THE NEED FOR SPECIAL EDUCATION IN KINDERGARTEN FOR CHILDREN WITH
DEVELOPMENTAL DELAYS OF UNKNOWN ETIOLOGY:
AN ANALYSIS OF THE INDIVIDUALS WITH DISABILITIES EDUCATION ACT
(IDEA) PART C AND PART B PRESCHOOL PROGRAMS

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by
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dissertation entitled

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and hereby certify that, in their opinion, it is worthy of acceptance.

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DEDICATION

To all children in special education preschool programs; they are the reason we must continue to strive for effective, quality practices that promote school readiness.

To my best friend, Dale, for his patience and support throughout this journey; his endless encouragement gave me the strength to chase my dreams. I am truly blessed that he is part of my life and my husband.

And finally, to my sons who have become talented, young men while I was climbing the dissertation mountain. Being their mom has been on the back burner too many times over the past few years, but I promise I won't say "I'm sorry I can't, I have to work on my paper" ever again!

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ABSTRACT

The current study examined the relationship between the amount and type of services delivered to children in the Individuals with Disabilities Education Act (IDEA) Part C program, the number of years and placement for services in IDEA Part B preschool programs and children's readiness to enter kindergarten without special education services. The primary purpose of the study was to provide information to the state department responsible for the rules governing special education programs in Missouri.

This study included 3,401 children with developmental delays of unknown etiology who entered Missouri Part C between 2007 and 2009. The data collected included children's age, gender, race, poverty level, access to Medicaid and private insurance, amount of Part C services, years enrolled in Part B preschool and time spent in the regular classroom. In addition to descriptive statistics, logistic regression analysis was used to examine the relationships between Part C services, participation in Part B preschool and placement in special education in kindergarten for young children with developmental delays of unknown etiology.

Results revealed that the amount of Part C services, years in Part B preschool, and time spent in the regular classroom were significantly associated with children's readiness to enter kindergarten without special education. Given the sample utilized for the current study, the findings may not be able to be generalized to all children in IDEA Part C, specifically children with mild to moderate developmental delays or children with specific disabilities. Results provide implications for policies guiding early childhood programs that serve young children with developmental delays of unknown etiology.

CHAPTER ONE: INTRODUCTION TO THE STUDY

Background

Educators around the nation are seeking strategies to raise students' achievement given the increased attention on student outcomes in public schools. An aspect of student achievement gaining more attention is the types of early experiences that prepare children for entry into school, or school readiness. The focus on early childhood is evidenced by recent national policies that seek to promote school readiness for young children, including the National School Readiness Indicators Initiative and the Early Learning Challenge Fund Initiative.

Yet as many as 33% to 45% of children entering kindergarten in America are not ready for school for several reasons, including cognitive deficits, health problems, poverty, etc. (Carnegie Task Force as cited in Ramey & Ramey, 2004; Hair et al. as cited in Barnett, 2011). If children are to be ready to succeed in kindergarten, parents and educators cannot wait until kindergarten to promote the learning of young children. This is especially true for children identified with developmental delays at a young age. Although children who are identified with developmental delays at a young age are a critical aspect of school readiness, this population is not necessarily included in the school readiness literature. Therefore, the current study examined school readiness in infants and preschoolers who received special education because of a developmental delay identified before age three.

It is well known throughout the field of early childhood that children grow and learn quickly during the first few years of life, and this development is the foundation for later learning (Guralnick, 1997). For more than 40 years researchers have examined early

experiences using various child and family demographic information in order to determine which factors relate to later learning; however, research about children with developmental delays are lacking. The majority of prior research on early experiences has focused on the benefit of attending preschool for low-income children with cognitive delays through random assignment to preschool programs (Weikart, 1964), programs that emphasize both preschool and home visits (Lee et al., 1988) and the impact of multiple preschool and home visitation experiences (Pfannenstiel, Seitz & Zigler, 2002). While there is a wealth of literature and research projects about children with certain deficits, studies specific to children with developmental delays are limited.

More recently researchers have attempted to investigate early experiences for children with developmental delays; however, most studies that reported experiences of young children did not limit the focus to children with developmental delays where the reason for delay was unknown (Carlson et al., 2008; Hebbeler, Spiker & Kahn, 2007). The current study aimed to close the gap in research by examining the experiences of children with identified developmental delays of unknown reasons.

Regardless of the type of early experiences, the aforementioned authors agreed that examining early childhood programs is challenging. Learning and development in early childhood is not a linear process that can be easily predicted; it is complicated by the involvement of multiple influences and there is much variation among what is considered to be normal for a child's development (First & Palfrey, 1994). Whether from the perspective that fixed biological attributes (i.e., nature) primarily contribute to how children learn or the perspective that environmental aspects primarily impact child development (i.e., nature), there is general agreement for the argument that it is a

combination of factors instilled in individual differences that ultimately impacts children's abilities to learn and grow (Sameroff, 2010; Shonkoff, 2010).

Further, in the event a child experiences a developmental delay at an early age, the complexity of studying early childhood increases. While there is no standard for what constitutes a developmental delay, there is some agreement on what constitutes the definition of a developmental delay. Rosenberg et al. (2013) indicated a developmental delay is any significant lag in a child's development as compared with typical child progress and Landsman (2003) described the determination of a developmental delay as a comparison of each child to a norm. However Landsman described delay as a measurement using a standard model of maturation that assumes child development is linear and predictable. But child development is not linear and predictable, it is complex and involves multiple factors (Clifford, Barbarin, Chang, Early, & Bryant, 2005; Guralnick, 2011; Shonkoff, 2010).

Landsman (2003) went on to explain that in general, children with developmental delays do not grow and learn on the same standard model of maturation as children without developmental delays. To add to the complexity of developmental delay, the reasons for having a developmental delay range from organic/biological to environmental (First & Palfrey, 1994; Keogh, Garnier, Bernheimer, & Gallimore, 2000) to individual differences or a combination of one or more reasons (Keogh et al., 2000). The authors explained if the reason for delay is unknown or unspecified, the term "unknown etiology" (p. 32) is used to describe the reason for developmental delay. Children may first present with a developmental delay of unknown etiology but later identify a known condition contributing to the delay (Carlson et al., 2008). For the purpose of the current study, the

researcher excluded any child who entered Part C with a known condition contributing to their developmental delay; however, any child who was later diagnosed with a known condition was kept in the sample but coded as having a known condition prior to analysis.

For some children with developmental delays, they do not merely “catch up” (Keogh et al., 2000, p.32) on their own and they need extra supports and services to help remediate their developmental delays (Ramey & Ramey, 1998). To assist with the provision of such services, federal law provides an opportunity for states to receive federal funding, through the Individuals with Disabilities Education Act or IDEA (U.S. Department of Education, A 25 year history, n.d.). The purpose of IDEA is to remediate developmental delays and reduce the need for future placement in special education (Guralnick, 1997; Sullivan & Field, 2013). Two programs specifically designed to serve young children with developmental delays under IDEA are Part C and Part B (Building the Legacy, n.d.). IDEA Part C serves children birth through age two and IDEA Part B serves children three to age 21 (Building the legacy, n.d.). The section of IDEA Part B that serves preschool children age three to five is section 619 (Section 619, n.d.). See Appendix A for Missouri’s key features of both programs.

Part of the challenge in examining IDEA programs is the variation between states’ policies, specifically a state’s discretion to establish eligibility criteria for each program (Shackelford, 2006), and the local level practices, specifically the professionals’ discretion to determine the amount and type of services appropriate for each child (Hallam et al., 2009). Given the levels of decision-making in IDEA, it is difficult to make a national statement about the relationship between participation in an IDEA program and school readiness. However, examining an IDEA program within a single state would

alleviate the challenge of differences between state policies. Thus, the current study examined data from IDEA programs in a single state, Missouri. Though the challenge still remained with individualized services for children in IDEA, the current study took local decision-making into consideration by including the amount and type of Part C services as one of the predictor variables.

Given the aforementioned challenges, there were limited studies that examine the long-term outcome of participation in an IDEA Part C program. In studies involving Part C, researchers often concentrate on a particular disability such as autism, Down syndrome, or focus on a combination of disabilities. The researcher found few studies that focus solely on children in Part C with developmental delays of unknown etiology (Jeon et al., 2011; Keogh et al., 2000). For children in IDEA Part C, common variables related to outcomes include the child's age when a developmental problem is identified and when intervention begins (Scarborough et al., 2004). In order to build upon prior research, the current study combined variables examined in previous studies about the importance of school readiness for children who participated in preschool programs (Lee et al., 1988; Pfannenstiel et al., 2002; Weikart, 1964) with studies about children who participated in IDEA Part C programs (Carlson et al., 2008; Hallam et al., 2009; Hebbeler et al., 2007; Perry, Greer, Goldhammer, & Mackey-Andrews, 2001) and children who attend Part B preschool programs (Phillips & Meloy, 2012; Sullivan & Field, 2013).

By combining the two aspects of school readiness for children participating in preschool programs and participation in IDEA programs, the current study aimed to examine the relationship between school readiness and participation in an IDEA program for children with developmental delays. In saying this, the researcher recognized that,

generally, school readiness does not incorporate young children identified with developmental delays. However, if after first receiving special education services before kindergarten a child no longer needs special education in kindergarten, the child was ready to go to kindergarten without additional services and supports. Thus the current study focused on special education placement in kindergarten for children with developmental delays as a critical aspect of school readiness if *all* children are to be ready to enter school.

Considering experiences in a typical preschool program and a Part B preschool program was an important aspect of the current study due to the differences in the focus of each program. Whereas a Part B preschool program emphasizes the developmental skills necessary to remediate delays, a typical preschool program emphasizes socialization and activities to prepare children for school (Sullivan & Field, 2013). There is evidence that children in Part B preschool who spend time in a regular education program (i.e., regular classroom) are better prepared for kindergarten (Phillips & Meloy, 2012; Sullivan & Field, 2013), yet these same sources cite only approximately one-third of the nation's children in Part B preschool receive their special education services in a regular classroom. Therefore, the researcher determined it was important to consider the influence of time spent in a regular classroom on school readiness for children with developmental delays.

When preparing to examine school readiness in young children, an established set of readiness factors is necessary. Unfortunately, there is no agreed-upon definition for school readiness but, in general, school readiness can be defined as a set of competencies a child must have when entering school, in order to be successful later in school (Snow,

2006). It is important to acknowledge that school readiness looks different in infants and toddlers than it does in older children. School readiness for infants and toddlers is more than just learning facts and rote responses; school readiness is how infants or toddlers understand their world and how they use their skills and abilities to interact with others and learn within their daily environments (Parlakian, 2003). The extent of a young child's learning is based on “. . . early experiences with books, story-telling and conversation” (National School Readiness Indicators, 2005, p. 66). Most importantly, infants and toddlers grow and learn in the context of relationships and through the inter-related work of all developmental domains (Parlakian, 2003), rather than learning a single skill or ability in isolation. This intertwining of development in infants and toddlers makes it difficult to examine skills with consistent measures for children with typical development, let alone trying to study skills for children with atypical development or delays. This difficulty may be the reason few studies have examined IDEA programs that serve young children with developmental delays.

Recently there has been growing support for including IDEA programs in school readiness initiatives in order to study school readiness from the perspective of children in special education, thus creating a connection between special education and school readiness. Participating in an IDEA program was an emerging indicator of school readiness in a recent initiative known as the National School Readiness Indicators Initiative: Making Progress for Young Children (National School Readiness Indicators, 2005). According to this report, children in special education were less likely to be ready for kindergarten than children with no learning problems; however, if children in special education could obtain appropriate interventions then they were more likely to be ready

for kindergarten. Specifically recognized in this initiative was the IDEA Part C program because of the need to identify learning and developmental problems before age three, which is the purpose of IDEA Part C, in order to provide timely interventions to young children with identified delays or deficits.

In order to determine if children are ready for school, the national initiative identified the need for an established set of school readiness indicators. Representatives from early childhood programs in 17 states were invited to develop policies for and indicators of school readiness. Missouri was one of the 17 states involved in the initiative. States identified core factors involved in school readiness through selecting an early childhood aspect as: (a) a high priority, (b) an aspect to alter in state policies and (c) measureable using state or local databases (National School Readiness Indicators, 2005). This initiative developed a set of factors for children birth through age eight. The national initiative resulted in the following core aspects of school readiness: child factors, family factors, community factors, available services and the school environment.

The goal of the national initiative was for all states to use the indicators to inform policy and track children's progress (National School Readiness Indicators, 2005). Since participating in the national initiative, Missouri stakeholders developed policies on school readiness and taken steps toward tracking children's progress for school readiness, including the creation of a uniform definition of school readiness. Additionally, a definition of school readiness was developed that aligned with national core indicators and currently is utilized throughout the state's early learning system. Missouri's definition of school readiness addresses factors related to children, families, schools and communities, including:

- “For children, school readiness means being prepared in key dimensions of early learning and development (social and emotional, language and literacy, cognitive, motor, health and physical well-being, and positive attitudes and behaviors toward learning).
- For families, it means an understanding of their children’s current level of development and how to encourage them, as well as a supportive partnership with the school and an understanding of the school system their children will enter.
- For schools, it means providing a welcoming and accepting environment for all children and having professional educators who consistently advance student growth and achievement while working in partnership with families.
- For communities, it means supporting schools, families and valuing the critical role of early learning.” (Missouri Department of Elementary and Secondary Education, Missouri school readiness definition, n.d.)

For the purpose of the current study, the researcher utilized the child factors from Missouri’s definition of school readiness to examine school readiness for a group of children who participated in Missouri Part C and Part B preschool programs. Using a reference to developmental domains in both the definition for school readiness and the services delivered in Part C made it possible for the researcher to connect the developmental domains for school readiness and the eligibility reason/type of services delivered to children in Missouri Part C children. By connecting school readiness to children in Missouri IDEA, the researcher aimed to build on the emerging school readiness indicator for children in IDEA programs as described in the national initiative.

Additionally, through this connection, the researcher hoped to provide a new perspective on Missouri's definition of school readiness, which does not reference children with developmental delays.

Theoretical Framework

Years of inquiry into early childhood development and the research continues to emphasize the importance of early experiences in a child's life (Guralnick, 2011; Shonkoff, 2010). Guralnick and Shonkoff sought to understand the complexity of human development and to explain how multiple variables interact to influence learning, including biology, environment and natural learning opportunities. Sparked by the initial focus on biological aspects of learning, interest in early childhood has expanded from the core feature of brain development to environmental aspects of the family including poverty, community involvement, teacher qualifications and school settings, which have taken on a comparable if not larger role in child development in recent years (Shonkoff, 2010). Understanding early childhood means understanding a complex system of child, family and environmental variables. The complexity of these aspects of early childhood required a complex theory to help explain the interactions of numerous variables contributing to a child's development.

The conceptual underpinning for the current study was based on the transactional model of development (Campbell & Ramey, 1994; Sameroff, 2009; Sameroff & Mackenzie, 2003). The transactional model of development provided a lens to look at early childhood with a perspective that everything in the universe affects something else and is being affected by something else (Sameroff & Chandler, 1975 as cited in

Sameroff, 2010). Thus children grow and learn because there are interactions between them, their experiences and their environment.

Central to the transactional model was the notion of inter-related connections between children and their environments (Sameroff, 2010). Sameroff (2009) described how two children in two different situations may have the same experience, or two children in the same situation may have different experiences. This was an important concept for the current study because when examining concepts such as school readiness, there is a better chance of an accurate interpretation if the examination includes aspects of both children and environments, instead of just one aspect. Guralnick (1997) noted that child characteristics, most notably the severity of a child's disability, accounted for the majority of the variance in developmental outcomes. Therefore, the focus of the current study was child factors related to school readiness in children with delays in a particular developmental domain. To help control for variance due to biological conditions, to the extent possible, the researcher excluded children with known conditions that may have caused developmental delays and only examined records for children with developmental delays of unknown etiology. However, the researcher did not have access to children's specific levels of developmental delay because this data were not part of the statewide special education data collection system. Thus the child's level of delay was limited to the definition of eligibility for developmental delay according to Missouri Part C.

Another key aspect of the transactional theory of development, according to Sameroff (2010), comes from two developmental foundations: (1) developmental research, which seeks to find basic processes to explain the complexity of human life, and (2) developmental psychology, which seeks to explain human behavior as a product of

biology or experience (i.e., nature versus nurture). Advances in science and research on human development have resulted in years of debate over the importance of nature versus nurture in a child's development; however, Sameroff (2010) indicated the development of a child's abilities does not occur without *both* because nature and nurture are intertwined; nature changes nurture and nurture changes nature. In saying this, Sameroff recognized most differences in development are still unexplained and further research is necessary. The current study aimed to shed light on some of these unexplained differences by providing research on a population rarely examined, children identified with developmental delays before age three.

Statement of the Problem

The problem guiding the current study was two-fold: data are lacking on (1) what happens to children after participating in an IDEA program and (2) the factors related to school readiness for children with developmental delays. There are millions of dollars spent on IDEA programs across the nation and it is problematic when data are lacking on whether special education services help young children grow and develop. It is important to investigate whether young children who receive special education services before kindergarten can be ready for school and no longer need special education in kindergarten. Thus, an examination of school readiness for young children with developmental delays who participated in special education programs was necessary.

Using school readiness as the foundation, the current study tracked a group of children who participated in Missouri's IDEA Part C program and examined the children's age at the time of identification of a developmental delay, gender, race, poverty level, access to insurance, the amount and type of Part C services, the number of

years and placement for services in Part B preschool to seek evidence of children's readiness to enter kindergarten without special education services.

Relevant to the current study, there were three challenges to studying early experiences for young children with developmental delays: (1) a lack of agreed upon practices and policies, including school readiness; (2) inconsistencies between state policies; and (3) diverse families and children enrolled in the various programs.

First, the challenge surrounding early childhood was due in part to the multi-faceted and complex task of trying to find agreed upon practices between and amongst programs that have different rules, philosophies, and practices (Clifford et al., 2005). When examining early childhood, currently there is a lack of consensus on the factors to declare a child ready for school. While there is general agreement that school readiness involves child, family, school and community factors (National School Readiness Indicators, 2005), the focus of school readiness often defaults to factors related to the child (Ladd, Herald & Kockel, 2006; Snow, 2006). Consequently, the necessary skills a child must possess in order to predict readiness for school is often debated (Duncan et al., 2007; Ladd et al., 2006). On one side is the view that the child's acquisition of knowledge and skills, such as linguistic and cognitive competence, best prepare a child for school. On the other side is the view that emotional and behavioral competence best prepare a child for school (Duncan et al., 2007). Interestingly, individuals outside of the school setting (e.g., politicians) often recognize knowledge and skills as the important factor in school readiness, while individuals in a school setting (e.g., teachers and principals) often recognize the child's emotional and behavioral abilities, such as engagement, as the important factors to preparedness for school (Ladd et al., 2006).

Since children's development varies based on a multitude of factors such as home, health and heredity, making an assumption that all children are prepared for school in the same way is discouraged (Ladd et al., 2006). Additionally, it is important to note that the amount of variation increases for children in special education because, in addition to the aforementioned factors, test results had to indicate atypical development or educational deficits for children to receive special education (National School Readiness Indicators, 2005). Therefore, the emerging connection between special education and school readiness is even more critical as there continues to be a need to investigate the kind of support that can help children in special education be ready for school.

A second challenge was the inconsistency in early intervention policies and practices. Ramey and Ramey (1998) examined studies on the development of young children and found it challenging to analyze multiple programs because of differences in policies and programs designed to help young children with developmental delays. In order to minimize some of these challenges, the current study limited the investigation to a single state, Missouri. Understandably, there should be fewer variables to consider for a study in a single state; however, it was impossible to account for all possible variables given the complexity of an early childhood system of child, family and environmental variables as indicated by the transactional model (Shonkoff, 2010).

Even within a single state, programs are missing data to document whether children are in certain schools or facilities, the type of services or placements and the experiences that relate to school readiness (Clifford et al., 2005). Therefore, the current study not only focused on one state but also limited the focus in that state to two

programs serving children with developmental delays, Missouri Part C and Part B preschool, in order to examine the relationship between school readiness and participation in an IDEA program.

A third challenge when examining participation in early childhood programs, specifically special education programs, was the involvement of multiple child and family variables. Scarborough et al. (2004) indicated there is no single factor that predicts participation in or success from receiving services and no typical child or family receiving services from IDEA programs. Further, Jeon et al. (2011) indicated each child's disability is different and each developmental delay has variance in severity. This, in addition to the differences in individualization of the amount and type of service, makes it challenging to identify and track progress in children's development. In order to manage these challenges, the current study aimed to connect the type of service delivered to a child to the child's primary developmental domain that established eligibility for Part C.

While readiness for school can be measured in five separate developmental domains: cognitive, communication, motor, self-help, and social-emotional development, in reality, these categories are related to one another since growth and learning in one area interacts with growth and learning in another (National School Readiness Indicators, 2005; Sameroff, 2010). In order to minimize the challenge of teasing apart a set of intertwined developmental domains, for the current study the researcher identified the type of service delivered (e.g., speech therapy) and then mapped the amount of service that aligned with the child's primary developmental domain that established the child's eligibility for Part C (e.g., communication).

Challenges in studying early childhood programs are expected, yet the crux of the problem guiding the current study was the lack of data on what happens to children in IDEA programs even though there are millions of dollars spent every year on special education services for young children. Thus an examination of the experiences of young children in special education before kindergarten was necessary to determine if children continue to need special education services in kindergarten.

Purpose of the Study

Several studies have separately examined the importance of school readiness for children who participated in preschool programs (Lee et al., 1988; Pfannenstiel et al., 2002; Weikart, 1964) and for children who participated in IDEA Part C programs (Carlson et al., 2008; Hallam et al., 2009; Hebbeler et al., 2007; Perry, Greer, Goldhammer, & Mackey-Andrews, 2001) and IDEA Part B preschool programs (Phillips & Meloy, 2012; Sullivan & Field, 2013). By combining the aspects of school readiness and special education which were previously studied separately, it was the intent of the current study to close the gap in literature about children's readiness to enter kindergarten after participating in an IDEA program.

The current study intended to bring a new perspective to school readiness by examining school readiness for children in special education, specifically children with developmental delays of unknown etiology, to see what experiences influence the children's readiness to enter kindergarten without special education. Does the amount and type of Part C services influence school readiness? Does the number of years in Part B preschool influence school readiness? Does the time spent in a preschool regular classroom influence school readiness?

It was not the intent of the current study to determine the level of parent participation or qualifications of personnel delivering services to children with developmental delays. Furthermore, the current study was not intended to provide details on the specific type of special education service in Part B preschool programs. Instead, the purpose was to examine the amount and type of Part C services and the number of years and placement for services in Part B preschool in order to determine the influence on the child's readiness to enter kindergarten without the need for special education services.

The primary purpose of the current study was to provide quantitative data on the experiences of children with developmental delays to inform leadership at the state department responsible for special education rules in Missouri. The results of the current study intended to provide analyses of demographic and experiential information on children participating in IDEA Part C and Part B preschool, and whether children continued to need special education services in kindergarten.

While it is a challenge to investigate multiple variables involved in early experiences, it is necessary because there is funding specifically targeted for special education services to be delivered to young children and data are lacking on the outcome of receiving these services. It is also a worthwhile activity if policies and practices are to promote school readiness and success in the early years of a child's life. This is especially important for children who are already identified with a developmental delay at a young age and receive intervention before kindergarten. Smith (1988) identified three primary reasons for intervening early in a child's life: enhancing the child's development, supporting the family and maximizing the child/family's benefit to society. The current

study focused on enhancing the child's development before kindergarten entry as the reason for intervening early. Therefore, the researcher wanted to find information to help early childhood educators consider policies and procedures for children with developmental delays, including the influence of participation in Part C and Part B preschool programs. Results of the current study provided implications for policies and practices for early childhood programs that serve young children with developmental delays of unknown etiology.

Research Questions

The following research questions guided the current study:

1. To what extent does the amount and type of Part C services influence children's participation in Part B preschool and readiness to enter kindergarten?
2. To what extent do years in a Part B preschool program influence children's readiness to enter kindergarten?
3. To what extent does time spent in a preschool regular classroom influence children's readiness to enter kindergarten?

Assumptions and Limitations

The data for the current study were provided to the researcher by the state department responsible for the rules governing special education programs in Missouri, the Department of Elementary and Secondary Education. The state department maintains separate education databases, one for the Part C program and one for Part B preschool and kindergarten programs (M. Corey, personal communication, November 29, 2012). The first database accessed was the Part C records in order to identify the sample for the

current study. The key data collected from the Part C database were demographics and Part C services.

The second database was accessed to identify the children in the sample who also participated in Part B preschool and subsequently enrolled in kindergarten in a Missouri public school. The key data collected from the Part B preschool/kindergarten database were the number of years children attended Part B preschool and whether the children spent most of their time in a regular classroom or another placement outside of the regular classroom.

