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The Impact of Various Characteristics of Prekindergarten Services for Students with Disabilities on Later School Performance

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THE IMPACT OF VARIOUS CHARACTERISTICS OF PREKINDERGARTEN SERVICES FOR STUDENTS WITH DISABILITIES ON LATER SCHOOL PERFORMANCE

by

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ABSTRACT

This study addressed the problem of limited data for determining the effectiveness of prekindergarten programs for students with disabilities. The purpose of this study was to examine the relationship between participation in ESE services during prekindergarten and long term outcomes for students who received these services. Outcome measures included third grade academic performance and needs for exceptional student education (ESE) services.

Regression analysis and correlational analysis were conducted for each of two research questions as appropriate. The findings of this research indicated inconsistent statistically significant relationships between the characteristics of ESE services students with disabilities received during prekindergarten and the academic outcomes of these students during third grade. Academic outcome data was collected using state-mandated standardized testing instruments for reading and math including the Florida Comprehensive Assessment Test 2.0 and the Florida Alternate Assessment. Students who received ESE services during prekindergarten consistently displayed statistically significant increased performance on FCAT 2.0 Reading. There was a statistically significant relationship between the prekindergarten ESE services provided to students and the third grade intensity of ESE services required to provide students with a free and appropriate public education; students who received ESE services during kindergarten required less intensive ESE services during third grade.

Recommendations for future research resulting from this study include replicating this study with multiple measures of academic performance and other areas of functioning important to school success, completion of longitudinal data collection for students who receive ESE prekindergarten services in conjunction with exposure to typical peers, as well as measurement of outcomes based on specific and personal characteristics of teachers who provide prekindergarten ESE services.

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The three great essentials to achieve anything worthwhile are, first, hard work; second, stick-to-itiveness; third, common sense." – Thomas Edison

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CHAPTER ONE: INTRODUCTION

Children who have developmental delays must be provided with a free and appropriate public education through the amendments added to the Individuals with Disabilities Education Act in 1986 (Sullivan & Field, 2013). In determining the structure of these services, individual student needs are considered within the framework of school and district programming options; services must be provided in the least restrictive environment, which is individually determined for each student. In one large suburban central Florida school district considered for this study, services are currently provided on a continuum to include full day prekindergarten classroom placement with an Exceptional Student Education (ESE) teacher, a blended classroom unit with students who have developmental delays and students enrolled in the voluntary prekindergarten (VPK) program with both an ESE teacher and a VPK teacher, the provision of related services (Speech, Language, Occupational Therapy, Physical Therapy) in addition to classroom placements, and scheduled weekly speech and/or language therapy services without a prekindergarten classroom placement. The decision for each student's placement is based on evaluation data, service eligibility, and the determination of the Individual Education Plan (IEP) team. There is not currently a data source that shows the long-term effectiveness of each of these early childhood education programs for students with developmental delays.

There is importance in determining long-term outcomes for students with developmental delays who received services through various prekindergarten programs. One study showed that students who received ESE services prior to kindergarten

experienced a negative treatment effect when compared to students who did not receive ESE services, based on reading and math skills in kindergarten (Sullivan & Field, 2013). Persistence to graduation can be correlated to third grade data for intelligence quotient (IQ), reading level, grade level retention, and grade point average (GPA); students who have been retained and/or have lower IQ, reading level, or grade point average are more likely to drop out of high school (Lloyd & Bleach, 1972). Thus, it is advantageous to determine student outcomes in third grade in order to extrapolate student success in meeting future educational goals. Another indicator of program success in early childhood education for students with developmental delays is the remediation of these delays and the eventual success without ESE services for students who received ESE services prior to kindergarten. With the goal of serving each student in the least restrictive environment, students who do require ESE services following kindergarten often demonstrate a need for less intensive services or services provided in regular education environments following participation in ESE services prior to kindergarten (Delgado, 2009).

Statement of the Problem

To date, there has been limited analysis of student achievement for students exiting ESE-based prekindergarten programs or for students who previously participated in ESE services for students of prekindergarten age to determine if the prekindergarten program options currently in place provide effective intervention to address developmental delays and early intervention needs for other exceptionality categories.

Purpose of the Study

The purpose of this study was to investigate the relationship between participation in various types of ESE services prior to kindergarten and student achievement in third grade with regard to both academic performance and required supports/services.

Significance of the Study

This study provides school districts with data to support implementation of ESE services prior to kindergarten that show a greater impact on later student success. This study adds to the body of knowledge on this topic through the determination of characteristics of effective prekindergarten programs for students with disabilities and providing data to show whether or not various service delivery options on a continuum of prekindergarten services are advantageous in planning programs for students in this age range.

Research Questions and Hypotheses

This study was driven by the following questions:

1. What characteristics of an ESE prekindergarten program predict academic performance in third grade?

H_{01}: There is no statistically significant relationship between the academic performance outcomes for students in third grade who participated in ESE prekindergarten programs and the characteristics of various ESE prekindergarten programs.

2. What characteristics of an ESE prekindergarten program predict the need for support or services in third grade?

H02: There is no statistically significant relationship between the support required for students in third grade who participated in ESE prekindergarten programs and the characteristics of various ESE prekindergarten programs.

Delimitations

The researcher structured the parameters for the implementation of this study, resulting in the following delimitations:

1. Student data included in the study population contained that of the third grade cohort across the large suburban central Florida school district where these data were collected for the 2012-2013 and 2013-2014 school years.
2. Included students must have participated in and received scores for the (Florida Comprehensive Assessment Test 2.0) FCAT 2.0 or the Florida

Alternate Assessment for students with significant cognitive disabilities (FAA) for the 2012-2013 and/or 2013-2014 school year.

3. Students included in the populations must have also received ESE services through the same large suburban central Florida school district prior to Kindergarten.
4. Only FCAT and FAA results were used to measure academic performance in third grade. Additional measures were not included as a parameter of this study.
5. Only the supplementary aids and services, accommodations, and description of functioning provided through the Individual Education Plans for each student were included in the analysis of intensity of services and classroom placement data collection. Additional measures were not included as a parameter of this study.

Limitations

This study was limited by the following:

1. The necessity to have correctly reported and completed data management protocols in place.
2. Variety in educational and experience levels for both prekindergarten teachers and ESE service providers providing ESE services for students in prekindergarten.
3. Enrolled student continuity year-to-year within the school district.

4. Educational experiences of students receiving prekindergarten ESE services such as years spent in educational settings and related services provided prior to receiving prekindergarten ESE services.
5. The large variety of functioning levels in prekindergarten programs for students with disabilities. Most prekindergarten ESE programs include students with developmental disabilities that present with varied characteristics to include students who may have significant needs in one or more of the following areas: behavioral, social, communication, academic, motor, and independent functioning. Often, a classroom has several children with complex needs across the above-listed areas and may have other students displaying mild delays. This creates a widely heterogeneous mixture of students within the classroom, impacting both student experiences and teacher success in reaching all learners.

Definition of Terms

1. Prekindergarten: An educational program occurring before kindergarten.
2. Exceptional Student Education (ESE): The services, supports, and supplementary aids provided to students made eligible for exceptional student education under the rules and regulations of the Individuals with Disabilities Education Act (IDEA).
3. Individual Education Plan (IEP): The document under IDEA that drives the service needs for each student with a disability based on individual

student strengths and weaknesses, and student outcomes and achievement to be measured in both academic performance and participation in regular education settings (with or without an IEP).

Theoretical Framework

The theory of cognitive development, as defined by Piaget, provides a theoretical framework to support this research. This theory includes four stages to describe a progression of skills mastered during cognitive development and language acquisition. The first stage, pre-verbal, typically occurs between birth to age two and includes development of sensory-motor based structures that create a foundation for later representational thought including object permanence and elementary causality (Piaget, 1964). Pre-operational representation is the second stage, typically developing between ages two through seven. This stage serves as the basis for language and symbolic function (Piaget, 1964). Stage three, occurring between ages seven and 11, includes concrete operations such as classification, number and temporal concepts, and concepts of elementary mathematics, geometry, and physics (Piaget, 1964). Piaget's fourth stage is based on formal deductive operations with a child's ability to reason on hypothetical structures including combinatorial and group structures. Stage four is typically considered to develop at age 11 and beyond (Piaget, 1964). The stages defined by Piaget establish the foundation for all learning and communication skills (1964).

With consideration to the stages of cognitive development introduced by Piaget, reduced or delayed development of any consecutive stage will have an impact on student

learning and communication. Students with disabilities frequently have cognitive, academic, or communication deficits based on developmental delays. These delays can be characterized through Piaget's stages.

Another important concept introduced by Piaget is the schema, which serves as a mechanism to organize knowledge (1964). Piaget theorized that a schema provides a representation of an experience used to understand and respond to future situations (1964). As a child's development progresses, additional schemata develop at increased complexity levels (Piaget, 1964).

Similarly to the delays evidenced through cognitive skill development deficits, students with developmental delays will have difficulty developing schemata for various situations. Additionally, the comprehension-based skills required to access all domains to address student needs presents challenges for students who are not at their peer-based cognitive development stage.

Methodology

Research Design

This study provides a quantitative analysis of ex-post facto, non-experimental data to examine whether or not there is a significant different between characteristics of prekindergarten programs for students with disabilities with regard to third grade outcomes and later ESE service needs. Statistical analysis was completed on data collected through the department of Assessment and Accountability from the large suburban central Florida school district participating in this study to include FCAT

2.0/FAA scores for students in third grade for the 2012-2013 and 2013-2014 school years who previously received ESE services during prekindergarten. An Individual Education Plan was collected for each student within the data set who received ESE services during prekindergarten and for any students who have an IEP during third grade for each of these cohort groups. Information on student service needs were quantified through the use of a rubric system (Appendix A) completed by the researcher based on the IEP for each student.

Population

The population for this study includes all students in third grade during the 2012-2013 and 2013-2014 school years who previously received ESE services prior to kindergarten and who have taken the FCAT 2.0/FAA during their third grade year. All population group members were students in the targeted large suburban central Florida school district with no restriction on school site within the school district.

The study population for each group was defined by the characteristics of the prekindergarten ESE services a student received. These groups were consistent for both research questions. The study population was divided into groups based on the ratings on the researcher-created Program and Service Rubric (Appendix A). The dependent variables are defined by the research questions with question one measured by FCAT 2.0/FAA scores and question two measured by pre- and post-analysis of ESE services using the Program and Service Rubric.

Sample

A population sample consisting of all students who meet the population criteria was used for both question one and question two.

Data Collection and Analysis

For this study, data collection involved gathering information from a data management program used in this large suburban central Florida school district, Skyward, which houses academic, demographic, attendance, and other various pieces of information for all currently enrolled students, as well as the documentation and compliance program developed by the school district, which provides electronic access to student IEP data.

The student performance data based on FCAT 2.0/FAA scores and the level of support required in third grade were dependent variables for this study. The independent variables for student performance data (FCAT 2.0/FAA) include type/nature of disability and the various characteristics of previously received prekindergarten ESE services with regard to service type and intensity. For the level of support required in third grade, the independent variables include type/nature of the disability and characteristics of previously received prekindergarten ESE services along with the level of support required during prekindergarten ESE services.

Skyward data included student data for third graders who received ESE services prior to kindergarten and FCAT 2.0/FAA student performance information. These data were compiled into a spreadsheet for organizational purposes and then analyzed in

Statistical Package for the Social Sciences software (SPSS) using a regression analysis to determine the impact of various independent variables on student performance outcomes.

Documentation and compliance data obtained from the school district system used to manage Individual Education Plans consisted of final copies of the IEP for all students, including those defining student needs and special education services for prekindergarten and third grade, as applicable. The Program and Service Rubric (Appendix A) was developed based on criteria included in the Matrix of Services Handbook developed by the Florida Department of Education for the functions of Exceptional Student Education (ESE) compliance and determination of funding levels for students with disabilities through the Florida Education Funding Program (FEFP). The Matrix of Services Handbook includes ratings in the areas of Curriculum and Learning, Social/Emotional, Independent Functioning, Health, and Communication as well as additional points for a variety of special characteristics (Florida Department of Education, 2015). In creating the Program and Service Rubric, items from the Matrix of Services Handbook were included as well as additional considerations for a more restrictive educational placement and differences in behavioral management. Based on a preliminary review of a sample of Individual Education Plans prior to the completion of this study, these differences introduced increased numerical sensitivity to these areas, resulting in a more accurate picture of differences in classroom placement and intensity of placement. Additionally, a different approach to scoring was used in comparing these two measures. The Matrix of Services includes a level-based system with a set number of points for specific requirements listed within the IEP at each level from one through five (Florida

Department of Education, 2015). The Program and Service Rubric developed is a rubric-based system with points added to the total score for each item indicated in the IEP.

The function of the Program and Service Rubric was to quantify the IEP services for each student and data were listed in a spreadsheet for both Individual Education Plans defining supplementary aids and services, accommodations, and classroom placement received prior to kindergarten and those plans for students in third grade who previously received those services, as appropriate. A correlation analysis was completed for these data with the use of SPSS to compare the level of support and/or services required for students prior to kindergarten and the level of support and/or services later required by those students as third graders. Additionally, a regression analysis was used to compare the level of support provided in third grade to the characteristics of prekindergarten ESE services previously provided.

A summary of variables, sources of data, and method of analysis for each research question is provided in Table 1, Research Questions, Variables, Data, and Analysis Methodology.

