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PRE-SERVICE TEACHERS' THEORY TO PRACTICE OF INCLUSION WITH

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PRE-SERVICE TEACHERS' THEORY TO PRACTICE OF INCLUSION WITH
CHILDREN WITH AUTISM SPECTRUM DISORDER

A DISSERTATION APPROVED FOR THE
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This dissertation is dedicated to my sons: Kade and Karter. You all are my inspiration, and I am grateful to be a part of both of your journeys. I love you both.

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Abstract

Children with Autism Spectrum Disorder (ASD) are often included in the general

education classroom requiring individualized inclusion strategies. This can result in

challenges for both the general education teacher and classroom. Existing research calls

for more integration of special education content in teacher education programs because

few teacher preparation programs include curriculum for teaching children with

disabilities or challenging behaviors. A purposeful plan and research based framework

providing intentional opportunities to implement inclusion strategies for children with

ASD to be part of an existing college course is included. The purpose of this study was

to explore how 25 junior and senior pre-service teachers demonstrated knowledge of

theory to practice throughout a college course in which the instructor provided

scaffolding while incorporating strategies for inclusion for children with ASD. The

conceptual framework for this study was guided by Donovan, Bransford, and

Pellegrino's (1999) theory of *How People Learn: Bridging Research and Practice*, that

included four interrelated attributes of learning environments: community centered,

learner centered, assessment centered and knowledge centered. These attributes became

starter codes for data analysis. There were five types of data used to scaffold the

learning of the pre-service teachers: journals, observations, interviews, field notebook,

and documents. Three levels of data analysis took place: starter codes, with-in case

analysis, and cross-case analysis. Major findings included the connection the pre-

service teachers made between theory and practice and their interest, engagement, and

gratitude for the knowledge of inclusion and ASD. Several implications are provided,

including following pre-service teachers throughout their final internship when they are

in the classroom daily to see if they continue to implement what they learned and apply in future educational settings.

Keywords: autism spectrum disorder, inclusion, pre-service teachers, teacher candidates, theory to practice, teacher education programs, teacher educators, general education teachers, general education classroom, action research

CHAPTER ONE: Introduction

The demographic student population of schools is changing with more students with disabilities attending the general education classrooms instead of the special education classrooms. The Individuals with Disabilities Education Act (IDEA) requires schools to provide children with disabilities an appropriate education in the least restrictive environment (LRE), which is often the general education classroom. Children without disabilities and children with disabilities learning in the same classroom environment is called inclusion (Heward, 2013). Inclusion is defined as "including all children with disabilities as members of general education classrooms" (Levin, Hibbard, & Rock, 2002, p. 280). Therefore, teachers and future teachers have to be prepared for the changes by learning how to effectively include children with disabilities in the general education classrooms (Hutchinson & Martin, 1999; Slavin 2015).

In order for effective inclusion to occur in classrooms, pre-service teachers must have the necessary knowledge, skills, and dispositions that successful inclusion requires (Levin et al., 2002). According to the National Council for Accreditation of Teacher Education (NCATE) (2010) very few teacher preparation programs include the training for teaching children with disabilities or challenging behaviors. Therefore, teacher educators should include learning strategies for appropriately implementing inclusion in teacher preparation programs. The preparation could be implemented through the use of several forms of pedagogy such as, class assignments, discussions, and readings. Furthermore, when pre-service teachers have the opportunity to practice what they learn in their college courses by working with children in the classroom, the pre-service

teachers connect theory to practice. The more opportunities pre-service teachers have to link theory to practice, the more connections they are able to make from the learning in the college course to the classroom with children. Therefore, they have a more clear understanding of how inclusion can be successful when working with children with disabilities.

Many things contribute to the preparation of pre-service teachers becoming effective classroom teachers and carrying out effective strategies so that successful inclusion occurs. For example, the amount of pre-service teachers' knowledge and experience working with children who have disabilities contributes to the preparation that needs to take place (Taylor & Sobel, 2001). Some pre-service teachers have had little to no experience with children with disabilities, while other pre-service teachers have worked with children with disabilities. Several field experiences in the classroom with children allows pre-service teachers many different opportunities to practice strategies with children (Leko & Brownell, 2011). The concept of theory to practice involves learning meaningful theories and relevant strategies in college courses, then implementing the theories and practicing the strategies in the classroom with children (Stayton & Miller, 2008). Rather than just reading and discussing the strategies, pre-service teachers interact with children with disabilities. Theories and strategies are better understood when applied in the classroom with children, rather than just reading about or discussing the theories.

A variety of disabilities will be seen in schools; however, a common disability seen in classrooms is Autism Spectrum Disorder (ASD). ASD is a disability that continues to increase in the number of children diagnosed. The Center for Disease

Control and Prevention (CDC) (2014), states that one in every 68 children are affected by ASD. Unlike other disabilities, children with high functioning ASD are often included in the general education classroom. Children with ASD display distinctive characteristics. ASD, like other disabilities, requires individual inclusion strategies because many children with ASD have normal cognitive and learning abilities but are totally detached and highly repetitive in their actions, while others are only mildly socially awkward (Heward, 2013). The spectrum of differences can result in challenges for the general education teacher and classroom. This is why it is important for early childhood teachers to have a depth of knowledge of how children with and without disabilities develop in order to design, select, and implement appropriate curriculum. Therefore, pre-service teachers, even those who are not getting certification in special education, must be prepared to teach these children (von der Embse, Brown, & Fortain, 2011).

General education classroom teachers should have at least a minimal understanding about working with children with disabilities (von der Embse et al., 2011; Taylor & Sobel, 2001). Teachers need a variety of strategies in order to provide structured learning environments for children with disabilities. Thoughtful adaptations, accommodations, and implementations that consist of real-life problem-solving activities as an integrated aspect of course instruction provided by college professors could transfer into the classroom with children (McNaughton, Hall, & Maccini, 2001). How pre-service teachers build this knowledge is either integrated into their college coursework, taught in courses specifically for special education (Pugach, 2005), or learned through personal experiences outside of the school setting (Cook, 2002). How

could these skills be taught through college course work ensuring that all pre-service teachers learn the beneficial skills necessary to meet each child's need?

This study used action research as the methodology because the nature of the study was to improve practice or make existing practice more efficient (Glesne, 2011). Action research is often used in education to solve particular issues through planning, action, and gathering information (Miles & Huberman, 1994). Since the researcher was also the instructor of the course where the data was gathered, action research methodology was an appropriate fit.

Definition of Terms

- *Theory to practice:* Implementing concepts that are learned in college courses into the classroom with children.
- *Pre-service teachers*: Undergraduate students who are seeking their bachelor's degree in education. Other researchers may use the terms teacher candidates or future teachers, however, for this study, only the term pre-service teachers will be used.
- *Teacher educators*: College instructors of pre-service teachers.
- *General education teachers*: Teachers of children in the general or regular education classroom.
- *The general education classroom:* The classroom where typically developing children learn. The general education classroom is sometimes referred to as the regular education classroom.
- *Typically developing peers (TDP):* Children or peers that develop typical when compared to other children and who do not have disabilities.

- *Autism Spectrum Disorder (ASD):* Children with delays in social and communication skills and have odd or repetitive behaviors that indicate the diagnosis of ASD. ASD is a spectrum and an umbrella term used to refer to a group of pervasive developmental disorders.

- *Inclusion*: The practice of "including all children with disabilities as members of general education classrooms" (Levin et al., 2002, p. 280).

- *Mainstreaming*: When children with disabilities spend their entire school day in the general education classroom. However, some educators use the word inclusion, instead of mainstream any time a child with a disability spends time in the general education classroom.

- *Least Restrictive Environment (LRE)*: The setting that is most similar to a general education classroom and also appropriately meets the needs of children with disabilities (Idol, 2006). The LRE is often the general education classroom where children without disabilities and children with disabilities learn in the same classroom environment.

- *Modification*: To limit the meaning, to change, or alter an assignment or activity (Heward, 2013). Sometimes teachers will limit or change the expectation for the child with ASD, such as providing extra time or the expectation simply being participating in an activity.

- *Accommodation*: To provide the child with something that is needed, such as a calculator for math (Heward, 2013). Accommodations are defined as tangible strategies teachers use to immediately improve a skill of a student (Patten & Watson, 2011).

The definitions are also included within the paper to explain and clarify when needed.

Research Problem

Teacher education programs prepare pre-service teachers for teaching children, this includes children with a variety of diagnosis and disabilities. Because of the demographics in general education classrooms, special education teachers are not the only teachers providing services to children with disabilities.

Teachers should be knowledgeable about their students' backgrounds and abilities and plan instruction and learning opportunities accordingly (Taylor & Sobel, 2001). Furthermore, teachers who take a personal interest in their students and understand where the students come from are more able to make connections and build relationships. Learning occurs when teachers and students connect and have positive interactions. Therefore, teachers' understanding of students' educational needs within the contexts of the classroom, school, neighborhood, district, and community creates a solid foundation for learning and development. More specifically, each classroom make-up, community culture, and circumstance should be understood by teachers in order to meet students where they are and to develop positively. Correspondingly, teacher educators can assist in developing pre-service teachers to become teachers that will understand their students' background and learning abilities, specifically students with ASD.

Purpose of Study and Research Questions

The purpose of this research was to explore how pre-service teachers demonstrated knowledge of theory to practice throughout a college course in which the instructor provided scaffolding while incorporating strategies for inclusion for children

with ASD. The teacher educator scaffolded the pre-service teachers' learning while incorporating strategies for inclusion for working with children with ASD. More specifically, the pre-service teachers gained an understanding of children with ASD during their internship placements.

This study was guided by the following five questions:

1) What prior knowledge and experiences do these pre-service teachers know about children with ASD when they begin their education as a future teacher?

2) How do these pre-service teachers implement theory to practice when they have the opportunity to work with children with ASD after learning the strategies during their university course?

3) What new knowledge and understanding do these pre-service teachers demonstrate regarding teaching students with ASD after they complete a course when the instructor intentionally implements information about ASD?

4) How do these pre-service teachers plan to apply their new knowledge about inclusion with children who have ASD in their future classroom?

5) How does the teacher educator implement, plan, guide, and assess the acquisition of learning of pre-service teachers during a course when information about ASD is explicitly implemented?

Significance of the Study

Previous studies have explored how teacher educators teach inclusion strategies to pre-service teachers in preparation for the classroom setting comprised of children with disabilities (Trent, Pernell, Mungai, & Chimedza, 1998). This study focused on the inclusion needs of children with ASD. The findings from this study will assist with

teacher preparation for pre-service teachers. It also contributes to the existing literature

regarding the preparation of pre-service teachers for inclusion with children with ASD.

More specifically, this research study could impact the curriculum in an internship

course at the university where the researcher is an assistant professor. The topic of

inclusion was currently missing from the course curriculum. By providing a research

based significance in preparing pre-service teachers for working with children identified

with disabilities, specifically ASD, the course would include this component in future

semesters.

Conceptual Framework

This qualitative research study was guided by a framework viewed through the

lens of Donovan, Bransford, and Pellegrino's (1999) theory of *How People Learn:*

Bridging Research and Practice. Donovan et al. (1999) "proposes a framework to help

guide the design and evaluation of environments that can optimize learning" (p. 19).

How People Learn is a report that synthesizes research on human learning published by

National Academy Press. The National Research Council members were chosen for

their special competences and their purpose was to further knowledge and advise the

federal government. Both Academies and the Institute of Medicine contribute to the

council, therefore both significantly provide to the report of *How People Learn*.

