Health Services
    o Nutritional Services
    o Assistive Technology
    o Vision Services
    o Audiology Services

About your family:

1. What is the length of time your family has been receiving services through *Early On*? Please report in months and years _____

2. Please select which one best represents your family:
    o Single care-giving (one person provides all the care-giving)
    o Dual care-giving (two people share the care-giving)
    o Other (please describe)_____

About you:

1. I am a:
    o Male
    o Female
2. My relationship to the child receiving services is:

Biological parent   Foster parent   Step parent   Grandparent   Aunt/Uncle   Other __

3. My age is: _____ (provide in years)

4. The highest level of education I have completed is:
    o Middle School
    o High School
    o Associate's Degree
    o Bachelor's Degree
    o Master's Degree
    o Doctoral Degree

5. I would describe my employment status as:
    o Full-time outside of the home
    o Part-time outside the home
    o Full-time at home
    o Other

About the siblings of your child receiving services through *Early On*:

1. What is an example of a strategy or activity your *Early On* providers have taught you to do for your child? (for example: encourage my child to use signs for the words "more" and "all done" or allow additional time for my child to respond before providing a word)

2. Please list all siblings below and answer the questions for each:

Sibling	Age (years and months)	Sex (M/F)	How often does each sibling use strategies like the one you mentioned above?					Who taught the sibling to use these strategies or activities?			
			Never	1 - 2 times a week	3 - 5 times a week	6 – 7 times a week	More than one time daily	Me	*Early On* Provider	They figured it out on their own	Other Please describe (Grandparent, teacher, friend)
1											
2											
3											
4											
5											
6											
7											

Please answer the below questions:

Early Intervention Parenting Self-Efficacy Scale (EIPSES) Items

---

1. **If my child is having problems, I would be able to think of some ways to help my child.**

strongly disagree	disagree	slightly disagree	neither	slightly agree	agree	strongly agree
○	○	○	○	○	○	○

2. **When my child shows improvement, it is because I am able to make a difference in my child's development.**

strongly disagree	disagree	slightly disagree	neither	slightly agree	agree	strongly agree
○	○	○	○	○	○	○

3. **When it comes right down to it, parents really can't do much because most of a child's development depends on their early interventionists.**

strongly disagree	disagree	slightly disagree	neither	slightly agree	agree	strongly agree
○	○	○	○	○	○	○

4. **If one of my child's early interventionists has difficulty with my child, I would be able to offer some suggestions.**

strongly disagree	disagree	slightly disagree	neither	slightly agree	agree	strongly agree
○	○	○	○	○	○	○

5. **Children will make the most progress if their early interventionists work with them rather than if the parents work with the children.**

strongly disagree	disagree	slightly disagree	neither	slightly agree	agree	strongly agree
○	○	○	○	○	○	○

6. **Even a good parent may not have much impact on whether children feel good about themselves.**

strongly disagree	disagree	slightly disagree	neither	slightly agree	agree	strongly agree
○	○	○	○	○	○	○

7. **I feel that I can work well with my child's early interventionist as part of my child's team.**

strongly disagree	disagree	slightly disagree	neither	slightly agree	agree	strongly agree
○	○	○	○	○	○	○

8. **Because there is so little help from the community, I am often sad or angry about how few services I can find for my child and the rest of my family.**

strongly disagree	disagree	slightly disagree	neither	slightly agree	agree	strongly agree
○	○	○	○	○	○	○

9. **If my child learns something quickly, it would probably be because I know how to help my child learn new things.**

strongly disagree   disagree   slightly disagree   neither   slightly agree   agree   strongly agree
○   ○   ○   ○   ○   ○   ○

10. **The amount that a young child will learn is mostly due to family background, the neighborhood, and the early interventionist rather than their parents.**

strongly disagree   disagree   slightly disagree   neither   slightly agree   agree   strongly agree
○   ○   ○   ○   ○   ○   ○

11. **On most days I can handle most of the ups and downs of being a parent.**

strongly disagree   disagree   slightly disagree   neither   slightly agree   agree   strongly agree
○   ○   ○   ○   ○   ○   ○

12. **I worry that I am not a good enough parent due to outside demands placed upon my time and energy.**

strongly disagree   disagree   slightly disagree   neither   slightly agree   agree   strongly agree
○   ○   ○   ○   ○   ○   ○

13. **When my child is ill, I feel that there is nothing I can do to help my child or other members of my family.**

strongly disagree   disagree   slightly disagree   neither   slightly agree   agree   strongly agree
○   ○   ○   ○   ○   ○   ○