Table 1

Research Questions, Variables, Data Sources, and Analysis Methodology

Research Questions	Variables	Data Source	Analysis Method
1. What characteristics of an ESE prekindergarten program predict academic performance in third grade?	Dependent: FCAT 2.0/FAA scores Independent: Classroom placement Overall intensity of services	School District Data System (Skyward) Disability eligibility data (Skyward and IEP systems)	Regression Analysis
2. What characteristics of an ESE prekindergarten program predict the need for support or services in third grade?	Dependent: Service/support needs for third grade students Independent: Nature/severity of disability Classroom placement Overall intensity of services Service/support needs for prior prekindergarten program	Documentation and compliance IEP system Disability eligibility data and service information (Skyward and IEP systems)	Regression Analysis and Correlational Analysis

Confidential student data were used for this study and all data were de-identified by the researcher. The researcher received approval of the completion of this research through the Institutional Review Boards (IRB) for both the targeted large suburban central Florida school district and the University of Central Florida (UCF).

Summary

ESE services for students with disabilities provided prior to kindergarten have a wide range of delivery methods and approaches without research-base to systematically determine how to most effectively target student needs. By determining which characteristics of prekindergarten services create the most significant impact on student achievement, school districts can design programs to target greater future outcomes. The information provided through this chapter demonstrates the need for the proposed study to investigate the characteristics of prekindergarten programs for students with disabilities that have a statistically significant impact on later student outcomes and student need for ESE support.

Organization of the Study

Chapter 1 provided an introduction to the proposed study as well as a statement of the problem, research questions and hypotheses, delimitations and limitations of the study, key terms with associated definitions and acronyms, the theoretical framework providing the foundation for this research topic, and an overview of proposed methodology for the study. Chapter 2 includes a review of the literature including previous research and information on early childhood development, early childhood education, the Individuals with Disabilities Education Act, the criteria for Developmental Delay and other disabilities in prekindergarten, and the continuum of services in prekindergarten for students with disabilities. Chapter 3 contains the methodology for the study including research questions, hypotheses, research design to include

information on population, sample, data collection/analysis, and summarization of methodology. Chapter 4 reports the data collected, findings resulting from these data, and preliminary analysis of these findings. Chapter 5 provides a summary of results with discussion of the findings associated with results, implications for policy and practice, and recommendations for future research.

CHAPTER TWO: LITERATURE REVIEW

The significance of Exceptional Student Education (ESE) services for students with disabilities before kindergarten has roots in the foundation of early learning and early childhood education. The theories of Piaget paired with the social nature of learning form a strong base to justify early childhood programs as well as the importance of targeting identified developmental delays with high quality ESE programs during prekindergarten (Piaget, 1964; Tayler, 2015).

This review of literature established the rationale for conducting research in determining characteristics of effective prekindergarten programs for students with disabilities by examining five key areas. First, highlighting key theories related to early learning. Second, providing a framework for early childhood education best practices. Third, a review of the requirements of the Individuals with Disabilities Education Act in providing ESE services prior to kindergarten. Fourth, information on the various profiles of children with developmental delays or other disabilities as identified through the Individuals with Disabilities Education Act within Florida statutes. Finally, identification of the continuum of services provided to students with developmental disabilities in prekindergarten.

Early Childhood Development

The framework for learning provided by Piaget posits that development occurs in a sequence of stages that provide varied capacities for the type of learning that a learner can master during that time frame. During the first stage, pre-verbal learning occurs with

sensory-motor structures providing a basis for representational thought. The second stage, pre-operational representation, provides symbolic functioning and early language learning. Stage three provides understanding of concrete operations and concepts. The fourth and final stage encompasses deductive reasoning and complex learning (Piaget, 1964).

In addition to Piaget's theory, it is important to consider the differences between development and learning. Development is widely considered to be the growth and development of the brain while learning results from the environment and interactions within that environment. Both concepts are essential to understanding the importance of early childhood education because development and learning happen simultaneously in this context (Tayler, 2015). Piaget's theories are guided by the principles of development within an individual child. This development can occur in the presence of other learners or with a single learner and have historically been viewed as related to individual discovery (Ogunnaike, 2015). Conversely, learning happens with the introduction of stimuli from the environment through materials, peers, teachers, and other sources based on joint attention and interactions with these stimuli (Vygotsky, 1978). Within Vygotsky's Constructivist Theory, early childhood learning can be considered to include the construction of knowledge by a child through interactions (such as play) within the learning environment (Ogunnaike, 2015). This learning environment should promote exploration through activities requiring appropriate interaction and problem-solving challenges along with adult models of desired learning targets (Ogunnaike, 2015).

Another concept critical to early learning is the Zone of Proximal Development, also introduced by Vygotsky. The Zone of Proximal Development provides that collaborative work on emergent skills with peers or adults increases later success of independent skill mastery. Play-based learning provides for high-levels of collaboration along with modeling, problem solving, and activation of previous concept-related memories (Vygotsky, 1978).

The significant role of social interaction in learning originates from constructivist concepts pointing to peer observation and social reciprocity in educational settings as the foundation for concept introduction and mastery (Tayler, 2015). Recent research in the area of mirror neurons points to further evidence in the area of social and relational learning practices (Blackmore, Winston, & Frith, 2004; Rushton, Juola-Rushton, & Larkin, 2010). Mirror neurons are responsible for an observer's neurological synapses activating in the same areas activated in the observee's brains when completing an action. This activation can be credited with imitation as well as the development of empathy (Rushton et al., 2010). By observing and experiencing the learning environment, an early learner has the opportunity for frequent synapse activation and resulting imitation of skills observed. This imitation provides the basis for learning as imitated skills are reinforced and then repeated by the learner (Rushton et al., 2010).

Early Childhood Education

Early learning opportunities are critical to child development and learning with consideration to cognitive, social/emotional, communication, and adaptive skills. These

skills are critical for educational readiness to establish a solid foundation for future learning and citizenship (Tayler, 2015). Engagement in learning activities during early childhood creates learners with greater executive functioning skills providing for a skill-base in self-regulation as well as experience with positive relationships contributing to development in social-emotional skills (Blair & Diamond, 2008; Tayler, 2015). In order to provide a high quality early childhood experience to promote development and learning, program design must provide opportunities for discovery of the learning environment with adult responsiveness through joint attention (Tayler, 2015). Current quality ratings of early childhood education programs are provided through the National Association for the Education of Young Children (NAEYC) and the National Association of Early Childcare Professions (NAECP). Both of these associations conduct evaluations including various quality indicators and provide accreditation to early childhood education providers. These evaluations do not include measures for child performance outcomes, but consist of program standards within various domains to include relationships, curriculum, teaching, assessment of child progress, health, teachers, families, community relationships, physical environment, and leadership and management (The 10 NAEYC Program Standards, 2015). Table 2 provides a summary of the standards used by the NAEYC.

Table 2

National Association for the Education of Young Children Program Standards

Standard Domain		Summary of Standard
1.	Relationships	Program promotes positive relationships among all children and adults, encourages each child's sense of worth and belonging, and fosters each child's ability to contribute as a member of the community.
2.	Curriculum	Program implements a curriculum consistent with program goals and promotes learning/development in social, emotional, physical, language, and cognitive skills.
3.	Teaching	Program uses effective developmentally, culturally, and linguistically appropriate teaching approaches to enhance each child's learning/development within the curriculum goals.
4.	Assessment of Child Progress	Program is informed by systematic, formal, and informal assessment to provide information on learning/development. Assessments must occur in collaboration with families and with consideration to cultural contexts for child development.
5.	Health	Program promotes nutrition and health for children as well as protecting children and staff from illness and injury.
6.	Teachers	Program employs teaching staff with educational qualifications, knowledge, and professional commitment to promote early childhood learning/development as well as support families.
7.	Families	Program establishes and maintains relationships with families to foster development in all daily settings for each child.
8.	Community Relationships	Program establishes relationships with community resources to support program goals and connect families with resources.
9.	Physical Environment	Program has a safe environment with appropriate indoor and outdoor physical environments including facilities, equipment, and materials to facilitate child and staff learning/development.
10.	Leadership and Management	Program implements policies, procedures, and systems to support stable personnel, fiscal management, and program administration to provide a high-quality experience to all children, families, and staff.

Note. Adapted from "The 10 NAEYC Program Standards," by the National Association for the Education of Young Children, 2015, NAEYC for Families. Copyright 2015 by the National Association for the Education of Young Children.

As evidenced by the program standards in place for NAEYC Accreditation, accredited early childhood education programs do not require accountability for impact or school readiness outcomes in order to attain this national accreditation (Williams, Landry, Anthony, Swank, & Crawford, 2012). There is a current call for increasing accountability for early childhood education programs in order to provide parents with information on effective, standards-aligned options and to establish the need for these programs for funding and advocacy purposes (Williams et al., 2012).

In providing salient evaluation of prekindergarten classrooms with consideration to predicted positive kindergarten outcomes, both academically and socially, evaluation systems should include:

- core teacher training in school-readiness
- intentional instructional approaches to promote achievement
- instructional activities targeting literacy and early writing skills (Williams et al., 2012).

These evaluation indicators point to strategic and coordinated efforts to plan for teacher preparation in early childhood as well as curriculum and instructional approaches rooted in school readiness. With the development of early childhood teachers and programs, development of skills to collaborate with families must also be addressed (Epstein & Willhite, 2015).

The Individuals with Disabilities Education Act and Prekindergarten

There are three general programs to provide services to students before kindergarten through the Individuals with Disabilities Education Act (IDEA). Part C of IDEA is the Program for Infants and Toddlers that provides a comprehensive, coordinated, and multidisciplinary approach to services for children birth through age 2. Funding through Part C may be used for children with identified disabilities or who are identified as at risk for disabilities. Services through this program are intended to be provided using family-centered methods by a qualified service provider. An Individual Family Services Plan (IFSP) is created for each child served through Part C to clearly define that individual child's level of functioning across multiple domains, set functional and salient goals to measure progress, determine targets for family involvement, and outline services required to implement all components of the plan (Trohanis, 2008). This critical early intervention for infants and toddlers has increased access to services for children with disabilities and those who are at risk. Data available show increased participation in services from 194,363 children in 2001 to 352,644 in 2009. The 352,644 children served in 2009 represents 2.7% of the overall population of children ages zero to two (Hebbeler, Spiker, & Kahn, 2012).

The component of IDEA that provides services for children ages three through five is Section 619 of Part B. This section was added to the original IDEA law in 1986 and includes the same provisions of IDEA that apply to all other students with disabilities. The Individualized Education Program/Plan (IEP) is created to define the provision of a free and appropriate public education (FAPE) through various

supplementary aids and services (Trohanis, 2008). The prekindergarten students ages three through five served through IDEA continues to increase, with a total of 261,931 served in 1986 and 731,250 served in 2009 (Hebbeler, Spiker, & Kahn, 2012).

The final program designed to support prekindergarten services for students with disabilities is Part D, which provides funding for activities to improve results for students with disabilities. These activities are typically managed by discretionary projects and include research, personnel preparation, parent training, outreach projects, state improvement projects, technical assistance and technology services (Trohanis, 2008). The projects provided through Part D of IDEA in conjunction with the Office of Special Education Programs (OSEP) are compiled in Appendix B.

Criteria for Developmental Delay and Other Disabilities in Prekindergarten

The Individuals with Disabilities Education Act (IDEA) establishes that each state legislature develop disability categories and eligibility criteria for classification of students with disabilities. In the state of Florida, students ages birth through age five may be eligible under one or more of the following categories: intellectual disabled, speech impaired, language impaired, deaf or hard of hearing, visually impaired, orthopedically impaired, other health impaired, traumatic brain injury, dual sensory impaired, autism spectrum disorder, an established condition, or developmentally delayed (Eligibility Criteria for Prekindergarten Children with Disabilities, 2013).

Based on Piaget's theory, a child who has not mastered a particular stage will have difficulty learning in that area (Piaget, 1964). Many children with developmental

delays experience difficulty in pre-verbal and pre-operational skills as a foundation for cognitive or communication delays. A student who has a developmental delay is found to have a significant delay in meeting developmental milestones in at least one of five domains: receptive/expressive language, social communication, behavior, cognition, or motor skills (Peterson, Kube, & Palmer, 1998). School districts and service providers funded through state and federal means are required to engage in activities to locate and identify children who are in need of intervention due to a disability, known as Child Find (Pizure-Barnekow et al., 2010). The American Academy of Pediatrics (AAP) recommends the use of both parent-completed screening questionnaires and provider-administered screening instruments to determine whether or not a child is at risk for developmental delays followed by developmental and/or medical diagnostic assessments to establish a medical diagnosis of developmental delay (Pizure-Barnekow, 2010). Educationally, best practice for categorization of developmental delay includes evaluations completed by a multi-disciplinary team including standardized assessment, criterion-referenced tools, child observation, and caregiver report (McLean, Smith, McCormick, Schakel, & McEvoy, 1991).

Developmental Delay is considered to be a non-categorical disability within IDEA; other disabilities have more strict and specific eligibility criteria and are categorical in nature (e.g. Autism Spectrum Disorders, Specific Learning Disabilities). Based on state requirements, Developmental Delay is a temporary exceptionality and states determine the age by which a child must be re-evaluated to determine if the delay has resolved or if the child requires support due to a different exceptionality. By

providing Developmental Delay as an exceptionality option, school-based professionals are not required to make a specific determination within the requirements of the categorical options (McLean et al., 1991). Due to the nature of early childhood and interrelatedness of skill development, it can be challenging to delineate the root cause of a disability (Danaher, 2011). Additionally, the temporary nature of Developmental Delay gives school teams a deadline to consider future support needs for any student labeled Developmentally Delayed (McLean et al., 1991). Each individual state establishes eligibility criteria for Developmental Delay and determines the exceptionality label that will be used by that state within the parameters provided by IDEA. In Florida, "Developmentally Delayed" is defined as a significant delay on a standardized measure (2 standard deviations below the mean in one developmental domain or 1.5 standard deviations below the mean in two areas) paired with informed clinical opinion gathered through criterion-referenced measures, child observation, and caregiver input (Danaher, 2011).