Assumptions

There were three assumptions for the current study. First, the researcher treated data in the current study as though they were organized at an individual level, meaning the data were separate and not dependent on one another (Field, 2009). Therefore, it was assumed there were no clustered or nested data and interactions of all the variables could be looked at individually.

Second, it was assumed that the data analyzed for the current study were accurate. To ensure this assumption was met, any record of information coded as data error or missing key demographic data were eliminated from the sample. Additionally, Part C and Part B preschool personnel were expected to follow the federal and state requirements for IDEA as detailed in Chapter Two, so decisions at the local level were assumed to be consistent for agencies and public schools across the state. Therefore, any missing data were assumed to be random occurrences resulting in no systematic missing data for any particular portion of the sample.

Third, it was assumed that children in the current study were identified with a developmental delay of unknown etiology for the delay because children with known conditions may have biological or other factors contributing to the developmental delay (Scarborough et al., 2004). To ensure this assumption was met, any Part C child record coded with a known condition was eliminated from the sample.

Limitations

Mertens (2005) indicated two major limitations to research designs used to conduct studies in educational settings: random assignment and cause-effect relationships. First, conducting a study using random assignment of children in order to manipulate the receipt of certain educational services is unethical. Instead, researchers have to study groups that are intact or already exist. Yet when studying intact groups, researchers are at the mercy of the data that were previously captured or recorded. For the current study, the children's experiences were limited to what could be collected for participation in Part C and Part B preschool programs, including public school enrollment data. If children attended other programs or received other services, the information was not collected in the two statewide databases utilized for the current study.

Second, when conducting studies with data that are not from randomized experiments, (i.e. observational studies) there is opportunity to examine the possibility of cause-effect relationships between variables but the results do not prove a cause-effect relationship actually exists (Mertens, 2005). Researchers use approaches such as correlational research to examine the relationships between variables that suggest a possibility of a causal relationship.

Threats to Internal Validity

Mertens describes the interaction between internal and external validity as “tension” (p. 126) because of the strain between the need for a sterile laboratory to establish perfect internal validity and the need for a true outside world to establish perfect external validity. According to Mertens (2005), internal validity is a change found in the outcome variable due to the influence of a predictor variable. For correlational studies, in order to assure the influence on the outcome is due to the predictor variable, all possible variables that could be key contributors must be considered. As stated in previous studies, there are many factors of biological and environmental aspects involved in child development, which has created a complexity for determining what matters most for school readiness (Clifford, Barbarin, Chang, Early, & Bryant, 2005; Shonkoff, 2010).

Of relevance to the current study, Mertens identified several variables that can threaten internal validity, including history and maturation. History refers to something that occurs during the time period a study was conducted (Mertens, 2005). While the researcher considered the history of the Missouri databases, described in Chapter Three, before selecting a time frame for the current study, the researcher was unable to control for all possible variables that may have occurred at the state or local level during the time period for the current study, including changes in policies or practices in Missouri’s special education programs.

Maturation refers to changes that occur in individuals during the time period for conducting a study (Mertens, 2005). Though children in the current study were of similar age, the researcher could not determine the children’s growth and learning throughout the years included in the current study for two reasons. One, children with developmental

delays do not grow and learn on the same standard model of maturation as children without developmental delays (Landsman, 2003) and the reasons for a developmental delay could be organic/biological or environmental factors (First & Palfrey, 1994) or a combination of reasons (Keogh et al., 2000). This makes the study of child development challenging.

Two, though Mertens indicated the influence of maturation should balance out across children, the current study lacked test scores or other methods to specify the child's functioning level at entry into Part C or entry into kindergarten. Thus the connection between Part C services, Part B preschool and children's readiness to enter kindergarten without special education may be biased by the actual severity of children's developmental delay even though there was unknown etiology for their delay.

Threats to External Validity

According to Mertens (2005), external validity is the ability to apply findings from one study to the setting and individuals in another study. If findings from one study are able to be observed in individuals from another study, then the results of the study are generalizable. If a study has generalizability, then the study is considered to have external validity. Given the differences in states policies and procedures, it would be difficult to generalize the results of the current study beyond the children determined eligible for Missouri's Part C and Part B preschools. Generalizing the results of the current study to make a national statement about IDEA programs would not be appropriate; however, another state with a similar population and eligibility criteria to that of Missouri's may be able to transfer the results, or what Mertens (2005) refers to as the reader's ability to subjectively generalize results from the current study to their own experiences.

Other Threats to Validity

In part, the sample selected for the current study was due to access to historical data that were readily available in naturally formed cohorts, what is often referred to as a sample of convenience (Creswell, 2009). However, the sample was also readily accessible because the researcher was employed by the state department responsible for the rules governing special education programs in Missouri. Since the researcher was involved in the implementation of the Missouri Part C program at the time the study was undertaken, there was a threat to validity due to researcher bias.

Definition of Key Terms

The following terms related to the current study were selected to be defined to provide consistency in the language utilized throughout the study:

Developmental Delay

Developmental delay means a significant lag in a child's development as compared with typical child progress (Rosenberg, Robinson, Shaw & Ellison, 2013). The researcher utilized Missouri's criteria for eligibility for developmental delay defined as a child who functioned at a half-age or greater delay compared to what was expected for a child of equal age, as measured by appropriate diagnostic measures and procedures emphasizing the use of professional judgment (Missouri Department of Elementary and Secondary Education, Missouri state plan Part C, n.d.). For the purpose of the current study, a child with a developmental delay was defined as a child with a half-age or greater delay in at least one developmental domain.

Developmental Domains

The field of early childhood frequently uses references to developmental domains in order to identify a child's learning and functioning. The researcher identified five developmental areas according to Part C requirements: adaptive, cognition, communication, physical (including vision and hearing), and social/emotional (Missouri Department of Elementary and Secondary Education, Missouri state plan Part C, n.d.). For the purpose of the current study, developmental domains were defined as these five areas: adaptive, cognition, communication, physical (including vision and hearing), and social/emotional.

Disadvantaged

Disadvantaged means children with low-income based on poverty guidelines. Each year the Department of Health and Human Services updates the poverty guidelines to reflect the household size and annual income that constitutes poverty (HHS poverty guidelines, n.d.). The guidelines are used by states to determine various program eligibility requirements, including Missouri's Part C program. Missouri utilizes the poverty guidelines to calculate a family's cost participation in Part C, using a 200% federal poverty guideline. See Appendix B for federal poverty guideline for the years included in the current study: 2007 to 2009. For the purpose of the current study, a child was determined to be disadvantaged if the household size and income placed the family at or below 200% of the federal poverty guideline.

Early Experiences

Early experiences refer to the numerous opportunities for young children to participate in early childhood programs prior to entering kindergarten. Every early

childhood program has varying requirements and/or costs associated with participation. The current study examined two programs in Missouri: the IDEA Part C and Part B preschool programs that serve children identified with developmental delays.

IDEA Part B special education preschool program. Special education preschool provides children with disabilities, age three to five, the supports and services they need to learn and progress in school. The focus of special education services is for the school district or other public agency to provide a free and appropriate public education in the child's least restrictive environment (Missouri Department of Elementary and Secondary Education, State plan for special education, n.d.). For the purpose of the current study, the term *IDEA Part B preschool* was used to describe aspects at the national level and the term *Missouri Part B preschool* was used to describe aspects of the Missouri's program.

IDEA Part C early intervention program. Early intervention provides families of infants and toddlers, birth to age three who have diagnosed conditions associated with developmental disabilities or identified developmental delays, the supports and services they need to help their child grow and learn. The focus of Part C is to support both the child and the family within the context of the family's everyday routines and activities (Missouri Department of Elementary and Secondary Education, Missouri state plan Part C, n.d.). For the purpose of the current study, the term *IDEA Part C* was used to describe aspects at the national requirements and the term *Missouri Part C* was used to describe aspects of Missouri's program.

Part C Services

Services delivered to children who are eligible for IDEA Part C programs are referred to as early intervention services. The Missouri State Plan for Part C lists 19 early

intervention service types described as developmental services that assist a child's development and the family's needs (Missouri Department of Elementary and Secondary Education, Missouri state plan Part C, n.d.). This source further describes a variety of activities, including direct services, tests or meetings.

The current study focused on services delivered to the child and family; therefore, services related to testing or meetings were excluded from the reference to Part C services. For the purpose of the current study, the following 11 services were considered *Part C services*: Assistive technology, Audiology, Dietary/Nutrition, Nursing, Occupational Therapy, Physical Therapy, Psychological Services, Social Work Services, Special Instruction, Speech/Language Pathology Services, and Vision Services. Of note, the term *Part C services* may be used to describe services at either the national level for IDEA Part C or the state level for Missouri Part C.

Placement in a Regular Classroom

The locations where children in Part B preschool programs receive special education services may include the child's home, a classroom or program with children who are not in special education, a separate location with only children who are in special education, a residential facility or multiple locations (Missouri Department of Elementary and Secondary Education, State plan for special education, n.d.). This source indicates the location for special education services is referred to as the educational placement and the decision for placement of a child in Part B preschool is made by a team of professionals who are knowledgeable about the child and the placement options in the school. Additionally, children in Part B preschool must be educated in the least restrictive environment, or with other children who do not have disabilities, and removal from

regular education is only allowed when educating children in a regular classroom cannot be achieved even with extra supports and services (Missouri Department of Elementary and Secondary Education, State plan for special education, n.d.).

During the time period for the current study, there were two sets of special education placement codes used by the state department. See Appendix E1 for the placement codes that were revised in 2010 – 11 and Appendix E2 for the placement codes used prior to 2010 –11. The researcher utilized the following codes to determine placement in a regular classroom: 00A1, 00A2, 00A4 and 00A6. The use of both placement codes in Appendices E1 and E2 resulted in an inter-changeable reference in the terms for regular classroom and regular education program. For the purpose of the current study, regular classroom was defined as children receiving the majority of special education services in classroom where more than half of the children were typically developing children.

School Readiness

School readiness involves multiple, inter-related factors that address children's readiness for school based on aspects of: the child, family, services, community and school (National School Readiness Indicators, 2005). This source provided a connection between special education and school readiness when making the statement for children in special education who receive appropriate interventions are more likely to be ready for kindergarten.

Given this emerging connection, the current study examined school readiness for children in special education because of a developmental delay. Using a transactional model of development and Missouri's definition for school readiness, the current study

focused on biological and environmental aspects that related to children's readiness for school (Missouri Department of Elementary and Secondary Education, Missouri school readiness definition, n.d.). For the purpose of the current study, school readiness was defined as Part C children who no longer needed special education in kindergarten.

Special Education

Special education refers to special instruction that is specially designed to meet the needs of children determined eligible for IDEA Part B and delivered through an Individualized Education Program or IEP (Missouri Department of Elementary and Secondary Education, Missouri school readiness definition, n.d.). For the purpose of the current study, special education was defined as instruction and related services provided to children age three to five years who were served by an IDEA Part B preschool program, regardless of the reason for eligibility or the kind of services identified in the IEP.

Significance of the Study

Evidence was presented earlier that indicated data are lacking on what happens to children after participating in an IDEA program and the factors related to school readiness for children with developmental delays. The primary purpose of the study was to provide data about the relationship between participation in special education programs and the need for special education in kindergarten for young children with developmental delays to the state department responsible for the rules governing special education programs in Missouri. If aspects of school readiness in children with developmental delays were known, the information would provide implications for

services to children with developmental delays, such as the amount and type of Part C services or placement for services in Part B preschool programs.

The current study was unlike any other study to date. Research connecting children in Part C to Part B preschool and kindergarten is a rarity and this kind of research has not been conducted on children in the state of Missouri. Therefore, the current study aimed to inform early childhood stakeholders, specifically in Missouri but also across the nation, of the importance of school readiness for young children with developmental delays. Key stakeholders would be individuals who create initiatives or implement programs serving children with developmental delays. The results of the current study were also important for school leaders who establish policies and procedures for early childhood education. Depending on the results of the current study, early childhood practitioners could focus time and effort in areas that are known to make a difference in school readiness for young children with developmental delays.

Finally, the current study aimed to inform legislators and other policy makers who create rules and allocate funds for early childhood programs, a critical aspect in early childhood education since most initiatives require new rules and additional funding. Given limited funds, careful attention must be given to the populations served and the types of services delivered, especially for young children with developmental delays who need extra support in order to have an opportunity to be ready for school.

Summary

For decades there has been increased attention to the importance of early experiences and school readiness, yet data are lacking on aspects related to school readiness for children with developmental delays even though there are federal and state

funds spent every year on services for children with developmental delays. Though the lack of data was due in part to the complexity surrounding early childhood programs, there is a need for an ongoing review of early experiences that relate to children's readiness to enter school, especially for young children with developmental delays who participate in IDEA programs.

The complexity of early childhood requires a complex theory to help explain the interactions of numerous variables. The transactional model of development provides a lens to look at early childhood with a perspective that children grow and learn because of multiple interactions between them, their experiences and their environment.

To help close the gap in information about what happens to children who participated in Part C, the current study used a quantitative approach to track a group of children who participated in the Missouri's program by examining variables related to demographic information, Part C services and participation in Part B preschool to determine children's readiness to enter kindergarten without special education services. Results of the current study provide implications for policies and practices for children with developmental delays.

CHAPTER TWO: LITERATURE REVIEW

Introduction

Thousands of infants and toddlers are identified every year as having significant developmental delays and in need of intervention, and yet there continues to be a lack of information about what happens to these children after the receipt of Part C services. Do young children with developmental delays continue to need special services in a preschool program? Do they continue to need special education services in kindergarten? The purpose of the current study was to combine what has been learned from prior research on preschool participation and research on special education services in order to make an association between early experiences in preschool, special education and school readiness.

Chapter Two consists of a review of the literature surrounding school readiness, including an analysis of past research on children who participated in preschool programs and children who participated in Part C and Part B preschool programs. The literature review begins broadly, discussing a brief history of school readiness initiatives and special education programs. Next, the literature review moves to a closer examination of children who participated in three different preschools projects. The literature review concludes with an examination of six studies related to children participating in the IDEA Part C and Part B preschool programs.

History of School Readiness Initiatives

While studies about general early childhood development have been conducted for over 40 years, the concept of school readiness is more a recent, and frequently debated, topic. In order to understand the relationship between pre-kindergarten

experiences and children with developmental delays, one must take a closer look at the evolution of various initiatives that have focused on school readiness in order to improve and coordinate services for young children. This portion of the literature review includes an examination of the National Education Goal Panel, the National School Readiness Indicators Initiative and the Early Learning Challenge Fund Initiative.

National Education Goals Panel

In 1990, the National Education Goals Panel (NEGP), a bipartisan governmental entity, was created to assess and report on state and national progress toward educational goals with targets to be met in the year 2000 (National Education Goals Panel, n.d.). In March 1994, President Clinton signed Goals 2000: Educate America Act, a law that codified eight National Education Goals. Goal one of the eight goals was directed to school readiness: “By the year 2000, all children will start school ready to learn” (National Education Goals Panel, n.d.).

There were four indicators under the school readiness goal, which included a focus on health risks, immunizations, reading/story-telling and preschool participation (National Education Goals Panel, n.d.). While progress was reported in 1999 for each indicator, the target for all children to start school ready to learn was not met. The panel was dissolved in 2001 pursuant to congressional mandate (National Education Goals Panel, n.d.), but the work of the panel sparked an increased interest in school readiness, evidenced by studies on school readiness in recent years (Snow, 2006) as well as national initiatives that focus on early learning (National School Readiness Indicators, 2005).

National School Readiness Indicators Initiative

Shortly after the NEGP dissolved in 2001, the School Readiness Indicator Initiative began to invoke change in state and community policies and practices (National School Readiness Indicators, 2005). The main focus of this initiative was for states to use a common set of indicators to create linkages among programs that serve infants, toddlers and preschoolers to inform policy and track progress of children (National School Readiness Indicators, 2005). According to this report, the group's first national meeting was October 2001 where members worked to identify and define national indicators for school readiness.

In February 2005, the partnership published the National School Readiness Indicators report citing five areas of school readiness indicators: children, families, communities, services, and schools (National School Readiness Indicators, 2005). Missouri was one of the states involved in original initiative, citing the creation of a cohesive early learning system for all Missouri children as one of the state's policy issues. According to the Missouri School Readiness Indicators recorded in April 2003, the state identified multiple components for measuring the percentage of children ready for school that align with the national school readiness indicator areas, including family environment, community conditions, ready schools, effective services and ready child (National School Readiness Indicators, 2005). The early childhood programs specifically cited in the state's indicators include Parents as Teachers and Early Head Start/Head Start. See Appendix C for a complete list of the Missouri indicators.

Though the number of children with "unidentified special needs" upon entrance into kindergarten was included in this list as an indicator of school readiness, neither IDEA

program was specifically listed in the Missouri indicators. The emerging connection between school readiness indicators and the IDEA Part C and Part B preschool programs was evidence of little inclusion of special education programs in previous school readiness policies. The current study focused on identifying predictors of school readiness in children who previously participated in special education programs in Missouri.

Early Learning Challenge Fund Initiative

In a movement toward promoting school readiness for all children, the U.S. Department of Education and the U.S. Department of Health and Human Services joined together in 2009 for a national effort to promote early learning. The Early Learning Challenge Fund Initiative was announced as a reform plan to “. . . challenge states to develop effective, innovative models that promote high standards of quality and a focus on outcomes across early learning settings. . .” (The early learning challenge fund, n.d.). The initiative touted the pre-kindergarten years as the most important aspect in shaping children’s learning and success in school, with the involvement of both parents and caregivers in high-quality learning environments.

Additionally, this initiative made a point to address aspects of high-quality environments that include setting a standard to better promote early learning opportunities, increasing the number of disadvantaged children who participate in high-quality environments, and ensuring more children are ready for school. States selected for the challenge received federal funding to implement aspects of a quality early learning system as proposed in the state’s application (The early learning challenge fund, n.d.).

According to this source, representation from the state's Part C program was required as a partner in the initiative in order to apply for the funds.

Missouri was one of the states that applied for the grant but was unsuccessful in obtaining early learning challenge funds (We can't wait, n.d.). Regardless, the state has made strides toward a comprehensive and coordinated early childhood system. As evidenced in Missouri's application for the early learning challenge grant, the state has taken several steps toward tracking children's progress for school readiness with three notable activities: the creation of early learning standards, the establishment of an early childhood advisory council, and a longitudinal data system.

First, Missouri developed early learning standards for children age three to five that align to the existing Missouri standards for kindergarten to grade 12 (Missouri Department of Elementary and Secondary Education, Missouri early learning standards, n.d.). The standards include content and process competencies necessary for early learning and indicators of what activities young children should do to be ready for school. Additionally each content area of literacy, science, math, social/emotional and physical development including health and safety has guidelines for both parents and teachers. At the time the review of literature occurred for the current study, Missouri had proposed early learning standards to address children birth to age three but the standards were not yet final (Missouri Department of Elementary and Secondary Education, Missouri early learning standards, n.d.). The results from this dissertation intend to provide information to inform early learning standards for early learning with regards to young children with developmental delays.

Second, Missouri established one early childhood advisory council in creating the Coordinating Board for Early Childhood (CBEC) in order to streamline the policies and activities of multiple state agencies (Missouri Department of Elementary and Secondary Education, Show me to the top, n.d.). The role of the CBEC is to coordinate a system of early childhood programs and services for children age birth to five in Missouri, in order to promote and support school readiness. To assist with implementing one system for early childhood, Missouri has combined multiple early childhood strategic plans into one state plan and identified the collaborations and partnerships in both public and non-public entities which are necessary to promote school readiness for all children (Missouri Department of Elementary and Secondary Education, Show me to the top, n.d.). The results from the current study hope to inform stakeholders, such as members of the Coordinating Board for Early Childhood, on aspects of school readiness in young children with developmental delays.

Finally, Missouri has taken steps toward creating a longitudinal data system under the supervision of the state's Department of Education (Missouri Department of Elementary and Secondary Education, Show me to the top, n.d.). Key activities completed include multiple state agency agreements, a system framework, preliminary data sharing and identified gaps in data for a comprehensive early childhood system. When tracking children across programs to determine their outcomes, a longitudinal data system with the capability to link programs and services is necessary, as evidenced by the work completed in order to conduct the current study. The activities completed for this dissertation aimed to inform the state department and other agencies responsible for early childhood data about accessing database information to conduct longitudinal studies.

While Missouri has taken steps toward a system of early childhood programs, there is little information about how children with developmental delays (i.e., children participating in Missouri Part C and Part B preschool programs) are represented in the state's school readiness initiative. The current study examined school readiness in Missouri, specifically in young children with developmental delays who participated in special education programs before kindergarten in order to determine the children's readiness to enter kindergarten without the need for special education.

Though Missouri's definition of school readiness includes four categories, the current study considered school readiness as measured in one of the four categories: child factors. Child demographics were included to account for biological factors associated with child development per the transactional model (Guralnick, 2011; Shonkoff, 2010). Child demographics included the child's age at the time of identification of developmental delay, gender, and race. Child experiences were included to account for the environmental factors associated with the community per the transactional model (Guralnick, 2011; Shonkoff, 2010). These factors included the amount and type of Part C services, the number of years and placement for services in a Part B preschool program.

Additionally, the transactional model described environmental factors that involve the family (Guralnick, 2011; Shonkoff, 2010). Therefore, the current study included the family's poverty level and access to insurance. For the purpose of the current study, school readiness was defined as children with developmental delays of unknown etiology who did not need special education services in kindergarten.

The current study hoped to build upon Missouri's quest toward a coordinated system by providing needed information on school readiness indicators in young children

with developmental delays. Given the diversity and complexity of early childhood, the activities related to coordination of such programs are also expected to be diverse and complex. According to the transactional model of development, biological and environmental aspects must be considered as interconnected influences in children's development (Sameroff, 2010). Therefore, the coordination of early childhood education must include the promotion of policies based on research and practice for both content areas: biological and environmental.

In the next section of Chapter Two, the researcher provides an overview of the history of special education legislation and key aspects of two special education programs that serve young children with developmental delays. This overview includes both descriptions of and differences in the Part C and Part B preschool programs.

History of Special Education Programs

The Education of All Handicapped Children Act of 1975 or PL 94-142 created four essential aspects for special education services: (1) free and appropriate public education for all children, (2) the development of an Individualized Education Program as a written plan of action for delivery of services, (3) least restrictive environment to mandate children with disabilities receive education in regular classroom unless identified services cannot be achieved satisfactorily and (4) due process or the parent's right to resolve issues regarding services (U.S. Department of Education, A 25 year history, n.d.).

However, it was not until 1986 that early intervention services for infants and toddlers was identified as a need through PL 99-457, which expanded services to young children in two ways (U.S. Department of Education, A 25 year history, n.d.). First, the

law outlined mandatory participation of states to extend school-age entitlement to children age three to five, otherwise known as Part B preschool. Second, PL 99-457 provided for state's voluntary participation to coordinate services to infants and toddlers with disabilities. The original legislation was renamed Individuals with Disabilities Education Act (IDEA) in 1990 and then named early intervention as Part C in 1997 (U.S. Department of Education, A 25 year history, n.d.). The intention of Part C was to enhance the development of infants and toddlers with disabilities in order to: minimize their potential for developmental delays, reduce the educational costs to society by minimizing the need for special education, maximize the potential for independent living, enhance the capacity of families to meet the needs of their children, and enhance the capacity of underserved populations (Guralnick, 1997).

However, when state's developed policies to implement Public Law 99-457, initial consideration was given to who gets the services (eligibility criteria), how to provide services to those children (service delivery) and how much will it cost (budget) (Guralnick, 1997). The implementation of IDEA Part C created additional federal funding for services to millions of young children with disabilities that would have otherwise received limited services and supports to remediate their developmental delays. Now, more than 25 years later, there continues to be little empirical evidence related to what happens to children who participate in IDEA Part C and if they continued to need special education services (U.S. Department of Education, A 25 year history, n.d.). Yet federal and state funds continue to provide for these services without information on what happens to children after receiving services. The current study attempted to close the gap in research about the relationship between participating in IDEA programs and school

readiness by tracking a group of children who were referred to Missouri Part C and examining what happened after children exited Part C.

This portion of the literature review includes an examination of the 2004 reauthorization of IDEA and an explanation of the differences between special education programs for infants, toddlers and preschoolers.

Reauthorization of IDEA

The reauthorization of Individuals with Disabilities Education Act (IDEA) in 2004 required, within one year, each state to have a performance plan in place that evaluated the state's implementation of IDEA and described how the state would improve such implementation (U.S. Department of Education, OSEP SPP response letter, 2006). This source described the plan, called the State Performance Plan (SPP), and how the plan was required to be posted on the state's website.

With the reauthorization of IDEA in 2004 there were numerous revisions to requirements for special education services to infants, toddlers and preschoolers. Relevant to the current study were two revisions: (1) the requirement for an educational component if states elected to serve children over age three through the IDEA Part C program (U.S. Department of Education, IDEA – reauthorized statute, n.d.), and (2) the creation of the annual performance report that included an indicator for early childhood outcomes (Missouri Department of Elementary and Secondary Education, State performance plan Part C, 2011). This portion of the literature review includes an examination of these requirements and the impact on current practices in IDEA programs.