14. **Over the past year, I can see the progress that I have made in becoming a better parent.**

strongly disagree   disagree   slightly disagree   neither   slightly agree   agree   strongly agree
○   ○   ○   ○   ○   ○   ○

15. **No matter how hard I try, it seems that I just cannot find a way to get the services that my child and my family needs.**

strongly disagree   disagree   slightly disagree   neither   slightly agree   agree   strongly agree
○   ○   ○   ○   ○   ○   ○

16. **The traits that a child has before he or she is born are more important than anything that the child's parents can do for the child.**

strongly disagree   disagree   slightly disagree   neither   slightly agree   agree   strongly agree
○   ○   ○   ○   ○   ○   ○

Appendix B

Pilot Feedback

You have been selected to participate in the pilot for the study**:** *Factors that Impact Sibling Involvement in Early Childhood Intervention*. You are receiving the actual cover letter and survey that will be provided to *Early On* families. I would like to thank you in advance for your time and ask that you mail the completed surveys, and feedback sheets in the provided self addressed envelopes, by **10/28/2011**. If you have any questions please contact the principal investigator**,** Julie Rutland by email julie.rutland@uky.edu or phone 859-xxx-xxxx.

Select check your role in *Early On*. Please select all that apply:

___Parent of a child currently in Early On

___Parent of a child who previously participated in Early On

___Service Coordinator

___Teacher

___Training and TA

___Other:_____
                                    (please specify)

How long did it take you to complete the survey?_____

I would like to know your thoughts on the cover letter and survey. As you are reading the letter and survey consider the following: organization, clarity, easy/difficult to read or understand, terminology, etc. Just let me know what does or does not "work". Please feel free to write below or directly on the survey.

_____

_____

_____

_____

_____

_____

Appendix C

Service Coordinator Invitation

Current Study:

Factors that Impact Sibling Involvement in Early Childhood Intervention

Objectives of the study are to:

a. Identify specific characteristics of the siblings or children with disabilities that impact the level of sibling intervention.
b. Identify certain family characteristics that impact the level of sibling involvement in early intervention.
c. Determine relationships between the level of sibling involvement in early intervention and family self-efficacy.

How can you help??

We need SCs from Early On to provide surveys to 10 families on their caseloads. Families must be English speaking, and their child receiving services from Early On must have at least one sibling. You can help by responding to the principal investigator with your intent to participate. The principal investigator will select 15 SCs from those that respond with an intent to participate.

What will be expected??

- SCs will take an online module about human subjects, and their rights in a research study.
- Each SC will select **10 families** that meet the criteria.
- SCs will provide families with a survey (approximately 15 min) on a **regularly scheduled** visit.
- SCs will mail completed surveys to the principal investigator in an addressed, postage paid envelope.

Respond with intent to participate to julie.rutland@uky.edu **and leave the following information:**

- Name
- Intermediate School District/Service Area
- Email (if different from the address you are responding from)
- Address (where you would like to receive survey packet)
- Contact phone number (although most likely not necessary, but will provide an alternate method of communication

Appendix D

Service Coordinator Letter

Dear Service Coordinators,

Thank you for participating in my study on sibling involvement in early intervention. I am very excited to be working with early intervention teams in your state and hope to provide you with some valuable information. Below is an outline of the procedures for my study:

1. Human subjects training – the Office of Research Integrity at UK deems this as mandatory for all personnel in my study. The University of Kentucky has a website with the training in modules. You may take it all at once or break it into smaller sessions. Directions are below on page 2. Please let me know when you have completed the training (**12/12/11** is the anticipated date of completion) by emailing me at julie.rutland@uky.edu

2. I am mailing you 10 surveys to give to families. **Once you have completed the Human subjects training,** you may begin distributing the survey when on a typical visit. Instructions will be included in your packet and the estimated time needed to complete the survey is 15 minutes. The families must have a child receiving services from Early On and also have a sibling. Ask the families complete the survey while you are visiting and place in an envelope. Ask the families to place a mark over the seal to ensure confidentiality.

3. When all of your surveys are complete you will have a self addressed envelope to return the surveys. Please mark each envelope with your region: Urban, Metro, Medium City, Small City, and Rural

4. I will collect the data and provide each of you with findings from the study.

Again, Thank you!!! If you have questions that need answering immediately please call my cell phone at ###-###-####.