To design classroom environments that optimize learning, Donovan et al. (1999)

used four interrelated attributes of learning environments. These four components are:

community centered, learner centered, assessment centered, and knowledge centered.

All four of the interrelated attributes of learning environments have to exist for an

effective learning environment to occur (Donovan et al., 1999). Each attribute is just as

important as the others. Figure 1 shows the relationship between the four components.

Figure 1. Effective Learning Environment

Community Centered

5. How does the teacher educator implement, plan, guide, and assess the acquisition of learning of pre-service teachers during a course when information about ASD is explicitly implemented?

Knowledge Centered

1. What prior knowledge and experiences do these pre-service teachers know about children with ASD when they begin their education as a future teacher?

4. How do these pre-service teachers plan to apply their new knowledge about inclusion with children who have ASD in their future classroom?

Learner Centered

2. How do these pre-service teachers implement theory to practice when they have the opportunity to work with children with ASD after learning the strategies during their university class?

3. What new knowledge and understanding do these pre-service teachers demonstrate regarding teaching students with ASD after they complete a course when the instructor intentionally implements information about ASD?

Assessment Centered

Figure 1. Adapted from Donovan M. S., Bransford, J. D., Pellegrino, J. W. (1999). *How people learn: Bridging research and practice.* Washington, DC: National Academy Press.

Contrary to theories that believe children and adults learn differently (Knowles,

1970), Donovan et al. (1999) explained that the principles of the theory *How People*

Learn was based on the idea that all humans, children and adults, learn the same way.

How People Learn applies to both adult learning and child learning:

> The principles of learning and their implications for designing learning environments apply equally to child and adult learning. They provide a lens through which current practice can be viewed with respect to K-12 teaching and with respect to preparation of teachers in the research and development agenda (p. 24)

- The *community centered environment* acknowledges that learning is influenced

  by the context in which it takes place and that norms are established in

classrooms that have strong effects on students' achievement. Norms could be expressed as don't get caught not knowing something, encouragement of academic risk-taking, opportunities to make mistakes, and opportunities for feedback and revisions. Teacher educators must build a sense of community where pre-service teachers help each other solve problems, build on each other's knowledge, ask questions to clarify, and explain and suggest ways to move the group toward the goal. A sense of excitement of learning can be created that is then transferred to the classroom, convening a sense of ownership of new ideas as pre-service teachers apply theory to practice. It is essential that teacher educators develop ways to link their learning to the classroom with children with ASD (Donovan et al., 1999).

- The *learner centered environment* involves teacher educators observing the knowledge, skills, and attitudes the pre-service teachers bring into the classroom. This included the teacher educator recognizing the broad understanding of the pre-service teachers' preconceptions and prior knowledge regarding ASD. Teacher educators in learner centered classrooms pay close attention to the individual progress of each pre-service teacher and plans discussions and assignments that are appropriate to allow the pre-service teachers to increase their knowledge and understanding.

- The *assessment centered environment* includes ongoing learner friendly assessments that assist the teacher educator and the pre-service teachers in monitoring progress, which helps identify where inquiry and instruction should focus. Assessment centered environments permit the teacher educator to grasp

the pre-service teachers' preconceptions, recognize their understanding, and identify where the pre-service teachers are in their thinking from informal to formal thinking, then design instruction accordingly. These assessments should provide pre-service teachers with opportunities to revise and improve their thinking.

- The *knowledge centered environment* requires attention to be given to the information or subject matter being taught, in this instance ASD, to pre-service teachers. The pre-service teachers also needed to understand why ASD was being taught, and what competence or mastery looked like. Learning with understanding takes time and is often more difficult to accomplish than simply memorizing. Students' interest or engagement in a task is an important piece of the knowledge centered environment.

The college classroom served as a medium for pre-service teacher's acquisition of knowledge of children's development, learning, and effective teaching practices. Notably, pre-service teachers developed or constructed their own knowledge through active learning within their environment (Bellan, Kim, & Hannafin, 2013). When pre-service teachers were in the classroom environment with children, they had the opportunity to implement strategies with children with ASD. As a result, this active learning component allowed pre-service teachers to design effective classroom environments for the children by connecting theory to practice. During these authentic field experiences, the pre-service teachers' learning was scaffolded by the teacher educator to assist in guiding class content. Scaffolding provided temporary support through guidance consisting of modeling, questions, or discussion ensuring the

completion of a task that pre-service teachers otherwise might not have be able to complete (Van de Pol, Molman, & Beishuizen, 2010). For that reason, the process of scaffolding was an integral part of this action research study.

This study explored the preparation of pre-service teachers, therefore, it was appropriate to view this study through the lens of the theory *How People Learn* (Donovan et al., 1999). The review of literature focused on how pre-service teachers connected what they learned in their college course into the classroom setting with children. This connection corresponded with the theory of *How People Learn* because it connected theory to practice. The action research methodology was guided by the conceptual framework because the teacher educator scaffolded the pre-service teachers' knowledge. Lastly, the conceptual framework guided the analysis of the data, using the four components of an effective learning environment as starter codes.

Organization of the Study

The existing research included teacher educators focusing on disabilities in general, the focus of ASD specifically, was the gap in the literature. Pre-service teachers had the opportunity to connect theory to practice during this study by learning strategies in their college course, then implementing the strategies with children with ASD in the classroom. A discussion of pre-service teachers' college courses, the theories of inclusion for children with ASD, and how teachers in general education classrooms support these children is provided. Examples of appropriate strategies that have been found successful and that create an effective and productive environment for learning are also included.

The purpose of the study and research questions have been described in chapter

one. Chapter two discusses the review of the literature that is related to how teacher educators prepare pre-service teachers for inclusion with children with disabilities. After the role of pre-service teachers is discussed, ASD and inclusion information is provided. IDEA laws and strategies for working with children with ASD are also provided.

The methodology, in Chapter Three, describes how this qualitative study was conducted through an action research approach. Action research is used often in education as a way to improve practice or make existing practice more effective (Glesne, 2011). In this study, the researcher gained a better understanding of the pre-service teacher's learning and connection of theory to practice through an action research methodology. The exploration of pre-service teachers' demonstration of their knowledge of theory to practice during a college course informs teacher educators about integrating ASD information into courses. This implementation could increase pre-service teachers' knowledge of how to provide strategies used in a classroom and, ultimately, improve the learning that takes place for children with ASD. The participants included 25 junior and senior college students that were also pre-service teachers. The study was held at a Regional University in the Midwest part of the United States.

Chapter four presents the study's findings and analysis for each of the four components of the conceptual framework. A major finding for the knowledge centered environment was the pre-service teachers' interest, engagement, and their gratitude for the knowledge of inclusion and ASD. Another major finding was the connections the pre-service teachers made between theory and practice, which was part of the

community centered. The pre-service teachers learned in the college classroom,
practiced the theories and strategies in the classroom with children, and shared their
new understanding through course work, which indicates that it worked to include
curriculum of inclusion for children with ASD as part of an existing college course.
Therefore the assessment centered environment included the scaffolding of informal to
formal thinking for the pre-service teachers. The learner centered environment
demonstrated how the pre-service teachers practiced what they learned in their college
course in their field placement with children.

Chapter five provides a conclusion, limitations, implications for future research,
and a reflection of the study. Some of the conclusions discuss guidelines or a blueprint
for teacher educators to use in order to incorporate inclusion for children with ASD as
part of an existing course because children with ASD are often a part of the general
education classroom. Pre-service teachers should be able to do more than recognize
common characteristics of children with ASD, they should also understand effective
strategies and identify when a specific strategy would be successful in the classroom.
The findings of this study could assist teacher education programs in providing
inclusion for children with ASD in the general education classroom as part of the
teacher education curriculum.

Figure 2. The Research Process

The Research Process

Conceptual Framework
Donovan, Bransford, and Pellegrino's (1999) theory
of *How People Learn: Bridging Research and Practice.*

Methodology
Action Research

Data Sources
observations, field notebook, journals,
interviews, and documents

Data Analysis
Level 1: Starter Codes
Level 2: With-in Case Analysis
Level 3: Cross-Case Analysis

Goodness and Trustworthiness
Credibility
Transferibility
Dependability and Confirmability
Triangulation

At the beginning of the semester I faced the challenge of trying to interest the pre-service teachers in learning the new ASD content. The pre-service teachers were very excited and interested to learn about ASD. Donovan et al. (1999) discussed excitement that can be created when learning about a specific topic. Many of the pre-service teachers were beyond appreciative for having the opportunity to be a part of this study in order to gain the knowledge about ASD and inclusion. After the semester was over several pre-service teachers continued to express their interest in the topic by emailing me and sharing stories. I was pleased for the excitement of the new knowledge and opportunity for the pre-service teachers.

CHAPTER TWO: Literature Review

Teaching children with autism spectrum disorder (ASD) requires teachers to implement intentional teaching strategies. Pre-service teachers connect theory to practice when they have the opportunity to teach children with ASD while learning strategies in their college courses. Connecting knowledge about effective inclusion with children who are diagnosed with ASD will influence pre-service teachers' future classrooms. This study discusses pre-service teachers' college courses, the theories of inclusion for children with ASD, and how teachers in general education classrooms support these children. Examples of appropriate strategies found successful that create an effective and productive environment for learning are also provided. Definitions of terms are defined within each section to ensure information clarity.

The Individuals with Disabilities Education Act (IDEA) requires schools to educate children with disabilities in the least restrictive environment (LRE). The LRE is often the general education classroom where children without disabilities and children with disabilities learn in the same classroom environment. This concept is called inclusion (Heward, 2013). Inclusion is defined by Levin et al. (2002) as "including all children with disabilities as members of general education classrooms" (p. 280). Many provisions of IDEA align with the (No Child Left Behind [NCLB], 2002) Act which requires school districts to include test scores of children with disabilities in the district report card. Including test scores of children with disabilities on the district report card has resulted in higher expectations for children receiving special education services, which ultimately results in increased accountability of the schools to help the children attain higher test scores (Heward, 2013). Although children

receiving special education services benefit from high expectations, unrealistic expectations are unfair to children and teachers. There is pressure placed on teachers for their special education students to perform the same on the test as their non-special education peers. Teachers and schools face the concern of special education students' test scores lowering the school report card grade.

Teachers and future teachers have to be prepared to appropriately include children with disabilities in their general education classrooms. Hutchinson and Martin (1999) found that pre-service teachers believed adapting the classroom for students with disabilities was necessary, but the pre-service teachers did not know how to implement effective accommodations and modifications for the children to learn. Therefore, Hutchinson and Martin (1999) believe that in addition to class discussions during college course work, opportunities for specific examples and instruction integrated into the college courses is beneficial. Pre-service teachers need the opportunity to practice what they learn in their college courses and put theory into practice. With support from teacher educators and/or mentor teachers, pre-service teaches could learn strategies for successful implementation of appropriate inclusion opportunities. Leko and Brownell (2011) reported that the pre-service teachers in their study received feedback multiple times throughout the semester as they engaged in several field experiences in the classroom. Feedback for the pre-service teachers is an important element in scaffolding theory to practice in the classroom with children.