Serving Children Over Age Three in IDEA Part C

Changes to the provisions of IDEA regarding the option to make Part C services available to children over age three were in effect on July 1, 2005 (U.S. Department of Education, IDEA – reauthorized statute, n.d.). This option allowed flexibility to make Part C services available to children from age three until eligible to enter kindergarten. Under this option, parents may choose for their child in Part C who is eligible for services under Part B preschool to continue Part C services. If selected, services must include an educational component that promotes school readiness and incorporates pre-literacy, language and numeracy skills (U.S. Department of Education, IDEA – reauthorized statute, n.d.).

More recently, federal regulations promulgating Part C of IDEA were released in 2011 and formalized this option for states to serve children over the age of three as an expansion of Part C services (Early Intervention Program, 2011). An inquiry into the number of states who serve children over age three in the IDEA Part C program revealed only one state, Maryland, currently utilizes the option to serve children over age three (M. Greer, personal communication, August 12, 2013). Even though this option is in place for serving IDEA Part C children over age three, it cannot help provide information on school readiness for Part C children if states do not elect to take the option. This policy has the potential to improve school readiness for children in IDEA Part C, but there are no effects to consider at this. If utilized by more states, this option may provide a stronger connection between IDEA Part C and school readiness. The results of the current study aimed to provide more details about the impact of receiving Part C services

in order to help inform states' consideration to serve children over age three in the Part C program.

State Performance Plan and Annual Performance Report

Changes to the provisions of IDEA included a requirement for each state to develop a state performance plan (SPP) that provided a mechanism for states to identify baseline data on key indicators, establish targets and improvement activities, and then report on the progress of each indicator on an annual basis (U.S. Department of Education, OSEP SPP response letter, 2006). One of the indicators included in the annual report was a measurement of child outcome results for IDEA Part C and Part B preschool programs (Hebbeler, Spiker & Kahn, 2012).

However, the only IDEA requirement for documenting early childhood outcomes was to collect and report entry level data at the beginning of enrollment into Part C or Part B preschool and exit level data when children leave each program (Missouri Department of Elementary and Secondary Education, State performance plan Part C, 2011, indicator 3). This minimal requirement for collection and reporting data allowed state discretion in determining the instruments and practices to use for data collection and reporting (Missouri Department of Elementary and Secondary Education, State performance plan Part C, 2011, indicator 3).

In Missouri, the practice for obtaining child outcome data is left to local discretion with a general guideline for obtaining multiple sources of information when collecting the outcome data, but no specific tool to collect the information from multiple sources (Missouri Department of Elementary and Secondary Education, State performance plan Part C, 2011, indicator 3). According to Hebbeler et al. (2012) there have been concerns

about the quality of the child outcome data provided in the annual report and states need assistance in reporting and using child outcome data. Therefore, the researcher did not choose to analyze or interpret the outcome data used in the annual report. Instead, the current study aimed to inform the reporting of child outcomes through an examination of other IDEA data for children with developmental delays, including an analysis of Part C services and the number of years and placement for Part B preschool.

Differences in Special Education Programs

In the state of Missouri, the Department of Elementary and Secondary Education is the lead administrative agency for both IDEA Part C and Part B preschool programs (Missouri Department of Elementary and Secondary Education, Missouri state plan Part C, n.d.; Missouri Department of Elementary and Secondary Education, State plan for special education, n.d.). While both programs are governed by IDEA, there are distinct differences in Part C and Part B preschool programs, particularly in two areas: eligibility determination and service delivery (Missouri Department of Elementary and Secondary Education, Missouri state plan Part C, n.d.; Missouri Department of Elementary and Secondary Education, State plan for special education, n.d.).

Eligibility Determination

IDEA Part C requires each state to serve children with developmental delays and children with diagnosed conditions associated with developmental delays or disabilities; however, a state has considerable discretion when assigning criteria for developmental delay that constitutes eligibility for Part C, including the option to serve children at-risk for delay (Shackelford, 2006). This discretion results in great variability in the criteria used for Part C eligibility across states (Rosenberg et al., 2013). While both Missouri Part

C and Part B preschool programs allow the use of a developmental delay to find a child eligible, the amount of delay is calculated differently between the programs.

For Missouri Part C, children are eligible in three ways: confirmation of a newborn condition [very low birth weight], confirmation of a specific diagnosed [medical] condition or confirmation of a developmental delay (Missouri Department of Elementary and Secondary Education, Missouri state plan Part C, n.d.). This source indicated children with newborn or diagnosed conditions are eligible once confirmation of the condition is obtained from a pediatric specialist. The eligibility criteria for developmental delay in Missouri Part C are “. . . measured by appropriate diagnostic measures and procedures for a child who is functioning at half the developmental level that would be expected for a child developing within normal limits and of equal age” (Missouri Department of Elementary and Secondary Education, Missouri state plan Part C, n.d., p. 21) in one of the developmental domains: adaptive, cognition, communication, physical and social-emotional.

On the other hand, eligibility criteria for a child over age three are based on the child’s educational need resulting from an evaluation where eligibility is determined in one of 13 specific disability categories (Missouri Department of Elementary and Secondary Education, State plan for special education, n.d.). Thus, confirmation of a diagnosed condition does not necessarily constitute eligibility for children entering Part B preschool as it does in Part C. However the state plan for special education listed one of the eligibility categories for Part B preschool was unspecified developmental delay, otherwise known as Young Child with a Developmental Delay (YCDD). The criteria to meet eligibility under YCDD are two standard deviations in one developmental domain:

adaptive, cognition, communication, physical and social-emotional, or 1.5 standard deviation in two developmental domains (Missouri Department of Elementary and Secondary Education, State plan for special education, n.d.). The use of an unspecified developmental delay may continue to be used for eligibility for children ages five (kindergarten age) if a child was identified as YCDD prior to kindergarten age (Missouri Department of Elementary and Secondary Education, State plan for special education, n.d.).

Further, Hebbeler, Spiker and Kahn (2012) point out that while both IDEA programs' eligibility focus on the child's developmental level, the child lives with a family, and if that family has risk-factors, then the child is more likely to require early intervention or preschool special education services. Yet there is no consideration for family factors in the eligibility determination process in Part C or Part B preschool programs. However, given the inter-related involvement of biological and environmental influences on children's development as described in the transactional model, the current study examined both child and family demographics in order to examine school readiness for children with developmental delays.

Service Delivery

Another difference between the IDEA Part C and Part B preschool programs is the purpose of the programs with regard to how services are delivered. As indicated in Appendix A for the key differences between programs, the purpose of IDEA Part C is to provide a focus on the context of the family by providing services through an Individualized Family Service Plan (IFSP) designed to support and educate the family to help the child participate in daily activities; whereas, the purpose of IDEA Part B

preschool program is to provide a focus on the educational needs of the child by providing special education services through an Individualized Education Program (IEP) designed for students with disabilities in order to help develop skills necessary for success in school.

It should be no surprise then, that are the differences in the locations for services delivered by each program. For IDEA Part C, the location for services is required to be the child's natural environment, or places that are typical for a same aged peers without a disability, generally the child's home or another community setting (Missouri Department of Elementary and Secondary Education, Missouri state plan Part C, n.d.).

On the other hand, the location for Part B preschool services is the least restrictive environment, or the requirement for children with disabilities to be educated with typically developing peers and only removed from the regular education program if the severity of the disability prevents education in a regular classroom (Missouri Department of Elementary and Secondary Education, State plan for special education, n.d.). Given the national report indicated approximately one-third of the children in Part B preschool receive special education services in a regular education program (Phillips & Meloy, 2012; Sullivan & Field, 2013), the researcher investigated placement in Missouri Part B preschools and found a percentage slightly less than the national average with placement of Missouri preschoolers age three to five in a regular education program about 27% of the time (Missouri Department of Elementary and Secondary Education, State performance plan Part B, 2005). However, the same source indicated children age three to five, including children who were kindergarten age, were placed in a regular education more often, about 42% of the time.

In a closer look at the difference in the placement percentages, the researcher found most children in special education in kindergarten were in regular classrooms and also included in an early childhood program, which would account for some of the difference between the placement percentages for the two groups (Missouri Department of Elementary and Secondary Education, State performance plan Part B, 2005). Another consideration for the difference in the placement percentages was the use of integrated classrooms in Part B preschool, which are coded as placements other than the regular classroom because at least half of the children must have disabilities or developmental delays (Missouri Department of Elementary and Secondary Education, State performance plan Part B, 2005). This means even though there are some typically developing children in the classroom, the placement cannot be counted as a regular classroom unless more than half of the class is typically developing children (Missouri Department of Elementary and Secondary Education, State performance plan Part B, 2005).

While both programs encourage learning with typically developing peers, the emphasis in Part C on learning in the context of the family and home provides a different environment for service delivery than the emphasis in Part B preschool on developing skills to remediate developmental delays.

Although the locations differ, the use of certain qualified personnel is stated in both Part C and Part B preschool programs. In fact, both programs provide for similar personnel to deliver the services, including therapists such as occupational therapists, physical therapists, speech/language pathologists, and health professionals such as audiologists, nurses and social workers (Missouri Department of Elementary and Secondary Education, Missouri state plan Part C, n.d.; Missouri Department of

Elementary and Secondary Education, State plan for special education, n.d.). Though the personnel may be the same discipline, the skills and expertise necessary to deliver Part C services to a child and family in the home is quite different from the skills necessary to instruct a Part B preschool child in a regular classroom. Given the numerous differences between IDEA Part C and Part B preschool programs, integrating these services is complex and outcomes are difficult to compare. Therefore, rather than consider the programs in separate studies, the current study attempted to capture the outcome of services delivered by both programs, by including the amount and type of services delivered in the Missouri Part C program, the number of years and placement for services in the Part B preschool program, in order to examine the relationship between participating in IDEA programs and school readiness for young children with developmental delays.

In the next section of this chapter, the researcher took a closer look at the implementation of early childhood policies as evidenced in previous studies on preschool participation, and why participation in a typical preschool program before going to kindergarten can be an important experience in the development of a child. Though the following studies lacked a specific reference to children in IDEA programs, the studies were important to the current study in order to capture the experiences of children in typical preschool programs.

Preschool Program Participation

For over 40 years researchers in the field of early childhood have studied preschool experiences for young children and the impact quality preschool has on children's success in school. Before examining studies specific to children in IDEA, the

researcher took a broader look at the evolution of research that has informed policies designed to improve participation in a preschool program.

The interest in early experiences for young children began with legislation in the 1960's known as the War on Poverty, which was designed to help disadvantaged children be ready to enter school (Lee, Brooks-Gunn & Schnur, 1988). This legislation sparked multiple research projects involving disadvantaged children under the age of five who had developmental delays. This portion of the literature review includes key contributions from three studies that created connections between early experiences for disadvantaged children and later learning: the Perry Preschool Project, Project Head Start, and more recently, the Parents as Teachers program. The aforementioned studies were selected for inclusion in this literature review over other studies about early experiences because these studies related to remediating developmental delays through participation in a typical preschool program.

Perry Preschool Project

The Perry Preschool Project is perhaps the first well-known longitudinal study that addressed the effects of poverty on preschoolers and potential remediation of delayed development. Participants in the Perry Preschool Project were black, disadvantaged children who were identified as having cognitive delays at age three (Weikart, 1964). The project was small; 123 children were randomly assigned to a control or experiment group in Ypsilanti, Michigan public schools from 1962 to 1967, resulting in five waves of children (Weikart, 1964). Children attended preschool approximately three hours a day, five days a week for two years, with the exception of the first group that attended for only one year, and instruction was designed to prevent further cognitive delays (Weikart,

1964). According to the author, parents of the participants in the project also received weekly home visits over the two year period. The combination of center based services and home visits for preschoolers was similar to the current study for experiences in the Part C and Part B preschool programs; however, the current study did not solely focus on black, disadvantaged children but considered race and poverty level as one of many demographic aspects for children included in the sample.

Children included in the Perry Preschool Project were tested at the end of each year using intellectual, achievement and social behaviors measures. The results of the first wave of children revealed by the end of the first year, children in the experiment group had significantly different intellectual outcomes with a gain of 12.7 IQ points compared to the control group gain of 7.2 points (Weikart, 1964). However, results for achievement and social behaviors indicated no significant difference at the end of the first year.

Further, by the end of kindergarten, the first wave of children showed no significant difference in any of the three outcomes, as the difference in scores for intellectual development was smaller than what was found in the one-year measure (Weikart, 1964). The immediate, positive outcome of receiving intervention was well documented in the Perry Preschool Project; however, Weikart also concluded there was much more complexity to preschool experiences than originally considered, including not only factors about the child such as demographics, skills and behaviors, but also factors about the preschool program including curriculum and instruction. Therefore, Weikart stated preschool had a positive effect for about half the children in the project.

Since the initial report, the Perry Preschool Project has completed multiple follow-up studies that have indicated children placed in the experimental group showed better outcomes in higher scores, less special education and less delinquency later in life, especially after age 14 when success is not measured in developmental domains and subjects but in life skills such as organization, motivation, concentration and preparation (Mervis, 2011).

Project Head Start

A few years after the findings from the Perry Preschool Project and the War on Poverty campaign by President Johnson, Project Head Start began as an attempt to replicate the small-scale findings for large-scale programs in order to serve disadvantaged children with delays (Lee, Brooks-Gunn & Schnur, 1988). Realizing the long-term need to improve the lives of disadvantaged children, it was the policy of Head Start to serve children with the greatest need for positive experiences, resulting in predominantly disadvantaged children and minority children served in Head Start.

Head Start provides education to promote the development of disadvantaged children as well as parent education through home visits and other social or health services (Barnett, 2011). In order to compare the short-term outcomes for children in Head Start with other children in no preschool program or in another preschool program, Lee et al. conducted a post hoc study on children who were eligible for first grade in 1971. There were 969 families who volunteered for the study in 19 preschools across Trenton, New Jersey and Portland, Oregon, most of which were black, disadvantaged families indicative of the population served by Head Start (Lee et al., 1988). Thirteen of the 19 preschools were Head Start centers but all preschools utilized in the study (Head

Start or other preschool) ran at least eight months out of the year with half-day preschool programs and had comparable facilities(Lee et al., 1988); however, the specific curricula utilized in each center was not specified in the study.

All children in the study by Lee et al. received testing prior to preschool and at the end of the first year in preschool. Findings from the study revealed children in Head Start had better outcomes than children who did not attend preschool; however, less positive outcomes than children who attended other preschool programs. It was determined Head Start contributed to a significant gain in skills and abilities but did not close the gap that disadvantaged children experienced, possibly because children served in Head Start have the greatest deficit to overcome so significant gains still left children behind when compared to others (Lee et al., 1988). In saying this, Lee et al. provided evidence that black, disadvantaged children in both Head Start and other preschool centers had better outcomes than children with no preschool experience, indicating there were positive effects of attending preschool.

Since the initial Head Start Project there has been multiple, additional studies on Head Start with similar findings of short-term gains but a lack of long-term gains (Barnett, 2011). This author suggested results may be due to the population served by Head Start (i.e., children with the most need), but also could provide evidence of the challenges in maintaining the level of quality and control of a small-scale project when implementing a large-scale program such as Head Start. Often early childhood policies are difficult to put into practice because the reality is, early childhood is not simplistic and linear; it is multi-faceted and complex. There are many factors involved not only with the child but also in the child's environment. According to the transactional model

for development described by Sameroff (2010), each factor plays a role in how children grow and learn by interacting back and forth with one another.

The Parents as Teachers Program

Thirty years after the Perry Preschool and Head Start projects, early experiences continue to be examined by researchers; however, where past studies used randomized control groups in order to determine effects, current studies must instead rely on post hoc studies or after-the-fact research (Mertens, 2005), due to the unethical nature of true experimental designs in studying early experiences.

The influence of poverty on early experiences was the focus of several studies conducted in the Parents as Teachers (PAT) program in Missouri. The PAT program offers information to parents on how their children grow and learn through appropriate activities that promote appropriate child development and positive parent-child relationships (Pfannenstiel, Seitz & Zigler, 2002). Parent educators provide the information to families in context of home visits, book sharing, screenings, and group meetings. Children in PAT are not necessarily identified as disadvantaged or developmentally delayed.

One PAT study looked at effect of combining participation in PAT and a preschool on children's readiness to enter kindergarten. The study involved 2,375 children who entered kindergarten in public schools in 1998 (Pfannenstiel et al., 2002). The authors included variables for age, gender, minority status, and poverty in the model. Children in the study were primarily white but Pfannenstiel et al. did not provide any additional descriptors about the children and families. Since the authors did not have access to poverty level data for each family, the authors utilized a sample “. . . stratified

on location (urban, medium-sized town, or rural) and school poverty” (p. 74). About half the children in the study attended school in a high poverty area.

To determine school readiness, the study utilized the School Entry Profile that measured the child’s performance and skills within the first few weeks of school in seven skill areas. The authors also used a parent survey for additional information about the child and early experiences.

The model designed by Pfannenstiel et al. found similar percentages of children in both low and high poverty schools who received a combination of PAT and/or other preschool; however, when children in high poverty schools received PAT they were similarly as ready for kindergarten, based on the School Entry Profile, as children in low poverty schools who had no PAT and no preschool experience. Additionally, a key finding by Pfannenstiel et al. was when children in high poverty schools had a combination of PAT *plus* preschool experience, the scores were better than children in low poverty schools with no preschool experience.

The findings of Pfannenstiel et al. provided the original concept for the current study: create a similar model that combined children’s experiences in two programs, one for home visiting for infants and toddlers and one for preschool experience but, instead, examine outcomes for children with developmental delays as identified by IDEA Part C and Part B preschool programs.

In the next section of Chapter Two, the researcher took a closer look at the impact of special education rules and policies as evidenced in studies that focused on children participating in IDEA Part C and IDEA Part B preschool. The researcher examined four studies specific to Part C, two of which focused on the analysis of data on Part C services

in the state of Indiana and Kentucky and two described a national, longitudinal picture of children in special education before kindergarten. Following the four Part C studies, the researcher examined two studies specific to Part B preschool, one of which was a national look at children in special education and the other study focused on pre-kindergarten experiences in the state of Oklahoma. Both the Part C and Part B preschool studies selected for inclusion in this literature review described early experiences of children in special education prior to kindergarten.

Participation in Special Education Programs

While the aforementioned studies examined preschool experiences that did not necessarily target children with disabilities, the information was relevant to the current study because it set the stage for the argument that early childhood experiences make a difference in a child's readiness to enter kindergarten. In order to present a better picture of early experiences for children with developmental delays and examine school readiness for these children, a review of literature related to early experiences for children with developmental delays was also necessary.

Investigating the experiences that children with developmental delays have prior to kindergarten was a key component of the current study because there is little information available on what happens after young children with developmental delays receive services in IDEA Part C. Do they continue to receive special education services in IDEA Part B preschool? Do they continue to need special education in kindergarten?

This portion of the literature review includes an examination of studies that involved demographic information and participation in IDEA programs. When beginning a search for studies related to IDEA Part C, the researcher was cautious to use the phrase *early*

intervention because in the literature base, this phrase has a broad reference to experiences or activities that improve a child's development, and does not necessarily mean participation in an IDEA program. For example, Ramey and Ramey (1998) examined the work of seven authors who studied cognitive development in the field of early intervention. However, the receipt of early intervention in these studies was not necessarily in an IDEA program. Ramey and Ramey included various early experiences such as Early Head Start, other child development programs and preschool projects, in addition to IDEA.

After conducting a meta-analysis of prior studies on infants who were either identified as disadvantaged, diagnosed with developmental disabilities or had biological risk factors, Ramey and Ramey identified six guiding principles for participating in an early intervention program that leads to positive outcomes: (1) timing, (2) intensity, (3) direct intervention, (4) program breadth/flexibility, (5) individual differences and (6) environmental supports. Of relevance to the current study were the principles related to timing and intervention.

For age, Ramey and Ramey indicated there is no specific age or "absolute critical period" (p. 115) that is crucial for growth and development; children who enrolled in early intervention at a young age and received intervention longer had positive outcomes.

For intervention, Ramey and Ramey found combining weekly home visits with the family and daily intervention in a center produced significant gains in children when compared to only weekly home visits with the family, providing evidence that family support by itself may not be sufficient to produce positive outcomes that can be sustained long-term. This finding was similar to the study by Pfannenstiel et al. (2002) who also

found the combination of home visits and preschool experiences produced significant gains in children's abilities.

Relevant to the current study, Ramey and Ramey noted the type of intervention individualized to the child and family were important for a positive outcome, because what worked for one child and family may not have worked for another. Participation in some type of early intervention program promoted the child's development for the time the child participated in the program, but according to Ramey and Ramey, the positive outcomes initially gained, waned over time. Without additional services or programming to support the child's development, the outcome of the intervention was not enough to sustain the child until entrance into school (Ramey & Ramey, 1998).

Though special education was not the sole focus, Ramey and Ramey (1998) provided evidence of the importance of age when intervention begins and interventions that lead to positive outcomes for early identification and individualized services, which are the cornerstone of IDEA programs. The current study attempted to encompass both aspects of age and interventions by including the child's age, amount and type of Part C services and the number of years and placement for services in Part B preschool.

Part C Studies Utilizing Multiple Child and Family Demographics

When continuing to search for studies specific to the IDEA Part C program, the researcher found primarily studies involving children with specific medical conditions (e.g., autism, Down syndrome, etc.) or children who are biologically or environmentally at-risk for developmental delays rather than studies that focused on children with identified developmental delays of unknown etiology.

Additionally, the search revealed Part C studies primarily focused on parent satisfaction with their services instead of what happened to children after participating in an IDEA Part C program. Generally studies included various aspects of child or family demographics, yet only in isolation instead of in combination with one another. The researcher was able to find two studies from two states, Indiana and Kentucky, which addressed multiple child and family demographics that were specific to children participating in an IDEA Part C program. These two studies were selected for a closer review because the findings inform the selection of demographic variables in the current study.

Indiana's Part C Program

One of the first studies to use a state's database to investigate Part C services was in the state of Indiana. Perry et al. (2001) examined 6,279 Individualized Family Service Plans (IFSPs) dated between August 1, 1997 and October 31, 1997 to determine the amount of services delivered compared to the amount of services documented in the IFSP. The sample included mostly white children (82%) but Perry et al. did not provide data on the gender or other demographics on the children in the sample.

Children with a variety of eligibility reasons were included in the study's sample, including children with developmental delays, medical conditions and biological risk factors. Approximately 63% of the children in the study were eligible based on a developmental delay and mean age for the total sample was 12.8 months for children at the time of referral to the Indiana Part C program. Since the current study focused on children eligible for Missouri's Part C program with a developmental delay of unknown

etiology, it was expected the mean age for children would be older than 12.8 months because Indiana's study included children with medical conditions diagnosed at birth.

Perry et al. identified the largest amount of service delivered was special instruction (58%) followed by speech/language therapy (39%), physical therapy (30%) and occupational therapy (26%). Following these four services, there was no other service (i.e., audiology, health, nursing, nutrition, psychological, social work and vision services) delivered more than 1% of the time in the study. On average, Perry et al. found approximately three hours of service per week were planned to be delivered to children and families in Part C. Of note, Perry et al. found 24% of the children in Indiana's program did not receive any Part C services during the period of time studied.

The authors found the amount of Part C service actually delivered to children was much lower than the amount of planned Part C services. The authors found only 55% of planned services, or approximately two of the three hours of service per week, were actually delivered to children and families, compared to what was written in the children's IFSPs. However, the authors limited their study to an examination of the services delivered to children and did not include any information about the outcome of receiving such services.

Yet to acknowledge a discrepancy in planned and delivered services was critical for the current study because the researcher planned to examine the types and amounts of Part C services for children participating in Missouri's Part C program. To ensure the amount and type of Part C service the children in the current study actually received, the researcher collected data on the Part C services delivered to children in the sample, instead of the planned services as written in a child's IFSP.

Kentucky's Part C Program

The second Part C study was the work of Hallam, Rous, Grove and LoBianco (2009) in the state of Kentucky. Hallam et al. utilized data from the state's billing system to examine demographics of children participating in the IDEA Part C in Kentucky and the type of Part C delivered services. Factors included in the study were child and family demographic factors (i.e., race, gender, entry age into the state's Part C program, gestational age, eligibility determination, skill deficit area, foster care, family size), system factors (insurance and Medicaid eligibility), and community factors (type of service provider, county poverty level, metropolitan status).

The initial data set for the study conducted by Hallam et al. included 2,963 children who were eligible for IDEA Part C in Kentucky. After narrowing the sample to children in the program to a 6-month period from July 1 to December 31, 2001, confirming each child received at least one service during the period of time, and omitting any records with missing data; the final sample size was reduced by about half the original size to 1,545 children.