Continuum of Services in Prekindergarten for Students with Disabilities

Students with developmental delays are provided Exceptional Student Education services and supports through a variety of prekindergarten program service delivery types designed specifically for students in the birth through age five population. It is widely accepted that early intervention for developmental deficits is critical in prevention of the development of more permanent disabling conditions or to target early skill development for students with disabilities in addition to developmental delays (Pool & Hourcade,

2011). For example, a student with a developmental delay in the area of expressive language who receives high quality early intervention in this area may not later present with language impairment because areas of deficit in expressive language were remediated before they began to impact literacy and other academic abilities. By addressing developmental delays early, the impact on learning and/or behavior is reduced, which reduces later educational costs for these students (National Early Childhood Technical Assistance Center, 2011). Students who are ages three through five participate in early childhood special education settings, many of which are provided by teachers and therapists at public school sites (Bruder, 2010). Accessing resources for students with developmental delay is often halted due to a variety of factors including difficulty finding and navigating resources, language barriers, and the sometimes lengthy process of initiating necessary services. This creates a gap in services, which is counterintuitive to the premise behind initiating early intervention expeditiously to address delays most effectively. Ideally, there should be multiple methods for parents to initiate an assessment to address potential concerns and determine if services are necessary (Williams, Perrigo, Banda, Matic, & Goldfarb, 2013). Providing services for students with developmental delays takes a variety of forms. It is important to understand how various service delivery options are implemented and the effectiveness of the most commonly used models.

In central Florida public school districts, most preschool programs for students with disabilities are based on a separate class, varying exceptionalities model in which students who are eligible for developmental delay service are in a separate class with

other students with disabilities and receive instruction by a certified Exceptional Student Education (ESE) teacher in a language-rich, student-centered curriculum (Burks, Shores, Bednar, & Walker, 2014). For preschool students with language impairment only, isolated language therapy is provided for students who are transported to a preschool-specific speech-language pathologist. These services are typically provided for 30-60 minutes per week and do not address other domains of deficit or include a family component (Burks et al., 2014).

Early childhood programs must be designed for effectiveness based on five key factors identified through multiple studies to include appropriate class size and student to teacher ratios, the use of a child-centered and developmentally appropriate curriculum, formal education and specialized training for staff in the area of early childhood education, caregiving that is responsive, involved, and affectionate, and a stable staff base with minimal turnover (Hosley, 2000). Once these key features are established, it is important to also incorporate intensive services and parent involvement (Hosley, 2000). Current models for early childhood education fall into either a child-focused or family-focused concept. Child-focused programs are either educational or child care based and focus on a combination of academic, social and/or health outcomes. Family-focused services provide support for the entire family unit primarily through community resources and parent training to integrate interventions into the home environment (Hosley, 2000). There are many examples of both child-focused and family-focused programs for preschool students with disabilities.

The US Department of Education provides several settings in which to provide students with a free and appropriate public education (FAPE). These include regular class with nondisabled peers, resource room with other students with disabilities for 21-60% of overall service time, separate class with other students with disabilities for 61-100% of time receiving services, separate schools that do not typically include nondisabled peers, residential facilities providing care for 24 hours per day, and homebound/hospital for students confined to the home or hospital due to a medical condition (U.S. Department of Education, 1999). Services for students with disabilities must be provided in the least restrictive environment as determined by the Individual Education Plan (IEP) team to best meet each student's needs.

A research study completed through the University of Virginia shows that current prekindergarten practices for students with disabilities are not creating increased positive outcomes when compared to students with disabilities who do not participate in early childhood special education (Sullivan & Field, 2013). It is important to consider that a variety of programs exist and there are some programs that may more effectively address particular student needs. In addition, the academic emphasis of the University of Virginia study does not encompass progress obtained in social, behavioral, language, or motor domains (Sullivan & Field, 2013).

Previous research has determined that early intervention involving a speech-language pathologist is effective in addressing developmental delays and/or red flags for language delay (Paul & Roth, 2011). If a two- to three-year-old child demonstrates language deficits in conjunction with developmental delays in other areas, it is important

that the service providers and parents pursue treatment because immediate services have a greater impact than delaying services to "wait and see" (Paul & Roth, 2011). Children with established conditions, such as Down syndrome, autism spectrum disorders, or intellectual disabilities, experience greater outcomes when early intervention services are provided. The speech-language pathologist as part of an early intervention team or early childhood special education program plays an integral role in providing a prognosis and effective intervention (Paul & Roth, 2011).

A variety of studies have investigated the efficacy of various approaches to enhance the separate class settings of early childhood special education services for students with developmental delays. Most approaches provided are exclusively child-focused. Discrete Trial Teaching was used in one study as an instructional supplement to a separate class setting in order to provide intensive instruction in one or more area of developmental delay. This instructional technique was effective in a 30 to 45 minute session in remediating specific skill deficits (Downs, Downs, Fossum, & Rau, 2008).

In consideration of curriculum types, academically- and child-directed programs have displayed differences in later student success (Marcon, 2002). Students who participated in academically-directed preschool programs were not recommended for grade level retention as frequently as their peers in other types of preschool programs. Conversely, students who were in child-directed programs later showed higher grades, possibly due to the developmental appropriateness of child-directed programs for students of preschool age when compared to academically-directed programs (Marcon, 2000; Marcon, 2002).

In Sweden, a large-scale study was completed to investigate preschool models for students with autism spectrum disorders (Fernell et al., 2011). The models researched included an intensive applied behavior analysis program focused on the use of discrete trial training using behavioral principles to teach isolated behaviors, inclusion in regular preschool settings, and consultative models. The findings revealed that outcomes of each model were similar and seemed to have a stronger correlation to the type of student receiving services versus the program type (Fernell et al., 2011). Based on these data, programming decisions should be made with consideration to individual student needs for support in the least restrictive environment in order to provide generalization opportunities with access to regular education peers and skill instruction.

Providing a model to blend a regular education classroom setting with special education supports and services has been shown to be effective. Team teaching with regular education teachers and special education teachers in a community preschool setting provided essential training and hands-on experience for both types of teachers. Along with professional development, team teaching provided FAPE for students with developmental delays to provide an effective early childhood special education setting (Farquharson, 1995).

One approach integrating child-focused and family-focused practices is the Baby TALK program implemented and recommended by the Illinois State Board of Education. This program has been replicated across more than 30 states by training staff in the Baby TALK approach and placing this staff throughout the community in order to provide access to early childhood curriculum for families whose children are at risk for

developmental delays. This early intervention approach includes implementation in preschool settings as well, creating partnerships to address potential and established delays in all settings throughout a student's day (Villalpando, Leow, Hornstein, 2012).

In Canada, most preschool programs for students with disabilities are designed to function with full inclusion for students with disabilities with their typical peers. This program design results in frequent placement in regular education classrooms for students with disabilities beginning in kindergarten due to previous experiences. Additionally, parents understand the rationale behind academic or social benefits in the regular education classroom as the least restrictive environment and are able to appropriately support their children in these placements (Villeneuve et.al, 2012).

It is important to note the benefit to both students with disabilities and typical peers in regular education inclusionary settings. Students with disabilities are provided with peer models, high expectations, and social networks. Typical peers have the opportunity to learn about diversity, compassion, and unique skills such as sign language or the use of assistive technology (Yang & Rusli, 2012).

It is also helpful to understand the role of the teacher in supporting students with disabilities in regular education classrooms. The use of strategies such as environmental arrangement, supporting interactions, interpreting language, inviting participation, and prompting for communication have been identified by teachers as being most helpful to promote social interaction within inclusionary settings (Yang & Rusli, 2012). One strategy used effectively for students with disabilities in inclusive settings is embedded instruction. This technique is based on principles of routines-based intervention in

natural environments and has been shown to increase skills maintenance and generalization (Rakap & Parlak-Rakap, 2011).

Predictors may be used to determine how fully a student may be able to participate in a regular education classroom setting. In one study, researchers evaluated the impact of a variety of factors on successful participation in the regular education setting including gross motor performance, fine motor performance, cognitive function, and social/behavioral performance (Mancini et al., 2000). It was determined that this participation may be predicted most accurately by considering both physical capability and social skill performance (Mancini et al., 2000). Social skills that were found to promote participation included general good manners, use of appropriate social and physical boundaries, and asking permission when required (Mancini et al., 2000). With consideration to participation, one approach to early childhood special education includes a foundation of participation in daily activities and routines with an emphasis on caregiver facilitation of skill development (Wilcox & Woods, 2011). This routines-based intervention gives children the opportunity to practice skills on a consistent basis with caregiver reinforcement of desired targets. It has been shown as an effective early intervention service delivery model for both parents and teachers to use (Wilcox & Woods, 2011).

It is also important to consider the efficacy of parent training-based treatment programs as an overall intervention strategy for students with and without developmental delays who are experiencing general, function or performance deficits in home and/or school settings. In a study considering the impact of a parent training program on

behavior deficits in children with and without developmental disabilities, it was found that parent training is equally effective for both groups (Holtz, Carrasco, Mattek, & Fox, 2009). Fringe benefits to parent training as an intervention for targeted skill development include improvements in the parent-child relationship as well as improved parent behavior. It is significant to consider the measures taken during this study to ensure parent participation, including home-based visits, convenient scheduling, and frequent reminders of appointments (Holtz et al., 2009).

Parent training programs are unique opportunities to develop parent confidence and competence in creating natural learning opportunities within daily routines. These programs give parents the opportunity to learn how to address skills deficits and to reinforce development of desired targets throughout all daily activities with relationship-focused intervention (Holtz et al., 2009; Rakap & Parlak-Rakap, 2011; Wilcox & Woods, 2011). One study used responsive teaching with parents as an intervention strategy and intervention trainers visited parents to provide feedback and reinforcement (Swanson, Raab, & Dunst, 2011). The responsive teaching strategy improved student outcomes and also increased parent confidence in interaction abilities with their child (Swanson et al., 2011). Another study used responsive teaching with children from Turkey who had developmental delays (Karaaslan, Diken, & Mahoney, 2011). Responsive teaching resulted in more effective interactions between mothers and their children as reported by the mothers along with improvements in children's language and social development (Karaaslan et al., 2011).

Collaboration between caregivers and educators is an essential component of early intervention to provide clear information on deficits and progress as well as encouraging carryover activities that can be targeted in natural environments by caregivers at home (Bruder, 1997). Providing personnel training on methods for collaboration is helpful to address a variety of areas. Some of the most salient topics to address include conflict management, negotiation strategies, barriers to collaboration, benefits of consultation, and examples in therapy and childcare (Bruder, 1997).

There are various approaches used to provide parent training for routines-based intervention, but typical approaches use a foundation of observation and feedback to understand and modify use of techniques as appropriate. One study provided in-home coaching to parents on a weekly or biweekly basis and systematically collected data to drive feedback and goal setting, resulting in significant improvement of targeted skills (Kashinath, Woods, & Goldstein, 2006). Another study compared a video-based initial parent training supplemented with weekly home visits to a direct intervention approach and found that the parent training and coaching intervention yielded more significant improvements than the direct intervention (Balkom, Verhoeven, Weerdenburg, & Stoep, 2010).

CHAPTER THREE: METHODOLOGY

The goal of this study was to determine which characteristics of prekindergarten programs for students with disabilities result later proficient performance and the need for later ESE services. The third grade outcome data and ESE services provided to students were examined for students in third grade for the 2012-2013 or 2013-2014 school year who previously received ESE services in prekindergarten. These data were collected to determine which characteristics have the greatest impact on student success with regard to both state outcome measures (FCAT 2.0/FAA) and services needed in later grades. A request for approval through the targeted large suburban central Florida school district and University of Central Florida (UCF) Institutional Review Boards (IRB) was received following the proposal of this study.

The Individuals with Disabilities Education Act (IDEA) requires that students who have been identified to meet one of the eligibility categories as a student with a disability have an Individual Education Plan (IEP) to identify needs and a plan for meeting these needs. Students can be declared eligible for services through an IEP beginning at age three as determined by an IEP team. This IEP drives service delivery to provide appropriate support and instruction to students while meeting educational needs. Goals are evaluated regularly and the IEP is rewritten every year, always based on the individual needs of each student individual needs. Typically, in this large suburban central Florida school district, as students who are on an IEP transition to kindergarten, those students are re-evaluated to determine what services and supports may be required to receive a free and appropriate public education in elementary school.

The Service and Program Rubric (Appendix A) developed by the researcher provides a quantitative conceptualization for IEP support. This rubric-based measure considers student services/support required in various domains of functioning as well as capturing the classroom setting for every student. Development of this rubric is described in the Research Design section within this chapter.

This chapter provides a detailed description of methodology that was used for this study. The contents of this chapter include research questions and hypotheses, research design, population/sample descriptions, data collection, and data analysis. Finally, a chapter summary is provided as an overview of methodology.

Statement of the Problem

To date, there has been limited analysis of student achievement for students exiting ESE-based prekindergarten programs or for students who previously participated in ESE services for students of prekindergarten age to determine if the prekindergarten program options currently in place provide effective intervention to address developmental delays and early intervention needs for other exceptionality categories. Despite the fact that services provided under IDEA should be individualized and determined by the IEP team based on student needs, many prekindergarten ESE programs are designed to meet school district budget needs or scheduled within a previously specified model. The importance of understanding the progression of students who begin receiving prekindergarten ESE services prior to Kindergarten is indicated in order to target preventative strategies and methods of instruction to implement that may increase

later educational success. This study addressed the problem by collecting longitudinal data on 230 students who were in third grade for the 2012-2013 or 2013-2014 school years in order to understand program differences and how these differences impact student outcomes and later support needs.

Research Questions and Hypotheses

This study was driven by the following questions:

1. What characteristics of an ESE prekindergarten program predict academic performance in third grade?

   H_{01}: There is no statistically significant relationship between the academic performance outcomes for students in third grade who participated in ESE prekindergarten programs and the characteristics of various ESE prekindergarten programs.