All disabilities are unique and require distinct inclusion strategies. Many children with ASD have normal cognitive and learning abilities but are totally detached and highly repetitive in their actions, while others are only mildly socially awkward

(Heward, 2013). If pre-service teachers learn to apply strategies with children with ASD, they could apply these strategies with children diagnosed with other disabilities. Having knowledge and experience teaching children who have disabilities, abilities, and backgrounds contributes to pre-service teachers' preparation for the strategies necessary for the classroom (Taylor & Sobel, 2001).

Pre-Service Teachers

Most undergraduate education students preparing to be general education classroom teachers have had little to no experience working with children with disabilities. The prior experiences and knowledge that pre-service teachers bring to college courses and field experiences vary (Leko & Brownell, 2011). Therefore, instruction for teaching children with special needs offers important information and insight into the type of preparation considered useful for pre-service teachers (Rademacher, Wilhelm, Hildreth, Bridges, & Cowart, 1998). If teacher educators would include information about inclusion strategies in college courses, pre-service teachers would, at a minimum, have heard of some of the strategies that have been found successful. Tomlinson et al. (1997) stated that pre-service teachers' college course work should include experiences for pre-service teachers to engage in classrooms with interactions that include a variety of learners. Providing a broad mix of educational experiences and learning opportunities is an important element for pre-service teachers to be prepared for their classroom that will encompass children with and without disabilities.

Knowledge to Classroom

Pre-service teachers understand it takes many different strategies and effective practices to teach all children well. They recognize the need to identify instructional tools to effectively teach all children in their classes (Corbett, Kilgore, & Sindelar, 1998). A study conducted by Cook (2002) revealed that pre-service teachers' attitudes toward inclusion differed according to how the children were included in the classroom and the disabilities of the children. The same study showed that pre-service teachers did not feel prepared or experienced enough to successfully teach children with severe disabilities. Rather, they felt more confident teaching children with less severe disabilities, such as learning disabilities, developmental delays, and ASD. Therefore, it is important for pre-service teachers to develop skills and confidence to teach children with a variety of disabilities, including more severe disabilities.

Cook, Tankersley, Cook, and Landrum (2000) found that pre-teachers' attitude toward inclusion was influenced by the relationship with their students' parents. Developing positive relationships is an important component for successful inclusion. Meaningful communication with parents of children with special needs that fosters positive relationships with reciprocal communication, greatly benefits students' learning and development. When pre-service teachers have the opportunity to practice interacting with parents during their internship, they learn successful ways to communicate with parents productively.

Pre-Service Teachers' Coursework

Teacher educators apply several forms of pedagogy to promote the knowledge, skills, and dispositions necessary for future teachers to embrace in order to be

successful in classrooms where inclusion is implemented (Levin et al., 2002). Early childhood educators must have a depth of knowledge of how children with and without disabilities develop in order to design, select, and implement appropriate curriculum. It is essential for the theories to be meaningful for college students. Therefore, linking theory to practice is important (Stayton & Miller, 2008).

Trent et al. (1998) found that college classrooms should address pre-service teachers' organization and knowledge of inclusion in order to best prepare them to be effective in the classroom setting. The rights, roles, and responsibilities of teachers, students, and parents of children receiving special education services could help inform pre-service teachers for the classroom expectations. IDEA is the law that provides the guidelines for the responsibilities of teachers, students, and parents regarding special education. Each party has rights and is protected by law. In addition, each party has roles and responsibilities to follow. For example, the IDEA Amendments of 1990 (P.L. 101-476) include autism and traumatic brain injury as new categories of disability. The amendment also requires every Individualized Education Plan (IEP) to include a statement of needed transition services no later than age 16. The 1990 Amendments also expands the definition of related services to include rehabilitation counseling and social work services. In 2004, the revised law aligned with NCLB's (2002) IEP regulations. The revision also includes students with disabilities to have access to general curriculum, participate in all assessments, and receive teaching from qualified special education teachers (Heward, 2009). Therefore, an essential component of any teacher preparation program should include a focus on the research-based practices that

support the development and education of young children including those with disabilities (Chang, Early, & Winton, 2005).

All pre-service teachers have different experiences and ideas regarding children with disabilities learning in a general education classroom. One of Hutchinson and Martin's (1999) pre-service teacher's explained that she had a harder time than her peers accepting the concept of treating students with fairness as opposed to sameness. Her comment demonstrates that she needs more time and support to understand that each child has unique needs that require individualized responses from the teacher. Some pre-service teachers require more in depth examples, demonstrations, experiences, and opportunities than others before they fully grasp that each student requires individualized strategies. The pre-service teachers' continuum of experiences with special education students impacts the pre-service teachers as either an advantage or disadvantage towards their learning.

However, Rademacher et al.'s (1998) survey concluded that pre-service teachers had reasonable expectations of special education students and believed the students could learn to be independent throughout life. The survey also revealed that pre-service teachers understand the importance of general education teachers making instructional modifications for their students in their classrooms. The survey results reiterate the need for teacher educators to incorporate special education methods into the courses to provide instruction, practice, and strategies for future teachers to become more successful in the classrooms.

As educators of pre-service teachers plan and implement training, several challenges occur (Stayton & Miller, 2008). These challenges include, (a) identifying

the essential early childhood development content and to what depth of presentation, (b)

determining how specific to be with the content, (c) integrating theory to practice

throughout the training, and (d) selecting and implementing the most effective strategies

and identifying resources needed to implement the strategies.

Pre-service teachers need constant scaffolding and experiences to allow them to

continually develop as effective inclusion teachers. A spiral approach, constantly

revisiting information, such as the integration of strategies in different aspects could

help create the connection for pre-service teachers as they work with students with

disabilities during their field experience (Trent et al., 1998). Maheady, Mallette, and

Harper (1996) stated nineteen years ago that preparing pre-service teachers to work with

children with disabilities was a recent phenomenon. Nineteen years later there is still a

need for explicit efforts for training our future teachers to effectively and systematically

serve these children in the general education classroom.

Integrating effective implementation of the use of modifications,

accommodations, and supports is critical, not just in the special education classes.

When special education and general education departments form partnerships they

better prepare pre-service teachers for their roles of educating children with disabilities

in the general education classrooms (Lombardi & Hunka, 2001). Journals are one way

to incorporate assignments for the pre-service teachers. The journal entries could

include possible goals and objectives. Adaptations to the course, as well as objectives,

content, and the delivery of content could change as the course evolves (Trent et al.,

1998). Ongoing reflection using journals, observations, interviews, dialogue, and

surveys to develop a set of standards lead to effective outcomes for teacher educators

and pre-service teachers. Reflection can be used to guide strategies for the next field experience. Gaining knowledge through scaffolding and support during the field experiences is part of the learning process for pre-service teachers (Leko & Brownell, 2011).

Pre-Service Teachers' Conclusion

Trent et al. (1998) found that more rigorous and consistent efforts were needed by teacher educators to connect theory to practice, such as documenting and implementing necessary content and skills. Much of the literature suggests that, in addition to reflections and class discussions, the most important component is for opportunities to directly interact with children with special needs during the pre-service teachers' field experiences. Attitudes and self-confidence towards inclusion and collaborative teaching could influence pre-service teachers' acceptance of knowledge to work with children with disabilities (Rademacher et al., 1998). Corbett et al. (1998) found that the most important concern for pre-service teachers was how to become a better teacher. Understanding how to meet students where they are and implementing individualized needs for all students is a characteristic of becoming a better teacher. Pre-service teachers knew the more they learned, they would become a productive teacher in the future. Many professionals have begun to seek alternative models for preparing pre-service teachers (Nowacek & Blanton, 1996). The theory to practice model connects pre-service teachers' college courses to field experiences as the teacher educator provides support and opportunity for reflection.

The pre-service teacher participants in Cook's (2002) study reported that they believed the main strengths regarding effective inclusive instruction were personal

characteristics and personal experiences unrelated to their teacher preparation, skills, knowledge, or training. If pre-service teachers have a family member or friend with a disability, the strategies and laws that are taught in the college courses might be easier understood for those students compared to those that do not know a person with a disability. Another example is personal characteristics. Some people have more of an understanding and acceptance for differences. Personality characteristics and life experiences teamed with appropriate training could result in a successful and effective inclusion program.

In classrooms today, teachers will be responsible for teaching children with disabilities. One of the many disabilities is ASD. The number of children diagnosed with ASD continues to rise. The CDC (2014) states that 1 in every 68 children have ASD.

Autism Spectrum Disorder and Inclusion

Autism is defined as a pervasive developmental disorder based on combinations of deficits or difficulties in social interactions, communication or language delay, and patterns of odd or repetitive behaviors (Hall, 2012; Myles & Southwick, 2005). Behavior examples are restricted, repetitive, ritualistic, stereotypic, and extreme interests in topics (Heward, 2013). Corsello (2005) defined autism by stating that "in terms of qualitative impairments in social interaction and communication, and restricted, repetitive, and stereo-typed patterns of behaviors, interests, and activities, with impairments in one of these areas prior to the age of 3 years" (p. 74). However, the May 2013 fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-V)* contains a revision in the diagnosis of autism spectrum disorder

(ASD) (American Psychiatric Association, 2014). According to the American

Psychiatric Association (2014), the revised diagnosis represents a more accurate,

medically and scientifically useful way of diagnosing individuals with ASD. Using the

DSM-IV, patients could be diagnosed with one of the four separate disorders: (a) autistic

disorder, (b) Asperger's disorder, (c) childhood disintegrative disorder, or (d) pervasive

developmental disorder not otherwise specified (PDD-NOS), which was a catch-all

diagnosis. The revised criteria in *DSM V* combines social and communication delays;

therefore, the two criteria are delays in social and communication and odd or repetitive

behaviors that indicate the single diagnosis of ASD. ASD is an umbrella term used to

refer to a group of pervasive developmental disorders.

The word *autism* is from the Greek word *autos*, meaning self (Myles &

Southwick, 2005). In recent years, an increasing number of children have been

identified as having ASD (Leach & Duffy, 2009; von der Embse et al., 2011). The

Centers for Disease Control and Prevention (2014) report that one in 68 American

children are diagnosed with ASD. More specifically, one in 42 boys are diagnosed with

ASD, while one in 189 girls are diagnosed with ASD. All racial, ethnic, and

socioeconomic groups are affected (Autism Speaks, 2014; Centers for Disease Control

and Prevention, 2014).

The umbrella of ASD is a range from very low functioning and severely affected

to high functioning and mildly affected. The severity ranges from those who are totally

disconnected and highly repetitive in their actions to those who are only mildly socially

awkward. Children diagnosed as having high-functioning ASD display some of the

typical behaviors associated with ASD and have normal cognitive and learning abilities

(Heward, 2013). Figure 3 below illustrates the spectrum or umbrella of ASD.