Similar to the study by Perry et al., the children included in the study were primarily white (85.5%); however, Hallam et al. included data on gender that revealed more males (61%) in the study than females. The reason for eligibility was restricted to developmental delay in Hallam et al.'s study, but the establishment of developmental delay was derived in two ways: 33% of the children had an established risk for delay and the remaining 67% had a confirmed delay determined by a review of records or an evaluation. These results were similar to Perry et al.'s sample which consisted of 63% developmental delay. Since Missouri does not include at-risk for delay as criteria for

eligibility, the current study only focused on children who were identified as having a confirmed developmental delay according to Missouri's definition for Part C eligibility.

Though Hallam et al. included children with a developmental delay that was not limited to one developmental domain; most children (75.9%) were identified as having a deficit in the area of speech/language. Approximately half of the children presented with delays in the physical (53%) and adaptive (51%) areas. Hallam et al. found the presence of a delay in multiple domains was a common occurrence for children in Kentucky's Part C program. Since eligibility in Missouri only requires one developmental domain to be coded for eligibility purposes, the current study utilized a single developmental domain which was the primary area that established eligibility for Missouri Part C. Therefore, the percent eligible in specific developmental domains was limited to one primary domain and not multiple, overlapping domains.

A search for related literature on IDEA Part C resulted in Hallam et al. study was the only one the researcher could find that included an examination of the family's access to insurance as a variable related to income. The researcher compared the levels in Hallam et al.'s study with Missouri's structure for cost participation fees for Part C which is based on 200% of the federal poverty guideline. In a closer look at income levels in Hallam et al.'s study, most families (76%) earned less than 200% of the poverty level, yet only 69% of the children were eligible for Medicaid. Additionally, 39% of the children had private insurance and 23% of the children had both Medicaid and private insurance. The results of the study were notable in that Hallam et al. found a relationship between access to insurance and the receipt of Part C services. The ability to access health services through Medicaid and private insurance influenced the type and amount of Part C

services, meaning children who did not have access to insurance also struggled to receive services from Kentucky's Part C program (Hallam et al., 2009). The authors provided an explanation for why this finding may have occurred by indicating vulnerable families (i.e., families in high poverty or rural areas, minorities) may not have access to resources such as insurance and may not choose to participate in the programs. Given the finding from including insurance information in the study for Kentucky's Part C program, the current study included variables for access to Medicaid and private insurance.

Finally, Hallam et al. found gender and race had no direct influence on the level or amount of Part C services in Kentucky; however, the child's age at the time of entrance into Part C affected the type and amount of Part C services, with younger children receiving more services than older children who entered Kentucky's Part C program. This finding was indicative of younger children having more severe needs and more likely to have a diagnosed disability since developmental delays were often found at an older age (Scarborough et al., 2004). A limitation of the study conducted by Hallam et al. is the shortened period of time reviewed (i.e., 6-months) rather than a review of a child's entire service record. In order to consider the child's age when examining the type and amount of Part C services received, the current study included the child's age at the time of identification of a developmental delay and the amount of Part C services delivered throughout the entire time a child participated in Missouri's Part C program.

Overall, Hallam et al. determined a combination of aspects led to patterns of participation in Kentucky's Part C program. The foundation for IDEA is a customized service plan with individualized services for eligible children, yet that is also one of the complexities of studying IDEA programs. For Part C, services are determined by the

family and a team of professionals through the development and review of an Individualized Family Service Plan (IFSP) that makes the plan unique to each family (Hallam et al., 2009, Perry et al., 2001); however, individualization also makes it difficult to compare experiences or define “successful” participation in IDEA Part C (Ramey & Ramey, 1998). To help alleviate this challenge, the current study included multiple aspects of children who participated in Part C and included an examination of the child’s eligibility reason and related services. Specifically, the researcher mapped each type of Part C service to one of the five developmental areas in order to compare the domain listed for a child’s eligibility with the amount of Part C services delivered to the child in that same domain.

Part C Studies Examining Outcomes

While the aforementioned studies examined multiple factors related to demographics and services, one shortcoming was the lack of explanation for what happened to children after they exited an IDEA Part C program. “Children do not begin kindergarten as blank slates” (Priest et al., 2001, p.164), and when children are identified with developmental delays at a young age, there should be an examination of the influence of intervention on school readiness. Therefore, the review of literature also included the extent to which the children in an IDEA Part C program subsequently participated in Part B preschool.

While it is challenging to consider multiple, complex variables involved in determining what happens to children after they leave the IDEA Part C program, it is necessary to investigate the outcome of the receipt of these services that are paid for with federal funding for special education. This portion of the literature review examined two longitudinal studies that addressed outcomes for young children in IDEA: The National

Early Intervention Longitudinal Study and the Pre-elementary Education Longitudinal Study.

The National Early Intervention Longitudinal Study (NEILS)

The NEILS study, which is often referred to as the first national picture of children participating in IDEA Part C, included 3,338 infants and toddlers in 20 states who entered IDEA Part C for the first time between September 1997 and November 1998 (Hebbeler et al., 2007; Scarborough et al., 2004). Scarborough et al. examined child and family characteristics in the NEILS study. The authors determined a slight pattern in the demographics of children and families participating in the IDEA Part C program. An increased number of black children participating in IDEA Part C was found when compared to children in the general population (21% and 14%, respectively), and a decreased number of white children was also found when compared to the general population (53% and 61%, respectively). This trend toward increased minority representation in IDEA Part C is similar to the findings reported by both Hallam et al. (2009) and Perry et al. (2001).

There were also a disproportionate number of children living in poverty participating in IDEA Part C when compared to children in the general population (32% and 21%, respectively). Scarborough et al. indicated a high number of children and families in poverty being served by IDEA Part C, which could be interpreted as Part C professionals have outreach to diverse families and the capability to serve children in poverty where other programs may not.

Of particular interest to the current study was the number of children eligible for developmental delay in the NEILS study. The sample examined by Scarborough et al.

revealed most children (62%) participated in IDEA Part C because of a developmental delay. In a closer look at the category for developmental delay it was determined that the coding hierarchy in the NEILS study placed all children with any description that related to a developmental delay in this category, making the percentage higher than if it was only children with developmental delays of unknown etiology. Of the 62% with developmental delays, Scarborough et al. found the most frequent reason for delay was in the area of communication (39%), followed by a delay in the area of physical development, which constituted for 18% of the children in the study. The results for high participation from children eligible in the domain of communication are consistent with what Hallam et al. (2009) found in their study, though Hallam et al. did not limit the delay to just one area.

The reason for eligibility and age at entry in IDEA Part C program were significantly related in the review conducted by Scarborough et al., which is similar to the findings of Hallam et al. (2009) and Perry et al. (2001). Scarborough et al. found 38% of the children in the NEILS study entered IDEA Part C for first time before the age of one year, yet the reasons children under age one year were eligible for IDEA Part C were fairly equal among developmental delay, diagnosed condition or at-risk.

However, for children age one year to two years the distribution of reasons changed dramatically with 75% of the children eligible due to developmental delay. This number continued to grow to 91% of children over age two were eligible for IDEA Part C due to developmental delay. Thus, Scarborough et al. found as a child gets older, it is more likely that the child entered IDEA Part C with a developmental delay rather than diagnosed condition. Given this pattern in age, the researcher expected to find the mean

age at entry into Missouri Part C would be older than age one. Scarborough et al. found the earlier the child was identified as having developmental delays, the better the opportunity for the child to make progress towards being ready for school. Therefore, the researcher expected to find children who continued to need special education after participating in Missouri Part C were children who entered Part C at an older age than those who did not continue to need special education services.

Also included in the NEILS study, Scarborough et al. found mostly male children (64%) participating in IDEA Part C, consistent with the 61% found by Hallam et al. (2009). Acknowledgement of the trends in child demographics for race, age and gender in the NEILS study was important to the current study because the researcher included similar demographics when examining children who participated in the Missouri Part C program.

The NEILS examined not only the demographics of children participating in IDEA Part C but also the amount and type of Part C services (Hebbeler et al., 2007). The data collection process for the NEILS study involved family interviews, teacher surveys, service provider surveys and report questionnaires. Hebbeler et al. found that children primarily received Part C services in the family's home (76%), consistent with the IDEA requirement for services to be delivered in the child's natural environment. Most families (54%) received between two and four different early intervention service types; however, some families (26%) received six or more different services. According to Hebbeler et al., the service type most often provided to Part C families was speech/language services (52%), followed by special instruction (43%), occupational therapy (39%) and physical therapy (37%). These results varied slightly from what Perry et al. (2001) found but both

studies listed the same types in the top four services delivered to children and families in IDEA Part C: special instruction, speech therapy, occupational therapy and physical therapy.

Through service provider surveys and report questionnaires, Hebbeler et al. found that families generally missed 25% of their scheduled visits, which is much less than the delivered services data collected by Perry et al. (2001) that showed approximately 45% of the identified Part C services were not delivered to families. Though the data collection methods varied between the studies, the important take-away about Part C services was families did not receive all the services identified on their child's IFSP. This consistent finding provided rationale for why the current study utilized information from a database instead of family or provider surveys and as mentioned previously, the rationale for accessing data about delivered services instead of data on planned services identified on the IFSP.

Unique to Hebbeler et al. (2007) was the examination of experiences after children left the Part C program. Through interviews with the family and surveys by the child's teacher, Hebbeler et al. found most children (63%) who previously participated in Part C received Part B preschool services at one time or another between the time the children participated in the IDEA Part C program and kindergarten entry.

Upon entering kindergarten, Hebbeler et al. found through family and teacher surveys that 54% of the Part C children with developmental delays continued to need special education at kindergarten compared to 76% of the Part C children with diagnosed conditions. But the overall percent of all Part C children who needed special education in kindergarten was only 58%. Given just a four percent difference in the results between

the entire Part C population in the study and the Part C children with developmental delays, it is plausible that children were initially identified as having a developmental delay but there was an underlying condition that was later identified as contributing to the delay.

Also relevant to the current study was the placement for services. Results from parent and teacher surveys in the NEILS study showed approximately 75% of the children in special education in kindergarten spent most of the day in the regular classroom (Hebbeler et al., 2007). The percentage seemed unusually high given there has been consistent reporting of approximately one-third of the nation's children in Part B preschool receive services in a regular education program (Phillips & Meloy, 2012; Sullivan & Field, 2013). Unfortunately the NEILS study did not provide any additional details on regular classroom so the researcher could not ascertain the reason for the discrepancy, but speculated the discrepancy may be based on the NEILS study using parent and teacher report to collect data.

While the NEILS study was helpful to inform the current study about IDEA Part C, two limitations were noted. First, the data for the NEILS study was collected through surveys of family members, providers and teachers or provider report questionnaires. While it is useful to have parent and teacher perspectives, there are limitations in the ability to make a statement about early experiences when the data are from the perspective of families and teachers. This is especially true for aspects such as determining the amount and type of service delivered in Part C or the child's placement for services in Part B preschool. Given the increased access to technology and availability of database systems, more recent studies can utilize actual service and placement data

instead. Thus the current study utilized a statewide database in order to conduct research on Missouri IDEA programs.

Second, it was difficult to determine the exact number of children with developmental delay of unknown etiology because the NEILS study did not make that sub-population clear in the report. To alleviate this challenge in the current study, any child with known conditions that may have contributed to a developmental delay was eliminated from the current study. By taking this step, the researcher hoped to find results that were more reflective of children with developmental delay of unknown etiology.

The Pre-elementary Education Longitudinal Study (PEELS)

The Pre-elementary Education Longitudinal Study (PEELS) was undertaken by Carlson et al. (2008) to examine demographics of preschoolers in special education in 2003-04 and 2004-05, the placement of such preschoolers, and the impact of receiving special education. To obtain a nationally representative sample of preschoolers in special education, a sample of local educational agencies (LEAs) was first obtained and regional distribution across the nation was ensured. Next, within the LEAs who agreed to participate, a representative sample of families was recruited. In total there were 3,104 preschoolers with disabilities included in the PEELS study.

The method used to collect gender, race and income information for the PEELS study was parent interview. Most preschoolers in the study were male (70.5%), consistent with findings from the NEILS study (Scarborough et al., 2004). Race was assigned to three categories: Hispanic, black and white; however, Carlson et al. did not explain the distribution of preschoolers in each category. All children included in the study had an Individualized Family Service Plan (IFSP) or Individualized Education Program (IEP) at

the time the families were recruited. Though some of the children in the PEELS study had Part C experience, the distribution of these children was not explained by the authors. Although, the report did include details on the disability categories and placements for all preschoolers included in the PEELS study.

Of the 3,104 preschoolers in the PEELS study, 806 (26%) were eligible for preschool special education due to developmental delay; however, the authors did not clearly define developmental delay other than to say it “. . . is an optional federal disability category for children from birth through age 9 (or a subset of that age group) used by 44 states in 2003” (Danaher, Kraus, Armijo & Hipps as cited in Carlson et al., 2008, p. 34). Though there were differences in the threshold and age range, the definition of developmental delay in the PEELS study can be related to the definition for YCDD as described earlier in this chapter.

Given the small percentage of preschoolers with developmental delays, the results of the PEELS study cannot be generalized to be the expected results for the current study; however, the results of the study provided information on experiences in Part B special education such as change in disability categories. For the current study, the researcher included only children with Part C experience and then examined the disability categories of the Part C children who went to Part B preschool to ensure that children with known conditions were identified in the analysis.

An aspect of special education services explored in the PEELS study was children who leave special education. A child may leave a special education placement if after receiving special education the child no longer qualifies for special education services or if the parent does not give consent for services. For the purpose of the current study, it

was important to note that children may qualify for Part B preschool services but unless the parent gave consent for services, those children would not be counted in special education data. The PEELS data indicated 15.4% of the preschoolers no longer received special education in the second year and the percent of preschoolers with developmental delays was slightly less. Additionally the number of preschoolers who no longer received special education in kindergarten after being in Part B preschool was 19.7% of the preschoolers in the PEELS study (Carlson et al., 2008). Utilizing the definition for school readiness in the current study, the PEELS results found a rate of 19.7% for school readiness in preschoolers who did not need special education in kindergarten.

A final aspect of the PEELS study important to inform the current study was Part B preschool placements, specifically time in a regular education program; however, the authors did not clearly define what constituted a regular classroom other than to indicate it included children with and without disabilities. For the entire group of preschoolers in the PEELS study, there were more preschoolers participating in a regular education program between the first and second year of the study. In the first year of the PEELS study, preschoolers spent an average of 8.2 hours a week in the regular classroom but this number grew to 15 hours a week in the second year (Carlson et al., 2008). Further, time spent in a place outside of the regular classroom decreased from 8 hours a week in the first year of the study to 6.2 hours a week in the second year. In general, preschoolers with developmental delays in the PEELS study either maintained or showed gains in academic and social skills with significant growth in the area of social skills (Carlson et al., 2008).

Using the PEELS results as the foundation for further examination of the skills of preschoolers receiving special education, Jeon et al. (2011) compared school readiness for disadvantaged children in Part C and Part B preschool programs. Of relevance to the current study, Jeon et al. indicated the study was limited to disadvantaged children with developmental delays; however, in a further examination of the study, the authors did not limit the study to only children with confirmed developmental delays so the use of the term *developmental delay* in the study was not synonymous with eligibility for or participation in a Part C program. Jeon et al. conducted their study using 2,183 children from the Early Head Start Research and Evaluation Longitudinal Follow-Up Study.

Consistent with studies referenced previously, Jeon et al. found preschoolers in special education were more likely to be male (65%) than female and white (56%). The children were divided into groups using demographics such as gender, race, disability, income, etc. The five resulting categories provided by Jeon et al. were: (1) children who received Part C services, (2) children suspected to have developmental delays, (3) children with biological risks, (4) children with both developmental delay and biological risks, and (5) children with no disability indicators before age 3. It is important to note there were only 129 children in group one: children who received Part C services.

Though the study by Jeon et al. (2011) included some children in Part C, one noteworthy aspect from their study was the finding related to the impact of receiving special education services. Jeon et al. compared a group of children who received services in an IDEA Part C program to a group who did not. Jeon et al. found no statistical difference between readiness skills at kindergarten entry for disadvantaged children who received Part C services compared to those who did not receive Part C

services. When looking closer at the subgroup, the authors found no difference within any disability category, including children with only developmental delay and children without disabilities. The findings presented by Jeon et al. suggest the children who participated in an IDEA Part C program had a higher level of severity in developmental delay or a larger gap to overcome, but the argument can also be made that these children received sufficient Part C services, at least to the extent they caught up to their peers who did not receive any Part C services. This was especially true for children who presented with a developmental delay only and no other specific disability. These results are important to inform the current study because the findings provide evidence that Part C children can catch up to their peers.

On the other hand, when Jeon et al. (2011) compared a group of preschoolers who received IDEA Part B preschool services to a group who did not, the authors found the readiness skills at kindergarten entry were lower for preschoolers who received special education services compared to those who did not. Jeon et al. found this to be true for all developmental domains and pre-academic skills used to measure readiness in their study. Unfortunately the authors did not provide an analysis of the readiness skills for the subgroup of preschoolers with only developmental delays. However, the findings suggested the preschoolers who received special education services had more severe delays. To have separate findings for participation in IDEA Part C and Part B preschool was helpful; however, it would have been more useful to the current study if the report by Jeon et al. had included parallel data for infants, toddlers and preschoolers with a developmental delay.

For the current study, the researcher determined it to be a limitation of the PEELS and Jeon et al. studies to use parent interviews and professional questionnaires to collect data on children in Part C or Part B preschool programs. Instead, the researcher utilized two data systems to collect information about children in Missouri's IDEA programs.

Part B Preschool Studies Examining Outcomes

As described previously, there are multiple aspects of the IDEA Part C and Part B preschool programs that are different, including the purpose, eligibility criteria and service delivery models for each program. To assist in examining early experiences for children participating in IDEA Part B preschool programs, a review of literature specific to preschool special education, regardless of children's participation in an IDEA Part C program, was warranted. Moreover, including literature that focused solely on IDEA Part B preschool provided a well-rounded literature base for conducting the current study on Missouri's Part C and Part B preschool programs.

Through a search for studies on preschool special education, the researcher found two recent studies that focused on the outcome of special education services for preschoolers. These studies were selected for inclusion in this literature review over other studies on preschool special education because they provided a current perspective of Part B preschool placements and outcomes. This portion of the literature review included a national look at preschoolers in special education and an examination of one state's (i.e., Oklahoma) pre-kindergarten study for children with disabilities.

National Picture of Part B Preschool Participation

In a recent study investigating associations between preschool special education and school readiness skills, Sullivan & Field (2013) used logistic regression analysis to

determine the impact of preschooler's participation in special education services. Similar to the aforementioned study by Jeon et al. (2011), Sullivan and Field compared a group of preschoolers who received special education services to a group who did not. However, Sullivan and Field utilized data from the Early Childhood Longitudinal Study-Birth Cohort (ECLS-BC) to conduct their study. The ECLS-BC is a national study that originated in 2001 and tracked children from birth through kindergarten entry (Sullivan & Field, 2013). From the 8,000 children in a sample from the ECLS-BC, Sullivan and Field found 600 children who were in Part B preschool, as indicated by having an IEP at the time of inclusion in the study. However, the identification of children as having an IEP was for any point in the program, not for the time children entered the program, which may have limited the ability to have comprehensive data.

Children in the group of preschoolers receiving special education services were matched to children in the second group of preschoolers who did not receive special education, based on assessment scores, ethnicity, birth weight and parent support (Sullivan & Field, 2013). Preschoolers with severe delays were excluded from the study so that only children with low to moderate special education needs remained in the study by Sullivan and Field. While the variables examined in the study differed from the factors included in the current study, there were related aspects. For example, Sullivan and Field used seven categories or 32 factors of child and environmental aspects from the ECLS-BC related to special education services, five of which directly related to the current study: gender, race, poverty level, developmental delay and early intervention services. However, the ECLS-BC relied upon parent report to collection the information related to if the child ever demonstrated a developmental delay or received Part C services. Using

parent report for eligibility and service information was perceived by the researcher to be a limitation. The current study utilized data to provide confirmation of a developmental delay and actual delivered services to such children instead of parent report.

Instead of relying on parent report to describe the preschooler's skills, methods of direct observation and child assessment were included in the ECLS-BC study. Therefore, Sullivan and Field were able to compare the skills in both groups and in doing so, the authors found the group of preschoolers who received special education services also had lower scores on readiness skills for reading and math than preschoolers who did not receive special education services. Given the exclusion of preschoolers with severe needs, the findings cannot be generalized to children in the current study who have significant developmental delays in order to qualify for Part C according to Missouri's eligibility criteria; however, the findings suggest that special education services are not necessarily helpful to the development of a preschooler's reading and math skills unless severe delays or disabilities are present. The authors provided several explanations for these findings, including a lack of research-based practices in Part B preschool programs, differences in program design and quality, such as less stimulating activities in a program other than the regular classroom, and instruction that is disconnected with kindergarten readiness because the focus in special education is on developmental domains such as communication and motor skills instead of academic abilities such as reading and math skills.

Pre-Kindergarten Experiences for Children in Oklahoma

In a recent study examining experiences of preschoolers enrolled in pre-kindergarten (pre-k) programs, Phillips and Meloy (2012) aimed to determine whether

pre-k programs make a difference for children with disabilities. Similar to the aforementioned studies by Jeon et al. (2011) and Sullivan and Field (2013), Phillips and Meloy used comparative measures to examine differences in skills for children with disabilities and children without disabilities enrolled in the pre-k program in Tulsa, Oklahoma.

The study conducted by Phillips and Meloy included two cohorts: children enrolled in kindergarten during 2005-06 and children enrolled in pre-k in 2006-07. A total of 3,048 children were included in the study, and a total of 312 children were identified as having disabilities as indicated by having an IEP in place at the beginning of the pre-k or kindergarten year, depending on the cohort assignment. However, Phillips and Meloy removed 16 children from the cohorts due to primary participation in a program that was not inclusive, leaving 296 children in their study. The majority of the children who remained in the study (97.5%) were classified as developmental delay of mild to moderate severity but the study did not solely focus on children with developmental delays. Phillips and Meloy ensured no selection bias through confirmation of no statistical differences between the demographics of children in both cohorts. Children were primarily male (68.6%), but there were more black children (40.5%) than other race included in the study (Phillips & Meloy, 2012).

Phillips and Meloy found no statistical differences in the test scores for children with disabilities who participated in preschool in comparison to test scores for children without disabilities, which means preschool participation in a regular education program improved the readiness skills of children with disabilities to a point that was comparable to the readiness skills of children without disabilities. Given the cohorts consisted

primarily of children with mild to moderate developmental delays, these findings should not be generalized to children in the current study who have significant developmental delays of unknown etiology; however, the findings suggest that children with developmental delays can grow and learn at a rate comparable to their peers if placed in a regular education program.

Summary

Though child development has been researched and investigated for many years, the concept of school readiness is more recent with the National Education Goals Panel instilling a focus on school readiness in 1990 and subsequently the National School Readiness Indicators Initiative in 2005 and the Early Learning Challenge Fund Initiative of 2009. Most research on early experiences thus far has focused on the preschool experiences of disadvantaged children, which suggest that positive outcomes are possible for disadvantaged children in preschool programs.

Specific to children with developmental delays, two special education programs were designed to provide individualized supports and services to infants, toddlers and preschoolers: IDEA Part C and Part B preschool. Recently special education policies have started to focus on outcomes of children participating in IDEA; however, research on outcomes for children in special education prior to kindergarten was limited. The research available on Part C and Part B preschool suggest positive outcomes are possible for children with developmental delays who participate in regular education programs.

CHAPTER THREE: METHODOLOGY

This chapter consists of a description of the methodology and procedures used to conduct the current study in accordance with the objective described in Chapter One. Chapter Three is divided into seven subparts. First, the description begins with a review of the purpose of the study and an overview of the problem guiding the study. Second, the research design is described, followed by the research questions and hypotheses guiding the study. Fourth, the population and sampling procedures are explained. Fifth, the data collection procedures are outlined. Sixth, the data analysis is discussed. The chapter concludes with a summary of the methodology.

Purpose and Overview

The purpose of the current study was to examine the relationship between Part C services, participation in Part B preschool and readiness to enter kindergarten without special education for a group of children who have developmental delays of unknown etiology. It was not the intent of the current study to determine the level of parent participation or qualifications of personnel delivering services to children with developmental delays. Instead the purpose was to examine the amount and type of Part C services and the number of years and placement for services in Part B preschool in order to determine the influence on the child's readiness to enter kindergarten without the need for special education services.

The problem guiding the current study was two-fold: data are lacking on what happens to children after participating in an IDEA program and the factors related to school readiness for children with developmental delays. It is problematic when data are lacking on whether special education services help young children grow and develop

because millions of dollars are spent every year on such services. Thus it was important to investigate whether young children who receive special education services before kindergarten can be ready for school and no longer need special education in kindergarten.