2. What characteristics of an ESE prekindergarten program predict the need for support or services in third grade?

   H02: There is no statistically significant relationship between the support required for students in third grade who participated in ESE prekindergarten programs and the characteristics of various ESE prekindergarten programs.

Research Design

This study provided a quantitative analysis of ex-post facto, non-experimental data to examine characteristics of various prekindergarten programs for students with disabilities based on third grade outcome data for students who previously received ESE services in prekindergarten. FCAT 2.0 and FAA scores for students in third grade in 2012-2013 and 2013-2014 will be collected from the school district's department of Assessment and Accountability for students in this large suburban central Florida school district who have a history of prekindergarten ESE services.

Population

This study included a population of 230 students in third grade during the 2012-2013 and 2013-2014 school years who previously received ESE services prior to kindergarten and who took the FCAT 2.0 or FAA during their third grade year. Data analyzed were that of students who were actively enrolled in this school district's sites for the third grade cohort years and there was not any exclusion based on school site or other school- or student-specific characteristics.

Each group in the study was defined by the characteristics of the prekindergarten ESE services a student received and these groups were used throughout the study procedures. The characteristics were quantified based on the ratings on the researcher-created Program and Service Rubric (Appendix A). The research questions provide information on the dependent variables; question one was measured by FCAT 2.0/FAA

scores and question two was measured by pre- and post-analysis of ESE services using the Program and Service Rubric (Appendix A).

Sample

This study used a population sample consisting of all students who met the criteria to be included in the overall population for both question one and question two.

Instrumentation

A variety of measures were used in measuring both independent and dependent variables. These measures included state-mandated standardized assessments including FCAT 2.0 and FAA as well as the Program and Service Rubric (Appendix A) developed by the researcher to quantify components of IEPs for each student included in the study.

Every student included in the population of the study participated in one of two standardized assessments required by the state of Florida at the time of the study outcome measurement. Beginning in 1998, students throughout the state of Florida who attended public schools were required to take the Florida Comprehensive Assessment Test (FCAT 2.0) for the first time in third grade and continuing throughout their educational careers. During the 2010-2011 school year, the assessment version transitioned to FCAT 2.0; this assessment was given through the end of the 2013-2014 school year. FCAT 2.0 evaluates reading, mathematics, writing, and science at varying grade levels. The FCAT 2.0 assessment also provided mandatory retention requirements for third grade students who were not able to achieve proficiency in reading and was required for graduation. The

Florida Alternate Assessment (FAA) was administered to collect baseline data for students with significant cognitive disabilities beginning in 2008. Reading, mathematics, science and writing are evaluated by FAA and a level system is used to rank students and determine proficiency based on access points for curriculum instruction (Florida Alternate Assessment Requirements, 2010).

Each cohort group also had IEP data collected and analyzed using The Program and Service Rubric (Appendix A) to determine the level of support a student required in both prekindergarten and in third grade. The rubric (Appendix A) was adapted from the Matrix of Services used with guidance from the Matrix of Services Handbook developed by the Florida Department of Education for the functions of Exceptional Student Education (ESE) compliance and determination of funding levels for students with disabilities through the Florida Education Funding Program (FEFP). The Matrix of Services includes leveled ratings in Curriculum and Learning, Social/Emotional, Independent Functioning, Health, and Communication. Additional points are added to the overall score for special considerations as listed in the Matrix of Services Handbook (Florida Department of Education, 2015). Items from the Matrix of Services Handbook were included as the basis for the Program and Service Rubric developed by the researcher with the addition of alternative quantification for describing educational placement and behavioral management strategies. Through the use of a test set of a sample of Individual Education Plans evaluated using the rubric prior to the completion of this study, the Program and Service Rubric was determined to provide similar data on the level of support and services as well as providing increased numerical sensitivity to

these areas, resulting in a more accurate picture of differences in classroom placement and intensity of placement. Additionally, a different approach to scoring was used in comparing these two measures. The Matrix of Services includes a level-based system with a set number of points for specific requirements listed within the IEP at each level from one through five (Florida Department of Education, 2015). The Program and Service Rubric developed is a rubric-based system with points added to the total score for each item indicated in the IEP. The support level total was ordinal in nature due to the maximum value of points available, as indicated on the Program and Service Rubric (Appendix A).

Data Collection

Data collection used systems in place for data management in this large suburban central Florida school district. FCAT 2.0/FAA scores were collected through Skyward, which provides data management for all currently enrolled students in this large suburban central Florida school district. The school district's self-developed documentation and compliance IEP system, which provides electronic access to student IEP data, was used to collect Individual Education Plans for analysis.

Dependent variables for this study included student performance data collected based on FCAT 2.0/FAA scores and the level of support required in third grade. Independent variables for student performance data (FCAT 2.0/FAA) include type/nature of disability and the various characteristics of previously received prekindergarten ESE services with regard to service type and intensity. Independent variables for the level of

support required in third grade include type/nature of the disability and characteristics of previously received prekindergarten ESE services along with the level of support required during prekindergarten ESE services.

Data Analysis

Data collected from the Skyward data management system included student data for third graders who received ESE services prior to kindergarten and FCAT 2.0/FAA student performance information. IEP data collected from the documentation and compliance IEP system included final copies of plans for all students, including those defining needs and services for prekindergarten and third grade, as applicable. The Program and Service Rubric (Appendix A) was used to quantify the IEP services for each student for comparison purposes.

The purpose of a correlation analysis is to determine the relationships between two variables. In investigating whether or not the need for ESE support for students are similar in prekindergarten and third grade, a correlation analysis was used compare the level of support for both time periods to establish whether or not there is a significant correlation. A correlation analysis is an accurate method to determine the level of correlation these variables have to each other and calculating the correlation coefficient provides a number to describe the strength and direction of a relationship between variables. A value of 1.00 indicates the strongest relationship while .00 indicates no relationship between variables. The value provided may be positive or negative dependent upon the direction of this relationship. A Pearson *r* is used in this study to

measure the linear relationship between these variables based on the interval scale used for both FCAT 2.0/FAA scoring and the ratings completed on the Service and Program Rubric (Steinberg, 2011). The formula used for analysis of the correlation using a Pearson *r* between variables follows:

$$r_{xy} = \frac{N\sum XY - (\sum X)(\sum Y)}{\sqrt{N(\sum X^2) - (\sum X)^2]\,[N(\sum Y^2) - (\sum Y)^2]}}$$

A regression analysis determines the relationship between a dependent variable and at least one independent variable; this measure can be used to determine later prediction of dependent variable values using the regression equation (Steinberg, 2011). The regression equation follows:

$$Y' = b_1X_1 + b_2X_2 + b_3X_3 + \ldots + b_nX_n + a$$

A regression analysis was used for this study to determine what characteristics of the independent variables can be predicted to result in the strongest outcomes for student performance. This analysis was helpful in determining which characteristics are contributing to success and establishing future directions for developing effective prekindergarten programs for students with disabilities.

Summary

Chapter 3 described the methodology that was used in this study. The basic foundation for methodology was described in the introduction, a statement of the problem with research questions/hypotheses was included, as well as research design information. Research design specifics included population, sampling procedures, data collection, and data analysis. Data analysis allowed information to be contributed to the field with

regard to outcomes for students who receive prekindergarten ESE services to support future program planning.

CHAPTER FOUR: ANALYSIS OF DATA

This study investigated the relationship between participation in various types of ESE services prior to kindergarten and student achievement for students who were in third grade during the 2012-2013 and 2013-2014 school years. Variables included both academic performance and required supports/services. The population of students who took the FCAT 2.0/FAA in the 2012-2013 and 2013-2014 school years and who also received ESE services before kindergarten were included.

Analysis was completed by using a correlation analysis through the calculation of Pearson *r* as well as regression analysis. The independent variables included the type and nature of disability for students who received prekindergarten ESE services as well as the type and intensity of services provided. Dependent variables measured included performance on FCAT 2.0/FAA in third grade, whether or not students continued to receive ESE services during their third grade year, and the level of intensity that third grade services included.

To conduct the study, the researcher matched student records to collect data for all 196 students including an IEP for prekindergarten services, an IEP as applicable for the same students in their third grade year, primary exceptionality for each student, and performance data on state-required assessments (FCAT 2.0 and FAA).

Descriptive Statistics

Population

The population of students who were in third grade during either the 2012-2013 or the 2013-2014 school year included a total of 10,630 students. The researcher matched the students included in this population with all students placed in prekindergarten ESE services during the 2004-2005, 2005-2006, 2006-2007, 2007-2008, and 2008-2009 school years to determine which students received ESE services through prekindergarten programs. A total of 230 students within this designated third grade population received ESE services prior to kindergarten through various prekindergarten programs including prekindergarten ESE classrooms, various related services and supplementary aids supporting needs within the prekindergarten ESE classroom, and speech and/or language therapy services without prekindergarten ESE classroom placement.

With consideration to student status in third grade, 25 students were parentally placed in private school through a McKay scholarship and nine additional students withdrew midyear or were absent during the testing window. These 34 students did not participate in standardized testing through the FCAT 2.0 or FAA, resulting in no availability of standardized testing outcome data. Additionally, 13 students were enrolled in third grade for both 2012-2013 and 2013-2014 school years due to third grade retention; data was included and analyzed only for the first attempt for each student on FCAT 2.0 or FAA in the 2012-2013 school year. Based on all listed factors, a total of

196 students attended third grade, have applicable outcome data available, and also received prekindergarten ESE services.

In analysis of the 196 students included in this study population, 81 students were in third grade during the 2012-2013 school year and 115 students were in third grade during the 2013-2014 school year. Outcome measures for third grade students included ESE services required and performance on state-required standardized testing. In their third grade year, 169 students participated in FCAT testing and 27 students participated in FAA testing. A total of 153 students in the population were eligible for services as students with disabilities and received services through an IEP during their initial third grade school year; 126 of those students participated in FCAT testing and 27 participated in FAA testing.

Data Collection

The student data collected included an analysis of each IEP for the students included in the study population using the researcher-created Service and Program Rubric (Appendix A) to quantify the level of services provided. The rubric had a possible score of 14 points; each IEP analyzed fell in the range of one to 12 points. These points are on an ordinal scale with a score of one quantified as the least intensive services possible and a score of 14 the most intensive services possible. Appendix C contains score information across all domains listed on the rubric to provide information on severity in a variety of areas of need. The total rubric score for each IEP was used for analysis of the research questions. In analyzing the rubric scores, prekindergarten Individual Education

Plans had a mean of 3.72 with a standard deviation of 1.96 while third grade Individual Education Plans had a mean of 3.30 and a standard deviation of 2.59. Table 3 reports frequency data for each number on the ordinal scale in this rubric for the Individual Educations Plans at both prekindergarten and third grade.

Table 3

Frequency of Total IEP Ratings Based on Service and Program Rubric

Number Rating	Prekindergarten		Third Grade	
	Frequency	Percent	Frequency	Percent
1	39	19.9	52	34.0
2	8	4.1	26	17.0
3	41	20.9	19	12.4
4	43	21.9	14	9.2
5	41	20.9	12	7.8
6	7	3.6	12	7.8
7	9	4.6	5	3.3
8	4	2.0	6	3.9
9	3	1.5	2	1.3
10	0	0	2	1.3
11	1	.5	1	.7
12	0	0	2	1.3
13	0	0	0	0
14	0	0	0	0

The rubric score for the area of Curriculum and Learning was used to quantify the type of setting where a student received services based on their prekindergarten IEP and third grade IEP. Curriculum and Learning was rated zero for students who did not receive any support through an ESE teacher or classroom; these students primarily received only itinerant therapy services such as speech therapy or language therapy. A score of one in Curriculum and Learning was provided for students who did not

participate in a classroom-based program with other ESE students daily, instead receiving ESE services in a regular education classroom where the student participated with typical peers for greater than 50% of the weekly minutes provided to all students. A score of two in Curriculum and Learning indicated that a student received services in an ESE classroom with other students with disabilities for greater than 50% of the weekly minutes provided to all students. A score of three in Curriculum and Learning provided that the student required more intensive ESE classroom placement with a low teacher to student ratio and/or an intensive approach to instruction. For prekindergarten Curriculum and Learning, the mean of rating was 1.59 and the standard deviation was 0.85. Third grade Curriculum and Learning ratings included a mean of 1.01 and a standard deviation of 0.95. Table 4 includes frequency data for prekindergarten and third grade Curriculum and Learning rating scores.

Table 4

Frequency of Curriculum and Learning Ratings Based on Service and Program Rubric

Prekindergarten Curriculum and Learning Ratings			Third Grade Curriculum and Learning Ratings		
Number Rating	Frequency	Percent	Number Rating	Frequency	Percent
0	42	21.4	0	57	37.3
1	1	0.5	1	48	31.4
2	148	75.5	2	37	24.2
3	5	2.6	3	11	7.2

Primary exceptionality data were also collected for all students receiving prekindergarten ESE services for the purpose of comparing initial exceptionality to later need for ESE services. The IEP team determines primary exceptionality as the criteria

for which the student meets eligibility for services with the greatest impact on that student's access to the regular education curriculum and setting. Exceptionality category labels are provided by the Florida Department of Education aligned with the Individuals with Disabilities Education Act (IDEA). Table 5 lists frequency data for each primary exceptionality.