Figure 3. Autism Spectrum Disorder Umbrella

Autism Spectrum Disorder

Low functioning, severely affected   High functioning, mildly affected
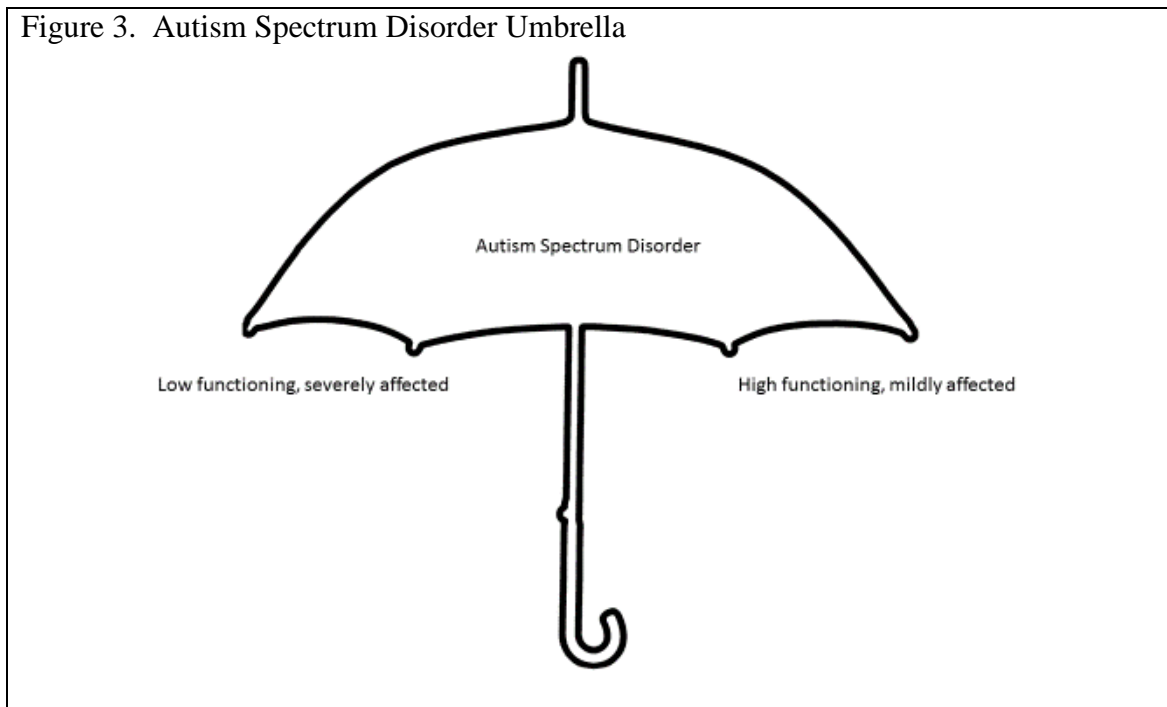
Children with ASD sometimes have difficulty with speech and language (von

der Embse et al., 2011). Heward (2013) explained that while some children have few

symptoms and little to no difficulty developing language, other children develop

language at a slower rate and often do not ever speak. They tend to be unusual in their

conversational styles when they do speak and have special interests. Children with

ASD show little interest in other people, insist on routines, and often display unusual

body movements, like flapping their hands. No one child will display all the

characteristics; some children may exhibit only a few of them. Each child with ASD is

unique in his or her strengths and challenges, just as no two children without ASD are

exactly alike. However, all of the children diagnosed with ASD have some difficulties

interacting with other people and display some odd or repetitive behaviors. The

characteristics of children with ASD require intentional and individualized strategies. It is essential for teachers to know the best way to provide services for children with ASD in the school setting (Lombardi & Hunka, 2001; von der Embse et al., 2011).

<center>*Theories of Inclusion for Children with ASD*</center>

The special education community does not agree on the percentage of the school day that children with disabilities should be included in general education classrooms (Pugach, 2005). This is because each child is as unique as his specific educational needs. Very few educators support eliminating the concept of including children with disabilities in the general education classroom all together (Heward, 2013; Santrock, 2008). Idol (2006) found that few teachers preferred self-contained, special education classes for children with disabilities. Instead, the preference was to include these children in the general education classroom at least for part of their school day, which is sometimes referred to as *mainstreaming*.

Mainstreaming is defined differently from inclusion; mainstreaming exists when children with disabilities spend their entire school day in the general education classroom. However, most educators use the word inclusion, instead of mainstream any time a child with a disability spends time in the general education classroom. Inclusion is when children with disabilities spend a portion of their school day in the general education classroom and a portion in a separate special education classroom (Idol, 2006).

The belief that inclusion is the most appropriate placement for children with ASD is not universally shared (Simpson, Mundschenk, & Heflin, 2011). A different perspective is that the large general education class size could impede the intensive and

<center>27</center>

individualized attention students with ASD sometimes require. Additionally, many

general education teachers lack the training required to provide specialized instruction

for creating appropriate adaptations in the classroom (Lombardi & Hunka, 2001). Some

parents of children with ASD feel their child would make more academic and social

progress through one-to-one or small group intensive instruction in the special

education classroom. Often the decision of educational placement for children with

ASD has less to do with the child's characteristics and more to do with the preferences

of the teachers and parents who make decisions for the child (Simpson et al., 2011).

The general education classroom has opportunities for children with ASD to

interact with children without disabilities who act as peer role models. Children with

ASD also tend to be more passively engaged when they attend general education

classrooms. Demands on time and lack of teacher's expertise are reasons general

education teachers implement explicit and intensive instruction instead of active

learning opportunities that special education classrooms offer (Simpson et al., 2011).

However, there is a stronger emphasis on including children with ASD in general

classrooms than there is for placing them in a separate special education class separate

from their peers in the general education classroom (Leach & Duffy, 2009).

Although children with ASD in special education classrooms tend to have more

complex, long term, individualized objectives that are likely to include one-to-one

instruction compared to children with ASD who attend general education classrooms

(Simpson et al., 2011). Often, more of an active learning environment occurs in self-

contained special education classrooms, possibly because teachers may not modify

instruction in general education classrooms. Both general education and special
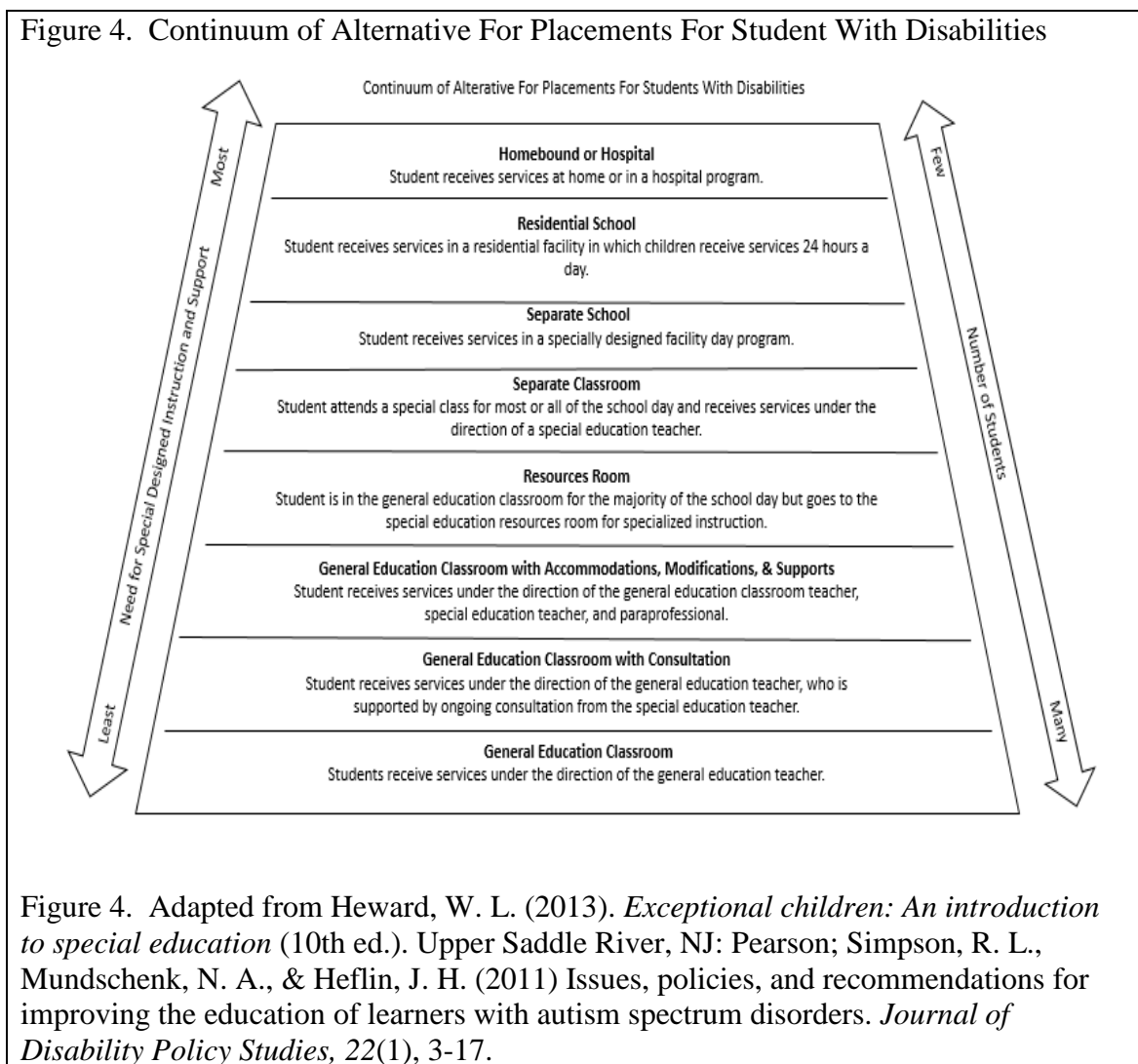
education have benefits, which is why children with ASD should be a part of both classrooms in a school day.

"As our concepts of equality, freedom, and justice have expanded, children with disabilities and their families have moved from exclusion and isolation to inclusion and participation" (Heward, 2013, p. 17). Federal legislation and court rulings have provided all children with disabilities the right to a free, appropriate program of public education in the least restricted environment (LRE) (Heward, 2009). The LRE is the setting that is most similar to a general education classroom and also appropriately meets the needs of children with disabilities (Idol, 2006). The law provides children the right to be educated in the most appropriate placement, but it is the teachers' and parents' responsibility to identify and recognize what the appropriate placement is considering the unique needs of children.

The LRE is a relative concept because the setting that meets the needs of one child may not meet the needs for another child (Santrock, 2008). For this reason, Heward (2009) discussed a range or continuum of alternative placements required for schools to provide children in order to meet the individual needs of children with disabilities. At one end of the continuum is the general education classroom, and at the opposite end of the continuum are special schools, residential facilities, and homebound instruction or hospitalization. Each child's unique circumstance should be considered when placement is being deliberated. Simpson et al. (2011) recognized the continuum as a *cascade of services* to meet the needs of individual children diagnosed with ASD.

If the general education classroom resources are deemed inadequate or fail to facilitate the learning goals, children will participate in pullout services that range from

part-time placement in resource classrooms to full-time placement in self-contained

classrooms (Heward, 2013). Highly specialized options such as alternative schools,

hospitals, residential placements, and homebound instruction are at the far end of the

continuum. Teachers and parents develop children's individual goals and objectives,

which consider the best instructional setting or combinations of settings necessary to

reach children's goals and related outcomes that take into consideration the children's

unique circumstance. Figure 4 displays a continuum of alternative placements for

children with disabilities in ascending order.

Figure 4. Continuum of Alternative For Placements For Student With Disabilities

Figure 4. Adapted from Heward, W. L. (2013). *Exceptional children: An introduction to special education* (10th ed.). Upper Saddle River, NJ: Pearson; Simpson, R. L., Mundschenk, N. A., & Heflin, J. H. (2011) Issues, policies, and recommendations for improving the education of learners with autism spectrum disorders. *Journal of Disability Policy Studies, 22*(1), 3-17.