Julie Harp Rutland

CITI Instructions:

Type the following web address into your browser: http://www.citiprogram.org/

Click on "**New Users Register Here**" link – you will then be prompted to
1. Choose your institution- Under "**Participating institutions**," scroll through the drop-down box for **"University of Kentucky";** then skip down to number 2
2. Select your Username and Password;
3. Enter your name: and
4. Enter your email address.
5. In section 6 select "No"
6. Complete section 7 and hit submit
7. You will be directed to a page for member information. Only fill out the items with an asterisk. For **Department** you may put "EDSRC", and for **role** select "Recruiter"
8. This will direct you to select curriculum. Choose **"IRB"**
9. Select **"Initial Human Subject Protection"** then hit **next**
10. Select **"Group 2"** then hit **"next"**
11. Select "**No**" on the additional institution

You will now be directed to the Main Menu and will see your courses listed under:
 MY Courses:
Group 2 Social/Behavioral Investigators and Key Personnel, Basic Course

12. Click **Enter** under the status column.

You will be directed to your required modules. There are several modules but it should only take approximately 60 minutes. There are only a few questions in each module and you may re-take the test until you get the appropriate percentage. Some modules DO NOT have tests at the end.

Appendix E

Survey Cover Letter

To *Early On* Families:

The purpose of this study is to collect information about how family characteristics impact early intervention. At this time we have a limited amount of information on the topic. This study is specifically looking at early intervention in the state of Michigan. You have been selected because, as a family that is receiving early intervention through *Early On*, you have the most valuable information.

Although you will not get personal benefit from taking part in this research study, your responses may help us understand more about families receiving early intervention and how we might be able to improve practices to support families and their children. We hope to receive completed questionnaires from about 150 people, so your answers are important to us.

Of course, you have a choice about whether or not to complete the survey. This survey is completely voluntary and will not effect your participation in *Early On*. You have the right to elect to not take the survey, stop completing the survey, or skip questions if at any time you do not feel comfortable responding. The Service Coordinator providing the survey has been trained on the importance of confidentiality and will provide you with an envelope to place your survey. Please seal the envelope and place a mark across the seal to ensure the envelope has not been opened by anyone other than the researcher. Your response to the survey will be kept confidential. No names will appear or be used on research documents, or be used in presentations or publications. The research team will not know that any information you provided came from you, nor even whether you participated in the study. Data collected in this study will be presented as a group so that no one family can be identified.

The survey will take about 15 minutes to complete.

This study is being conducted by a doctoral student as a dissertation research project under the supervision of Dr. Lee Ann Jung. If you have questions about the study or would like to see the results, please feel free to ask; my contact information is given below. If you have complaints, suggestions, or questions about your rights as a research volunteer, contact the staff in the University of Kentucky Office of Research Integrity at 859-257-9428 or toll-free at 1-866-400-9428.

Thank you in advance for your help with this important research.

Sincerely,

Julie Harp Rutland
Special Education and Rehabilitation Counseling
College of Education, University of Kentucky
PHONE: 859-xxx-xxxx
E-MAIL: julie.rutland@uky.edu

References

Aguilar, B., O'Brien, K. M., August, G. J., Aoun, S. L., & Hecktner, J.M. (2001). Relationship quality of aggressive children and their sibling: A multiinformant, multimeasure investigation. *Journal of Abnormal Child Psychology, 29*, 479-489.

Archer, T. M (2008). Response rates to expect from web-based surveys and what to do about it. *Journal of Extension, 46*(3). Retrieved December 1, 2009 from: http://www.joe.org/joe/2008june/rb3.php

Astington, J. W., & Jenkins, J. M. (1995). Theory of mind and social understanding. *Cognition and Emotion, 9*, 151-165.

Atkins-Burnett, S., & Allen-Meares, P. (2000). Infants and toddlers with disabilities: Relationship-based approaches. *Social Work, 45*(4), 371-379.

Azmitia, M., & Hesser, J. (1993). Why siblings are important agents of cognitive development: A comparison of siblings and peers. *Child Development, 82*, 813-819.

Baird, S., & Peterson, J. (1997). Seeking a comfortable fit between family-centered philosophy and infant-parent interaction in early intervention: Time for a paradigm shift? *Topics in Early Childhood Special Education, 17*(2), 139-165.

Baker, M. J. (2000). Incorporating the thematic ritualistic behaviors of children with autism into games: Increasing social play interactions with siblings. *Journal of Positive Behavior Interventions, 2*, 66–84.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*, 191-215.

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.