Examining experiences in the field of early childhood is a challenge for researchers, due to a lack of agreed upon practices and inconsistencies in state policies for early childhood programs. An additional challenge when examining an IDEA Part C program is the multiple child and family demographics of those who participate. Scarborough et al. (2004) indicated there is no single factor that predicts participation in or success from receiving Part C services. Scarborough et al. also indicated there is no typical child or family receiving services from IDEA Part C programs. The variability of children and families who participated in the IDEA Part C program made it a challenge to study this population, but a worthy challenge if research is to make a difference in policies and practices for young children with developmental delays.

Research Design

The research design was a quantitative approach to analyze the relationship between Part C services, the number of years and placement for services in Part B preschool program and readiness to enter kindergarten for children with developmental delays. By using a quantitative approach to research, the researcher was able to begin the study looking for an explanation to a theory rather than generating a theory at the end (Creswell, 2009). Furthermore, a quantitative approach allowed the researcher to examine the relationship of one or more predictor variables on an outcome variable, while

controlling for other factors that may influence the outcome (Creswell, 2009). This approach was important in the current study due to multiple predictor variables.

Correlational research methods were selected to estimate the magnitude of the relationships between variables related to the outcome, school readiness. According to Mertens (2005), correlational and causal comparative are both appropriate research methods for examining intact groups, but the correlational approach provided a better method for the current study than a causal comparative approach since correlational research methods look for differences within a single group. In prediction studies using correlational research methods, Mertens explained the importance of identifying as many variables as possible that are appropriately related to the outcome variable to reduce the likelihood of spurious correlations or high correlations between two variables that are related to a third variable.

An advantage of using correlational research methods was the ability to draw conclusions as to the direction and strength of a difference between variables in a single group (Mertens, 2005). However, the ability to draw conclusions does not equal the ability to determine the effect of or cause-effect relationships. To avoid the possibility of spurious correlations or biased relationships, the current study examined some variables (i.e., the amount and type of Part C services, the number of years and placement for services in Part B preschool) while controlling for other variables (i.e., the child's age, gender, race, poverty level, access to Medicaid and access to private insurance).

Since the children in the current study previously received Part C services and previously participated in a Part B preschool program prior to being included in the current study, the services and program participation could not be manipulated. Thus,

even though a strong relationship may be found between certain variables and the outcome variable, it was not possible to achieve the desired outcome by manipulating predictor variables that already occurred. Therefore, correlational research methods were appropriate to allow for manipulation of the characteristics of the sample and also to determine a relationship between existing variables (Mertens, 2005).

Research Questions and Hypotheses

The current study investigated the relationship between Part C services, participation in Part B preschool and a child's readiness to enter kindergarten without special education services. Research questions were asked for the sample of children who had developmental delays of unknown etiology and enrolled in Missouri's Part C program. The following three research questions guided the current study:

1. To what extent does the amount and type of Part C services influence children's participation in Part B preschool and readiness to enter kindergarten?

As discussed in Chapter One, the transactional model of development instilled the involvement of both biological and environmental factors in child development (Shonkoff, 2010). Thus the rationale for including both biological aspects (i.e., age, gender and race) and environmental aspects (i.e., amount and type of Part C services) in order to determine the influence on school readiness. The emerging connection between school readiness and special education (National School Readiness Indicators, 2005) formulated the position that identifying developmental delays at a young age and providing appropriate services is necessary if children with delays are to be ready for school.

The NEILS study found children who were in Part C often receive Part B preschool services at one time or another before kindergarten entry (Hebbeler et al., 2007). However, the NEILS study reported Part C children had a wide range of experiences before kindergarten, resulting in varied outcomes where some children still need special education in kindergarten and some do not. Ramey and Ramey (1998) found that children who receive interventions at a young age and for a longer period of time receive the greatest benefit from intervention. Scarborough et al. (2004) also found the child's age at the time of entering IDEA Part C was critical to positive outcomes, yet children with developmental delays of unknown etiology were often identified at an older age than children with organic causes for delays. Therefore, the researcher predicted:

Hypothesis 1: Children with developmental delays who received more Part C services are less likely to be in Part B preschool and less likely to be in special education in kindergarten.

2. To what extent do years in a Part B preschool program influence children's readiness to enter kindergarten?

From the perspective of a transactional model of child development (Shonkoff, 2010), the amount of time in a preschool is an important environmental influence on the child's readiness to enter kindergarten without special education services. Given the basis for early intervention as described in research question one, it was expected a similar rationale would be provided for the amount of time in a Part B preschool. However, the literature reviewed in Chapter Two presented a conflicting picture for outcomes from participation in Part B preschool. Research by Jeon et al. (2011) found Part C children who received Part B preschool services had lower school readiness skills at kindergarten.

The authors suggested children in Part B preschool had more severe delays that required a higher intensity of services to overcome the delay, which may not be remediated in a few years of preschool attendance. Though the results from Jeon et al. found developmental gains for these children, the gains were not significant and children did not catch up to their peers; however, the authors proposed children with developmental delays may benefit more from preschool special education than children in other disability categories.

Additional studies examining preschool experiences for a typical child receiving special education in preschool found long-term special education services outside the regular education program had a negative outcome on children's academic abilities, specifically reading and math (Sullivan & Field, 2013) or there was no significant difference in children's academic abilities after the receipt of special education services (Phillips & Meloy, 2012). These results seem counter-intuitive; one would think that children who receive more services in Part B preschool would likely be ready for school, but both authors suggested the negative outcomes were due to preschool special education services are generally designed for specialized instruction to overcome deficits instead of academic skill development to prepare children for kindergarten. Therefore, the researcher predicted:

Hypothesis 2: Children with developmental delays who attend more years in Part B preschool are more likely to continue to be in special education in kindergarten.

3. To what extent does the time spent in a preschool regular classroom influence children's readiness to enter kindergarten?

Also from the perspective of a transactional model of child development (Shonkoff, 2010), the time spent in a preschool regular classroom with typically developing peers is an important environmental influence on the child's readiness to enter kindergarten without special education services. There is a wealth of information indicating most children benefit from participation in preschool programs (Lee et al., 1988; Pfannenstiel et al., 2002). Specific to children in IDEA programs, Carlson et al. (2008) found children with developmental delays who participated in a regular education program had significant gains in abilities but the results were dependent upon the kind of classroom environment and instruction. Furthermore, Phillips and Meloy (2012) found preschoolers with developmental delays who attended a regular education program had similar test scores to children without developmental delays, providing evidence that participation in a regular education program can improve readiness skills to the point that the skills of children with developmental delays are comparable to the skills of children without delays. Therefore, the researcher predicted:

Hypothesis 3: Children with developmental delays who spent most of the time in a regular classroom in preschool are less likely to continue to be in special education in kindergarten.

Population and Sample

This portion of Chapter Three begins with a discussion on the population of young children participating in IDEA Part C and Part B preschool in Missouri, followed by an explanation of the sample selection for the current study.

Population

The Missouri Department of Elementary and Secondary Education reports annual participation rates for both IDEA Part C and Part B programs. The researcher reviewed the annual reports for the time period covered in the current study. According to the reports compiled by the state department, the population of children birth to age three in Missouri for 2007 – 08 was 234,751 and 1.47% of the population or 3,458 children participated in Part C that year (Missouri Department of Elementary and Secondary Education, 2007 – 2008 Part C participation rates, 2007). The population of children birth to age three for 2008-09 was similar; there were 238,086 children in Missouri and 1.59% or 3,784 children participating in Part C (Missouri Department of Elementary and Secondary Education, 2008 – 2009 Part C participation rates, 2008).

For the same years, the state department did not provide data on the Missouri child count for children three to five years of age, but the researcher used data provided by the Missouri census bureau to determine there were 463,051 children age three to five in Missouri in 2007 and 466,540 children in 2008 (Population estimates by age, n.d.). In those years, the state department reported the participation rate for Part B preschool was 11,307 children or 2.44% of the population in Part B preschool in 2007-08 (Count of students, 2007) and 10,995 children or 2.36% of the population in Part B preschool in 2008-09 (Count of students, 2008).

Sampling Procedures

The sample for the current study was children who previously participated in the Missouri Part C program and identified with a developmental delay prior to age three. At the time the current study was conducted, Missouri's Part C criteria for developmental

delay were a functioning level equivalent to a half-age delay in one developmental domain (Missouri Department of Elementary and Secondary Education, Missouri state plan Part C, n.d.).

According to data reports available on the state department's website, there were approximately 3,800 children in Part C for the time period of the current study (Department of Elementary and Secondary Education, First Steps SICC monthly expenditure/revenue report, 2009). In a closer examination of data reports on the state department's website, the researcher determined approximately half of all children were identified as eligible under developmental delay (Missouri Department of Elementary and Secondary Education, First Steps key indicator report, n.d.), which resulted in the potential for approximately 2,000 children participating in Part C per year considered for the current study. For a study with 10 or fewer variables, this number exceeded the target sample size of 1,000, deemed by Field (2009) to be an excellent size.

Though the available reports provided substantial data about Part C referral and eligibility information, the reports did not clearly indicate the number of children who qualify for Part B preschool services at the age of three. However, data reports indicated for all children leaving Missouri Part C, regardless of age, approximately half of the children go to Part B preschool (Missouri Department of Elementary and Secondary Education, SPOE data report, n.d.). However, this report also indicated a hodge-podge of other activities that each resulted in a small percentage of children who left Part C without going to Part B preschool, including: not eligible for Part B preschool, parent refused Part B referral, child passed away, family moved out of state, parent withdrew from the program and unable to locate the family. Of concern for the current study were

the numbers of families who moved out of state, withdrew from the program or were unable to locate because of the potential impact on the ability to collect long-term data.

In addition to the number of records available for the sample, the time frame for selecting the sample was critical to the longitudinal nature of the current study. Since 2005 the state department has used the Missouri Student Information System (MOSIS) to assign a 10-digit unique identification (ID) number to all children entering public schools, including children in Part B preschool and kindergarten (MOSIS – directions for user Access, n.d.). This student ID number remains with a child throughout enrollment in a public school, which provides for the ability to conduct longitudinal research.

Then in 2006 – 2007, state department personnel began to assign MOSIS ID numbers to children participating in the Missouri Part C program (M. Corey, personal communication, November 29, 2012). It was also during this time that enhancements were made to the Part C database to start collecting additional demographic and eligibility data in the system (M. Corey, personal communication, November 29, 2012).

Figure 1 illustrates the database considerations in the sample selection for the longitudinal nature of the current study:

Year entered Part C	Part C Database History	Year entered preschool	Year entered kindergarten
2011-12	Complete data	2011-12	2014-15 or 2015-16
2010-11	Updated database	2010-11	2013-14 or 2014-15
2009-10	Complete data	2009-10	2012-13 or 2013-14
2008-09	Complete data	2008-09	2011-12 or 2012-13
2007-08	Complete data	2007-08	2010-11 or 2011-12
2006-07	Incomplete data	2006-07	2009-10 or 2010-11
2005-06	New database	2005-06	2008-09 or 2009-10
2004-05	Preliminary database	2004-05	2007-08 or 2008-09

Figure 1. History of the Missouri Part C Database

Given the history and information collected in the data systems, the researcher determined the optimal time to select the sample for the current study was children who entered Part C between 2007 and 2009.

Data Collection

The tools used to collect data were two databases of records that already existed. Each database contained critical elements for the current study. Records in both systems were assigned a MOSIS ID based on multiple information pieces about a child, including name, birthdate and gender (MOSIS – directions for user access, n.d.). Using the MOSIS ID, schools submit data to the state department six times a year through a web-based collection system called the core data collection (Core data collection system, n.d.).

Important to the current study was the type of data collected from public schools. The core data collection included demographic information, enrollment, special education disability codes and special education placement codes; however, results from school readiness or kindergarten entrance tests are not collected in the system (Core data collection system, n.d.). According to this source, special education data for disability and placement codes are required to be submitted in the December reporting period. This means, for the current study, the Part B preschool and kindergarten special education data were based on data reported in December of the specified school year, which was approximately four months after children entered preschool or kindergarten for that school year. See Appendix D for a list of the special education disability codes and Appendices E1 and E2 for the special education placement codes used in Missouri.

On the other hand, the Part C database is a web-based system that has real-time data entered directly by personnel contracted with the state department to provide

services to families in Part C (M. Corey, personal communication, November 29, 2012).

Individuals who enter data in the Part C database are not the same individuals as the individuals entering data for the Part B database; however, both systems have multiple edit checks that allow for data verification and accuracy (M. Corey, personal communication, November 29, 2012).

Important to the current study was the type of data entered by Part C personnel. Information entered in the database included demographic information, eligibility reason, authorized and delivered services, family fee calculation, insurance information and enrollment status (Missouri First Steps Early Intervention, WS2 tab outline, 2012). Figure 2 identifies the types of data that existed in each database:

Description	Part C	Part B Preschool	Kindergarten
Public School District Name	X	X	X
MOSIS ID Number	X	X	
Regional Number	X		
Child Name	X	X	X
Date of Birth	X	X	X
Gender	X	X	X
Race/Ethnicity	X	X	X
Language	X	X	X
Age at Entry into Program	X	X	X
Eligibility Reason/Code	X	X	X
Test Scores			
Poverty Level	X	X	X
Medicaid Enrolled	X		
Private Insurance Plan	X		
Planned Services	X		
Delivered Services	X		
Service Types	X		
Placement for Services	X		
Service Provider	X		
Age at Exit	X	X	X
Exit Reason	X		

Figure 2. Elements of the Database for Missouri Part C and Part B

Permission to obtain data from the Part C and Part B databases was requested from the MOSIS data manager at the Missouri Department of Elementary and Secondary Education, the state department that owns the databases. The researcher requested permission to access information about children with developmental delays who entered Part C between 2007 and 2009 and subsequently appeared in the Part B database. See Appendix F for a copy of the permission letter.

In March, 2013, the researcher was provided three excel spreadsheets (Part C demographics, Part C services and Part B data) for 3,766 children referred to Missouri Part C from July 1, 2007 to June 30, 2009. Prior to dissemination of data to the researcher, staff at the state department de-identified the data by replacing the child's name and original MOSIS identification (ID) number with one generic research ID number. Each record in the Part C demographics spreadsheet was matched to the corresponding child's record in Part C services and Part B data to ensure that the original MOSIS ID numbers and the new generic research ID numbers aligned to the correct child record.

The excel spreadsheet for Part C demographics was compiled by searching the Part C database for any child with a referral to Part C between 2007 and 2009 and subsequently found eligible for Part C due to a developmental delay. There were 3,766 children who appeared in the database, creating an initial sample of 3,766 records. The Part C demographics spreadsheet was compiled containing information for the 3,766 records, including the following data: research ID number, Part C referral date, date of birth, gender, race, primary eligibility reason and related domain, income level, Medicaid enrollment and private health insurance enrollment. A second excel spreadsheet for Part

C services was created by searching the Part C database for delivered services for each child that appeared in the Part C demographic spreadsheet. The Part C services spreadsheet was compiled containing 367,469 lines of information for the 3,766 records, including the following data: research ID number, amount and type of service and date of service.

After accessing the Part C database, staff at the state department used the MOSIS ID to search the Part B database for any child in the Part C demographics spreadsheet. A third excel spreadsheet, Part B data, was compiled containing 9,168 lines of preschool and kindergarten data, including the following: research ID, school year, grade level, special education placement code, school district, free and reduced lunch status and special education disability code. Data contained on the Part B spreadsheet were coded as public school enrollment with no special education disability code 0 and special education placement was blank, public school enrollment with a special education disability code and special education placement code, or missing data because the child was not enrolled in a public school.

After a closer review of the data in the Part C demographics spreadsheet, the researcher excluded 65 Part C demographic records due to with missing or duplicate data and 300 records coded with known reasons for developmental delay. This left data for 3,401 child records as the sample size for the current study. Using the generic research ID number, the records eliminated from the Part C demographics spreadsheet were also eliminated from the Part C services and Part B data spreadsheets. Next the researcher divided the Part B data set into one set for preschool data (PK) and one for kindergarten data (K).

Data Analysis

This portion of Chapter Three includes a discussion on the data analyses and measures used in the current study. Because analysis was conducted for each child's experience, the data set include one line for each of the 3,401 children included in the sample. The data analyzed included the child's Part C services, placement in Part B preschool and need for special education in kindergarten, as well as demographical data for the group.

Procedures

The four data sets obtained from DESE were imported into the Statistical Package for the Social Sciences (SPSS) software, version 21, in order to combine and analyze the data. Using SPSS, the researcher transformed the Part C services data set to create one line of service data per child. The researcher then merged the Part C services with the Part C demographics data. The Part B preschool and kindergarten data were also transformed to create one line for each child for data about public school enrollment, special education placement and disability codes. Finally, the public school data were merged with the Part C demographic data to create the final data set for analysis.

Measurements

There was one outcome variable, school readiness, which was measured by the need for special education in kindergarten, for a group of children with developmental delay of unknown etiology who entered the Missouri Part C program between 2007 and 2009. This outcome variable was tested against key predictor variables for Part C services, time spent in a Part B preschool program and time spent in a regular classroom. The researcher controlled for the child's age, gender, race, poverty level, access to

Medicaid and private insurance, and any known condition while attending Part B preschool.

Outcome Variable

The researcher measured school readiness with a binary variable set to 1 for special education services in kindergarten and 0 for none.

Predictor Variables

For each child in the sample, three separate measures for early experiences in an IDEA program were analyzed: the amount of Part C services, years in Part B preschool and time spent in a regular classroom.

The variable for Part C services was calculated by dividing the total Part C service into (1) primary services, defined as services delivered in the same developmental domain as the child's primary reason for eligibility and (2) non-primary services, defined as services delivered in another developmental area. Each of the 22 possible Part C services was mapped to one of the five developmental domains using the definitions of services and domains in the Part C state regulations described in Chapter Two. The researcher used SPSS to transform the total units into primary units. For example, the amount and type of Part C service delivered in the primary area of communication was counted for a child with primary eligibility listed as communication. The chart in Appendix G depicts the mapping of developmental domains to Part C service types.

The variable for years in a Part B preschool program (inPKspedYrs) was calculated by computing the number of years a child was enrolled in a public preschool with a special education disability code.

The variable for time in a regular classroom (inPKregClass) counted the years children spent the majority of their time in a preschool regular classroom. In 2010-11 the placement codes were revised; therefore, in the raw data set there were two sets of possible placement codes used in the current study. Children with codes indicating at least 40% of the time was spent in a regular classroom (00A1 and 00A2) or codes indicating the majority of the special education services were in a regular education program (00A4 and 00A6) were counted as the majority of the time in regular classroom. See Appendix D for a list of the special education disability codes for Missouri and Appendices E1 and E2 for the special education placement codes used in Missouri.

Children's participation in Part B preschool was examined further for an identification of a condition at any time in public preschool, after first presenting with no known cause for developmental delay in Part C. Disability codes were counted for each year a child participated in public preschool and a variable (isPKcond) was created to identify children with known conditions at any time while participating in Part B preschool.

The researcher used multiple demographic characteristics to describe the children and families receiving Part C services and the children participating in Part B preschool. Because biological characteristics are critical to the transaction model as explained in Chapter Two, the researcher included child demographics of age, gender and race in the current study. The child's age was a continuous variable that designated the child's age, in months, at the time of identification of a developmental delay. This variable (AgeReferMon) was created by subtracting the child's date of birth from the child's referral date to the Part C program.

The child's gender was coded as a dummy variable (isMale) indicating whether the child was male or female. The child's race was also coded as a dummy variable (isWhite) indicating whether the child was non-minority (white) or minority.

Because environmental characteristics are critical to the transaction model as explained in Chapter Two, the researcher included family demographics for poverty and access to insurance. Poverty was also coded as a dummy variable (isPoverty) that designated the poverty level at or below 200% of the federal poverty guidelines as described in Chapter One.

The family's access to insurance included two insurance types: public and private health insurance. The family's access to public insurance (Medicaid) was coded as a dummy variable (hasMedicaid) that designated the family's access to Medicaid. The family's access to private health insurance was also coded as a dummy variable (hasIns) that designated the family's access to private insurance.

Model for Analysis

According to Mertens (2005), there are several options for a comparative analysis, including simple correlation, regression analysis, multiple regression analysis, path analysis, and factor analysis. When considering which statistical method to test data, Field (2009) indicated it is important to consider the variable types.

When the outcome is a binary variable and the predictors are binary or continuous, Field (2009) indicated it is necessary to use a logistic regression analysis, specifically binary logistic regression because the outcome is a binary variable. Therefore, the researcher chose logistic regression as the method of analysis for the current study. Logistic regression analysis fits a model to predict a binary outcome variable from two or

more predictor variables (Field, 2009), allowing for control of the differences that existed in subgroups of the sample. Through analysis, the strength of the relationship between the outcome and predictor variables was conducted using simple correlation coefficients between all the variables.

Because the outcome variable was dichotomous, the researcher used the following logistic regression model: $P(\text{special education in kindergarten} = 1 | \mathbf{X}) = \exp(\mathbf{b}_0 + \mathbf{b}_1\mathbf{X}) / [1 + \exp(\mathbf{b}_0 + \mathbf{b}_1\mathbf{X})]$ where P is the probability that a child enters kindergarten without special education, $\mathbf{b}_1$ is a vector of regression coefficients, and $\mathbf{X}$ is a vector of covariates including both part C and part B participation variables as well as control variables. Predictor variables were measured at entrance into the Part C program between 2007 and 2009, and subsequently, the outcome variable reflected a child's entrance into kindergarten between 2008 and 2012.

When using logistic regression analysis, Field (2009) provides a description of three aspects that can create problems: linearity, multicollinearity and goodness-of-fit.

First, Field describes linearity as the assumption that the outcome has linear relationships with the predictor; however, given a binary outcome, logistic regression analysis violates this assumption. Therefore, the linearity assumption for logistic regression is "...a linear relationship between any continuous predictors and the logit of the outcome variable" (Field, 2009, p.273). By creating a logit, a relationship between the predictor and outcome variable can be analyzed. For the current study, a logit was created for the outcome variable of special education in kindergarten, allowing its relationship with Part C services and participation in Part B preschool to be analyzed.

Second, Field describes multicollinearity as a strong correlation between two or more predictors. When using logistic regression analysis, multicollinearity can become a problem because the standard error increases and the amount of variance for both variables is similar, making it difficult to analyze the importance of each individual predictor. For the current study, all variables were analyzed for multicollinearity using a correlation table prior to conducting statistical tests.

Finally, Field describes goodness-of-fit as the extent the predicted data in a model differ significantly from the data collected. When using logistic regression analysis, goodness-of-fit can become a problem if the observed variance is bigger than expected from the model, possibly due to a violation of the assumption of independence or variability in probabilities. For the current study, the researcher utilized a residual chi-square statistical test to make sure the model was a good fit.

Summary

The purpose of the current study was to examine the relationship between participation in Part C and Part B preschool programs and school readiness for young children with developmental delays. The study's primary purpose was to provide data about young children with developmental delays to inform the state department responsible for the rules governing special education programs in Missouri. The current study used existing data for children who entered Missouri's Part C program between 2007 and 2009 and subsequently attended kindergarten at a public school in Missouri.

Data analyzed included the child's age, gender, race, poverty level, access to Medicaid and private insurance, the amount and type of Part C services and the number of years and placement for services in Part B preschool. In addition to descriptive

statistics, logistic regression analysis was used to investigate the relationships between Part C services, participation in Part B preschool and school readiness for young children with developmental delays of unknown etiology.

CHAPTER FOUR: RESULTS OF THE STUDY

The current study examined the relationship between Part C services, participation in Part B preschool and the need for special education in kindergarten for children who entered Part C between 2007 and 2009 with a developmental delay of unknown etiology. With permission from the Missouri state department responsible for managing these data, the researcher accessed existing data about Part C and Part B preschool for 3,401 child records. This portion of the dissertation includes an analysis of the findings. Results for each research question are displayed in text and table format. This chapter concludes with a brief summary of the findings.

Descriptive Statistics

Preliminary analyses, including crosstabulations and correlations for all variables in the models, were conducted to explore the relationships between the predictor and outcome variables. First, the researcher conducted multiway crosstabulations of all dummy independent variables in order to make sure all expected frequencies were greater than one and few that were less than five because goodness-of-fit assumes this (Field, 2009). The researcher found all variables were greater than ten in the crosstabulations.

Next, to explore multicollinearity, the researcher examined the relatedness between all variables and determined no variables used for the current study were highly correlated, defined by Field (2009) as anything over .80. Table 1 provides an overview of the variables used in the current study for the 3,401 children included in the sample. The following is a description of each variable in Table 1.