Effective teaching strategies and an individualized approach are critical

components in special education, neither of which is associated with one particular

environment. The Council for Exceptional Children (CEC) recommends inclusion for

children when it is related to a meaningful goal (Heward, 2013). When there is

evidence of an increase in academics and social skills for children with ASD in

inclusive classrooms, then the general education classroom is the appropriate placement

(Frost, Wortham, & Reifel, 2012; Simpson et al., 2011).

Laws for children with disabilities have evolved since the 1954 Brown v. Board

of Education of Topeka ruling, which said that education must be made available to all

children on equal terms. In 1975, Public Law 94-142: The Education for All

Handicapped Children Act was passed by Congress, changing education in the United

States to mandated free appropriate public education for all children with disabilities

ages 6-21. Public Law 94-142 the Education for the Handicapped Act protected the

rights of children with disabilities and their parents in educational decision making;

required the development of an IEP for each child with a disability; stated that children

with disabilities must receive educational services in the LRE (Slavin, 2015). The roles

and responsibilities have changed for general and special education teachers,

administrators, parents, and children with disabilities. Table 1 provides a clear and

concise timeline of laws associated with special education in public schools.

Table 1: Timeline of History of Inclusion Laws

Year	Court Case/Legislation	Description
1954	Brown v. Board of Education of Topeka (Kansas)	Education must be made available to all children on equal terms.
1958	National Defense Education Act (P.L. 85-926)	Provides funds for training professionals to train teachers of children with mental retardation.

1961	Special Education Act (P.L. 87-276)	Provided funds for training professionals to train teachers of deaf children.
1963	Mental Retardation Facility and Community Center Construction Act (P.L. 88-164)	Extended support given in P.L. 85-926 to training teachers of children with other disabilities.
1965	Elementary and Secondary Education Act (P.L. 89-10)	Provides $ to states and local districts for developing programs for economically disadvantaged and disabled children.
1966	Amendments to the Elem. & Sec. Educ. Act (P.L. 89-750)	Created the federal Bureau of Education for the Handicapped (today's Office of Special Education).
1967	Hobson v. Hansen (Washington, DC)	Placing children according to their IQ scores is unconstitutional, discriminates against African American and poor children.
1968	Handicapped Children's Early Assistance Act (P.L. 90-538)	Established the "first chance network" of experimental programs for preschool children with disabilities.
1969	Elem., Sec., and Other Educational Amendments (P.L. 91-230)	Defined learning disabilities and provided funds for state-level programs for children with learning disabilities.
1970	Diana v. State Board of Education (California)	Children cannot be placed in special education on the basis of culturally biased tests or tests given in other than the child's native language.
1972	Mills v. Board of Education of the District of Columbia	Financial problems cannot be allowed to have a greater impact on children with disabilities than on children without disabilities.
1972	Pennsylvania Association for Retarded Children (PARC) v. Commonwealth of Pennsylvania	All children with mental retardation are entitled to a free appropriate public education; in addition, placements in general education classrooms and regular public schools are preferable to segregated settings.
1973	Section 504 of the Rehabilitation Act (P.L. 93-112)	Declared that a person cannot be excluded on the basis of disability alone from any program or activity receiving federal funds.
1947	Education Amendments (P.L. 93-380)	Protected the rights of children with disabilities and their parents in placement decisions

1975	Education for All Handicapped Children Act (P.L. 94-142)	Mandated free appropriate public education for all children with disabilities ages 6-21; protected the rights of children with disabilities and their parents in educational decision making; required the development of an IEP for each child with a disability; stated that children with disabilities must receive educational services in the LRE
1979	Larry P. v. Riles (California)	The court ordered that IQ tests could not be used as the sole basis for placing children into special classes.
1983	Amendments to the Education of the Handicapped Act (P.L. 98-199)	Required states to address the needs of children making the transition to adulthood; gave incentives to states to provide services to infants and preschool children with disabilities
1986	Education for the Handicapped Act Amendments of 1986 (P.L. 99-457)	Required states to provide free appropriate education to all 3-5 year olds with disabilities who were eligible to apply for federal preschool funding; included incentive grants to encourage states to develop comprehensive interdisciplinary services for infants and toddlers (birth-through age 2) and their families
1986	Handicapped Children's Protection Act (P.L. 99-372)	Provided authority for the reimbursement of attorney's fees to parents who prevail in a hearing or court case to secure an appropriate education for their child.
1986	Rehabilitation Act Amendments (P.L. 99-506)	Set fort regulations for the development of supported employment programs for adults with disabilities
1988	Honig v. Doe (California)	Children with disabilities cannot be excluded from school for any misbehavior that is disability related.
1988	Technology-Related Assistance for Individuals with Disabilities Act	Created statewide programs of technology assistance for persons of all ages with disabilities.
1990	Americans with Disabilities Act (P.L. 101-336)	Provided civil rights protection against discrimination to citizens with disabilities in private sector employment; provided access to all public services, public accommodations, transportation, and telecommunications

1990	IDEA Amendments of 1990 (P.L. 101-476)	Added autism and traumatic brain injury as new categories of disability; required all IEPs to include a statement of needed transition services no later than age 16; expanded the definition of related services to include rehabilitation counseling and social work services
1997	IDEA (amended)	General Ed teacher must be on IEP team; children on IEP must have access to general education curriculum; positive behavior support plans; included in assessment; if suspended must "manifestation determination" by the IEP team must prove misconduct was not related to the disability.
2001	NCLB Act	Improve the achievement of all children by 2014, AYP, highly qualified teachers, research-based instruction, etc.
2004	IDEA Improvement Act (reauthorized)	Revised law to align with NCLB (2002): IEP's, access to general curriculum, participate in all assessments, qualified sped teachers

Note. Adapted from Heward, W. L. (2009). *Exceptional Children: An introduction to Special Education* (9th ed.). Upper Saddle River, NJ: Pearson; Santrock, J. W. (2008*). Essentials of lifespan development*. New York: McGraw-Hill Higher Education; Simpson, R. L., Mundschenk, N. A., & Heflin, J. H. (2011) Issues, policies, and recommendations for improving the education of learners with autism spectrum disorders. *Journal of Disability Policy Studies, 22*(1), 3-17.

It is important for pre-service teachers to have a clear understanding of IDEA. Education must be made available to all students on equal terms, which means pre-service teachers will eventually teach students in the general education classroom with disabilities. Children with disabilities in the general education classroom learning alongside their typically developing peers reap many benefits.

Leach and Duffy (2009) discussed the increase in social engagement skills when children with ASD were included in the general education classroom. Placing children with ASD in inclusive classrooms creates a larger circle of friends than children in segregated settings. Heward (2013) also confirmed that many positive results occur for

children with ASD when they are placed in inclusive settings. The number of friends increase, typically developing children understand the characteristics of children with ASD, and development increases in inclusive placements. Not only do the social and emotional skills increase, the cognitive and physical development also show growth (Leach & Duffy, 2009). For example, the academic skills of reading and math increase, as well as fine and growth motor skills.

General education teachers are faced with the task of implementing strategies to successfully and productively include children with ASD in their classrooms because there is a nationwide emphasis for the support of inclusion (Leach & Duffy, 2009). Children with ASD can display negative behaviors that can make learning in the general education classroom difficult for the child, the teacher, and the other children in the classroom. Behaviors such as resistance to transitions, sensory issues, hyperactivity, short attention span, impulsivity, aggressiveness, and self-injurious behaviors can be behaviors of children with ASD. Problem behavior is often the primary barrier to inclusion and social integration in the general education classroom. Thus, behavior interventions to facilitate inclusion in the classroom are vital for children with ASD (von der Embse et al., 2011). When children with ASD are supported with appropriate supports in the general education classroom, negative behaviors decrease. Therefore, it is essential for teachers to know successful strategies to implement when working with children with ASD.

Strategies for Inclusion

Children with ASD require instruction to be meticulously planned, skillfully delivered, and continually evaluated and analyzed for effectiveness (Heward, 2013).

General education teachers, special education teachers, and parents work together to plan appropriate strategies for children with ASD. It is necessary to constantly assess the effectiveness of the strategies. Sometimes strategies that have previously worked become unsuccessful. This can be because the child has new skills that requires a change or simply because the child is bored of the same strategy. When children with ASD have opportunities to engage in appropriate educational conditions, they have shown to respond well and be productive (Hagiwara & Smith Myles, 1999).

Tools and strategies are available for significant improvement in educational outcomes for these children (Heward, 2013). When teachers and parents determine a child's educational placement, they must consider the appropriateness of the curriculum, the supports needed for students to make progress, and firsthand opinions and thoughts of children with ASD (Simpson et al., 2011).

Teachers understand it is necessary to implement effective practices (Corbett et al., 1998) for all children to experience success (Stayton & Miller, 2008). The teacher's attitude toward inclusion has an effect on successful social relationships between children with and without disabilities (Frost et al., 2012). Teacher reinforcement and guidance is important for learning of children with ASD. Effectiveness of teacher initiation, monitoring, and explicitly prompting children with ASD in a structured learning setting sets the children up for successful learning (Fengfeng & Tami, 2013).

General education teachers are faced with the challenges of appropriately and successfully including children with ASD in the classroom (Leach & Duffy, 2009). Challenging ASD behaviors associated with social interaction, communication, and cognitive capability can impede teaching and learning in the classroom. Therefore,

successful inclusion requires the general education teacher to collaborate and be

supported by the special education teacher (Leach & Duffy, 2009). The special

education teacher's position has evolved. They are more of an interventionist,

coordinator, and trainer. The special education teacher acts as a consultant and

instructional coach for general education teachers who need feedback and support

regarding appropriate implementation of strategies. Special education teachers also

provide support for children in the general education classroom concerning academics

and challenging behaviors (Simpson et al., 2011).

A variety of strategies is necessary to teach all children effectively. Every child

has different strengths and challenges and learns different ways through individualized

strategies. Fostering and supporting interactions between children with ASD and their

TDP is an effective strategy (Bauminger, 2002; Carter, Sisco, Yun-Ching, & Stanton-

Chapman, 2010; Krebs, McDaniel, & Neeley, 2010). Integrating children's interest into

their learning as well as continual communication with parents are also essential tools

for successful teaching approaches. Identifying the precedent of negative behaviors and

providing accommodations, modifications, and supports to eliminate the negative

behaviors should also be implemented.

Typical Peers Interactions

The inclusion techniques found most useful are those that support the social

integration of children with ASD in the general education classroom (Leach & Duffy,

2009). Social integration is a major goal of inclusion for children with ASD to develop

social competence and make friends (Frost et al., 2012). When children with ASD gain

social competence, their confidence and participation results in positive academic

learning in the general education classroom. Inclusive classrooms that support

interactions of those with ASD and their TDPs display positive behaviors and social

benefits (von der Embse et al., 2011).

Carter et al. (2010) indicated that interactions children have with their peers play

a central role in promoting learning, relationships, and quality of life, not just academic

performance and educational success. Because social interaction and communication

are among the core deficits for children with ASD, promoting inclusion for these

children is essential. It is difficult to positively impact the social development of

children with ASD if they do not have opportunities to learn alongside their typically

developing peers who display well developed social skills (Leach & Duffy, 2009).

When children with ASD interact and engage with their peers, they improve their social

cognition, social problem solving, emotion understanding, and social interaction.