Boomsma, D. I. (2005). Sibling interaction effects. In B. S. Everitt & D. C. Howell (Eds.) Encyclopedia of Statistics in Behavioral Science. Chichester, UK: John Wiley & Sons.

Brody, G. H. (1998). Sibling relationship quality: Its causes and consequences. *Annual Review of Psychology, 49,* 1-24.

Bronfenbrenner, U. (1979). *The ecology of human development*, Cambridge, MA: Harvard University Press.

Bruder, M. B. (2004). *The national landscape of early intervention in personnel preparation standards under Part C of the Individuals with Disabilities Education Act (IDEA).* (December, 2004). A. J. Pappanikou Center for Excellence in Developmental disabilities, Farmington, CT. Retrieved from http://www.uconnucedd.org/projects/per_prep/per_prep_resources.html

Bruder, M. B. (2010). Coordinating services with families. In R.A. McWilliam (Ed). Working with Families of Young Children with Special Needs. New York, NY: The Guilford Press.

Bruder, M. B., & Dunst, C. J. (December1999/January 2000). Expanding Learning opportunities for infants and toddlers in natural environments: A chance to reconceptualize early intervention. *Zero to Three*, *20*, (3), 34-36.

Bruder, M. B., & Dunst, C. J. (2005). Personnel preparation in recommended early intervention practices: Degree of emphasis across disciplines. *Topics in Early Childhood Special Education, 25*(1), 25-33.

Celiberti, D. A., & Harris, S. L. (1993). Behavioral intervention for siblings of children

  with autism: A focus on skills to enhance play. *Behavior Therapy, 24*, 573-599.

Cripe, J. W., & Venn, M. L. (1997). Family guided routines for early intervention

  services. *Young Exceptional Children, 1*, 18-26.

Downey, D. B., & Condron, D. J. (2004). Playing well with others in kindergarten: The

  benefit of siblings at home. *Journal of Marriage and Family*, *66*(2), 333-350.

  Retrieved from EBSCO*host*.

Dunn, J., & Kendrick, C. (1981). Interaction between young siblings: Association with

  the interaction between mother and firstborn child. *Developmental Psychology*,

  17(3), 336-343. doi:10.1037/0012-1649.17.3.336

Dunn, J. (1983). Sibling relationships in early childhood. *Child Development*, *54*(4), 787-

  811. doi:10.1111/1467-8624.ep12432753

Dunst, C.J. (1985). Rethinking early intervention. *Analysis and intervention in*

  developmental disabilities, 5, 165-201.

Dunst, C. J. (1999). Placing parent education in conceptual and empirical context. *Topics*

  in Early Childhood Special Education, 19, 141-147.

Dunst, C. J. (2000). Everyday children's learning opportunities: Characteristics and

  consequences. *Children's Learning Opportunities Report, 2*, (1).

  http://www.puckett.org

Dunst, C. J. (2002). Family-centered practices: Birth through high school. *Journal of*

  Special Education, 36, 139-147.

Dunst, C. J., Bruder, M. B., Trivette, C. M., & Hamby, D. W. (2006). Everyday activity

  settings, natural learning environments, and early intervention practices. *Journal*

  of Policy and Practice in Intellectual Disabilities, 3(1), 3-10.

Dunst, C. J., Bruder, M. B., Trivette, C. M., Raab, M., & McLean, M. (2001). Natural

    learning opportunities for infants, toddlers, and preschoolers. *Young Exceptional*

    Children, 4(3), 18-25.

Dunst, C. J., Johanson, C., Trivette, C. M., & Hamby, D. W. (1991). Family-oriented

    early intervention policies and practices: Family centered or not? *Exceptional*

    Children, 58, 115-126.

Dunst, C. J., Trivette, C., & Deal, A. (1988). Enabling and empowering families:

    Principles and guidelines for practice. Cambridge, MA: Brookline Books

Dunst, C. J., Trivette, C. M., & Hamby, D. W. (2007). Meta-analysis of family-centered

    helpgiving practices research. *Mental Retardation and Developmental*

    Disabilities Research Reviews, *13*(4), 370-378. Retrieved from EBSCO*host*.

Early Intervention Program for Infants and Toddlers with Disabilities, 34 C.F.R. 303

    (2002).

Farlex. (2012). In The Free Dictionary. Retrieved from

    http://www.thefreedictionary.com/parent

Fry, P. S. (1992). Fostering children's cognitive competence through mediated learning

    experiences: Frontiers and futures. Springfield, IL: Thomas, C.C.