Table 5

Frequency of Primary Exceptionalities on Prekindergarten Individual Education Plans

Primary Exceptionality	Frequency	Percentage
Developmentally Delayed	121	61.7
Language Impaired	27	13.8
Autism Spectrum Disorder	22	11.2
Speech Impaired	16	8.2
Intellectually Disabled	6	3.1
Deaf/Hard of Hearing	1	0.5
Hospital/Homebound	1	0.5
Orthopedically Impaired	1	0.5
Other Health Impaired	1	0.5

FCAT 2.0 and FAA Achievement Level data were collected for each student in the study population. The Florida Department of Education provides Achievement Level scores correlated with the standardized Developmental Scale Scores obtained by students tested. These Achievement Level scores are reported to school districts and were included in data collected from the Skyward data system as part of this study. For FCAT 2.0, Achievement Level scores range from one to five, with levels three through five considered to be proficient. One student in the population of this study did not participate in the math portion of FCAT 2.0; all other students participated in both reading and math

assessments. FAA Achievement Level scores range from one to nine; levels four through nine are considered to be proficient. All students who participated in FAA testing received scores for both reading and math. Of the students evaluated using the FCAT 2.0 and FAA testing measures, a total of 392 evaluations were administered to the study population. On FCAT 2.0 testing, the population group consisted of 73 out of 169 students who were proficient in reading (43.2%) and 83 out of 168 students who were proficient in math (49.4%). On FAA testing, 21 out of 27 students who participated were proficient in both math and reading (77.8%). The FCAT 2.0 and FAA Achievement Level data for third grade students in this sample are included in Tables 6 and 7.

Table 6

FCAT Achievement Level Data

	Level 1	Level 2	Level 3	Level 4	Level 5
2013 Reading	22	17	20	12	3
2013 Math	24	11	14	14	11
2014 Reading	32	25	13	19	6
2014 Math	34	16	23	14	7
All Reading	54	42	33	31	9
All Math	58	27	37	28	18

Table 7

FAA Achievement Level Data

	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8	Level 9
2013 Reading	0	1	0	0	2	0	0	1	3
2013 Math	0	0	3	0	1	1	1	1	0
2014 Reading	0	3	2	0	0	1	1	2	11
2014 Math	1	0	2	2	2	4	2	5	2
All Reading	0	4	2	9	2	1	1	3	14
All Math	1	9	5	2	3	5	3	6	2

Findings

This study addressed the lack of information available on long term outcomes of prekindergarten programs for students with disabilities and identified characteristics of ESE services provided for students with disabilities prior to kindergarten that have a greater impact on long term student performance.

Research Question One

What characteristics of an ESE prekindergarten program predict academic performance in third grade?

H_{01}: There is no statistically significant relationship between the academic performance outcomes for students in third grade who participated in ESE prekindergarten programs and the characteristics of various ESE prekindergarten programs.

A linear regression analysis was completed to determine the relationship between the dependent variable of academic performance in third grade based on state-required standardized testing measures FCAT 2.0 and FAA and the following independent variables as characteristics of prekindergarten programs:

- amount of time spent in ESE for services and intensity of instructional approach
- the overall intensity of services provided.

Prekindergarten classroom placement as measured by prekindergarten Curriculum and Learning scores on the Program & Service Rubric was one independent variable analyzed in relation to the dependent variable measuring reading and math performance in third grade based on FCAT 2.0 or FAA testing and Achievement Level data. In analysis of the impact of classroom placement on reading and math outcomes, coefficients included -0.339 for FCAT 2.0 Reading, 0.492 for FAA Reading, -0.188 for FCAT 2.0 Math, and 0.727 for FAA Math. Significance values were 0.002 for FCAT 2.0 Reading, 0.507 for FAA Reading, 0.133 for FCAT 2.0 Math, and 0.210 for FAA Math (<0.05 is considered statistically significant) (Steinberg, 2011). Coefficient, standard error of measurement, *t* score, and significance values for prekindergarten classroom placement are listed in Table 8. Based on regression analysis for this independent variable, prekindergarten classroom placement based on Curriculum and Learning scores has a statistically significant impact on later performance on FCAT 2.0 Reading performance. These data do not show statistically significant impacts for prekindergarten classroom placement on FCAT 2.0 Math or FAA assessment measures included.

Regression analysis completed to determine the impact of the independent variable considering the overall intensity of prekindergarten services based on the prekindergarten Total IEP score on the Program & Service Rubric and third grade FCAT 2.0 and FAA reading and math outcomes revealed coefficient values of -0.154 on FCAT 2.0 and -0.350 on FAA for reading along with -0.058 on FCAT 2.0 and -0.341 on FAA for math. Significance values for each independent/dependent variable pairing include 0.006 for FCAT 2.0 Reading, 0.104 for FAA Reading, 0.353 for FCAT 2.0 Math, and

0.042 for FAA Math. Results of the regression analysis for this independent variable are listed in Table 9. Based on this regression analysis, the total intensity of services provided during prekindergarten had a significant impact on FCAT 2.0 Reading and FAA Math performance. There was no statistically significant impact on FCAT 2.0 Math or FAA Reading.

Table 8

Regression Analysis Results of Prekindergarten Classroom Placement (Prekindergarten Curriculum and Learning Score) for Research Question One

Model	Coefficient	Standard Error	t Score	Significance
FCAT 2.0 Reading	-.339	.110	-3.083	.002
FAA Reading	-.492	.732	-.673	.507
FCAT 2.0 Math	-.188	.124	-1.509	.133
FAA Math	-.727	.565	-1.288	.210

Table 9

Regression Analysis Results of Overall Intensity of Prekindergarten Services (Prekindergarten Total IEP Score) for Research Question One

Model	Coefficient	Standard Error	t Score	Significance
FCAT 2.0 Reading	-.154	.055	-2.787	.006
FAA Reading	-.350	.208	-1.686	.104
FCAT 2.0 Math	-.058	.062	-.072	.353
FAA Math	-.341	.159	-2.146	.042

Research Question Two

What characteristics of an ESE prekindergarten program predict the need for support or services in third grade?

H02: There is no statistically significant relationship between the support required for students in third grade who participated in ESE prekindergarten programs and the characteristics of various ESE prekindergarten programs.

The researcher used a Pearson r correlation analysis to determine the relationship between the intensity level of services provided to students receiving prekindergarten ESE services and the intensity level of ESE services for third graders who required services as listed on an IEP for their third grade year. The Total IEP scores were compared for the prekindergarten condition and the third grade condition based on the IEP analysis completed through the use of the Service and Program Rubric (Appendix A). This test revealed a 0.601 level of correlation based on the 153 Individual Education Plans analyzed meeting this criteria, which is considered to be a statistically significant relationship (Steinberg, 2011). This relationship shows that the intensity of ESE services provided in prekindergarten have predictive value for the intensity of ESE services provided in third grade. Table 10 provides data from the correlation analysis completed.

Table 10

Correlation Analysis of Intensity of ESE Services for Prekindergarten and Third Grade

	Pearson r Correlation	Significance	N
Third Grade Intensity of ESE Services	.601*	.000	153

Note. Correlation is significant at the 0.01 level (Steinberg, 2011)

A regression analysis was conducted to determine the predictive relationship between the dependent variable tested as third grade intensity of ESE services provided and the independent variables tested as:

- primary exceptionality for which services were primarily provided
- amount of time spent in ESE for services and intensity of instructional approach
- the overall intensity of services provided.

The regression analysis completed to determine predictive significance between prekindergarten primary exceptionality and third grade intensity of services displayed a coefficient of 0.522, standard error of 0.093, and significance at 0.000 (<0.05 is considered to be statistically significant) (Steinberg, 2011). Based on this analysis, the primary exceptionality for which prekindergarten services are provided impacts the level of service intensity required for students in third grade due to statistically significant results.

In analysis of the impact of the type of classroom placement and/or service delivery for prekindergarten ESE services and the impact of this variable on required ESE service intensity in third grade, the regression analysis test resulted in a coefficient

of 1.239, standard error of 0.242, and a significance value of 0.000. This test revealed a statistically significant causality between these variables.

The overall intensity of ESE services provided in prekindergarten was analyzed in comparison to intensity of ESE services provided in third grade to identify causality in the relationship using regression analysis. This analysis provided a coefficient of 0.780, standard error of 0.084, and significance of 0.000. Based on these data, there is a statistically significant predictive relationship between intensity of ESE services in prekindergarten and third grade.

Table 11 provides results of the regression analysis determining the impact of each independent variable on the dependent variable for research question two.

Table 11

Regression Analysis Results with Intensity of Third Grade ESE Services for Research Question Two

Model	Coefficient	Standard Error	t Score	Significance
Prekindergarten Primary Exceptionality	.522	.093	5.580	.000
Prekindergarten Curriculum and Learning Score	1.239	.242	5.114	.000
Prekindergarten Total IEP Score	.780	.084	9.244	.000

Summary

Data collected and descriptive statistics used for the study population were reviewed within Chapter 4 as well as the interpretation of statistical analyses completed for the study. Descriptive data included the study population information with the number of third grade students included in the overall test outcome data (10,630 students), the number of those students who received ESE services through prekindergarten programs (230 students), and the number of students who met the criteria to be included in the study population based on completion of third grade outcome measures cross-referenced with students who received prekindergarten ESE services (196 students) as well as students who required an IEP in third grade (153 students). Frequency data was also reported on the number of students categorized as each number on measured scales including primary exceptionality of students during prekindergarten services, classroom placement and intensity of instruction based on Curriculum and Learning scores, and total IEP scores for intensity of ESE services provided. FCAT and FAA achievement level data was also presented.

Regression analysis and Pearson r correlation analysis were completed based on research question statistical testing requirements. The results of regression analysis revealed that there was no significant causal relationship between prekindergarten ESE program characteristics and third grade academic outcomes in reading and math; however, there was a statistically significant impact measure on ESE program characteristics (primary exceptionality, classroom placement, and intensity of services) on the intensity of ESE services provided to students in the study population during third

grade. Additionally, a correlation analysis was completed to determine the relationship between intensity of ESE service in prekindergarten and third grade, revealing a moderate to strong statistically significant relationship.

Table 12 summarizes research questions, variables, data sources, methods of analysis, and findings. Chapter 5 includes a discussion of findings and recommendations for future research to expand on results provided in Chapter 4

Table 12

Research Questions, Variables, Data Sources, Analysis Methodology, and Findings

Research Questions	Variables	Data Source	Analysis Method	Findings
1. What characteristics of an ESE prekindergarten program predict academic performance in third grade?	Dependent: FCAT 2.0/FAA scores Independent: Classroom placement Overall intensity of services	School District Data System (Skyward) Disability eligibility data (Skyward and IEP systems)	Regression Analysis	There is a statistically significant relationship between classroom placement and FCAT 2.0 Reading as well as total IEP intensity and FCAT 2.0 Reading/FAA Math. No statistically significant relationship exists between other academic performance outcomes and these variables.
2. What characteristics of an ESE prekindergarten program predict the need for support or services in third grade?	Dependent: Service/support needs for third grade students Independent: Nature/severity of disability Classroom placement Overall intensity of services Service/support needs for prior prekindergarten program	Documentation and compliance IEP system Disability eligibility data and service information (Skyward and IEP systems)	Regression Analysis and Correlational Analysis	There is a statistically significant relationship between the ESE service needs for third grade students and the characteristics of various ESE prekindergarten programs and the nature/severity of the disability.

CHAPTER FIVE: FINDINGS AND RECOMMENDATIONS

IDEA and the Florida Department of Education provide program and service eligibility for students ages three through five in order to provide early intervention through Part B services. A variety of eligibility categories, including Developmentally Delayed, give school districts the opportunity to provide services based on student needs as determined through an IEP. The purpose of this study was to investigate the relationship between various types of ESE services prior to kindergarten and student achievement in third grade with regard to both academic performance and required supports/services. The intended outcome of this study was to provide school districts with data to support implementation of ESE services prior to kindergarten that have a statistically significant impact on later student performance and support.

A major problem addressed throughout this study was the lack of available data analyzing the effectiveness of prekindergarten ESE services based on long term outcome measures. It is critical to consider both student academic outcomes in reading and math and the intensity of ESE required long term due to both the intended benefits of prekindergarten services on intervening to increase student skills as well as the resources required on the part of school districts and taxpayers to provide ESE services.

Two dependent variables were analyzed as outcome measures for the students in this population including third grade performance on state-required standardized testing measures in reading and math and the level of intensity for ESE services provided to students in third grade. Three independent variables were used in analyzing the

relationship and causal factors between various combinations of the independent and dependent variables. Independent variables included primary exceptionality of students during prekindergarten, classroom placement and instructional approach for prekindergarten ESE services, and overall intensity of prekindergarten ESE services.

In order to conduct the research for this study, IEP data on student needs and services were examined for all students who met the study population criteria. This included 196 Individual Education Plans for students who received ESE services in prekindergarten programs and 153 Individual Education Plans for students who received ESE services in third grade. The study included two research questions:

1. What characteristics of an ESE prekindergarten program predict academic performance in third grade?
2. What characteristics of an ESE prekindergarten program predict the need for support or services in third grade?

Summary of Results

The findings of this study were based on the determination of statistical significance of the impact of various characteristics of prekindergarten programs on third grade outcomes. Based on this statistical significance, the researcher either rejected or failed to reject the null hypothesis for each research question. The determination of whether or not the researcher could reject the null hypotheses was based on statistical analyses including regression analysis and a Pearson r correlation analysis. For the regression analyses completed, p values assessing significance were used to determine if

there was a significant causal relationship between variables. Correlation analysis tested the relationship between two variables with consideration to Pearson *r* to determine the significance of this relationship.

Research Question One

What characteristics of an ESE prekindergarten program predict academic performance in third grade?

Null Hypothesis #1 (H_{01}) – Partially Reject: There is a statistically significant relationship between some academic performance outcomes for student in third grade who participated in third grade who participated in ESE prekindergarten programs and the characteristics of various ESE prekindergarten programs, there was not a statistically significant relationship between all academic performance outcome measures and characteristics of ESE prekindergarten programs.