Table 1
Descriptive Statistics and Correlations for Children with Developmental Delays

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11
1. inKsped	.70	.46											
2. inPKspedYrs	1.85	.86	.31**										
3. inPKregClass	.44	.50	-.14**	-.28**									
4. isPKcond	.17	.38	.03	.07**	-.08**								
5. PrimHrsC	64.97	131.47	.10**	.06**	-.03	.05*							
6. AgeReferMon	20.79	8.10	.08**	.15**	.02	-.00	-.18**						
7. Child isMale	.70	.46	.08**	.07**	-.03	-.01	.04*	.17**					
8. Child isWhite	.79	.41	-.02	.08**	-.04	.10**	.05**	-.01	.01				
9. isPoverty	.72	.45	-.02	.06**	-.01	.03	-.05**	-.04*	-.05**	-.15**			
10. hasMedicaid	.53	.50	-.00	-.11**	-.04	-.01	-.05**	-.13**	-.09**	-.20**	.57**		
11. hasIns	.48	.50	.01	.11	.01	.00	.06**	.05**	.06**	.20**	-.57**	-.76**	

** Correlation is significant at the .01 level (2-tailed)

* Correlation is significant at the .05 level (2-tailed)

Demographics of the Sample

This portion of the chapter describes the demographics of the sample.

Demographic information included the child's age at the time of identification of a developmental delay, gender, race, poverty level and the family's access to insurance.

The researcher used descriptive statistics to determine the mean age of children in the sample was 21 months at the time of referral to Missouri Part C. There was a standard deviation of 8 months with a range of 0 to 34 months of age for the children in the sample. There were no missing data for age. As shown in Figure 3, when plotted in a histogram, the data for child's age presented with a slightly negative skewed distribution according to the definition for lack of symmetry (Field, 2009).

Figure 3. Age at the Time of Identification of a Developmental Delay

The researcher conducted a frequency distribution to determine the distribution of gender. There were no missing data for gender. Frequency distributions indicated 70% of the children in the sample were male and 30% were female.

The researcher conducted a frequency distribution to determine the distribution of race. There were no missing data for race. Frequency distributions indicated 79% of the children were white, 14% were black and the remaining 7% consisted of other race categories.

The researcher conducted a frequency distribution to determine the distribution of poverty level. There were 228 records (7%) with missing poverty level data. Of the 3,173 children in the sample with available data, frequency distributions indicated 72% of the children were at or below the 200% poverty level threshold for the current study and 28% were above the poverty level threshold.

The researcher conducted a frequency distribution to determine the distribution of insurance for both Medicaid and private health insurance. There were no missing data for Medicaid or private health insurance. Frequency distributions indicated 53% of the children had Medicaid and 47% of the children had no Medicaid; whereas, 48% of the children had private health insurance and 52% of the children had no private health insurance.

Given the outcome variable related to kindergarten entry, the researcher investigated the reasons children left the Part C program. Using descriptive statistics, the researcher examined the reasons for children in the sample and found most children (63.3%) exited the Missouri Part C program because the child was eligible for Part B

preschool services. Figure 4 illustrates the various reasons for exiting Part C for the children in the sample.

Reasons for exiting Part C	Number of children	Percent of total
Parent withdrew	248	7.3
Moved out of state	139	4.1
Completion of IFSP	102	3.0
Unable to locate the family	79	2.3
Child deceased	11	0.3
Not specified	1	0.1
<u>Subtotal</u>	<u>580</u>	<u>17.1</u>
Reasons for exiting Part C, age three	Number of children	Percent of total
Eligible and transition to Part B	2,153	63.3
Not eligible for Part B	287	8.4
Part B eligibility in process	232	6.8
Parent refused Part B determination	149	4.4
<u>Subtotal</u>	<u>2,821</u>	<u>82.9</u>
Total	3,401	100

Figure 4. Reasons for Exiting Missouri Part C

Only the reasons with Part B listed in the title can be confidently associated with children who exited the program at age three. Otherwise, the remaining reasons depict actions that may or may not have occurred at the time the child turned three years old.

Demographics at Kindergarten Entry

The researcher used descriptive statistics to determine the changes, if any, in the demographics of the children in the sample at the time of kindergarten entry. As indicated in Figure 5, the results indicated, of the children with kindergarten data, the demographics of the kindergarten group were similar to the demographics of the entire sample, with only slight differences ranging from a slight decrease in the number of children with Medicaid (-2.4%) and a slight increase in the number of males in special education in kindergarten (2.8%).

Part C	Variable	Percent	Kindergarten	Percent	Difference
N = 3,401	isMale	70.2	N = 2,008	73	2.8 %
N = 3,401	isWhite	78.9	N = 2,008	79.6	0.7 %
N = 3,173	isPoverty	72.2	N = 1,917	71.5	-0.7 %
N = 3,401	hasMedicaid	52.9	N = 2,008	50.5	-2.4 %
N = 3,401	hasIns	48.2	N = 2,008	49.6	1.4 %

Figure 5. Changes in Demographic Data

Due to the extent of missing data in previous studies (Hallam et al., 2009; Phillips & Meloy, 2012), the researcher expected to have missing data in the current study as it was not possible to obtain information on all variables for all children in the sample. The researcher used descriptive statistics and crosstabulations to conduct an analysis of missing data. As shown in Figure 6, for the children who exited Part C, 30% of the children had missing data for Part B preschool. However the amount of missing data increased as entry to Part B preschool and kindergarten were considered (41% and 51%, respectively).

Part C (Sample Size)	Preschool Child Count	Missing Data from C to Preschool	Part C in K	Missing Data from C to K	Part C, Preschool and K	Missing Data from C, Preschool and K
N = 3,401	N = 2,395	30% missing	N = 2,008	41% missing	N = 1,677	51% missing

Figure 6. Missing Data at Kindergarten Entry

The large amount of missing data was concerning so the researcher investigated the data further and found approximately 800 children had birthdates after June 2007, which means approximately 25% of the children would not have been kindergarten eligible age at the time the data were collected for the current study. This number, combined with the percent of children described earlier who exited Part C with no transition data for Part B, resulted in missing data for approximately half of the children in the sample.

Participation in Part C

Prior to analysis of the amount and type of Part C service, the researcher used descriptive statistics to determine the developmental domain associated with the primary reason for Part C eligibility. Results indicated 68% of the children in the sample were eligible for Missouri Part C due to a half-age delay in communication, followed by 15.8% of the children delayed in the area of physical development. Each of the three remaining domains for cognition, adaptive and social emotional contributed approximately 5% of the total.

Next, the Part C service types were mapped to the developmental domains by aligning each service type with at least one of the five developmental domains. See Appendix G for a chart that depicts the Part C service types mapped to developmental domains. Then the Part C service types were divided into primary and non-primary services for each child according to the child's primary domain for delay. A correlational analysis was conducted for the variable for total Part C services and for primary Part C services, resulting in a high correlation ($r = .915$); therefore, the researcher only used the primary Part C services delivered to children for the current study.

Finally, the amount of Part C services was calculated for each child. The raw data listed each service amount in 15-minute increments or units. The researcher used SPSS to divide the primary Part C service units by 4 in order to classify the Part C primary services as numbers of hours. In the end, the variable for Part C services was a single variable that represented both the amount (i.e., hours) and type (i.e., services mapped to the child's domain of delay) of Part C services delivered to children. Frequency distributions were conducted on the hours of primary Part C services. The results

indicated a few children received no primary services ($n = 98$; 3%). The results also revealed a large variance in the hours of primary services delivered to children in the sample ($X = 64.57$; $SD = 131.467$; range of 3,150).

Participation in Part B Preschool

There were three variables related to participation in Part B preschool: years in Part B preschool, known condition at any time in Part B preschool and time spent in a regular classroom.

Years in Part B Preschool

The variable for the number of years in Part B preschool counted the total years a child attended any public preschool and then only the years in Part B preschool. A correlational analysis was conducted to determine the relationship between the variables for total years in a public preschool and years in Part B preschool. The results found a high correlation between the total years in public preschool and just Part B preschool years ($r = .802$); therefore, the researcher focused only on the years children attended Part B preschool for the purpose of the current study.

Next the researcher conducted descriptive statistics to determine the distribution of years in Part B preschool. Data were missing for 25% of the sample. Of the remaining 2,544 children with preschool data, the results indicated 68% of the children received special education services in preschool and 7% had no special education placement in preschool. Finally the researcher coded one variable for each set of years children attended Part B preschool, resulting in four variables (inPKsped) for one through four years. The researcher conducted a frequency distribution to determine the distribution of years in Part B preschool. Frequency distributions indicated 40% of the children with

complete preschool data attended Part B for two years, followed by 15% for three years, 13% for one year and .2% for four years. The researcher used descriptive statistics to determine the mean years in Part B preschool was 1.85 years with a standard deviation of 0.856.

Time Spent in Regular Classroom

The variable for time spent in a regular classroom (inPKregClass) counted the number of years the children in public preschool spent the majority of their time in the regular classroom, regardless of their disability. The researcher conducted a frequency distribution to determine the distribution of time spent in regular classroom. Data were missing for 25% of the sample. Frequency distributions indicated 33% of the children spent the majority of their time in the regular classroom and 42% of the children spent the majority of their time in a place other than the regular classroom.

Identification of a Condition in Preschool

A final aspect of participation in Part B preschool was children who were identified with a condition at any time in preschool, after first presenting with no known cause for delay in Part C. The researcher conducted a frequency distribution to determine the distribution of the children with conditions. Data were missing for 25% of the sample. Frequency distributions indicated 13% of the sample was identified with a condition that may have contributed to their developmental delay but 62% had no known conditions at any time in public preschool.

Logistic Regression Analysis

The researcher conducted logistic regression analysis to determine the relationship between demographics of children when entering Part C and children's readiness to enter

kindergarten. Two models were used to test the hypotheses: Model 1 predicted a child's readiness to enter kindergarten and Model 2 predicted a child's participation in Part B preschool. The researcher determined the fit of the models by examining how much variance was explained by each model. For Model 1, the residual chi-square statistic was 181.30, which was significant at $p < .001$ and for Model 2 the residual chi-square statistic was 74.92 also significant at $p < .001$. This indicates the coefficients for the variables not in the model are significantly different than zero, so the addition of other variables into the either model would significantly affect the models' predictive power (Field, 2009).

The researcher used a .05 probability level to make decisions about statistical significance because at this level there was a 5% or less chance that an outcome occurred by chance (Field, 2009). Table 2 provides an overview of the results of the logistic regression analysis predicting a child's readiness to enter kindergarten. The following is a description of the results in Table 2.

Results of logistic regression analysis for Model 1 revealed that age, gender, and access to Medicaid or private insurance did not significantly influence a child's readiness to enter kindergarten; however, the child's race and poverty level yielded significant results. For Model 2, results revealed a significant finding for age at the time of identification of a developmental delay.

Race

When a child's race changes from minority to white, the odds of being in special education in kindergarten change by a factor of 0.63, controlling for other demographics, Part C services and participation in Part B preschool. This means a white child with a

developmental delay is less likely than a minority child to be in special education in kindergarten.

Poverty

When a child's poverty level changes from above poverty (compared to at or below poverty), the odds of being in special education in kindergarten change by a factor of 0.69, controlling for other demographics, Part C services and participation in Part B preschool. This means a child with a developmental delay who is living above the poverty level threshold for the current study is less likely to be in special education in kindergarten than child who is living at or below the poverty level threshold.

Age

For every month increase in the child's age at the time of identification of a developmental delay, the odds of being in Part B preschool increased by a factor of 1.09, controlling for other demographics and Part C services. This means children were 1.09 times more likely to be in Part B preschool with every month increase in the child's age.

Table 2

Results of Logistic Regressions Predicting School Readiness^a

Variable	Model 1 Special Education Placement in Kindergarten	Model 2 Special Education Placement in Part B Preschool
Constant	.90 (.82)	.55 (.15)
Years in Part B Preschool	2.34*** (.00)	
Preschool Reg Classroom	.70** (.01)	
Known Condition	1.29 (.15)	
Hours of Part C Services	1.004** (.01)	1.01*** (.00)
Age at Referral to Part C	1.02 (.18)	1.09*** (.00)
Male	1.22 (.16)	1.25 (.160)
White	.63** (.01)	1.40 (.05)
At or Below Poverty	.69* (.03)	1.38 (.14)
Medicaid	1.02 (.95)	.80 (.37)
Insurance	.75 (.15)	1.08 (.75)
<i>Residual</i>		
<i>Chi-square</i>	181.30	74.92
<i>df</i>	1	1
<i>n</i>	1,677	2,395

^a The coefficients provided are odds.

* $p < .05$

** $p < .01$

*** $p < .001$

Research Question One

Research question one was answered using data from the sample of children who had developmental delays of unknown etiology and enrolled in Missouri's Part C program. The researcher asked *to what extent does the amount and type of Part C services influence children's participation in Part B preschool and readiness to enter kindergarten?* Hypothesis 1 was tested using logistic regression analysis run on the entire sample to determine (1) the relationship between Part C services and children's readiness to enter kindergarten without special education, and (2) the relationship between Part C services and children's participation in Part B preschool. Results from logistic regression analysis for Model 1 (kindergarten) and Model 2 (preschool) yielded significant results for Part C services.

For Part B preschool, results revealed for every hour increase in the amount of Part C services received, the odds of being in Part B preschool increased by a factor of 1.01, controlling for demographics. Given the odds are the same as 1.0, this means with every hour increase in Part C services, children were no more likely to be in Part B preschool than not in Part B preschool.

For kindergarten, results revealed for every hour increase in the amount of Part C services received, the odds of being in special education in kindergarten increased by a factor of 1.004, controlling for demographics and participation in Part B preschool. Given the odds are the same as 1.0, this means with every hour increase in Part C services, children were no more likely to be in special education in kindergarten than not in special education in kindergarten. Therefore, the findings are inconclusive and did not support Hypothesis 1 that stated children with developmental delays who received more Part C

services were less likely to be in Part B preschool and less likely to be in special education in kindergarten.

Research Question Two

Research question two was answered using data from the sample of children who had developmental delays of unknown etiology and enrolled in Missouri's Part C program. The researcher asked *to what extent do years in a Part B preschool program influence children's readiness to enter kindergarten?* Hypothesis 2 was tested using logistic regression analysis run on children with public preschool data to determine the relationship between years in Part B preschool and children's readiness to enter kindergarten.

Results from logistic regression analysis for Model 1 yielded significant results for years in Part B preschool. Results revealed for every year increase in the time in Part B preschool, the odds of being in special education in kindergarten increased by a factor of 2.34, controlling for demographics, Part C services and time spent in regular classroom. This means children were 2.34 times more likely to be in special education in kindergarten with every year increase in Part B preschool. These results support Hypothesis 2 that stated children with developmental delays who attend more years in Part B preschool were more likely to continue to be in special education in kindergarten.

As an aside, results from logistic regression analysis for Model 1 did not yield significant findings for identification of a condition at any time in preschool. This means a diagnosis of a condition in preschool after first being served in the Part C program did not significantly influence the children's readiness to enter kindergarten without special education.

Research Question Three

Research question three was answered using data from the sample of children who had developmental delays of unknown etiology and enrolled in Missouri's Part C program. The researcher asked *to what extent does time spent in a preschool regular classroom influence children's readiness to enter kindergarten?* Hypothesis 3 was tested using logistic regression analysis run on children with public preschool data to determine the time spent in a regular classroom in preschool. Results from logistic regression analysis for Model 1 yielded significant results for time spent in regular classroom.

Results revealed when the majority of the time in preschool was spent in a placement other than the regular classroom (compared to the regular classroom), the odds of being in special education in kindergarten changed by a factor of 0.70, controlling for demographics, Part C services and years in Part B preschool. This means a child with a developmental delay who spends the majority of time in preschool in the regular classroom is less likely to be in special education in kindergarten than a child who spends the majority of time in preschool in a placement other than the regular classroom. These results for time spent in the regular classroom support Hypothesis 3 that stated children with developmental delays who spent most of the time in a regular classroom in preschool are less likely to be in special education in kindergarten.

To further investigate the relationship between years in Part B preschool and time spent in the regular classroom, the researcher conducted crosstabulations on these variables. Figure 7 depicts the results from the crosstabulations.

		inPKspedYears					
inPKregClass		0 years	1 year	2 year	3 year	4 year	Total
	0	0	275	762	368	5	1410
		0%	19.5%	54%	26.1%	0.4%	100%
		0%	64.9%	56.2%	71.2%	71.4%	55.5%
	1	236	149	594	149	2	1130
		20.9%	13.2%	52.6%	13.2%	.2%	100%
		100%	35.1%	43.3%	28.8%	28.6%	44.5%
	Total	236	424	1356	517	7	2540
		9.3%	16.7%	53.4%	20.4%	0.3%	100%
		100%	100%	100%	100%	100%	100%

Figure 7: Crosstabulations for Preschool Years and Regular Classroom

Results from crosstabulations indicated the majority of children attended Part B preschool for one to three years but more often than not these children were in a placement other than the regular classroom. The results of the logistic regression analysis for Model 1 were important findings because for children in Part B preschool that spent most of the time in preschool in the regular classroom, these children were less likely to be in special education in kindergarten.

The researcher was surprised to find approximately half (44.5%) of the children in Missouri Part B preschools spent most of the time in the regular classroom, given the consistent reporting of approximately one-third of the nation's children in Part B preschool receive special education services in a regular education program (Phillips & Meloy, 2012; Sullivan & Field, 2013). The result from this finding lends to a discussion in Chapter Five about the possible reasons for a high number of children in Part B preschool in a regular education program.

Additionally, the coefficient for time spent in preschool regular classroom was obtained after controlling for severity of developmental delay and extent of Part C services; therefore, the receipt of Part C services and attendance in Part B preschool

combine both the need for services and the benefit from the receipt of such services. In saying that, this is still an interesting finding for participation in Part B preschool and lends to a discussion in Chapter Five about the differences in the design and instructional practices of Part B preschool and regular education programs if time spent in one placement or another leads to significantly different results for children with developmental delays.

Summary

Analysis of existing data collected by Missouri Department of Elementary and Secondary Education provided an examination of the relationship between Part C services, participation in Part B preschool and children's readiness to enter kindergarten without special education for children with developmental delays of unknown etiology. Quantitative statistical analyses were used to determine the influence of age, gender, race, poverty level, access to Medicaid and private insurance, amount and type of Part C services and the number of years and placement for services in Part B preschool.

Logistic regression analysis was used to determine which variables were associated with the child's participation in Part B preschool and readiness to enter kindergarten without special education. Results for Model 2 were based on the outcome variable for Part B preschool. Results for Model 2 indicated significant findings for age and Part C services. Results for Model 1 were based on the outcome variable for kindergarten. Results for Model 1 indicated significant findings for Part C services, years in Part B preschool and time spent in the regular classroom.

CHAPTER FIVE: DISCUSSION

The current study examined the relationship between Part C services, participation in Part B preschool and the need for special education in kindergarten for children with developmental delays of unknown etiology. Chapter Five provides a summary of the purpose and the problem, presents the findings, and provides discussion of the conclusions and implications for policies and practices as well as recommendation for future research. This chapter concludes with a summary of the study.

Summary of the Study

The purpose of the current study was to provide data about the relationship between Part C services and participation in Part B preschool in order to determine the influence on the child's readiness to enter kindergarten without the need for special education services. Research in the field of early childhood is challenging because of the diversity in children and their experiences but the transactional model of development (Sameroff, 2010) provided a framework to look at early childhood with a perspective that children grow and learn because of the interactions between them, their experiences and their environment.

Though challenging, it is necessary to examine the experiences of young children in IDEA programs in order to find out the benefits from receiving special education services. Federal and state funds continue to provide for services to children with developmental delays but there is little information about whether the services prepare children for kindergarten. Examining experiences in IDEA programs is also important to identify policies and practices that promote positive outcomes, especially for children with developmental delays identified before age three. The findings presented in the

current study aimed to inform the state department responsible for the rules governing special education programs in Missouri. This research has potential use for educators who teach young children and legislator/policymakers who allocate funds and create rules for early childhood programs.

Findings

The current study used data from 3,401 records of children who entered Missouri's Part C program between 2007 and 2009. Descriptive statistics were provided, along with findings organized under each of the three research questions. In addressing each question, the researcher reported findings from data obtained from databases managed by the Missouri Department of Elementary and Secondary Education. From the analysis, there were several key findings that were statistically significant.

Research Question 1: To what extent does the amount and type of Part C services influence children's participation in Part B preschool and readiness to enter kindergarten?

The question of whether the amount and type of Part C services influences participation in Part B preschool and children's readiness to enter kindergarten was answered by a logistic regression analysis. The estimates in Table 2 included two models: Model 1 represented the odds of being in special education in kindergarten compared to not being in special education in kindergarten. Model 2 represented the odds of being in Part B preschool compared to not being in Part B preschool.

Analysis of both models showed significant effects for Part C services. For the outcome of kindergarten in Model 1, the interpretation of the findings was that the odds of a child being in special education in kindergarten was 1.004 times more likely with

every hour increase in Part C services. For the outcome of Part B preschool in Model 2, the interpretation of the findings was that the odds of a child being in Part B preschool was 1.01 times more likely with every hour increase in Part C services.

Given the odds for Part C services for both outcome variables of Part B preschool and kindergarten were the same as 1.0, it means with every hour increase in Part C services, children were no more likely to be in Part B preschool than not in Part B preschool, and no more likely to be in special education in kindergarten than not in special education in kindergarten. These findings are a slight contradiction to the statement made by Ramey and Ramey (1998) and Scarborough et al. (2004) that emphasized the importance of children receiving interventions at a young age in order to promote positive outcomes.

Therefore, the influence of the child's age was examined in both models. The results of Model 1 revealed age at the time of identification of a developmental delay did not significantly influence a child's readiness to enter kindergarten; however, results for Model 2 revealed a significant finding for age at the time of identification of a developmental delay. The interpretation of the finding was that the odds of a child being in Part B preschool was 1.09 times more likely with every month increase in the child's age at the time of identification of a developmental delay. Given the odds are only slightly more than 1.0, this means with every month increase in a child's age at the time of identification of a developmental delay, children were slightly more likely to be in Part B preschool.

This finding is a slight contradiction to a previous study that examined interventions for infants and toddlers and found more immediate, positive outcomes for

children served under the age of three (Ramey & Ramey, 1998). However, the study by Ramey and Ramey was not specific to children in IDEA programs, but in a study specific to IDEA programs, Scarborough et al. (2004) found the younger the child's age at the time a developmental problem was identified and intervention began was important to positive outcomes. So the findings from the current study hold true for the significance of the child's age and participation in Part B preschool but do not hold true for participation in special education in kindergarten because age was not a significant finding in Model 1.

Further analysis of Model 2 indicated no other demographic data besides the child's age significantly influenced a child being in Part B preschool. Given that children in Part C continued to need special education in kindergarten, as indicated in findings in Model 2, it may be the type of pre-kindergarten experience was a critical piece to what happens in kindergarten, which was suggested by Hebbeler et al. (2007).

On the other hand, further examination of the results in Model 1 revealed a child's race and poverty level significantly influenced the child's readiness to enter kindergarten. For race, there was a disparity in the number of minority children in special education in kindergarten given the sample consisted of primarily white children but the odds of being in special education in kindergarten increased for minority children, suggesting that minority children are perhaps overrepresented in the number of children in special education in kindergarten. These results were expected because previous studies indicated a disproportionate number of minority children in IDEA Part C (Hallam et al., 2009; Perry et al., 2001; Scarborough et al., 2004).

For poverty level, results indicated yet another disparity in the number of disadvantaged children in special education given the odds of being in special education

in kindergarten increased for disadvantaged children. This means disadvantaged children in the sample were more likely to be in special education in kindergarten. These results were expected because previous studies established disadvantaged children were in need of enriched preschool experiences (Lee et al., 1988) and an increased number of disadvantaged children were eligible for IDEA Part C (Scarborough et al., 2004).

These findings connect to the theoretical frame for the transactional model in how they allow for analysis of the inter-relatedness of biological (i.e., race) and environmental (i.e., poverty) factors that influence how children grow and learn (Sameroff, 2010). The basic concept of the transactional model was that children grow and learn because of the interaction between them and their environment and experiences. Yet some researchers argue that this, in turn, has contributed to increased disparity in the rate of minority, disadvantaged children in need of quality early experiences (Lee et al., 1988; Pfannenstiel et al., 2002).

Research Question 2: To what extent do years in a Part B preschool program influence children's readiness to enter kindergarten?

The question of whether the number of years a child spends in a Part B preschool influences children's readiness to enter kindergarten was answered by a logistic regression analysis where the outcome variable was the need for special education in kindergarten. The estimates in Table 2 represent the odds of being in special education in kindergarten to not being in special education in kindergarten. Analysis of Model 1 showed years in Part B preschool had a statistically significant positive effect on being in special education in kindergarten. The interpretation of the findings was that the odds of a child being in special education in kindergarten was 2.34 times more likely with every

year increase in Part B preschool. While it may be counter-intuitive, this means for every year spent in Part B preschool, children were more likely to be in special education in kindergarten. Yet these findings were expected given the recent research on the negative outcomes of long-term participation in special education programs with specialized instruction outside of a regular education program (Phillips & Meloy, 2012; Sullivan & Field, 2013).

Further analysis of Model 1 showed no significant findings for the identification of a condition at any time in preschool. This means, regardless of children who have a known condition contributing to their developmental delay or a developmental delay of unknown etiology, the number of years in Part B preschool significantly influenced being in special education in kindergarten.