Guimond, A. B., Wilcox, M. J., & Lamorey, S. G. (2008). The early intervention

    parenting self-efficacy scale (EIPSES): Scale construction and initial

    psychometric evidence. *Journal of Early Intervention, 30*(4), 295-320. doi:

    10.1177/1053815108320814

Hancock, T. B., & Kaiser, A. P. (1996). Siblings' use of milieu teaching at home. *Topics*

    in Early Childhood Special Education, 16(2), 168-191.

Hanft, B. E., & Pilkington, P. E. (2000). Therapy in natural environments: The means or

    end goal for early intervention? *Infants and Young Children, 12*(4), 1-13.

Howe, N., Brody, M., & Recchia, H. (2006). Effects of task difficulty on sibling teaching

    in middle childhood. *Infant & Child Development*, 15(5), 455-470.

    doi:10.1002/icd.470

Hughes, C., & Dunn, J. (1998). Understanding mind and emotion understanding:

    Longitudinal associations with mental state talk between young friends.

    Developmental Psychology, 34, 5, 1026-1037.

Jung, L. A. (2003). More is Better: Maximizing natural learning opportunities. *Young*

    Exceptional Children, 6,(3), 21-26.

Jung, L. A., McCormick, K., & Jolivette, K. (2004). Early intervention in rural natural

    environments: Making the most of your time. *Rural Special Education*

    Quarterly, 23(3), 30-35.

Klein, P. S., Zarur, S., & Feldman, R. (2003). Mediational behaviors of preschoolers

    teaching their younger siblings. *Infant and Child Development, 12*, 233-242.

Klein, P. S., Feldman, R., & Zarur, S. (2002). Mediation in a sibling context: The

    relations of older siblings' mediating behavior and younger siblings' task

    performance. *Infant and Child Development, 11*, 321-333.

Knowles, M. S. (1984). Androgogy in action: Applying modern principles of adult

    learning. San Francisco, CA: Jossey-Bass Publishers.

Kontos, S., & Diamond, K. (2002). Measuring the quality of early intervention services

    for infants and toddlers: problems and prospects. *International Journal*

    Disability, Development and Education, 49 (4), 337-351.

Kresak, K., Gallagher, P., & Rhodes, C. (2009). Siblings of infants and toddlers with disabilities in early intervention. *Topics in Early Childhood Special Education*, *29*(3), 143-154. Retrieved from EBSCO*host*.

Lam, Y. L. (1992). Family backgrounds and experience, personality development and school performance: A Causal analysis of grade one Chinese children. *Education, 113* (1), 133-145.

Lamb, M. E. (1978). Interactions between eighteen-month-olds and their preschool-aged siblings. *Child Development*, *49*(1), 51-59. doi:10.1111/1467-8624.ep10400983

Lobato, D., & Tlaker, A. (1985). Sibling intervention with a retarded child. *Education & Treatment of Children, 8,* 221–228.

Maslow, A. H. (1954). Motivation and Personality. New York, NY: Harper & Row.

Maynard, A. E. (2002). Cultural teaching: The development of teaching skills in Maya sibling interactions. *Child Development, 73*, 969-982.

McBride, S. L., Brotherson, M. J., Joanning, H., Whiddon, D., & Demmitt, A. (1993). Implementation of family-centered services: Perceptions of families and professionals. *Journal of Early Intervention*, *17*(4), 414-30. Retrieved from EBSCO*host*.

McWilliam, R. (1995). Integration of therapy and consultative special education: A continuum in early intervention. *Infants and Young Children, 7*(4), 29-38.

McWilliam, R. A. (2000). It's only natural…to have early intervention in the environments where it's needed. In S. Sandall & M. Ostrosky (Eds.), *Young Exceptional Children Monograph Series no. 2: Natural Environments and Inclusion* (pp. 17-26). Longmont, CO: Sopris West.

McWilliam, R. A., & Scott, S. (2001). A support approach to early intervention: A three-part framework. *Infants and Young Children, 13*(4), 55-66.

McWilliam, R. A., Young, H. J., & Harville, K. (1996). Therapy services in early intervention: Current status, barriers, and recommendations. *Topics in Early Childhood Special Education, 16*, 348-374.

Michigan Department of Education (MDE; 2011). *Data portrait: Early on state-ISD summary for December 2011*. Report of the Michigan Compliance Information System. Printed on 2/14/2012.