The findings from research question one partially support the null hypothesis that there is no statistically significant difference in the relationship between academic performance outcomes for students in third grade who participated in ESE prekindergarten programs and the characteristics of various ESE prekindergarten programs including classroom placement for prekindergarten ESE services and the overall intensity of ESE services provided during prekindergarten. A linear regression analysis was completed between each independent variable considered as part of the prekindergarten services

characteristics and the dependent variable, academic outcomes for third grade in both reading and math. A significance score of 0.05 or less is considered to be statistically significant. Prekindergarten classroom placement testing revealed a significance level of 0.002 for FCAT 2.0 Reading, 0.507 for FAA Reading, 0.133 for FCAT 2.0 Math, and 0.210 for FAA Math. The total intensity of services for prekindergarten displayed a significance of 0.006 for FCAT 2.0 Reading, 0.104 for FAA Reading, 0.353 for FCAT 2.0 Math, and 0.042 for FAA Math. Based on these results, classroom placement for ESE prekindergarten resulted in statistically significantly better performance on FCAT 2.0 Reading and the overall intensity of prekindergarten ESE services resulted in statistically significantly better performance on FCAT 2.0 Reading and FAA Math.

Research Question Two

What characteristics of an ESE prekindergarten program predict the need for support or services in third grade?

Null Hypothesis # (H_{02}) – Reject: There is no statistically significant relationship between the support required for students in third grade who participated in ESE prekindergarten programs and the characteristics of various ESE prekindergarten programs.

The findings resulting from research question two do not support the null hypothesis that there is no statistically significant difference in the characteristics of an ESE prekindergarten program and the need for ESE services in third grade. A correlation

analysis was completed to determine the significance or the relationship between the intensity of ESE services provided in prekindergarten and third grade, testing at 0.601, which is a positive and statistically significant relationship. A linear regression analysis was used to determine the impact that characteristics of prekindergarten ESE services had on later intensity of ESE services required during third grade. Results of the regression analysis included a 0.000 significance level for all three independent variables on the dependent variable of intensity of ESE services provided in third grade, including prekindergarten primary exceptionality, prekindergarten classroom placement, and prekindergarten intensity of ESE services. All variables examined for research question two included statistically significant relationships and impacts.

Discussion of the Findings

The findings of this study provide information to consider in planning prekindergarten ESE services and fill the void of research in this particular area. Statistical analysis conducted on the population of students meeting the study criteria revealed an inconsistent statistically significant impact of prekindergarten classroom placement or intensity of services on the later performance of third grade students on state-required standardized assessments in reading and math. The statistical analyses completed on the impacts and relationships of prekindergarten primary exceptionality, classroom placement, and intensity of ESE services on later intensity of ESE services provided in third grade as applicable revealed a statistically significant relationship between all variables. Based on these findings, it could not be determined that the factors

examined as characteristics of ESE services in prekindergarten had a significant impact on later academic performance; however, these prekindergarten characteristics did have an impact on and relationship with the intensity of ESE services required in third grade.

The lack of consistent impact of prekindergarten ESE services on later academic performance is a critical implication to consider. With the emphasis on academic outcome measures such as FCAT 2.0 and FAA within student performance consideration and accountability systems for schools and school districts, the academic performance results based on these measures is considered to be a key factor in gauging student success. Long term impact of ESE services with regard to standardized testing measures must be considered as part of a comprehensive approach to determining effectiveness of these services. Areas for consideration in improvement of the implementation of prekindergarten ESE services include service delivery, standards-based instruction, and additional standardized and non-standardized academic performance outcome measures to more frequently assess progress and guide instructional practices.

Based on current research, it is critical to intervene early to impact student functioning. This study did not find that the ESE services provided for prekindergarten students included in the study population consistently significantly impacted academic performance long term. The findings discussed included a lack of statistically significant evidence that prekindergarten ESE classroom placement impacted third grade academic performance on FCAT 2.0 Math or FAA or overall intensity of prekindergarten ESE services impacted third grade academic performance on FCAT 2.0 Math or FAA Reading. In examination of the descriptive statistics reported on each of these variables,

some items for consideration with the ESE services provided during prekindergarten were revealed. The data collected on classroom setting using the Service and Program Rubric provided that 75.5% of students receiving ESE services in prekindergarten were receiving services through daily participation in an ESE classroom. Later third grade data showed that only 24.2% of students were receiving a similar amount of time in ESE classrooms. This is an important factor to consider in light of factors for both the prekindergarten placement and the third grade placement.

Based on the provisions of IDEA, the least restrictive environment and individualization of services are at the forefront of educational planning for students with disabilities (U.S. Department of Education, 1999). The data collected through this study show that the majority of students with disabilities receiving prekindergarten ESE services are receiving those services for the majority of the school day with other students with disabilities. This is a concern due to this high percentage all receiving the same educational placement, which may be due to a "one-size-fits-all" approach to prekindergarten ESE services in the absence of individualizing these services based on a continuum of service delivery options. Previous research has pointed to the importance of participation with nondisabled, or typical, peers for students with disabilities due to the positive impact that typical peers have on students with disabilities as peer models, increased ability to socially interact with others, and overall high expectations academically and socially in the classroom (Yang & Rusli, 2012). Therefore, the students who are placed in ESE classrooms for the majority of prekindergarten ESE services do not receive access to the benefits of typical peers.

Conversely, the students who were receiving ESE services in third grade received a more even distribution of service delivery models with consideration to least restrictive environment; 37.3% of students did not spend any time in an ESE classroom or receive any direct instruction from ESE teachers, 31.4% of students received direct instruction from ESE teachers one time or more per week but were not pulled out of their regular education classroom environments for greater than 50% of the school day, and 24.2% of students received ESE services in an ESE classroom for the majority of the school day. While the services provided may have been more individualized, it is still concerning that less than 50% of the students with disabilities who participated in FCAT 2.0 in third grade tested at or above Level 3 proficiency. Due to the fact that the ESE services provided to students with disabilities are intended to support access to and performance in the general education curriculum, it is critical to consider providing increased support by an ESE teacher for students who are not on track for proficiency in reading and math.

With consideration to the lack of consistent statistically significant findings for prekindergarten ESE services impacting later academic performance, various factors must be considered in the planning of effective prekindergarten ESE services. While this study did not reveal that the intensity of ESE services or identified disability impacted third grade academic performance in both reading and math, other research has provided factors that result in positive outcomes for students who receive prekindergarten ESE services. Factors include consistent curriculum, standards-based instruction, frequent progress monitoring, high expectations for all domains of functioning/performance, collaboration with and training for caregivers, and participation with typical peers

(Bruder, 1997; Delgado, 2009; Hosley, 2000; Marcon, 2002; Trohanis, 2008; Wilcox & Woods, 2011; Yang & Rusli, 2012).

In line with findings from other research (Delgado, 2009), the results of this study show that the ESE services provided during prekindergarten resulted in a reduced need in intensity of services during third grade. This is based on the prekindergarten mean of 3.72 and standard deviation of 1.96 reduced to a third grade mean of 3.30 and standard deviation of 2.59. This reduced level of intensity was statistically significantly impacted by the three independent variables examined for prekindergarten ESE services including primary exceptionality, classroom placement, and intensity of services. The importance of this reduction in service intensity is the impact that prekindergarten ESE services is having on the level of support students need through ESE following early intervention services provided through prekindergarten ESE services. This reduction is a benefit for students who then are spending increased time with nondisabled peers and showing a need for less specialized instruction to be successful as they are progressing through grades with the ultimate goal of being college and career ready without the support of ESE upon high school graduation. For school districts, high levels of intensity in ESE services require increased funding. By providing more intensive services through early intervention and reducing this level of intensity early in a student's educational career, the financial impact on school districts, and therefore taxpayers, is lessened.

This study was delimited by the use of solely state-required academic performance measures (FCAT 2.0 and FAA) to measure academic proficiency in reading and math. Additional standardized or consistent measures were not available; however,

there is variety in performance amongst these state standardized measures and other indicators provided for students' performance including classroom assessments, teacher data collections, and a wide range of other authentic assessments. Additionally, the description of services provided did not include a consistent curriculum, approach to instruction, or curriculum standards due to the role of IEP goals in planning services provided. This lack of consistency prevented the researcher from analyzing these characteristics within the framework of the current study. Although the results of this study cannot be generalized to all school districts, it is useful to determine implications for policy and practice in providing early intervention services for students in early childhood settings.

Implications for Policy and Practice

Findings of this study have implications for a variety of stakeholders interested in providing ESE services to students with disabilities that have a long term impact on student performance. The information gleaned through this research provide critical data for practices of educators, services providers, school- and district-administrators, and other parties making decisions to establish policies and procedures for providing early intervention services for students with disabilities prior to kindergarten. The findings of this study support the idea that prekindergarten ESE services have a significant impact on services that are required throughout later years in school. Additionally, the findings regarding long term academic performance based on state outcomes provides that there is a lack of consistency in impact on later performance on the evaluated standardized

outcome measure based on the characteristics of ESE services that were provided through prekindergarten programs. It is critical to emphasize that, as presented in the discussion of findings in this study, the prekindergarten services provided were vastly similar with regard to full-time placement in an ESE prekindergarten classroom, regardless of specific student needs.

When planning for student needs as part of a prekindergarten ESE program, services must be individualized. Based on the Individual Education Plans evaluated, not all students evaluated have the same level of functioning, the same needs, or the same prognosis for improvement. Due to these factors, it is critical to consider varying intensity and frequency of prekindergarten services for each student. In addition to individualization serving as the foundation for providing a free and appropriate public education through IDEA, individualization through the creation of an IEP is intended to strategically design a specific program for each student based on meeting the goals that are created for that student (U.S. Department of Education, 1999). By serving all students in the same model in an ESE classroom setting, it is a challenge to differentiate the instruction provided, manage behavior, and take appropriate data because of the number of students in the ESE classroom every day to participate in the program. It is paramount to plan and provide a continuum of services to cater prekindergarten ESE services to each student's needs.

Another item that districts must consider in planning and practice is providing a variety of opportunities for prekindergarten students with disabilities to participate with nondisabled peers. The impact that typical peers have on students with disabilities is

proven and the positive peer models and high expectations are essential components to include in ESE prekindergarten programs (Yang & Rusli, 2012). At the time that the study population was in prekindergarten, there were very limited opportunities for frequent participation with peers; however, over the past several years there has been consideration to increased placement in voluntary prekindergarten classrooms for students with disabilities. Additionally, many related service providers including occupational therapists, physical therapists, and speech-language pathologists may consider supporting students with disabilities by providing therapy within a regular education prekindergarten or kindergarten classroom to provide opportunities for educationally relevant targets within the regular education environment.

One limitation to providing ESE services to prekindergarten students with typical peers and with consideration to individualization of these services is the requirement that transportation is provided for students to receive the services determined as necessary to provide a free and appropriate public education (Florida Department of Education, 2001). This creates a difficulty for schools in scheduling students to participate in half day programs or services that do no align with the transportation scheduled for all students due to the requirement that is created for increased transportation services and the costs associated with these altered schedules. School districts must consider alternative options for transportation of prekindergarten students participating in ESE services within the constraints of the resources devoted to transportation for enrolled students.

While it is important for the services that students receive to be individualized, it is also crucial that there be clear standards to target for students participating in

prekindergarten ESE programs. The voluntary prekindergarten program has state-based standards and there are also standards available for use in ESE prekindergarten programs through the course code directory in Florida (CPALMS, 2015). As listed on the course code directory, the standards provided address a wide range of disabilities and may be added to or modified based on the needs of the child. Many of the listed standards aim to "address children's attitudes and dispositions toward learning, rather than specific content knowledge," (CPALMS, 2015). School districts must support prekindergarten ESE teachers in planning for the individualized implementation of these standards among schools based on an instructional plan targeting the ESE prekindergarten standards in conjunction with access to voluntary prekindergarten standards to support kindergarten readiness and access to regular education for students.

Finally, none of the Individual Education Plans analyzed as part of this study contained information on parent involvement in intervention. As previously discussed, parent training and services in the natural environments of students (home, daycare, etc.) are two of the most critical components of providing effective early intervention services (Hosley, 2000; Fernell et al., 2011; Villalpando, Leow, Hornstein, 2012). School districts frequently plan and implement informational nights for parents, but the current prekindergarten data supports increased involvement in strategically planning targeted interventions in natural environments with a parent training component to increase the use of intervention strategies throughout all school-based routines and activities.

Recommendations for Future Research

The purpose of this study was to investigate the relationship between participation in various types of ESE services prior to kindergarten and student achievement in third grade considering achievement in both academic performance and the need for ESE services. The desired outcome of this study was to provide school districts with additional research-based guidance to support planning and implementation of ESE services during prekindergarten with the greatest impact on later school success.

The data collected and analyzed through the two research questions measured the impact that a variety of characteristics of the prekindergarten ESE programs examined had on later academic performance in reading and math as well as later need for ESE services. The results of this study provided useful information to school districts for the purpose of planning high quality prekindergarten ESE services; however, limitations were present within the design of this study that point to future directions for research in long term outcomes for prekindergarten ESE programs.

One critical limitation in determining the impact of prekindergarten services received on academic performance was the available academic performance measures used. With analysis of FCAT 2.0 and FAA scores, the five-point scale used for the level system did not provide in-depth information on student performance. Another consideration about this measure is the historical performance of students with disabilities on standardized assessments; many students with disabilities show reduced performance on such standardized assessments when compared to mastery of content based on classroom-based assessments. Additionally, it is important to consider the fact

that these assessments are a snapshot based on one day or a few days of testing. A study to assess outcomes for prekindergarten based on the use of a variety of assessment measures of academic performance would provide more comprehensive information on the overall performance of students who were previously provided with ESE services in prekindergarten or other grades analyzed. Assessments should include classroom tests, work samples, grades, and other authentic assessments of student abilities.

Another limitation was the use of a single measure for outcomes in both academic performance and need for services. As discussed with regard to academic performance, multiple measures should be included in an additional study to understand a broader picture of student functioning and success in school. A future study evaluating areas beyond academic performance and need for future ESE services would also provide helpful information in determining the effectiveness of prekindergarten ESE services. A more in-depth analysis of additional factors considered as part of the impact or relationship would provide future direction in policy and planning for ESE services.