Improved speech, increased eye contact, and expressed interest in other children are

also evident. Children with ASD also display a reduction in repetitive or ritualistic

behaviors when they interact with their TDPs (Bauminger, 2002). The TDPs naturally

model common behaviors for children the same age.

Frost et al. (2012) suggested that a concern regarding inclusion is whether

children with disabilities are truly socially integrated with their peers or whether they

are just integrated in a physical sense. For this reason peer interactions must be

purposefully planned and intentionally implemented by teachers. It is important to

recognize the extent to which a child is welcomed or included, actively participating,

contributing to class activities, learning, and developing positive emotional skills.

Participation and achievement are part of inclusion beyond physically being present in a general education classroom (von der Embse et al., 2011).

Deliberately incorporating opportunities for social support from peers into the school day can nurture social relationships and create more interactions that are initiated by children with ASD (Frost et al., 2012). Creating objectives that relate to social experiences promotes interactions to take place throughout the school day because social interactions between children with disabilities and children without disabilities are otherwise quite limited (Carter et al., 2010). TDPs can be taught to initiate interaction, respond, and act as role models for children with ASD during both academic and recreational activities (Krebs et al., 2010).

Carter, Moss, Hoffman, Chung, and Sisco (2011) suggested that children with ASD experienced immediate increases in social interaction with other children when peer support arrangements were introduced in classrooms. Teaching children without ASD to understand the behaviors of children with ASD and to help them know how to interact with them has proven to be successful. A study conducted by Owen-DeSchryver, Carr, Cale, and Blakeley-Smith (2008) found that peer interactions increased for all participants following peer training. The results also showed increased initiations for untrained peers toward children with ASD during the post intervention phase. Kohler et al. (1995) found that peer training can be a viable strategy for increasing interactions between typical peers and children with ASD. Von der Embse et al. (2011) discussed the benefits of teaching social skills using games. Games involve rules and turn taking while having fun. Benefits using games include an increase in appropriate behaviors and generalization to new environments. Generalizing learned

skills to real-life contexts is sometimes confusing and requires clarification. This is why it is important for children with ASD to practice transferring skills from a learned skill to real contexts.

When children with ASD become the recipients of more frequent initiations from peers, they have the opportunity to practice and perform social skills. This allows them to become better, more efficient, and more appropriate responders. Rather than just having opportunities to interact with peers in the classroom setting, peer interactions should take place in naturally occurring settings at school also. This includes the lunchroom, playground, gymnasium, music room, art room, and other locations (Owen et al., 2008).

Social interactions create benefits for both children with ASD and their peer partners. Fryxell and Kennedy (1995) discussed an increase in interactions for children without ASD. In addition, Horm, Hyson, & Winton, (2013) stated that "positive outcomes have been identified for children with disabilities and their typically developing peers enrolled in inclusive educational programs" (p. 98). The benefits for children without ASD included enhanced independence, increased confidence and social skills (Carter et al., 2011; Causton-Theoharis & Malmgren, 2005).

Using Children's Interest to Learn

Heward (2013) explained a dominant characteristic of many children with ASD is their enthralled interest with particular subjects such as tarantulas, trains, maps, monster trucks, or baseball cards. This is often viewed as a deficit; however, teachers can use children's interest to their advantage and turn a perceived deficit into a strength for children with ASD.

Increased active engagement in learning can be achieved by incorporating

children's preferences and special interests into the curriculum as a reinforcement that

produces desired behavior changes (Leach & Duffy, 2009). An example is

incorporating baseball cards into learning activities across the curriculum by calculating

batting averages (math), locating players' hometowns on maps (geography/social

studies), alphabetizing players' names and writing letters to players (language arts).

The secret of using children's interest as a reinforcer can motivate children to acquire,

extend, and maintain significant gains in academic development and social skills

(Heward, 2013).

Leach and Duffy (2009) shared another example of how a child's interest can be

utilized for learning across the curriculum. If trains are the extraordinary interest, the

teacher can embed the topic of trains into a variety of lessons. Examples can be

provided that refer to the velocity of a train (science), using a picture of a train as a

visual for a prewriting strategy to display the parts of a story: the head of the train is the

beginning of the story, the cars of the train contain the body of the story, and the

caboose represents the ending (language arts). This is an effective strategy to

implement when planning instruction for children with ASD.

Including technology in learning is also a highly effective teaching strategy for

children with ASD. Children with ASD are typically visual learners and tend to excel

in communication systems that rely on visual stimuli (Crozier & Sileo, 2005). People

with ASD often enjoy computer programs and have made significant learning gains

using various technology-integrated learning strategies, such as video modeling,

computer-assisted instruction, cartoons, and computer games (Crozier & Sileo, 2005;

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Heward, 2013). Because children with ASD relate to media, video modeling is another

strategy used to teach positive social behaviors (von der Embse et al., 2011). Video

modeling is a way of presenting social stories via a short video. Some video modeling

social stories are cartoons that present a concept and other videos use real people. The

visual stimuli captures the interest of children with ASD.

<center>*Communication with Parents*</center>

Bauminger (2002) found that when adults worked together for the enhancement

of children, the children improved in all developmental domains: cognitive, social,

emotional, language, and physical development. Meaningful communication with

parents of children with ASD develops relationships between the teacher(s) and the

parents and is an important component for successful inclusion to occur (Cook et al.,

2000). An example of a way to organize communication is the use of home-school

dialogue journals. The journals can be in the form of a notebook or an e-mail. At the

beginning of the school year, teachers should make a daily entry to inform parents about

their child's school day. As the school year progresses, entries can be made on an as

needed basis. Parents also write in the journal to inform teachers of important

information (Heward, 2013). Teachers should establish a positive partnership with

parents and families because the involvement of parents coincides with children's

cognitive development and academic achievement (Summers et al., 2005).

For children with limited language, daily activity sheets that consist of numerous

picture symbols that represent activities at school help the child with communicating

about their school day. More information about using visual supports is below.

Teachers should write a short sentence to provide parents more details when discussing

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the school day with their children (Heward, 2013). Children with limited or no

language often need prompting to communicate.

Daily communication provides parents information such as children's behavior

and activities that take place during the school day. Daily communication also provides

parents with relevant information they can use to engage in conversations with their

children (Dunlap, 1999).

Accommodations and Modifications

Inclusion calls for including all children in general education classrooms with

appropriate supports (Slavin, 2015). Multiple strategies have been found successful

when teaching children with ASD in the general education classroom (Fengfeng &

Tami, 2013). As pre-service teachers work with children who have ASD, they need to

know how to make the children's instruction individualized and use strategies that are

evidence-based. Accommodations and modifications should be individualized for each

student's unique need (Rosenberg, 2012). Effective accommodations and modifications

use the student's strengths while focusing on their challenges.

Modification is explained as limiting expectations or to change or alter

assignments or activities (Heward, 2013). Sometimes teacher's will limited or change

the expectation for the students with ASD. For example, students may be expected to

participate less than their typically developing peers in a group project or be required to

complete fewer amounts of math problems on an assignment. It is important for pre-

service teachers to make sure that the goal or objective of the activity or assignment is

the focus so that appropriate modifications are made. If pre-service teachers do not

keep in mind the goal of the activity, the student with ASD may not meet the goal

because so many things can occur during an activity. For example, creating a goal of contributing at least three appropriate and accurate facts or ideas to a group project building a landform model, instead of five to six as the other children are required. If the contribution of facts is the goal, then the facts are what should be measured, not the handwriting formation or spelling of the landforms. Modifications may also include additional time on tests or simplified materials (Heward, 2013).

Accommodations, rather than modification, are more commonly used in general education classrooms (Heward, 2013). Children with mild to moderate disabilities, such as ASD, may require accommodations to be successful in the general education classroom. Accommodation is defined by Heward (2013) as providing with something needed. According to Patten and Watson (2011), accommodations are defined as tangible strategies used to immediately improve a skill. Sometimes the skill mastered using the accommodation does not carry over into situations when the accommodation is removed; therefore, it is important to teach skills in the context in which it will be used. The use of accommodations is commonly implemented in general education classrooms to assist children in understanding the expectations of the classroom (Patten & Watson, 2011). Accommodations are sometimes referred to as supports such as, visual supports, verbal reminders of rules or directions from the teacher, and role modeling of peers (Leach & Duffy, 2009). Support from paraprofessionals for students with ASD is an accommodation that is often utilized.

Paraprofessionals are the adults who are responsible for supporting children with disabilities in the general education classroom or school setting when support is needed (Causton-Theoharis & Malmgren, 2005). In Bauminger's (2002) study,

paraprofessionals found it challenging to meet the expectation of monitoring and fading the support they provided for children's interactions. Teachers felt it necessary or expected the paraprofessionals to constantly monitor their proximity to the students' interactions, being careful to not intercede too often and not to leave the students alone when they could possibly need support.

Simpson et al. (2011) indicated that children with ASD, who are part of an inclusive general education classroom and are supported by a paraprofessional in a one-to-one situation, may be stigmatized or that the paraprofessional's presence may result in reductions in peer interactions. Furthermore, paraprofessionals should be carefully trained to avoid inhibition of peer interactions, teacher abandonment of their responsibility to the child, and creation of the child being too dependent on the adult support. Inhibition of paraprofessional's presence can often be avoided when paraprofessionals are assigned to several children instead of to just one.

Without proper training, paraprofessionals can hinder, isolate, and segregate the children they support. However, with training regarding how to appropriately facilitate peer interactions, the interactions increased (Causton-Theoharis & Malmgren, 2005). Therefore, paraprofessionals support can be an effective strategy for inclusion.

Teachers who implement the use of visual supports increase independence by empowering the students to select and carry out a sequence of activities in the classroom (Heward, 2013). Students with ASD desire to be as independent as possible. Teachers must intentionally provide developmentally appropriate guidance so the children will be as independent as they desire (Rosenberg, 2012). Modifications and supports that foster the students' strengths and supports their challenges, help to shape

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independence. Visual supports are an effective method of focusing on students'
strengths because they are often visual learners.

Heward (2013) explained that children with ASD have experienced success
when they were taught to use visual supports in the general education classroom.
Visual supports encouraged positive behavior and increased learning. Because most
children with ASD think in pictures and are visual learners, they often experience
success when they are taught to use visual supports in the classroom. Picture schedules
and social stories are two techniques of visual supports. Picture schedules are
sometimes referred to as *visual schedules*.

Although there are many strategies for teaching children with ASD in the
general education classroom, Prizant and Rubin (1999) stated that there is not a single
best strategy. Several approaches that differ in philosophy and practice are effective
teaching strategies. No evidence exists that any one approach is more effective than
others; just as no one approach is equally effective for all children. However, for
success to occur for children with ASD, some level of independent performance is
needed in inclusive classrooms. Accommodations, modifications, and supports foster
the independence needed for children with ASD in the general education classroom.
Children with ASD are more likely to ask for help from their teachers if the teachers are
perceived as available, receptive, and supportive (Rosenberg, 2012). Teachers must
make teaching strategy decisions based on children's individual educational needs
(Heward, 2013).

Autism Spectrum Disorder Conclusions

School placement of children with ASD should be guided by children's individual strengths and parents' sense of what would afford their children the best opportunity to participate in a learning environment (Greenspan, 1998). Teachers should observe children throughout the school day during academic, social, and other routines to identify an intervention that would benefit behaviors or actions. It is impossible for teachers to meet the need of every child all the time. However, teachers should support the skills that will be immediately useful and have the greatest positive impact on the children's daily lives (Heward, 2013).