The findings suggest children participating in Part B preschool may have more severe delays or complex problems that were not easily remediated by attending a few years of preschool, which was proposed by Jeon et al. (2011). However, the current study did not properly control for the severity of the level of developmental delay and therefore, reflecting the findings of Jeon et al., children who needed more services continued to do so.

Similarly, a recent study conducted by Phillips and Meloy (2012) found the more time a child with developmental delays spends in places other than a regular education program, such as a Part B preschool setting, the less academic skills that child develops. Though their study excluded children with severe delays, the authors provided results for children with moderate delays that indicated the children would have fared better if no specialized instruction was provided. These findings present a negative outcome for

children who spend multiple years in Part B preschool outside of a regular education program as these children were often more likely to be in special education in kindergarten. Yet these findings are not intended to condemn the delivery of special education services to children in Part B preschool programs as it is not to say the services were not necessary or were not beneficial to children in one developmental area or another (e.g., communication skills, social skills, etc.). What the results do indicate was that for children who participated in Part C because of a developmental delay, children who spent more years in Part B preschool were more likely to be in special education in kindergarten, which may suggest these children had more severe delays or other factors contributing to the delay that were not included in the current study.

Research Question 3: To what extent does time spent in a preschool regular classroom influence children's readiness to enter kindergarten?

The question of whether time spent in a preschool regular classroom influences children's readiness to enter kindergarten was answered by a logistic regression analysis where the outcome variable was the need for special education in kindergarten. The estimates in Table 2 represent the odds of being in special education in kindergarten to not being in special education in kindergarten. Analysis of Model 1 showed time spent in a preschool regular classroom had a significant, negative effect on being in special education in kindergarten. The interpretation of the findings was that the odds of a child being in special education in kindergarten was 0.70 times likely for a child who spent most of the time in preschool in a regular classroom than a child who spent most of the time in preschool in a place other than the regular classroom.

This key finding connects to similar research conducted by Phillips and Meloy (2012) and Sullivan and Field (2013) who found when children with developmental delays were included in a preschool program that was designed for typically developing children and not specifically for children with disabilities, the child's delays were often remediated as the child performed comparable to a typically developing child.

In a closer review of the findings for preschool regular classroom, the results revealed a fair number of children in regular classrooms attended Part B preschool for a varying numbers of years, so there was no particular number of years in Part B preschool that made a difference for time spent in a regular classroom, it was truly that the time spent in a regular classroom made a difference in school readiness. These results are encouraging because they indicate, for children who participated in Part C because of a developmental delay, children were less likely to be in special education in kindergarten if most of their time in preschool was spent in a regular education program with typically developing peers.

Since the results for the current study indicated the number of children age three to five who spend the majority of the time in a regular classroom was higher than the national average, there is reason to examine the placements of children in Part B preschool and how the placement codes are selected and recorded by staff at public schools. Though Appendices E1 and E2 identify the various placement codes and provide adequate descriptions of the placements, the definition of a regular classroom is missing. To ensure accuracy and consistency in the selection of placement codes for children in a Part B preschool program, it would be beneficial to have a clear definition of a regular

classroom that can be used by personnel who are selecting and entering placement codes for children in special education (i.e., administrators, teachers, etc.).

Limitations

The current study had several limitations. The limitations to the overall design of the study were discussed in Chapter One. The specific limitations of the data and findings are presented in the following section.

The data collected on the sample of children with developmental delays were limited to the information available in the two statewide databases utilized for the current study. The first database for Part C records contained a plethora of information on demographic and service information but unfortunately did not contain detailed test scores that could have been used to establish a specific level of developmental delay. Additionally, the second database containing Part B and kindergarten records had attendance, placement and disability information but also did not contain any test scores that could have been used to establish a specific level or severity of developmental delay or progress measurements. Without test scores that could provide a standard level of delay for the children in the sample, it was difficult for the researcher to say the exact severity of the children's delay before Part C services were delivered or the amount of progress made from receiving Part C services or even the benefit from participating in Part B preschool. As such, the child's level of delay was limited to the definition for a developmental delay that constituted eligibility for Missouri Part C (i.e., half-age delay in one developmental domain).

Other limitation for the current study was the researcher only had access to public school data and could not ascertain what other services children in the sample may have

received, such as therapies through private or public agencies outside of the public schools. Therefore, the researcher could not ascertain what other early childhood programs children in the sample for the current study may have attended, such as Head Start, Parents as Teachers or other preschool programs that were designed for typically developing children. Without access to information from other early experiences, the researcher cannot determine the exact influence participation, or lack of participation, in other programs may have had on children's readiness to enter kindergarten without special education.

A final limitation of the current study related to the findings that were based on a specific combination of variables selected and coded for the logistic regression model used in this study. Given the residual chi-square statistic for the models described in the findings in Chapter Four, the researcher determined the coefficients for variables not included in the model were significantly different than zero, so the addition of other variables into the models would significantly affect the predictive power.

Therefore, if the model was changed by adding or taking away variables, then the odds of finding the same coefficients and significance levels may change from what was presented in the current study. For example, poverty level was a significant finding at the significance level of 0.03; however, if the variables in the model were changed, poverty level may or may not continue to be a significant influence on children's readiness to enter kindergarten without special education, given the researcher used a .05 probability level to make decisions about statistical significance in the current study.

These limitations lend to a caution for generalizing the findings from the current study to all children participating in IDEA Part C, specifically disadvantaged children

with mild delays or children with specific disabilities such as autism or Down syndrome. Further, given the limited availability to data on specific levels or severity of the children's delay, the lack of information about participation in other early childhood programs and the predictive power of the findings in the current study, the generalizability should be limited to children with developmental delays according to Missouri's Part C criteria or possibly another state with a population and Part C eligibility criteria that are similar to Missouri.

Another caution for generalizability of the current study was the finding for children who were in special education prior to kindergarten but were not in special education in kindergarten. Without additional data for outcomes beyond kindergarten, the researcher cannot ascertain if the children returned to special education at any time after entering kindergarten. It could be that a child needed special education in kindergarten but did not receive it, which could result in the need for special education again later. So to generalize the findings to say a child was "cured" and no longer had a need for special education is discouraged.

Conclusions

Even with its limitations, the current study can play an important role in understanding the connection between special education and school readiness as suggested by the emerging indicators in the national initiative (National School Readiness Indicators, 2005). The current study provided a rare opportunity to examine the relationship between multiple, complex interactions between child with developmental delays and their environment, described in the transactional model as nature versus nurture (Sameroff, 2010). This interaction was measured by investigating

demographics of children along with the amount and type of Part C services and the number of years and placement for services in Part B preschool as they related to readiness to enter kindergarten without the need for special education services.

Given the model described in Chapter Three, the researcher found what matters most for being in Part B preschool varies slightly with what matters most for being in special education in kindergarten. The significant findings for being in Part B preschool was the child's age at the time of identification of a developmental delay and the hours of Part C services. No other demographic information was a significant influence on children being in Part B preschool.

On the other hand, the child's age was not a significant finding for being in special education in kindergarten; rather it was two other demographic pieces of information that were significant findings: race and poverty. However, the hours of Part C services continued to be a significant finding for children in special education in kindergarten as they were for children in Part B preschool.

The results of the current study do not indicate that Part C children who attend Part B preschool cannot progress or make gains in their skills and abilities while participating in Part B preschool. So Part B preschool should not be disregarded; however, the activities in the various placements, including instructional practices, individualization of services, and time spent with typically developing peers need to be considered in order to identify the activities in various placements that result in positive or negative outcomes for children with developmental delays. Obviously young children with developmental delays need extra support and services, but how the intervention is designed and delivered is critical for school readiness.

The key take-away from the current study was the importance of the time children spent in a regular classroom with typically developing peers, because Part C children with developmental delays who spent most of their time in a preschool regular classroom were less likely to be in special education in kindergarten. The findings in the current study suggest the variable most important to the prediction of being in kindergarten without special education was time spent in a regular classroom. This finding is consistent with the research by Phillips and Meloy (2012) and Sullivan and Field (2013), which found evidence that children in Part B preschool who spend most of their time in a regular classroom are better prepared for kindergarten.

For the current study, having a condition that was known to contribute to developmental delays was not as important as the time spent in the regular classroom. The findings from the current study suggest both children who have developmental delays of unknown etiology and children with known conditions contributing to their delays are able to make progress in a regular classroom with typically developing peers.

Finally, the results of the current study suggested the state of Missouri is finding children with developmental delays who are close to age two (i.e., 20.79 months) before the identification of developmental delay and subsequent services are delivered by the Part C program.

The results of the current study painted a picture of special education in Missouri for children birth to kindergarten age that suggested the state is serving more children who are: living in poverty than children who are above the poverty level, receiving more Part C hours, and attending multiple years in Part B preschool. If the desired outcome is school readiness without the need for special education in kindergarten, it necessitates

that the state consider: identifying children with developmental delays at a younger age, examining how to locate and deliver services to children living in poverty, and placing more children in a preschool regular classroom with typically developing peers.

Recommendations for Practice

The results of the current study provide three major implications for professionals who provide services to children with developmental delays and administrators who develop procedures for early childhood programs, including: early identification, child outcomes and early childhood policies.

First, the results of the current research have important implications for early identification of children for IDEA Part C programs. Results found early identification of developmental delays is important, given the significant finding for age at the time of identification of a developmental delay. Scarborough et al. (2004) argued the older the child's age when entering IDEA Part C, the less opportunity to receive intervention and gain skills before entering school. Not only does this finding have implications for professionals who conduct developmental screening or well-check-up activities with young children, but also for policy makers who establish the criteria for receiving services such as age and severity level.

The implication for professionals is not just targeting parents of young children or expectant mothers, but also establishing procedures to help diagnosticians make referrals immediately to IDEA Part C when developmental concerns are identified. The implications for policy makers are the coordination of program criteria and services to ensure there are adequate resources in place to serve as many young children as feasible. Subsequently, this also leads to an implication for legislators or administrators who

allocate funding to various programs in order to identify and serve more children. However, if the desired outcome is school readiness without the need for special education, it necessitates identifying a developmental delay and delivering services to children at a younger age.

And it's not just about the age of children, early identification should also include targeted activities for disadvantaged, minority children and families, given the results of the current study found the group of children in the sample was more likely to be in special education in kindergarten. Yet these parents are not as likely to participate in IDEA programs (Lee et al., 1988). If the desired outcome is school readiness without the need for special education, it necessitates better outreach activities to find and serve disadvantaged, minority families in local communities. This is especially critical for Part C and Part B preschool programs since this population is over-represented in special education, a finding that was consistent with the current study.

Therefore, this research can also inform policy makers to consider developing and disseminating more culturally diverse information to connect disadvantaged, minority families to IDEA services. Yet finding children and families is only one piece of the puzzle. Once disadvantaged, minority children and families are identified, professionals need to keep them engaged in Part C services and enrolled in preschool in order to increase the likelihood of school readiness. Therefore, this research can also inform early childhood professionals in local programs to consider how to provide extra support for these families in order to retain their participation in IDEA Part C and Part B preschool programs. An implication for connecting families to IDEA programs includes professional development on how to engage the family in home visits that focus on

improving their daily routines and preschool activities that focus on academic skill development. It is also important for professionals to have meaningful resources available for needs that may be beyond the child's development.

Second, the results of the current research have significant implications on child outcomes for children participating in IDEA programs. Results of the current study showed that the *amount* of time in Part B preschool work in opposition with the *quality* of time spent in Part B preschool, meaning the more years spent in Part B preschool, the more likely to be in special education in kindergarten. However, the more time spent in regular classroom, the less likely to be in special education in kindergarten.

The implication of this finding is for policies and practices in public schools that promote more time in a regular classroom, not necessarily more years in Part B preschool. The results of the current study suggest the connection between special education and school readiness is not about how many years children attend preschool; it's about where children with developmental delays are spending their time when they are at preschool. Even having a condition that contributes to a developmental delay is not as significant as the time spent in a regular classroom.

This finding has a huge implication on preschool special education policies and practices because it means children with developmental delays who spend most of their time in a regular classroom with typically developing peers are more likely to be ready for kindergarten without the need for special education, which was similar to the finding by Phillips and Meloy (2012). This finding also leads to important implications for regular classroom teachers. If more children with special needs and diverse learning requirements are placed in the regular classroom, preschool teachers need extra support

and professional development to help them instruct a variety of learners and children with multiple special needs in one classroom.

On the other hand, this finding also leads to implications for teachers in Part B preschools. If the design and instructional practices in a regular classroom can be utilized by teachers in places besides the regular classroom, then children in placements other than the regular classroom would also benefit from these effective practices for young children. If time spent in one placement or another leads to significantly different results for children with developmental delays, the implication is for all teachers to use instruction and practices that promote school readiness for all young children regardless of developmental delays or disabilities.

Third, the results of the current study have numerous implications for administrators who develop policies for early childhood programs, including three aspects discussed in Chapter Two: early learning standards, serving children over age three in IDEA Part C and federal reporting of early childhood outcomes.

For early learning standards, the results of the current study provided a connection between special education and school readiness with an emphasis on children with developmental delays spending time in a regular classroom with typically developing peers. Early learning standards for preschoolers already describe the activities young children need to do in order to be ready for school and explanations of these standards are available for teachers and parents (Missouri Department of Elementary and Secondary Education, Missouri early learning standards, n.d.). Given the finding in the current study for time spent in a regular classroom, it is recommended that special education administrators, regular classroom teachers and parents identify the activities in the

learning standards that specifically relate to school readiness and work together to serve children with developmental delays. Additionally, the standards for infants and toddlers should focus less on academic skill development as infants and toddlers learn in the context of relationships and daily activities (Parlakian, 2003), which also requires collaboration between professionals and parents.

For serving children over age three in Part C, the current study revealed Part C children were no more likely to be in Part B preschool or in special education in kindergarten given the amount of Part C services delivered to the children. The results suggest that the decision to expand the availability of Part C services to children over age three should be based on other factors besides the receipt of Part C services. However, if expansion of Part C is selected, Part C services for children over age three must include an educational component that promotes school readiness and incorporates pre-literacy, language and numeracy skills (U.S. Department of Education, IDEA – reauthorized statute, n.d.). Therefore, if utilized by more states, Part C services to children over age three could provide a stronger connection between Part C and school readiness as these services begin to focus on academic skill development at a critical time when toddlers become preschoolers.

For early childhood outcomes, the current study found the amount and type of Part C services and the number of years in Part B preschool did not necessarily influence the children's progress. However, due to the inability to utilize test scores in the current study, a specific level of developmental delay or a specific amount of progress could not be established and a definite conclusion cannot be made with regard to child outcomes. Therefore, it is recommended that the information used to collect and rate early childhood

outcomes consider aspects other than services and preschool participation, such as a standard measurement of school readiness for children entering kindergarten. Since the current study revealed multiple differences between IDEA Part C and Part B preschool programs, from eligibility criteria to service delivery to what school readiness looks like for infants and preschoolers, it is further recommended the ratings for Part C and Part B preschool consider aspects that are unique to each program and consider collaboration on aspects that are similar between programs. Given the program differences, it is not recommended to use the same procedures to determine the early childhood outcomes for both programs.

Recommendations for Further Research

Little research exists on the emerging connection between special education and school readiness (National School Readiness Indicators, 2005), so the results of the current study took a step toward strengthening this connection and at the same time provided timely, necessary information for school readiness initiatives for young children. But further research is needed to make the connection even stronger and to continue to close the gap in information about children with developmental delays of unknown etiology.

Further investigation into the experiences of children in Missouri Part C are needed to determine if the assumptions described in Chapter One continue to hold true, including: the data were not clustered or nested, the data were entered and collected accurately, and the children had developmental delays of unknown etiology. The current study should be expanded to investigate the outcome in kindergarten for the portion of the children in the sample who had not yet entered kindergarten at the time the data were

collected. Then results for that group of children could be compared to the findings in the current study.

Additionally, future research could consider the outcomes after kindergarten entry for the group of children studied. A follow up study would be beneficial to examine what the special education placement and disability codes were beyond kindergarten, such as the Missouri statewide assessment that begins in grade three.

In order to strengthen the emerging connection between special education and school readiness, either test scores or more specificity in the severity of children's delays must be obtained to determine children's level of developmental delay that best benefits from Part C services or participation in Part B preschool. It would be important for future research to include multiple data collection points with this specificity, including test scores at entry into Part C, entry into Part B preschool and entry into kindergarten. An additional aspect of the severity of the child's developmental delay that may be important to consider in an examination of child outcomes is the types of conditions that children are diagnosed with after first presenting with a developmental delay in Part C. Given the eligibility criteria for Part B described in Chapter Two, there are quite a range of disability categories that constitutes criteria for receiving services and this could result in a subsequent range of expectations for child outcomes.

On a related note, the current study did not investigate any variation in outcomes that was associated with any particular subgroup within the disability categories or placements for children in the sample. For the current study, the children's disability and placements were coded as dummy variables. It would be important for future research to include an analysis of outcomes based on different disability codes for children with

known conditions contributing to their developmental delays such as autism or Young Child with a Developmental Delay (YCDD), and different placement codes for children served by a Part B preschool program.

Finally, the recommendations for future research would not be complete without mentioning the importance in the type of data that can be collected in early childhood programs and readily available to researchers. If the connection between special education and school readiness is to be strengthened, it necessitates that critical data such as test scores and participation in multiple programs are collected. And for studies that have a longitudinal research design, the extent of missing data on children may make future research challenging unless there is a unique identification number that can be used to capture data from multiple sources, or improvements are made to how identification number are used in order to reduce the number of missing cases.

Summary

The purpose of the current study was to examine the relationship between Part C services, participation in Part B preschool and readiness to enter kindergarten without special education for a group of children who entered Missouri Part C between 2007 and 2009 due to developmental delays of unknown etiology. Demographic and experiential data were analyzed using logistic regressions.

Implications from the current study included aspects of early identification and child outcomes for professionals who serve children with developmental delays and who develop early childhood policy, specifically learning standards, services to children over age three and early childhood outcomes. The results of the current study could be used to

justify targets for identifying and serving a younger, more diverse population of children in Part C and for placing more children in preschool regular classrooms.

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Appendix A

Key Features of Part B and Part C of IDEA

Key Features of Part B and Part C of Individuals with Disabilities Education Act (IDEA)

Component	Part C	Part B
Age	Birth to 36 months	The child's third birth date to age 21
Eligibility	Children ages 0-3 who have: ☐ Very Low Birth Weight (less than 1500 grams) ☐ A diagnosed physical or mental condition with a high probability of developmental delay ☐ A 50% or greater developmental delay in 1 or more areas (physical, cognitive, communication, adaptive, social/emotional)	Children ages 3-21 must meet eligibility criteria as established by state regulation. For a complete description, the reader should reference the Missouri State Plan for Special Education. Children eligible for First Steps do not automatically qualify for ECSE at age 3.
How to make a referral	<i>Regional First Steps office</i> If you suspect a child age 0 – 3 may qualify for Early Intervention services, call toll free to 866-583-2392 to be connected to the System Point of Entry (SPOE) office in your area.	<i>Local School District</i> If you suspect a student age 3 – 21 has a disability, contact the special education office at the school district in which the child resides.
Program Focus	<i>Focused on the family and the child.</i> Provides developmental services for infants & toddlers with disabilities, and support/education for families, and helps young children participate in family and community life.	<i>Focused on the educational needs of the child.</i> Provides special education and related services for students with disabilities, 3-5 years old, helps them to develop the skills necessary for successful school performance in kindergarten and other grades. Provides a free and appropriate public education (FAPE).
Purpose of Evaluation/Assessment	Determines a child's eligibility for <i>Part C early intervention</i> and identifies his/her strengths and unique needs. Assists families in identifying their concerns, priorities, and resources related to helping their children participate in the family and the community.	Determines a child's eligibility for <i>Part B early childhood special education services</i> and identifies his/her special education and related services due to their disability.

Key Features of Part B and Part C of Individuals with Disabilities Education Act (IDEA)

Component	Part C	Part B
Intervention Plans	<p><i>Individualized family service plan (IFSP)</i></p> <p>Includes a statement of:</p> <ul style="list-style-type: none"> the child's present levels of development the family's concerns, priorities, and resources, relating to enhancing the development of the child the major outcomes expected to be achieved for the child and family the natural environments in which early intervention services shall be appropriately provided, and justification for services that are not in the natural environment the projected dates for initiation of services and the anticipated duration of services the name of the Service Coordinator who will be responsible for the IFSP the steps to be taken to support the transition of the child upon reaching the age of 3 	<p><i>Individualized education program (IEP)</i></p> <p>Includes a statement of:</p> <ul style="list-style-type: none"> the child's present levels of educational performance the annual goals, including benchmarks or short-term objectives the projected dates for the initiation of special education, related services, and modifications the extent, if any, to which the child will not participate with nondisabled children in the regular education setting. (For ECSE, this means classrooms designed primarily for children with disabilities.) the student's participation in general statewide and district wide assessments of the student's achievement how progress toward annual goals will be measured and how this will be reported to parents
Service Availability	Operates on a 12 month per year schedule.	Operates on a school year calendar. Services beyond the school year are determined by the application of specific criteria for extended school year by the IEP team.

Key Features of Part B and Part C of Individuals with Disabilities Education Act (IDEA)

Component	Part C	Part B
Types of Services Available	<p><i>Early Intervention services</i> are designed to meet the developmental needs of the child and the needs of the family related to enhancing the child's development.</p> <p>Parents may refuse any or all services. Refusal of some services does not jeopardize the provision of other services.</p> <p>Early Intervention Services include:</p> <ul style="list-style-type: none"> ➤ Audiology ➤ Occupational Therapy ➤ Training, Counseling, and Home Visits ➤ Physical Therapy ➤ Psychological Services ➤ Speech Language Therapy ➤ Transportation and Related Costs ➤ Assistive Technology Services and Devices ➤ Medical Services for Diagnostic or Evaluation Purposes ➤ Special Instruction ➤ Vision Services ➤ Service Coordination (Case Management) ➤ Nursing Services ➤ Nutrition Services 	<p><i>Special education services</i> means specially designed instruction that includes instruction conducted in the classroom, in the home, in hospitals, and institutions, and in other settings.</p> <p>Related services means such developmental, corrective, and other supportive services as are required to assist the child to benefit from special education and includes:</p> <ul style="list-style-type: none"> ➤ Audiology ➤ Occupational Therapy ➤ Parent Counseling and Training ➤ Physical Therapy ➤ Psychological Services ➤ School Health Services ➤ Social Work Services ➤ Speech/Language Pathology ➤ Transportation ➤ Assistive Technology Services and Devices ➤ Medical Services for Diagnostic or Evaluation Purposes ➤ Rehabilitation Counseling Services ➤ Recreation ➤ Counseling Services ➤ Orientation and Mobility ➤ Early Identification and Assessment

Key Features of Part B and Part C of Individuals with Disabilities Education Act (IDEA)

Component	Part C	Part B
Where Services are Provided	<p><i>Natural Environment</i></p> <p>Early Intervention services are provided in <i>natural environments</i>, places where children without disabilities typically live, learn, and play. These settings are natural and normal for the child's age peers who do not have a disability.</p> <p>To the maximum extent appropriate, services are provided in natural environments, including the home and community settings, in which children without disabilities participate.</p> <p>Early intervention services may be provided in settings other than the natural environment only when the early intervention cannot be achieved satisfactorily for the infant or toddler in a natural environment.</p>	<p><i>Least Restrictive Environment</i></p> <p>Special education services are provided in the <i>least restrictive environment</i> with typical peers and in collaboration with community early childhood partners (private care facilities, homes, etc.).</p> <p>To the maximum extent appropriate, children with disabilities, including children with public or private institutions or other care facilities, are educated with children who are nondisabled; and that special classes, separate schooling, or other removal of children with disabilities from the regular educational environment occurs only when the nature or severity of the disability is such that education in regular classes with the use of supplementary aids and services cannot be achieved satisfactorily.</p>
Parent Rights	<p><i>Parental Rights</i></p> <p>State regulations under Part C detail the rights of children and parents who participate in First Steps.</p>	<p><i>Procedural Safeguards</i></p> <p>State regulations under Part B detail the rights of students with disabilities.</p>

The Department of Elementary and Secondary Education does not discriminate on the basis of race, color, national origin, sex, disability, or age in its programs and activities. Inquiries related to Department programs and to the location of services, activities, and facilities that are accessible by persons with disabilities may be directed to the Jefferson State Office Building, Civil Rights Compliance (Title VI/Title IX/504/ADA/Age Act), 5th Floor, 205 Jefferson Street, Jefferson City, MO 65102-0480; telephone number 573-526-4757 or Relay Missouri 800-735-2966. (March 2012)

Appendix B

2007 to 2009 HHS Poverty Guidelines

2007 to 2009 HHS Poverty Guidelines

2007 HHS Poverty Guidelines for 48 Contiguous States and D.C.

Persons in Family or Household	Poverty guideline
1	\$10,210
2	13,690
3	17,170
4	20,650
5	24,130
6	27,610
7	31,090
8	34,570
For each additional person, add	3,480