Michigan Department of Education (MDE; 2012). Early On. Retrieved from http://1800earlyon.org/index.php

National Early Childhood Technical Assistance Center (NECTAC; 2006). Notes no.21 July [On-Line]. Available: http://www.nectac.org/partc/partc.asp#overview

Rule, S., Losardo, A., Dinnebeil, L., Kaiser, A., & Rowland, C. (1998). Translating research on naturalistic instruction into practice. *Journal of Early Intervention, 21*, 283-293.

Rutland, J. H., & Jung, L. A. (2008). *Service coordinators' use of routines to develop early intervention outcomes: A study of Kentucky's IFSPs*. Poster presented at the Conference on Research Innovations in Early Intervention, San Diego, CA.

Sandall, S., Hemmeter, M. L., Smith, B. J., & McLean, M. E. (2005). *DEC recommended practices: A comprehensive guide*. Longmont, CO: Sopris West.

Schreibman, L., O'Neill, R. E., & Koegel, R. L. (1983). Behavioral training for sibling of autistic children. *Journal of Applied Behavior Analysis, 16,* 129–138.

Schunk, D. H. (1984). Self-efficacy perspective on achievement behavior. Educational Psychologist, 19, 48-58.

Schwartz, I. S., & Rodriguez, P. B. (2001). A few issues to consider: The who, what, and

    where of family support. *Journal of Early Intervention, 2*, 19-21.

Shelden, M. L., & Rush, D. D. (2001). The ten myths about providing early intervention

    services in natural environments. *Infants and Young Children, 14*(1), 1-13.

Strain, P. S., & Danko, C. D. (1995). Caregivers' encouragement of positive interaction

    between preschoolers with autism and their siblings. *Journal of Emotional and*

    Behavioral Disorders, 3, 2–13.

Strauss, S., & Ziv, M. (2004). Teaching: Ontogenesis, culture, and education. *Cognitive*

    Development, 19, 451-456.

Swenson-Pierce, A., Kohl, F. L., & Egel, A. L. (1987). Siblings as home trainers: A

    strategy for teaching domestic skills to children. *The Journal of the Association*

    for Persons with Severe Handicaps, 12, 53–60.

Tekin, E., & Kircaali-Iftar, G. (2002). Comparison of the effectiveness of efficiency of

    response prompting procedures delivered by sibling tutors. *Education and*

    Training in Mental Retardation and Developmental Disabilities, 37, 283-299.

Vygotsky, L. (1978). *Mind in society: The development of higher psychological*

    functions. Cambridge, MA: Harvard University Press.

Widmer, E. D., & Weiss, C. C. (2000). Do older siblings make a difference? The effects

    of older sibling support and older sibling adjustment on the adjustment of

    socially disadvantaged adolescents. *Journal of Research on Adolescence, 10*, 1-

    27.

Wing, C., Kohnert, K., Pham, G., Cordero, K. N., Ebert, K. D., Kan, P. F., & Blaiser, K.

    (2007). Culturally consistent treatment for late talkers. *Communication*

    Disorders Quarterly, 29(1), 20 – 27.

Vita

Julie Harp Rutland

Date of Birth: September, 30, 1968
Place of Birth: Fort Thomas, Kentucky

Education:

B. A. Psychology (1990)
    University of Kentucky, College of Arts and Science

M. S. in Special Education (2007)
    University of Kentucky, College of Education

Professional Experience:

- Instructor, Morehead State University, August, 2010 - present

- Grant Project Personnel, January 2010 – June, 2010

- Instructor, University of Kentucky, August 2009 - Spring 2010

- Adjunct Instructor, Morehead State University, August, 2008 – December, 2009

- Grant staff for Project Increasing the Number Competence and Resources of Early Interventionists in Areas of Shortage (INCREAS), 2006-2009

- Instructor, University of Kentucky, Spring 2008

- Graduate teaching assistant, University of Kentucky, College of Special Education and Rehabilitative Counseling, 2006-2008

- Grant project coordinator for Enhancing the Quality of Inclusion in Preschool (EQuIP), 2005-2008

- Developmental Interventionist, First Steps of Kentucky, 2004-2005

- Director of Central Baptist Hospital's Child Development Center, 1995-2004

- Early care and education teacher, 1990-1995

-

Professional Publications:

Hall, A., **Rutland, J.H.** & Grisham-Brown, J. (2010) Involving Families in Assessment. In J. Grisham-Brown & K. Pretti-Frontczak (Eds.). *Blended Assessment Practices in Early Childhood Assessment*. Baltimore: Brookes.