Providing children with ASD learning experiences that are structured and include effective strategies can be challenging for teachers. It is important for teachers to use the student's interest and strengths when teaching skills (Heward, 2013). If children with ASD engage in challenging behaviors, it is important to remember they have not yet learned appropriate ways in which to meet their own needs. Instead of teachers *telling* a child what to do, teachers should *teach* children what to do. Interventions that focus solely on reducing negative behaviors are often ineffective and shortsighted because they do not teach the children alternative, appropriate ways to control their world (Heward, 2013).

Specific strategies and approaches must be used when teaching children with ASD in the general education classroom. General education teachers should be supported by special education teachers to meet the needs of all children (Leach & Duffy, 2009). Special education teachers and general education teachers have greater success when they work together to recognize what strategies work for their students.

Inappropriate social skills is a characteristic of children with ASD, therefore, it is important for them to have opportunities to learn how to effectively engage with their peers. Children with ASD increase their social skills when they are placed in educational situation that promotes positive responses with TDP (Greenspan, 1998). Teachers provide opportunities for the students to engage and have developmentally appropriate interactions.

Inclusion, as a stand-alone intervention, does not support children in the general education classroom. Teachers must consider which intervention strategy is effective in reducing negative behaviors and promoting positive ones for inclusion to be successful and effective (von der Embse et al., 2011). Finding the strategy that works for each child is important because all strategies do not work for all children. Providing children with appropriate and effective opportunities when they are young is essential for them to develop a socially acceptable adult lifestyle in the future. Teachers and parents of children with ASD hope their children will become independent and productive when they become adults (Sabornie, Cullinan, Obborne, & Brock, 2005). Early intervention is the key to success for children with ASD.

CHAPTER THREE: Methodology

The purpose of this research study was to explore how pre-service teachers demonstrated knowledge of theory to practice throughout a college course in which the instructor provided scaffolding while incorporating strategies for inclusion for children with ASD. More specifically, the pre-service teachers learned strategies for including children with ASD in a general education classroom through intentional opportunities to implement the strategies in their internship placements. The pre-service teachers needed to know how to provide services for children with ASD when they become teachers and have their own classroom (von der Embse, et al., 2011).

Characteristics of ASD are unique from other disabilities, therefore, distinctive inclusion strategies are essential to learn. Many children with ASD have normal cognitive and learning abilities but are totally disconnected and highly repetitive in their behaviors while others are only mildly socially awkward (Heward, 2013). Pre-service teachers should have experience working with students with a variety of disabilities, abilities, and backgrounds in order to be prepared for their own classroom (Taylor & Sobel, 2001). Thus, it is important that they have experience working with children with ASD.

While there were several studies about inclusion for children with disabilities in general, there were very few studies specific to children with ASD and pre-service teachers. After an extensive search, research was not found that focused on inclusion strategies specific to ASD and general education pre-service teachers' understanding of the strategies for inclusion. This study is specific to children with ASD and adds knowledge and understanding to the existing literature about preparing pre-service

teachers for inclusion with children who have various disabilities. The five questions that guided this study are:

1) What prior knowledge and experiences do these pre-service teachers know about children with ASD when they begin their education as a future teacher?

2) How do these pre-service teachers implement theory to practice when they have the opportunity to work with children with ASD after learning the strategies during the university course?

3) What new knowledge and understanding do these pre-service teachers demonstrate regarding teaching students with ASD after they complete a course when the instructor intentionally implements information about ASD?

4) How do these pre-service teachers plan to apply their new knowledge about inclusion with children who have ASD in their future classroom?

5) How does the teacher educator implement, plan, guide, and assess the acquisition of learning of pre-service teachers during a course when information about ASD is explicitly implemented?

This action research study allowed the teacher educator to scaffold the learning of the pre-service teachers using journals, observations, interviews, field notebook, and documents. Three levels of data analysis took place: level 1 was starter codes, level 2 was with-in case analysis, and level 3 was cross-case analysis. Goodness and trustworthiness occurred through credibility, transferability, dependability, confirmability, and triangulation.

Action Research Design

This qualitative study was conducted through an action research approach. Action research is used often in education as a way to improve practice or make existing practice more efficient (Glesne, 2011). Miles and Huberman (1994) stated that an action research approach "is designed to solve particular local problems through a cycle of reconnaissance, planning, action, and re-reconnaissance" (p. 280). Action research is a two-step process. First, the researcher interprets the data and communicates multiple viewpoints to the participants. Then, discussions occur between the researcher and the participants about what actions need to be taken. Next, plans are made to organize the study. Then, implementation of the plan takes place, and finally, evaluation and reflection of the actions occur (Glesne, 2011). Kitchen and Stevens (2008) shared that action research is progressive and emancipatory, encourages inquiry and reflection, and connects theory to practice. Therefore, action research methodology aligned with the conceptual framework of connecting theory to practice using *How People Learn* by Donovan et al. (1999).

Glesne (2011) explained that action research studies define problems, gain better understandings of situations, and then resolves problems. In this study, the researcher gained a better understanding of the pre-service teachers' learning and connection of theory to practice through an action research approach. The exploration demonstrated how pre-service teachers exhibited their knowledge of theory to practice throughout an education college course. The implementation of strategies in a classroom improved the pre-service teacher' understanding of including children with ASD in the general education classroom. The knowledge or theory gained in the university classroom and

then practicing the new ideas in a classroom with children aligned with the aims of action research. Data that was collected throughout this study increased the understanding of the research topic that was explored (Mills, 2000).

Teachers of both adults and children have utilized action research methodology. Kitchen and Stevens (2008) implemented an action research project by introducing pre-service teachers to action research while making the implementation of the process an action research project for themselves. They modeled enriched teaching and learning that could result from an interdisciplinary approach. Several pre-service teachers indicated that the experience of participating in an action research expanded their conceptions of teaching; such expansion holds possible potential for fostering change in schools.

A study that examined insights into teaching and student learning through action research was conducted by Hagevika, Aydeniz, and Rowell (2012). Their study examined the role of action research while promoting critical reflective thinking. The data revealed that when action research was conducted, participants reflected on their own practice in order to determine ways to improve their teaching practices and promote positive change through critical reflection in a collaborative learning environment. In summary, Hagevika et al. (2012) found it important for pre-service teachers to critically reflect in order to examine their individual teaching and their student learning as they engaged in action research.

Oliver (2013) applied action research in her self-contained, early childhood classroom of kindergarten through second-grade students with ASD. Since many focus-challenging disabilities were addressed with visual supports, Oliver (2013) used body

movements and exaggerated expressions to enhance story telling. The combination of storyteller movements during story time was used as an intervention to increase engagement. The findings included students who had difficulty focusing during story time improved their engagement when spatial limitations were employed. Participants moved from the floor to a table and chairs. Secondly, participant engagement soared when the story was sung and not read.

Participants

Qualitative studies do not strive to make generalizations from the research because small sample sizes are usually involved. Miles and Huberman (1994) explained that qualitative researchers work with small samples of people within their context, unlike quantitative researchers who aim for larger sample sizes. This action research study examined a topic that is important to teacher education; therefore, purposeful *typical case sampling* was used (Glesne, 2011). The participants were junior and senior college students who were seeking a bachelor's degree in education. In addition, the participants were enrolled in an internship class where the researcher was the instructor of the course. When the study began, the number of participants was unknown, and the final number depended on how many of the 26 students enrolled in the course granted consent for the researcher to use the data at the end of the semester. Age, race, and gender varied for the participants.

Provisions were taken to protect the participants. When the process of the study was explained to the potential participants, the Endowed Chair for Urban Education, Outreach and Research was present in addition to the instructor/researcher. An explanation of risks, benefits, and non-requirement of the study was explained in detail

to the potential participants. The participants provided consent for the researcher to include their data in the study analysis by signing a consent form. The researcher did not see which students granted permission to use the data until the semester was over. Once grades were posted, the researcher was able to see who granted permission to complete the study and use only those students' data. The Endowed Chair for Urban Education, Outreach and Research held the consent forms until the semester was completed in a locked office. The potential participants were not forced, threatened, or led to participate or cooperate against their will (Miles & Huberman, 1994).

In no way did non-participation in this study negatively impact grades because grades were submitted before the researcher received the consent forms. The participants chose their pseudonyms that were used and no key identifying factors exist. Participants had the right to withdraw at any time, without consequence or penalty. If the pre-service teachers decided to withdraw their consent before the researcher received consent forms at the end of the semester, they could contact the Endowed Chair for Urban Education, Outreach and Research that was present during the explanation of the study. Participation, non-participation, or ending participation did not affect participants' grades in any way.

Twenty-five out of the 26 students enrolled in the course provided consent for their weekly journals, assignments, observation notes, and interview transcripts to be included in the data analysis. Therefore, the researcher obtained consent from 96% of the students enrolled in the course. Twenty of the participants were female and five of the participants were male. Their ages, races, and ethnicity varied.

Location

The location of the research was conducted at a Regional University in the Midwest part of the United States where the researcher is an assistant professor in a teacher education program. The researcher was the instructor of the required course for all education majors that required eight days in the field with children.

Data Collection Time Line

Institutional Review Board (IRB) was first received through the degree granting university. Then, IRB was approved through the university where the data was collected. Data collection began the first day of the semester and continued until the semester ended. Therefore, data collection occurred over a 16-week period.

Data Sources and Collection Procedures

Five types of data were used for this research study, which included journals, observations, interviews, field notebook with memos, and documents. The more sources that contribute to a study, the richer the data and the more complex the findings (Glesne, 2011). Table 2 describes the data source, procedures, and analysis based on the five questions that guided this study.

Table 2: Data Sources, Procedures, and Analysis

Research Question	Data Source	Procedure	Level 1 Analysis	Level 2 & 3 Analysis
1. What prior knowledge and experiences do these pre-service teachers know about children with ASD when they begin their education as a future teacher?	Journals Interviews	*Journals*: Pre-service teachers reflected on their thoughts and experiences 12 times	Coding: Identified and labeled journal reflections, observations, interviews, field notebook, and documents using a priori codes or starter	Patterns were identified across the data types within one case or one pre-service teacher and

2. How do these pre-service teachers implement theory to practice when they have the opportunity to work with children with ASD after learning the strategies during their university course?	Journals Observations Field Notebook Interviews Documents	throughout the semester using Blackboard to document their reflections.	codes that came from the conceptual framework.	cross case.
3. What new knowledge and understanding do these pre-service teachers demonstrate regarding teaching students with ASD after they complete a course when the instructor intentionally implements information about ASD?	Journals Field Notebook Interviews Documents	*Observations*: Each pre-service teacher was observed once. An observation document was used to record specific observations. The observations were conducted to learn context of the pre-service teachers' placement in their field experience.	Kept an audit trial by writing memos in *field notebook* about coding decisions. Created electronic folders to organize each piece of data. Analyzed the *journals* each week by using the journal document (Appendix C) to scaffold pre-service teachers' knowledge and understanding. Used the journal document to plan the following class period.	*Journals:* The journal document was read thoroughly. Next the journal document was compared with the other four data types within case and cross case. *Observations:* The observation document was read thoroughly. Next the observation document was compared with the other four data types within case and cross case.
4. How do these pre-service teachers plan to apply their new knowledge about inclusion with children who have ASD in their future classroom?	Journals Interviews	*Field Notebook*: Memos were recorded in the field notebook throughout the data collection process. I record thoughts, insights, biases, assumptions, revelations, observations, adjustments, and plans in the field notebook.	Analyzed the *observations* as they took place by using the observation document (Appendix B) to scaffold pre-service teachers' knowledge and understanding. Memos were recorded on the observation document during and after each observation of pre-service teachers.	*Field Notebook*: The field notebook was read thoroughly. Next the field notebook was continued to be used to record memos about the data comparisons within case and cross case.
5. How does the teacher educator implement, plan, guide, and assess the acquisition of learning of pre-service teachers during a course when information about ASD is explicitly implemented?	Journals Field Notebook Observations Documents: lesson plans, journal documents	*Interviews*: Structured interviews took place with each participant individually during the last two class periods (last two weeks of	*Interviews* were transcribed from the audio recording and then coded using the starter codes which were the four elements of the conceptual framework.	*Interviews*: The interview transcription was read thoroughly. Next the

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the semester). The questions were established before the interviews began and remained the same for each participant. *Documents:* Four documents were included in this study: lesson plans, observation documents, journal documents, and a journal rubric. Each of the four documents had a specific purpose.	interview transcript was compared with the other four data types within case and cross case. *Documents*: The documents were raw data that supported the other forms of data, therefore, each of the documents were analyzed by comparing to see if the findings align for each of the data sources within case and cross case.