SOURCE: *Federal Register*, Vol. 72, No. 15, January 24, 2007, pp. 3147–3148

2008 HHS Poverty Guidelines for 48 Contiguous States and D.C.

Persons in Family or Household	Poverty guideline
1	\$10,400
2	14,000
3	17,600
4	21,200
5	24,800
6	28,400
7	32,000
8	35,600
For each additional person, add	3,600

SOURCE: *Federal Register*, Vol. 73, No. 15, January 23, 2008, pp. 3971–3972

2009 HHS Poverty Guidelines for 48 Contiguous States and D.C.

Persons in family	Poverty guideline
1	\$10,830
2	14,570
3	18,310
4	22,050
5	25,790
6	29,530
7	33,270
8	37,010
For families with more than 8 persons, add	3,740

SOURCE: *Federal Register*, Vol. 74, No. 14, January 23, 2009, pp. 4199–4201

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Appendix C

Missouri School Readiness Indicators

MISSOURI SCHOOL READINESS INDICATORS
Overarching Measure - % of Children Ready for School:

FAMILY ENVIRONMENT:

- % of children under 6 in poverty
- % of births to mothers with < 12 years of education

COMMUNITY CONDITIONS:

- % of communities with reductions in crime against persons
- % of children screened for lead

READY SCHOOLS:

- % of students with unidentified special needs at K entry
- % of school districts increasing participation in PAT for high risk families

EFFECTIVE SERVICES:

- Health
 - % of children with health insurance
 - % of births with inadequate prenatal care
- Mental Health
 - % of children on MC+ that access Mental Health
- Child Welfare
 - Average number of out of home placements per child
 - % of children with repeated, substantiated CA/N

April 21, 2003

- Early Care & Education
 - % of subsidized children in licensed child care
 - % of Early Care & Education providers with training/degree
 - # of accredited child care facilities
 - % of eligible children enrolled in EHS/HS/PAT

READY CHILD:

- Physical and Motor Development
 - % of drug-affected births
 - % of children with age appropriate gross and fine motor skills at K entry
- Social and Emotional Development
 - % of children that can cope with frustration and failure at K entry
- Approaches to Learning
 - % of children showing curiosity and interest at K entry
- Language Development
 - % recognizes relationship between letters and sounds at K entry
 - % of children using language to communicate ideas, feelings, questions and solve problems at K entry
- Cognition and General Knowledge
 - # of children that sort items by identifying likeness and differences at K entry
 - % of children that recognize basic shapes at K entry

Appendix D

Special Education Disability Codes

SPECIAL EDUCATION DISABILITY CODES
(Screens 08, 09, 11 and 12)

- 01** **MR** – Mental Retardation. Refers to significantly sub average general intellectual functioning existing concurrently with deficits in adaptive behavior manifested during the developmental period that adversely affects a child’s educational performance.
- 02** **ED** – Emotional Disturbance. Refers to a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child’s educational performance:
 (a) Difficulties in learning that cannot be explained by cultural, intellectual, sensory or other health factors;
 (b) Difficulties in building or maintaining satisfactory interpersonal relationships with peers, parents and teachers;
 (c) General pervasive mood of unhappiness or depression;
 (d) A tendency to develop physical symptoms, pains or fears associated with personal or social problems;
 (e) Inappropriate types of behavior or feelings under normal circumstances.
- 04** **OI** – Orthopedic Impairment. Refers to a severe orthopedic impairment that adversely affects a child’s educational performance. The term includes impairments caused by congenital anomaly (e.g., club foot, absence of some member, etc.), impairments caused by disease (poliomyelitis, bone tuberculosis, etc.) and impairments from other causes (e.g., cerebral palsy, amputations and fractures or burns that cause contractures).
- 06** **VI** – Visual Impairment. Refers to impairment in vision, including blindness, that even with correction, adversely affects a child’s educational performance. The visual impairment involves partial sight, whereby visual acuity has been determined to be 20/70 to 20/200 in the better eye with best correction by glasses, or blindness, whereby visual acuity has been determined to be 20/200 or less in the better eye with best correction by glasses or the visual field measures 20 degrees or less.
- 08** **HI** – Hearing Impairment. Refers to impairment in hearing, including deafness, which adversely affects a child’s educational performance. The hearing impairment involves permanent or fluctuating impairments to hearing, or deafness, whereby the impairment is so severe that the child is impaired in processing linguistic information through hearing, with or without amplification.
- 09** **LD** – Specific Learning Disabilities. Refers to a disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, which may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not include children who have learning problems, which are primarily the result of visual, hearing or motor disabilities; mental retardation; emotional disturbance; or environmental, cultural or economic disadvantage.
- 10** **OHI** – Other Health Impairment. Refers to having limited strength, vitality or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment that is due to chronic or acute health problems, such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, and sickle cell anemia, and adversely affects a child’s educational performance.

- 11 **DB – Deaf and Blindness.** Refers to sensory impairments occurring in combination with each other. The combination of these visual and hearing impairments causes significant educational problems.

- 12 **MD – Multiple Disabilities.** Refers to concomitant impairments (such as mental retardation blindness, mental retardation-orthopedic impairment, etc.), the combination of which causes such severe educational needs that they cannot be accommodated in special education programs solely for one of the impairments. The term does not include deaf/blindness.

- 13 **AU – Autism.** Refers to a developmental disability significantly affecting verbal or nonverbal communication and social interaction, generally evident before age 3, which adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. The term does not apply if a child's educational performance is adversely affected primarily because the child has an emotional disability as defined in the document.

- 14 **TBI – Traumatic Brain Injury.** Refers to an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. The term includes open or closed head injuries resulting in impairments in one or more areas, such as, cognition, language, memory, attention, reasoning, abstract thinking, judgment, problem solving, sensory, perceptual and motor abilities, psychological behavior, physical functions, information processing and speech. The term does not include brain injuries that are congenital or degenerative or to brain injuries induced by birth trauma.

- 16 **YCDD – Young Child with a Developmental Delay.** Refers to a child initially identified ages 3 through 5 who is experiencing developmental delay, as measured by appropriate diagnostic instruments and procedures, in one or more of the following areas: physical development, cognitive development, communication development, social or emotional development or adaptive development and who needs special education and related services.

- 17 **LI - Language Impairment.** A communication disorder consisting of inappropriate use in any of the structures of language (e.g., morphology, syntax, semantics, and pragmatics) which adversely affects educational performance.

- 18 **SI – Speech Impairment.** A sound system disorder which includes articulation and/or phonology exhibited as a delay of correct sound production which adversely affects educational performance. This category also includes fluency disorders that are exhibited through one or more symptomatic behaviors of dysfluency (repetitions, prolongations, blockages or hesitations) which adversely affects educational performance and voice disorders that are exhibited through deviations in one or more of the parameters of voice (pitch, quality or volume) which adversely affects educational performance.

Note: For further information regarding these definitions, refer to the current copy of the *Missouri State Plan for Special Education – Regulations Implementing Part B of the IDEA*.

Appendix E1
Special Education Placement Category Codes
(Revised as of 2010-11)

**SPECIAL EDUCATION PLACEMENT (EDUCATIONAL ENVIRONMENTS) CATEGORY
CODES
(Screen 11)**

Early Childhood Educational Environments (Ages 3-5)

- 00A4 **In regular early childhood program 10+ hours and receives majority of sped services in regular program** - Children with disabilities receiving the majority of hours of special education and related services in the regular early childhood program (and the child attends a regular early childhood program at least 10 hours per week)
- 00A5 **In regular early childhood program 10+ hours and receives majority of sped services in another location** - Children with disabilities receiving the majority of hours of special education and related services in some other location (and the child attends a regular early childhood program at least 10 hours per week)
- 00A6 **In regular early childhood program less than 10 hours and receives majority of sped services in regular program** - Children with disabilities receiving the majority of hours of special education and related services in the regular early childhood program (and the child attends a regular early childhood program less than 10 hours per week)
- 00A7 **In regular early childhood program less than 10 hours and receives majority of sped services in another location** - Children with disabilities receiving the majority of hours of special education and related services in some other location (and the child attends a regular early childhood program less than 10 hours per week)
- 00B1 **Separate Class** - Children with disabilities who attend a special education program in a class with less than 50% non-disabled children. (Do not include children who also attend a regular early childhood program.)
- 00B2 **Separate School** - Children with disabilities who receive special education and related services in public or private day schools designed specifically for children with disabilities. (Do not include children who also attend a regular early childhood program.)
- 00B3 **Residential Facility** - Children with disabilities who receive special education and related services in publicly or privately operated residential schools or residential medical facilities on an inpatient basis. (Do not include children who also attend a regular early childhood program).
- 00B4 **Home** – Children with disabilities who receive special education and related services in the principal residence of the child’s family or caregivers and who did not attend an early childhood program or a special education program provided in a separate class, separate school, or residential facility. Include children who receive special education both at home and in a service provider location. The term caregiver includes babysitters.
- 00B5 **Service Provider location** – Children with disabilities who receive all of their special education and related services from a service provider, and who did not attend an early childhood program or a special education program provided in a separate class, separate school, or residential facility. For example, speech instruction provided in: private clinicians’ offices, clinicians’ offices located in school building, hospital facilities on an outpatient basis, and libraries and other public locations. Do not include children who also receive special education at home. Children who receive special education both in a service provider location and at home should be reported in the Home category.

School Age Educational Environments Categories (Ages 5K-22)

- 1100 **Inside the Regular Class 80 percent or more of the day** – Students with disabilities who are inside the regular classroom for 80% or more of the school day. (These are students who receive special education and related services outside the regular classroom for less than 21% of the school day.) This may apply to students with disabilities placed in:
- Regular class with special education/related services provided within regular classes
 - Regular class with special education/related services provided outside regular classes;
 - Regular class with special education services provided in resource rooms.
- This could include students with disabilities placed in an alternative school program with non-disabled peers. Do not include students with disabilities who are parentally placed in private schools to whom the public district is providing special education and related services – see code 2100.
- 1201 **Inside regular class no more than 79% of the day and no less than 40% of the day** - Students with disabilities who are inside the regular classroom between 40 and 79% of the day. (These are students who received special education and related services outside the regular classroom for at least 21% but no more than 60% of the school day.) This does not apply to students who are receiving education programs in public or private separate school or residential facilities. This may apply to students placed in:
- Resource rooms with special education/related services provided within the resource room
 - Resource rooms with part-time instruction in a regular class
- This could include students with disabilities placed in an alternative school program with non-disabled peers. Do not include students with disabilities who are parentally placed in private schools to whom the public district is providing special education and related services – see code 2100.
- 1301 **Inside regular class less than 40 percent of the day** – Students with disabilities who are inside the regular classroom less than 40% of the school day. (These are students who received special education and related services outside the regular classroom for more than 60% of the school day.) This does not apply to students who are receiving education programs in public or private separate school or residential facilities. This category may apply to students placed in:
- Self-contained special classrooms with part-time instruction in a regular class
 - Self-contained special classrooms with full-time special education instruction on a regular school campus
- This could include students with disabilities placed in an alternative school program with non-disabled peers. Do not include students with disabilities who are parentally placed in private schools to whom the public district is providing special education and related services – see code 2100.
- 1401 **State Operated Separate School** - This category should only be used by Missouri School for the Blind, Missouri School for the Deaf, and State Schools for the Severely Handicapped. Regular districts should no longer report resident students who are attending these state operated programs.
- 1402 **Private Separate (Day) Facility** - Students with disabilities who receive all of their special education and related services, at public expense, for greater than 50 percent of the school day in private separate facilities. This includes students with disabilities who are served by a private educational agency other than a parochial school. This includes those approved private agencies with whom districts contract to provide special education services to students within their district.

- 1403 **Public Separate (Day) Facility** - Students with disabilities who receive all of their special education and related services for greater than 50 percent of the school day in public separate facilities. This includes those students with disabilities placed by the IEP team in a segregated facility operated by a public school. This *does not* include residential facilities and does not encompass facilities that include non-disabled students such as alternative school programs.

- 1601 **Homebound/Hospital** - Due to student's illness, medically fragile condition, or a disciplinary suspension, the student receives special education at home or in a hospital via a visiting teacher or telephone instruction based on the student's IEP.

- 1701 **Private Residential Facility** - Children with disabilities who receive all of their special education and related services, at public expense, for greater than 50 percent of the school day in private residential facilities, who are placed by the **public school IEP** team. This *does not* include students living in private residential facilities but attending public schools.

- 1801 **Correctional Facility** – Students with disabilities who receive all of their special education and related services in a correctional facility. This includes those students in the city/county jail and short term detention facilities.

- 2100 **Parentally-Placed Private School Children** - Students with disabilities who are parentally-placed in private schools, including home schools, and are receiving special education and related services from the public school.

Appendix E2
Special Education Placement Category Codes
(Prior to 2010-11)

**SPECIAL EDUCATION PLACEMENT CATEGORIES CODES
(Screen 11)**

Early Childhood Educational Environments (Ages 3-5)

- 00A1 **In the regular early childhood program at least 80% of time** - Children with disabilities who attend an early childhood program and are in the early childhood program for at least 80% of time.
- 00A2 **In the regular early childhood program 40% to 79% of time** - Children with disabilities who attend an early childhood program and are in the early childhood program for no more than 79% but no less than 40% of time
- 00A3 **In the regular early childhood program less than 40% of time** - Children with disabilities who attend an early childhood program and are in the early childhood program for less than 40% of time.
- 00B1 **Separate Class** - Children with disabilities who attend a special education program in a class with less than 50% nondisabled children. (Do not include children who also attend a regular early childhood program.)
- 00B2 **Separate School** - Children with disabilities who receive special education and related services in public or private day schools designed specifically for children with disabilities. (Do not include children who also attend a regular early childhood program.)
- 00B3 **Residential Facility** - Children with disabilities who receive special education and related services in publicly or privately operated residential schools or residential medical facilities on an inpatient basis. (Do not include children who also attend a regular early childhood program.)
- 00B4 **Home** - Children with disabilities who receive special education and related services in the principal residence of the child's family or caregivers and who did not attend an early childhood program or a special education program provided in a separate class, separate school, or residential facility. Include children who receive special education both at home and in a service provider location. The term caregiver includes babysitters.
- 00B5 **Service Provider location** - Children with disabilities who receive all of their special education and related services from a service provider, and who did not attend an early childhood program or a special education program provided in a separate class, separate school, or residential facility. For example, speech instruction provided in: private clinicians' offices, clinicians' offices located in school building, hospital facilities on an outpatient basis, and libraries and other public locations. Do not include children who also receive special education at home. Children who receive special education both in a service provider location and at home should be reported in the Home category.

School Age Placement Categories (Ages 5K-22)

- 1100 **Inside the regular class 80 percent or more of the day** - Students with disabilities who are inside the regular classroom for 80% or more of the school day. (These are students who receive special education and related services outside the regular classroom for less than 21% of the school day.) This may apply to students with disabilities placed in:
- Regular class with special education/related services provided within regular classes
 - Regular class with special education/related services provided outside regular classes;
 - Regular class with special education services provided in resource rooms.
- This could include students with disabilities placed in an alternative school program with non-disabled peers. Do not include students with disabilities who are parentally placed in private schools to whom the public district is providing special education and related services – see code 2100
- 1201 **Inside regular class no more than 79% of day and no less than 40% of the day** – Students with disabilities who are inside the regular classroom between 40 and 79% of the day. (These are students who received special education and related services outside the regular classroom for at least 21% but no more than 60% of the school day.) This does not apply to students who are receiving education programs in public or private separate school or residential facilities. This may apply to students placed in:
- Resource rooms with special education/related services provided within the resource room
 - Resource rooms with part-time instruction in a regular class
- This could include students with disabilities placed in an alternative school program with non-disabled peers. Do not include students with disabilities who are parentally placed in private schools to whom the public district is providing special education and related services – see code 2100
- 1301 **Inside regular class less than 40 percent of the day** – Students with disabilities who are inside the regular classroom less than 40% of the school day. (These are students who received special education and related services outside the regular classroom for more than 60% of the school day.) This does not apply to students who are receiving education programs in public or private separate school or residential facilities. This category may apply to students placed in:
- Self-contained special classrooms with part-time instruction in a regular class
 - Self-contained special classrooms with full-time special education instruction on a regular school campus
- This could include students with disabilities placed in an alternative school program with non-disabled peers. Do not include students with disabilities who are parentally placed in private schools to whom the public district is providing special education and related services – see code 2100.
- 1401 **State Operated Separate School** - This category should only be used by Missouri School for the Blind, Missouri School for the Deaf, and State Schools for the Severely Handicapped. Regular districts should no longer report resident students who are attending these state operated programs.
- 1402 **Private Separate (Day) Facility** - Students with disabilities who receive all of their special education and related services, at public expense, for greater than 50 percent of the school day in private separate facilities. This includes students with disabilities who are served by a private educational agency other than a parochial school. This includes those approved private agencies with whom districts contract to provide special education services to students within their district.

- 1403 **Public Separate (Day) Facility** - Students with disabilities who receive all of their special education and related services for greater than 50 percent of the school day in public separate facilities. This includes those students with disabilities placed by the IEP team in a segregated facility operated by a public school. This *does not* include residential facilities and does not encompass facilities that include non-disabled students such as alternative school programs.
- 1601 **Homebound/Hospital** - Due to student's illness, medically fragile condition, or a disciplinary suspension, the student receives special education at home or in a hospital via a visiting teacher or telephone instruction based on the student's IEP.
- 1701 **Private Residential Facility** - Students with disabilities who receive all of their special education and related services, at public expense, for greater than 50 percent of the school day in private residential facilities, who are placed by the **public school IEP** team. This *does not* include students living in private residential facilities but attending public schools.
- 1801 **Correctional Facility** - Students with disabilities who receive all of their special education and related services in a correctional facility. This includes those students in the city/county jail and short term detention facilities.
- 2100 **Parentally Placed Private School Children**- Students with disabilities who are parentally placed in private schools, including home schools, and are receiving special education and related services from the public school.

Appendix F

Request for Permission to Access Data

Request for Permission to Access Data for Purpose of Research Study

December 7, 2012

Missouri Department of Elementary and Secondary Education
Attention: Tim Wittmann, Asst. Director
205 Jefferson Street
Jefferson City, MO 65102

Mr. Wittmann,

My name is Pam Thomas and I am a research student at the University of Missouri – Columbia in the Department of Educational Leadership and Policy Analysis. I am conducting a study on *An Examination of School Readiness in Children with Developmental Delays* as part of the requirements for my doctoral degree.

I am studying school readiness in young children with developmental delays because I want to find out if there are certain biological or experiential characteristics that impact school readiness, including the amount and type of intervention received prior to kindergarten. In this study, I hope to find information to help educators improve policies and procedures for children with developmental delays, including the availability and amount of intervention to children with developmental delays.

This study will use a quantitative design to analyze multiple data points in order to determine school readiness in children with developmental delays. There will be one criterion variable: school readiness for children with developmental delays, that will be tested against seven predictor variables: the child's age at the time of identification of developmental delay, gender, race, poverty level, access to insurance, the amount of Part C services and the child's participation in the Part B/Section 619 program. The measure of effect will be whether the child needed special education services in Kindergarten.

I am requesting permission to access Missouri Student Information System (MOSIS) data from the Part C (First Steps) and Part B/Section 619 (Early Childhood Special Education) programs in order to collect data for the seven variables listed above. Through the use of the unique MOSIS identifier, the student's participation in Part C (First Steps) and Part B/Section 619 (Early Childhood Special Education) and entrance into Kindergarten can be tracked accordingly. It is expected that the identity of the child will be anonymous as the MOSIS identifier will be re-coded before any data are submitted to the student researcher.

Access to data would consist of information stored in two database systems. First, I am requesting access to the First Steps database to obtain a list of children who participated in the Part C program due to a developmental delay in the 2008-09 year. According to the Office of Special Education website at: <http://dese.mo.gov/se/fs/data.html>, there were approximately 4,000 children in the program that year and approximately half with developmental delays. For this group, child and family demographics described above

would be collected as well as the reason for leaving the Part C program (e.g., eligible for Part B/Section 619) in order to ensure that only the children who participated in Part C and eligible for Part B/Section 619 are included.

Second, I am requesting access to the MOSIS data system to determine the participation of those children once they left First Steps; specifically, permission to obtain a list of the children's primary disability reason for receiving services in 619, the location of the services received while in the 619 program and then the child's primary disability reason for services in kindergarten, if any, and corresponding location codes for any services received while in kindergarten.

Confidentiality will be maintained at all times. Since no personally identifiable information will be shared due to the anonymity of the child through re-coding of the data prior to releasing to the student researcher; there is no foreseeable risk to conducting this study. In accordance with the MO Data Access and Use policy at: dese.mo.gov/MOSIS/MOData_Access_and_Use_v2_1.doc, the information collected will be used only for the purpose of this study and will be destroyed upon conclusion of the study. To make sure the information is kept confidential, only the student researcher, Pam Thomas, and faculty researchers, Drs. Juanita Simmons and Casandra Harper, will have access to the data once it is obtained from the state agency.

*If you consent to provide access to the data necessary to conduct this study, please send a letter of support **by December 21, 2012** to me or to my faculty researcher Dr. Juanita Simmons.*

For more information about this study, please contact me at pstb79@mail.mizzou.edu or call me at 573-822-2522. You can also contact my faculty advisor, Dr. Juanita Simmons at simmonsj@missouri.edu or 573-882-4218.

Thank you for your consideration.

Sincerely,

Pam Thomas
Student Researcher

Appendix G

Part C Services Mapped to Developmental Domains

Part C Services Mapped to Developmental Domains*

Missouri State Plan for Early Intervention Services	Part C Service Found in Data**	Part C Service Mapped to Developmental Domain***
Assistive Technology	1 to 1	Adaptive
Audiology	1 to 1	Physical
Dietary/Nutrition	1 to 1	Adaptive
Family child care assistance	None	NA
Family training, counseling and home visits	None	NA
Health Services	None	NA
Medical Services	1 to 1	Omit (testing)
Nursing Services	1 to 1	Physical
Occupational Therapy	1 to 1	Adaptive, Physical
Other Services	El Testing	Omit (testing)
	Team meetings	Omit (meeting)
	Translation	Omit (ancillary)
Physical Therapy	1 to 1	Physical
Psychological Services	1 to 1	Social-Emotional
Service Coordination Services (case management)	None	NA
Sign language and cued language services	None	NA
Social Work	1 to 1	Social-Emotional
Special Instruction	1 to 1	Adaptive, Cognition, Communication, Social-Emotional
Applied Behavioral Analysis	1 to 1	Adaptive, Cognition, Communication, Social -Emotional
Speech/Language Pathology	1 to 1	Communication
Transportation and related costs	1 to 1	Omit (ancillary)
Vision Services	1 to 1	Physical

**22 services available in Missouri Part C. 12 services found in data used for current study and then mapped to 5 developmental domains*

***1 to 1 means the Part C service appeared in the data for the current study*

****Definitions for Part C services and developmental domains were mapped using definitions from the Missouri State Plan Part C and Missouri School Readiness definition*

VITA

Pamela was born in Keokuk, Iowa on New Year's Eve at 8:30 p.m. Her dad would tell you Pamela couldn't hold on for a few more hours to receive the prizes that come with being the first baby born in the New Year. No, instead, Pamela arrived just in time to give her parents a tax deduction for being born on the last day of the year. And her mom would tell you Pamela has been a determined girl ever since. Raised on a farm, she had dreams of going off to college to get a degree and wear a suit to work every day. And maybe one day someone might call her Doctor.

Who knew that determination would come in handy as Pamela married her high school sweetheart and had her first son just one month before graduating from high school in 1993. But that didn't end her dream of going to college, it just slowed her down a little. The first one in her family to go to college, she graduated from Culver-Stockton in 1999 with a bachelor's degree in Psychology. While in college she had three more sons, so to be home with her boys as much as possible while they were young, she took part-time jobs as a substitute teacher, independent living advocate for teenagers in foster care and home visitor for at-risk families.

Who knew that determination would come in handy once again when she accepted a full-time position in an early intervention program at the exact time she was accepted into graduate school. Still married with children, Pamela and her husband

worked jobs that allowed one of them to be home with the boys as much as possible (with much needed relief from grandmas).

And again that determination paid off. Pamela graduated from Truman State University in 2006 with a master's degree in counseling. Soon after she accepted a promotion in the same early intervention program, which required her family to leave their roots and relocate three hours away to a new city and a new place for her family to call home. . . . a home that was much closer to a university with doctoral programs. And her husband said "Oh no, here we go again!"

Who knew that determination would ultimately lead her to where she is today. Combining a life-long love for learning and a focus on the importance of early childhood, she climbed the dissertation mountain on a quest to find out if children with developmental delays can be ready for school. At the top of that mountain, she graduated from the University of Missouri-Columbia with a Doctor of Education in 2013. Standing at the top of that mountain with her husband and sons, who knows what's next for a farm girl with big dreams . . . and a lot of determination.