Many of the students who had adequate academic performance still did show a need for ESE services, creating a limitation in understanding the scope of what needs students had in third grade. In the five domains included in the IEP (Curriculum and Learning, Social/Emotional, Independent Functioning, Health, and Communication), IEP teams must address the whole child by considering functioning and performance in each of these domains. For a student who has performed proficiently on state assessments, there may be significant deficits in another domain. A future study evaluating which domain areas were of deficit and determining if there were similar deficits during

prekindergarten would provide valuable information to use in developing comprehensive services to address student needs across all areas. Analyzing factors such as social interaction, behavior performance, and executive functioning skills and providing data to support specifically addressing these skills during prekindergarten ESE services would provide targeted intervention to improve the ability of students to access regular education environments beginning in kindergarten.

An additional limitation of this study was the lack of inclusion in regular education programs for students with disabilities during prekindergarten, therefore limiting available data to consider differences between services providing within regular education classrooms and services in ESE classrooms. A future study comparing students who are participating in regular education prekindergarten classrooms through public schools, private preschools, or other programs with students who participate in ESE prekindergarten classrooms full-time would provide valuable information on consideration to the least restrictive environment and guide program planning for public school programs providing ESE services to students with disabilities prior to kindergarten.

A final limitation to consider is the differences introduced by services planned and implemented by a wide variety of prekindergarten ESE teachers. Every classroom has a different schedule, academic activities, behavior management system, and teacher approach to learning. Additionally, each teacher brings a variety of personal characteristics to the learning environment that impact student learning in vastly different ways. The completion of a study analyzing these characteristics and evaluating the

impact they have on student performance would provide data to support the implementation of specific best practices and support for future planning. Another component of a study analyzing specific teacher characteristics may include the effectiveness of teacher preparation on academic success of students with disabilities.

Conclusion

The Individuals with Disabilities Act (IDEA) was amended in 1986 to include services for students with developmental delays. Services must be provided in the least restrictive environment based on individual student needs and it is critical that school districts plan for providing services with the greatest impact on the long term performance of students (Sullivan & Field, 2013). Early learning and language development provide a foundation for all future skill instruction to be provided during school. In consideration of students with developmental delays and other disabilities, early intervention strategies provided through prekindergarten ESE services provide the opportunity to resolve specific deficits in order to strengthen this foundation prior to kindergarten (Piaget, 1964; Tayler, 2015).

The findings of this study helped to expand information understood based on earlier research on the effectiveness of prekindergarten programs and ESE services. Studies noted reported findings on specific components that may be included in a prekindergarten program (Epstein & Wilhite, 2015; Fernell et al., 2011; Hosley, 2000; Marcon, 2002; Ogunnaike, 2015; Pool & Hourcade, 2011; Sullivan & Field, 2013; Tayler, 2015; Trohanis, 2008; Williams et al., 2012). This study provided information on

a specific series of characteristics of prekindergarten ESE programs to determine the impact these characteristics had on later student performance. It was determined through this study that the characteristics of prekindergarten ESE services investigated did have a statistically significant impact on the ESE services required for long term student support as determined by an analysis of third grade services and these characteristics had an inconsistent statistically significant impacts on third grade academic performance in reading and math based on standardized assessment.

The findings of this study provide valuable information on the long term needs of ESE students based on the provision of ESE services in prekindergarten. The results were constructed on IEP-based data on services, setting, and exceptionality. Information on curriculum provided, specific academic goals targeted, social/emotional factors, and overall complexity of disabilities were not included in the scope of this study due to unreliable and inconsistent data collection sources. The researcher has determined that the basic information collected through these significant findings provided foundational data to consider in planning for future ESE prekindergarten programs. Despite the inability of the researcher to consider other characteristics of prekindergarten ESE programs, the information produced adds to the body of research on prekindergarten predictors for later student needs with regard to ESE services.

The impact of prekindergarten services on academic performance was an important component of this study because the desired outcome for all students is college and career readiness and early academic success in third grade provides a trajectory of success throughout later school years. This study did not determine that the

prekindergarten ESE services characteristics analyzed created a consistent statistically significant impact on third grade academic performance on reading and math scores based on standardized testing outcomes. This study did provide helpful information in that this measure did not show consistent significant impact; however, it is important to consider that other areas investigated in future studies may show that prekindergarten ESE support consistently impacts academic performance based on other measures. This finding added to the information previously understood in that students with disabilities continue to show reduced proficiency on state standardized assessments and that additional measures must be evaluated to comprehensively examine this variable.

This study provided investigation of some of the characteristics that could be analyzed using ex post facto research data to determine the impact that prekindergarten ESE services on long term outcomes for students with disabilities. The intensity of services, classroom placement for services, and the primary exceptionality for students served are important factors to consider in planning prekindergarten ESE programs due to the impact on long term ESE needs as well as considerations to providing a free and appropriate public education to students in the least restrictive environment. By following the guidance and requirements of IDEA and considering the impact of the characteristics evaluated through this study, school districts can increase the effectiveness of early intervention services for students with delays and disabilities.

APPENDIX A
SERVICE AND PROGRAM RUBRIC

Service and Program Rubric

Student Identifier:		**Service Analysis Grade:**	

For each indicator on this rubric that is checked, one point should be included in the total. Each domain of the rubric should be totaled and the sum of all can be calculated to determine an overall "service analysis score".

IEP Services	
	CURRICULUM and LEARNING
	Receives direct services from an ESE teachers at least 1 time per week
	Receives services/instruction in an ESE classroom daily (>50%).
	Receives a highly-structured curriculum including prescriptive learning programs or instructional protocols.
	SOCIAL/EMOTIONAL BEHAVIOR
	Uses a classroom management system to support behavior.
	Requires a behavior plan designed to meet the individual needs of a student.
	Receives continuous support to target behavior concerns, including frequent restraints or a thorough crisis management plan.
	Provided with counseling or other services to support social and/or emotional
	INDEPENDENT FUNCTIONING
	Receives periodic assistance with toileting or feeding.
	Requires constant supervision for physical safety.
	Receives weekly occupational and/or physical therapy
	HEALTH
	Requires nursing services daily or other specially-trained staff.
	COMMUNICATION
	Receives speech and/or language therapy at least once/week.
	Uses communication equipment for receptive (hearing aids, FM system, cochlear implant(s)) or expressive (low-, mid-, or high-tech communication devices)
	Requires communication interventions infused throughout the school day.

TOTALS	
Curriculum and Learning	
Social/Emotional Behavior	
Independent Functioning	
Health	
Communication	
SERVICE ANALYSIS SCORE	

APPENDIX B
IDEA PART D PROJECTS ADDRESSING EARLY CHILDHOOD FOR CHILDREN WITH DISABILITIES

Table 13

IDEA Part D Projects Addressing Early Childhood for Children with Disabilities

Project Title	Project Number	Area Addressed
Preparation of Special Education, Related Services, and Early Intervention Personnel to Serve Infants, Toddlers, and Children with Low-Incidence Disabilities	84.325A	Personnel Preparation
Preparation of Leadership Personnel	84.325D	Personnel Preparation
Preparation of Personnel in Minority Institutions	84.325E	Personnel Preparation
Center for Educating and Providing Early Intervention Services to Children with Autism and Autism Spectrum Disorders	84.325G	Personnel Preparation
Improving the Preparation of Personnel to Serve Children with High-Incidence Disabilities	84.325H	Personnel Preparation
Center to Guide Personnel Preparation Policy and Practice in Early Intervention and Preschool Education (Birth to 5)	84.325J	Personnel Preparation
Combination Priority for Personnel A – Early Intervention/Early Childhood B – Low-Incidence Disabilities C – Related Services E – Minority	84.325K	Personnel Preparation
Center on High Quality Personnel in Inclusive Preschool Settings	84.325S	Personnel Preparation
IDEA Partnership Project	84.326A	Technical Assistance
Urban Inclusion Technical Assistance Center	84.326B (2002)	Technical Assistance
Technical Assistance Center on Evidence-Based Practices to Improve Early Literacy and Language Development of Young Children with Disabilities	84.326B (2006)	Technical Assistance
Projects for Children and Young Adults Who Are Deaf-Blind	84.326C	Technical Assistance
National Center on Dispute Resolution	84.326D	Technical Assistance
Technical Assistance Center on Disproportionate Representation of Culturally and Linguistically Diverse Students in Special Education	84.326E	Technical Assistance
State and Federal Policy Forum for Program Improvement	84.326F	Technical Assistance

Project Title	Project Number	Area Addressed
Center on Achieving Results in Education for Students with Disabilities	84.326G	Technical Assistance
National Early Childhood Technical Assistance Center	84.326H	Technical Assistance
Center to Promote Involvement by Minority Institutions in Discretionary Programs under IDEA	84.326L	Technical Assistance
Model Demonstration Centers on Progress Monitoring	84.326M	Technical Assistance
Community Parent Resource Centers	84.328C	Parent Training
Parent Training and Information Centers	84.328M	Parent Training
Technical Assistance for Parent Centers	84.328R	Parent Training
State Improvement Grants	84.323A	State Program Improvement
Technical Assistance on State Data Collection	84.373X	State Program Improvement
Field-Initiated Research Projects	84.324C (2001)	Research/Innovation
IDEA Research and Innovation	84.324C (2004)	Research/Innovation
Directed Research Projects	84.324D	Research/Innovation
Center on Early Identification, Child Find, and Referral of Young Children with Disabilities	84.324G	Research/Innovation
Center on Outcomes for Infants, Toddlers, and Preschoolers with Disabilities	84.324L	Research/Innovation
Model Demonstration Projects for Children with Disabilities	84.324M	Research/Innovation
Initial Career Awards	84.324N	Research/Innovation
Outreach Projects for Children with Disabilities	84.324R	Research/Innovation
Research and Training Center on Scientifically Based Practices for Successful Early Childhood Transitions	84.324V	Research/Innovation
Center or Evidence-Based Practice: Young Children with Challenging Behavior	84.324Z	Research/Innovation
Steppingstones of Technology Innovations for Students with Disabilities	84.327A	Technology & Media Services
Television Access	84.327C	Technology & Media Services
Congressionally Earmarked Activities	84.327Q	Technology & Media Services

Note. Adapted from OSEP Discretionary Projects: Compilation of Projects Addressing the Early Childhood Provisions of IDEA by the U.S. Department of Education, 2006.

APPENDIX C
SERVICE AND PROGRAM RUBRIC SCORES FOR ALL STUDENTS

Prekindergarten ESE Rubric Scores

Student Identifier	Curriculum and Learning	Social/ Emotional	Independent Functioning	Health	Communication	Total IEP
1	0	0	0	0	1	1
2	2	0	0	0	1	3
3	2	1	0	0	1	4
5	2	0	0	0	1	3
6	2	0	0	0	0	2
9	2	1	1	0	1	5
10	2	0	0	0	1	3
11	2	2	0	0	1	5
12	2	2	1	0	0	5
13	2	0	0	0	1	3
16	2	0	0	0	0	2
17	2	2	0	0	1	5
18	2	0	0	0	1	3
19	2	0	0	0	1	3
20	0	0	1	0	1	2
21	2	0	1	0	1	4
22	2	0	0	0	1	3
23	2	0	0	0	1	3
24	2	1	0	0	1	4
25	2	1	0	0	0	3
26	0	0	0	0	1	1
27	2	0	1	0	0	3
29	2	1	0	0	0	3
30	2	1	0	0	1	4
31	0	0	0	0	1	1
32	2	1	1	0	0	4
33	2	2	0	0	0	4
34	2	2	1	0	0	5
35	2	0	1	0	1	4
38	0	0	0	0	1	1
40	0	0	0	0	1	1
41	2	1	2	1	1	7
43	2	2	0	0	1	5
44	2	1	2	0	0	5
45	2	1	0	0	1	4
46	2	2	0	0	1	5
47	2	3	0	0	1	6

Student Identifier	Curriculum and Learning	Social/ Emotional	Independent Functioning	Health	Communication	Total IEP
48	2	0	0	0	1	3
50	2	3	2	0	1	8
51	2	2	0	0	1	5
53	0	0	0	0	1	1
54	2	1	1	0	1	5
56	2	1	0	0	1	4
59	2	1	1	0	2	6
60	2	1	0	0	0	3
61	2	1	0	0	0	3
62	0	0	0	0	1	1
63	3	2	2	0	1	8
64	2	1	0	0	1	4
65	2	2	0	0	0	4
66	2	2	1	0	1	6
67	2	0	1	0	1	4
68	2	1	1	0	1	5
69	2	1	0	0	1	4
70	0	0	0	0	1	1
71	2	2	0	0	0	4
72	2	2	0	0	1	5
74	0	0	0	0	1	1
75	0	0	0	0	1	1
76	0	0	0	0	1	1
77	2	2	1	0	1	6
78	0	1	0	0	0	1
80	2	2	0	0	1	5
82	2	0	0	0	1	3
83	2	2	0	0	1	5
84	2	2	0	0	1	5
85	2	1	0	0	2	5
86	2	0	1	0	1	4
87	2	0	0	0	0	2
88	0	0	0	0	1	1
89	2	0	0	0	1	3
90	0	0	0	0	1	1
91	2	1	0	0	1	4
92	3	3	3	0	2	11
93	0	0	0	0	1	1
94	2	3	2	0	1	8

Student Identifier	Curriculum and Learning	Social/ Emotional	Independent Functioning	Health	Communication	Total IEP
95	0	0	0	0	1	1
96	2	0	2	0	1	5
97	0	0	0	0	1	1
98	0	0	0	0	1	1
99	2	2	0	0	0	4
100	2	1	1	0	1	5
101	2	1	0	0	1	4
102	0	0	0	0	1	1
103	2	0	0	0	1	3
104	2	2	0	0	1	5
106	3	0	1	0	0	4
108	2	1	0	0	1	4
109	2	1	1	0	1	5
110	2	2	1	0	1	6
111	2	1	1	0	1	5
112	2	0	0	0	1	3
113	2	1	0	0	1	4
114	2	1	0	0	1	4
116	2	2	0	0	1	5
117	2	1	0	0	1	4
118	2	0	0	0	1	3
119	0	0	0	0	1	1
120	0	0	0	0	1	1
121	2	0	0	0	1	3
122	2	1	0	0	1	4
123	2	2	1	0	1	6
124	0	0	0	0	1	1
125	2	1	0	0	1	4
126	0	0	0	0	1	1
127	2	0	0	0	1	3
128	2	0	0	0	1	3
130	2	0	0	0	0	2
131	2	0	1	0	1	4
132	2	0	0	0	1	3
133	2	0	0	0	1	3
134	0	0	0	0	1	1
135	2	1	0	0	1	4
136	1	1	0	0	0	2
137	2	1	0	0	1	4

Student Identifier	Curriculum and Learning	Social/ Emotional	Independent Functioning	Health	Communication	Total IEP
138	2	1	0	0	1	4
139	2	1	1	0	1	5
140	2	1	0	0	1	4
141	2	1	0	0	1	4
142	2	1	0	0	0	3
143	2	3	2	0	1	8
144	2	1	0	0	1	4
146	2	2	1	0	0	5
147	0	1	0	0	1	2
148	2	0	0	0	1	3
149	2	1	0	0	1	4
150	2	2	2	0	1	7
151	2	1	1	0	1	5
152	0	0	0	0	1	1
153	0	0	0	0	1	1
154	2	0	0	0	1	3
156	2	0	0	0	1	3
158	2	0	0	0	1	3
159	0	0	0	0	1	1
160	2	0	1	0	1	4
161	2	2	0	0	1	5
162	2	1	0	0	0	3
164	3	2	3	0	1	9
165	2	1	1	0	1	5
166	0	0	0	0	1	1
167	2	1	1	0	0	4
168	2	0	2	0	1	5
169	2	0	0	0	1	3
173	2	1	0	0	1	4
174	2	2	0	0	0	4
175	2	1	0	0	0	3
176	2	2	2	0	1	7
177	2	0	0	0	1	3
178	2	2	0	0	1	5
181	0	0	0	0	1	1
182	3	1	3	1	1	9
183	2	1	0	0	1	4
184	2	2	2	0	1	7
186	2	1	1	0	1	5

Student Identifier	Curriculum and Learning	Social/ Emotional	Independent Functioning	Health	Communication	Total IEP
189	2	0	0	0	1	3
190	0	0	0	0	1	1
191	2	2	2	0	1	7
192	2	0	0	0	1	3
193	2	1	0	0	1	4
194	2	0	0	0	1	3
195	0	0	0	0	1	1
196	2	2	1	0	1	6
197	2	2	0	0	1	5
199	2	2	0	0	1	5
200	2	1	0	0	1	4
201	2	2	1	0	0	5
202	2	1	0	0	0	3
203	2	1	1	0	1	5
204	2	0	0	0	1	3
205	2	2	0	0	1	5
206	0	0	0	0	1	1
207	0	0	0	0	1	1
208	2	0	0	0	1	3
209	2	2	1	0	0	5
210	0	0	0	0	1	1
211	0	0	0	0	1	1
212	2	3	1	0	1	7
213	2	3	1	0	1	7
214	0	0	0	0	1	1
215	0	0	1	0	1	2
216	2	2	0	0	1	5
217	2	1	0	0	1	4
218	2	0	0	0	1	3
219	2	2	2	0	1	7
220	2	3	0	0	0	5
221	0	0	0	0	1	1
222	2	1	1	0	1	5
223	2	2	3	0	2	9
224	2	1	1	0	1	5
225	2	1	0	0	1	4
226	2	1	0	0	1	4
227	2	1	3	0	1	7
229	0	0	0	0	1	1

Student Identifier	Curriculum and Learning	Social/ Emotional	Independent Functioning	Health	Communication	Total IEP
230	0	0	0	0	1	1
231	2	2	1	0	0	5
232	2	0	0	0	1	3

Third Grade ESE Rubric Scores

Student Identifier	Curriculum and Learning	Social/ Emotional	Independent Functioning	Health	Communication	Total IEP
1	0	0	0	0	1	1
2						
3	0	0	1	0	1	2
5	0	0	0	0	1	1
6	1	1	0	0	0	2
9						
10	2	1	1	0	1	5
11	3	2	1	0	1	7
12	2	2	0	0	1	5
13	0	0	0	0	1	1
16	1	0	0	0	1	2
17	3	2	1	0	1	7
18	0	0	0	0	1	1
19	1	0	1	0	1	3
20	1	0	0	0	1	2
21	0	0	1	0	1	2
22	2	1	0	0	1	4
23	1	0	0	0	1	2
24	2	1	0	0	1	4
25	0	2	0	0	1	3
26	0	0	0	0	1	1
27	0	0	1	0	0	1
29	0	1	0	0	0	1
30	1	2	0	0	2	5
31	0	0	0	0	1	1
32						
33						
34						
35	1	0	1	0	1	3
38	0	0	0	0	1	1
40	0	0	0	0	1	1
41	2	2	3	1	1	9
43	1	1	0	0	0	2
44	3	2	2	0	1	8
45						
46	3	3	2	0	2	10
47	2	2	0	0	1	5

Student Identifier	Curriculum and Learning	Social/ Emotional	Independent Functioning	Health	Communication	Total IEP
48						
50	1	0	0	0	1	2
51	0	0	0	0	1	1
53	1	0	0	0	1	2
54	0	0	0	0	1	1
56	1	1	0	0	1	3
59	2	1	1	0	1	5
60	1	0	0	0	1	2
61	1	0	0	0	0	1
62	1	0	0	0	1	2
63	2	3	1	0	1	7
64	3	2	0	0	1	6
65						
66	2	4	1	0	1	8
67	2	3	1	0	2	8
68	1	0	0	0	0	1
69	2	2	1	0	1	6
70	0	0	0	0	1	1
71						
72	0	0	0	0	1	1
74	0	0	0	0	1	1
75						
76	0	0	0	0	1	1
77	0	1	0	0	1	2
78						
80	1	1	0	0	1	3
82	1	0	0	0	1	2
83	0	0	0	0	1	1
84	1	2	0	0	1	4
85	2	2	0	0	1	5
86	1	0	0	0	1	2
87	1	0	0	0	0	1
88	1	1	0	0	1	3
89	1	0	1	0	1	3
90						
91	1	2	0	0	1	4
92	3	4	3	0	2	12
93	1	0	0	0	1	2
94	2	2	2	0	1	7

Student Identifier	Curriculum and Learning	Social/ Emotional	Independent Functioning	Health	Communication	Total IEP
95						
96	2	2	1	0	1	6
97						
98	1	1	0	0	1	3
99						
100	1	0	0	0	1	2
101	1	2	0	0	1	4
102	0	0	0	0	1	1
103	2	2	0	0	0	4
104	1	1	0	0	0	2
106	3	3	2	0	1	9
108						
109	0	0	0	0	1	1
110	2	2	1	0	0	5
111	0	0	0	0	1	1
112	2	3	0	0	1	6
113						
114						
116						
117	0	0	0	0	1	1
118	0	0	0	0	1	1
119						
120	0	0	0	0	1	1
121						
122	0	0	0	0	1	1
123	1	1	0	0	1	3
124	0	0	0	0	1	1
125						
126	0	0	0	0	1	1
127	0	0	0	0	1	1
128	0	0	0	0	1	1
130	2	3	0	0	0	5
131	1	0	1	0	1	3
132	0	0	0	0	1	1
133	1	1	0	0	1	3
134						
135	2	1	0	0	1	4
136	1	2	0	0	0	3
137	2	3	2	0	1	8

Student Identifier	Curriculum and Learning	Social/ Emotional	Independent Functioning	Health	Communication	Total IEP
138	0	0	0	0	1	1
139						
140	1	0	0	0	1	2
141						
142						
143	3	4	1	0	2	10
144	1	0	0	0	1	2
146	2	3	1	0	2	8
147	0	0	0	0	1	1
148	0	0	0	0	1	1
149	2	2	1	0	1	6
150	2	2	0	0	1	5
151	0	0	1	0	1	2
152						
153	0	0	0	0	1	1
154	0	0	0	0	1	1
156	0	0	0	0	1	1
158	0	0	0	0	1	1
159						
160	0	0	0	0	1	1
161						
162	1	1	0	0	0	2
164	2	2	1	0	1	6
165	2	1	0	0	1	4
166	0	0	1	0	1	2
167	3	3	0	0	0	6
168	1	0	2	0	1	4
169	0	0	0	0	1	1
173	1	2	0	0	1	4
174						
175	1	1	0	0	0	2
176						
177	1	0	1	0	1	3
178	0	0	0	0	1	1
181	0	0	0	0	1	1
182	1	0	1	0	1	3
183	1	2	0	0	1	4
184	2	2	1	0	1	6
186	0	2	0	0	1	3

Student Identifier	Curriculum and Learning	Social/ Emotional	Independent Functioning	Health	Communication	Total IEP
189						
190	0	0	0	0	1	1
191	2	3	2	0	1	8
192	0	0	0	0	1	1
193	0	0	0	0	1	1
194						
195						
196	2	3	1	0	1	7
197						
199	1	2	0	0	1	4
200	1	2	0	0	0	3
201	2	2	0	0	1	5
202						
203	2	0	1	0	1	4
204	0	0	0	0	2	2
205	0	0	0	0	1	1
206						
207	2	0	0	0	1	3
208	1	0	0	0	1	2
209	2	2	1	0	1	6
210	0	0	0	0	1	1
211						
212	2	2	1	0	1	6
213	1	0	1	0	1	3
214						
215	0	0	1	0	1	2
216	1	0	0	0	0	1
217						
218	1	1	0	0	1	3
219	2	2	1	0	1	6
220	2	3	0	0	0	5
221						
222						
223	3	3	3	0	2	11
224	2	1	0	0	1	4
225	1	3	0	0	1	5
226	0	0	0	0	1	1
227	2	1	2	0	1	6
229	0	0	0	0	1	1

Student Identifier	Curriculum and Learning	Social/ Emotional	Independent Functioning	Health	Communication	Total IEP
230						
231	3	7	1	0	1	12
232	0	0	0	0	1	1

APPENDIX D
UNIVERSITY OF CENTRAL FLORIDA
APPROVAL OF EXEMPT HUMAN RESEARCH

University of Central Florida Institutional Review Board
Office of Research & Commercialization
12201 Research Parkway, Suite 501
Orlando, Florida 32826-3246
Telephone: 407-823-2901 or 407-882-2276
www.research.ucf.edu/compliance/irb.html

Approval of Exempt Human Research

From: **UCF Institutional Review Board #1**
FWA00000351, IRB00001138

To: **Tanya Shores**

Date: **August 28, 2015**

Dear Researcher:

On 08/28/2015, the IRB approved the following activity as human participant research that is exempt from regulation:

Type of Review:	Exempt Determination
Project Title:	Determining characteristics of pre-kindergarten services for students with disabilities that predict later school success
Investigator:	Tanya Shores
IRB Number:	SBE-15-11546
Funding Agency:	
Grant Title:	
Research ID:	N/A

This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made and there are questions about whether these changes affect the exempt status of the human research, please contact the IRB. When you have completed your research, please submit a Study Closure request in iRIS so that IRB records will be accurate.

In the conduct of this research, you are responsible to follow the requirements of the Investigator Manual.

On behalf of Sophia Dziegielewski, Ph.D., L.C.S.W., UCF IRB Chair, this letter is signed by:

Joanne Muratori

Signature applied by Joanne Muratori on 08/28/2015 04:31:03 PM EDT

IRB manager

APPENDIX E
SEMINOLE COUNTY PUBLIC SCHOOLS
PERMISSION TO CONDUCT RESEARCH

Seminole County Public Schools

WALT GRIFFIN
Superintendent

Educational Support Center
400 E. Lake Mary Boulevard
Sanford, Florida 32773-7127
Phone: (407) 320-0000
Fax: (407) 320-0281

October 11, 2015

Ms. Tanya Shores
1191 Kersfield Circle
Heathrow, FL
Tanya.shores@knights.ucf.edu

Dear Ms. Shores,

I am in receipt of the proposal and supplemental information that you submitted for permission to conduct research in the Seminole County Public Schools. Thank you for very clearly delineating the required components of the research request. After a review of these documents, it has been determined that you are granted permission to conduct the study described in these documents.

Your study, "Collect FCAT 2.0 scores and ESE service information for students who were in third grade for the 2012-13 or 2013-14 school year and who participated in PreK programs for students with disabilities to determine which programs are creating the best long term outcomes," is of interest to district staff. Superintendent Griffin has established PreK programs at all SCPS elementary schools and the information you learn from your study may help to define future goals and actions.

Please contact Ms. Kelly Thompson, Coordinator of Assessment and Accountability, to discuss your next steps for securing support from an SCPS data analyst. Analysts are required to work on research requests after their contracted hours and typically charge $50/hour.

Best of luck with your research. I look forward to receiving a copy of your completed study.

Respectfully,
Anna-Marie Cote

Anna-Marie Cote, Ed.D.
Deputy Superintendent, Instructional Excellence and Equity

cc. Dr. Marian Cummings, Executive Director, Elementary Schools
Dr. Robin Dehlinger, Executive Director, Elementary Schools
Dr. Michelle Walsh, Executive Director, ESSS
Dr. AnaLynn Jones, Director, PreK Education
Ms. Kelly Thompson, Coordinator, Assessment and Accountability

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