Data are the bits of information collected to help answer research questions and

often teachers construct data in the form of observations and journals (Castle, 2012).

However, researchers decide what data will be used in a study. The types of data

collected in action research approaches are descriptive and narrative (Mills, 2000),

consisting primarily of interviews and observations (Miles & Huberman, 1994). Action

research approaches incorporate some features of naturalistic studies, such as

observations, nonstandardized instrumentation, a holistic perspective, and the search for

underlying themes or patterns (Miles & Huberman, 1994). The ongoing assessment

from the teacher educator that included journals, observations, assignments, and

interviews helped to develop a set of standards that lead to valuable outcomes for pre-

service teachers (Trent et al., 1998). Electronic folders were created to unify and

consolidate each piece of data as the data was being collected, so that organization occurred.

Observations

Data gathered from observations is an important element in qualitative research (Yin, 2009). Observations are a way to understand the complexity that exists in qualitative research. Researchers take note of many things as they observe, for example, the setting, participants, events, acts, gestures, process, and sounds. Observers also take note of what they think or feel during an observation (Glesne, 2011). Observations are one source of data that contributes to the larger picture of the topic being explored.

It was vital for the researcher to observe how the pre-service teachers' connected theory to practice in the classroom so that connections could be made to the other data types. The purpose of the observations was for the researcher to get a context of the setting where the pre-service teacher interacted with the students. This allowed connections to be made to the pre-service teachers' journal reflections, assignments, and interviews.

Each pre-service teacher was observed once. An observation document was used to record specific observations (Appendix B). The observation document was adapted from Scarborough's (2011) study. Her study also included observations of pre-service teachers. The observations were conducted to learn context of the pre-service teachers' placement in their field experience. Although observations created the opportunity for a more in depth understanding, the observations did not directly answer

any of the five research questions. However, the information gained during the observations provided valuable insight for the researcher.

   After each observation, it was important for researcher to take the time to reflect and record, therefore when an observation was completed, additional notes and memos were recorded on the observation document (Appendix B) (Glesne, 2011). Scarborough's study (2011) observed pre-service teachers using reading techniques, with the purpose of documenting and implementing pre-service teachers' knowledge and application of effective instruction as it related to early literacy. Although the content for the pre-service teachers' interactions with students was different from this study, Scarborough's (2011) study also recognized the importance of observations and how they can contribute to the research.

Field Notebook

   Field notebooks have many purposes in qualitative research and served as a reflective tool throughout the semester of data collection just as Scarborough (2011) used in her study. Keeping a field notebook throughout the study allowed the researcher to record the context of events and keep notes about the studies' focus (Bazeley, 2013). The field notebook was filled with descriptions, ideas, reflections, hunches, and notes (Glesne, 2011). Assumptions, revelations, observations, adjustments, and plans were also included in the field notebook. First, writing memos in field notebooks throughout the data collection allowed the researcher to record new thoughts and perspectives as they surfaced; as opposed to having to try to remember something that occurred (Bazeley, 2013). The researcher cannot expect to remember behaviors and events as they occur. Therefore, memos were documented in the field

notebook and were referred to throughout the study and during analysis, which is called an audit trail. Researchers have audit trails to keep track of decisions made during the data collection and data analysis (Lincoln & Guba, 1985). Additionally, the researcher's bias and thoughts about how the data collection process was moving forward was recorded in the field notebook. For example, during the interviews at the end of the semester, memos were recorded regarding thoughts from the pre-service teachers' interviews immediately after the interview was completed. The many memos tied together different pieces of data into a recognizable cluster and was one of the most useful and powerful sense-making tools (Miles & Huberman, 1994).

Pre-service Teachers' Journals

Journals are often included in action research studies to monitor the understanding and knowledge of participants, as well as to assist in planning. Previous studies have used pre-service teachers' electronic journals effectively to scaffold their learning and understanding (Lake, Al Otaiba, & Guidry, 2010; Scarborough, 2011). "Not only was reflection necessary to design effective instruction, the use of such a practice models for the pre-service teacher its use in practice" (Scarborough, 2011, p. 42).

As a requirement for the course, participants submitted journal reflections on Blackboard, an electronic course management system the college utilizes for students. Pre-service teachers' journal reflections were also used in Scarborough's (2011) study in order to document pre-service teacher knowledge about effective instruction and course objectives. The pre-service teachers' increase of knowledge and understanding was documented and coded on the journal document (Appendix C). The researcher also

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recorded areas of concerns for the pre-service teachers understanding. These documentations and information assisted the researcher in planning the following class period.

In order for the pre-service teachers' journals to have included thick, rich description and to be valuable data for this study, effective journal writing was taught. A list of important elements to include in a journal was created as a whole group. The list was referred to as the pre-service teachers practiced journaling while they watched videos of classroom scenarios. Additionally, the pre-service teachers were provided with effective and ineffective journal examples to discuss the qualities of each. After practice journal writing, peer reviews using the journal rubric took place. Appendix D provides the journal rubric that was used for journaling throughout the semester.

Twelve journal reflections were required throughout the semester for this study. The number 12 was chosen because the pre-service teachers were in the field eight days during the semester, therefore, they had a reflection after each of the eight field experiences, two before they began, and two after they completed their eight days of field experience. Scarborough (2011) also required 12 journals in her study, which were submitted electronically and reflected the pre-service teachers' knowledge and understanding.

The journal questions were prepared before the semester began. The first two questions were required to be completed and submitted before the pre-service teachers were in the classroom with students. The next eight questions were questions the pre-service teachers reflected on after each day in the classroom. The last two questions were required to be completed after the eight field experience days were completed.

The teacher educator read the journals weekly to help guide the following class

meeting's discussion and class activities. Table 3 displays the 12 questions that were

required.

Table 3: Pre-service Teachers Journal Reflection Questions

1. What do you know about autism? How much experience have you encountered with a person or people with autism? Please explain or describe what you know about autism or what assumptions or biases you have about people diagnosed with autism.
2. What fears do you have about teaching children diagnosed with autism? What do you look forward to when it comes to teaching children with autism?
3. What is ASD and how does it influence students' learning? Elaborate.
4. What is the name and location of the school, a description of the clinical faculty member (1st name only), the subject and grade level of your internship? How long has your clinical faculty been teaching in this site / subject / grade level? Does this person have other teaching experiences in other situations? What were your first impressions during your first internship visit? What surprised you? What helped you feel comfortable or uncomfortable? Who appeared to do more talking, the clinical faculty member or the students? How did it feel to be in a K-12 setting again? What are your goals, expectations or hopes, for your Pre-I experience?
5. Are students' differences in learning abilities an issue for your clinical teacher? Explain.
6. Does your clinical teacher use strategies to meet the needs of her students with exceptionalities? Which strategies work and why? Have you seen any strategies that didn't work?
7. What have you learned thus far in the semester about teaching children with ASD that you did not know before the semester began?
8. What classroom management and lesson ideas have you observed that made an impression? In what way have the behavior management and discipline methods you have observed influenced you? Which of these do you think you will use in your future classroom?
9. In working with students with exceptionalities, what assistance does the classroom teacher receive from the following people? Special education teacher, school psychologist or school counselor, or the principal? Do any of them have more of an influence on the children's learning?
10. How helpful is an IEP to the teacher when working with exceptional students in the classroom? What is the biggest challenge the teacher faces in working with students with exceptionalities? What is the role of typically developing peers in regards to children with ASD's school experience?

11. How do you plan to apply your new knowledge about inclusion with children who have ASD in your future classroom?

12. What does an effective classroom look like with children with ASD included? Please provide details and elaborate.

Interviews

Researchers often ask participants questions during interviews for a specific purpose of gathering more information (Glesne, 2011). Participants answer the questions in context of their own dispositions, for example, their own motives, values, concerns, and needs. Researchers then have the challenge to unravel in order to make sense of the words that their questions generated. Interviews can be used in conjunction with other data types, such as, documents and observations (Glesne, 2011).

Through the use of interviews, the participants' understanding and experiences are explored (Glesne, 2011). Structured interview protocol was used with each participant individually during the last two class periods, which are also the last two weeks of the semester. The questions were established before the interview began and remained the same for each participant. Reporting what was observed and discussed in the interviews avoided including any judgmental views or preconceived notions on the part of the researcher. The interviews took about 15-30 minutes each and questions were asked in an unbiased manner (Yin, 2009). Each of the five interview questions aligned with the four elements of the conceptual framework that guided this study. Table 4 below provides the sample questions and how each aligned with the conceptual framework.

Table 4: Sample Interview Questions and How Each Aligned With the Conceptual Framework

Interview Question	Conceptual Framework
1. What experiences, if any did you have working with children with ASD before taking this course?	Learner centered environment
2. What did you know about inclusion before taking this course? What if any experiences have you had with inclusion (Van Laarhove, Munk, Lynch, Bosma, & Rouse, 2007)?	Assessment centered environment
3. How do you feel about children with ASD being included in the general education classroom (Cook, 2002; Van Laarhove et al., 2007)?	Community centered environment
4. What are your beliefs and your perceived skills about teaching children who have different abilities than your own (Taylor & Sobel, 2001)?	Assessment centered environment
5. What strategies do teachers need to implement to create a learning environment for children with ASD to be successful (Cook, 2002)?	Knowledge centered environment

Interviews took place in the researcher's office privately at the University and were audio-recorded. Immediately after each individual interview, memos were written in the field notebook regarding thoughts and ideas that occurred as a result of the interview. The researcher transcribed each interview shortly after it was completed, which allowed for familiarity of the data and ensured accuracy (Bazeley, 2013). Participants were invited to member check the transcripts.

Documents

Four documents were used throughout this study: lesson plans, the observation document, the journal document, and the journal rubric the pre-service teachers used for journaling. The lesson plans, observation document, and journal document were used to help the researcher stay organized and keep the data separate. In order to understand pre-service teachers' knowledge and plan accordingly, documents were created to assist

in keeping track of the other data sources. Scarborough (2011) also used similar documents to organize her data and keep track of pre-service teachers' knowledge.

The lesson plans were created from the information gathered on the journal document and observation document. The lesson plan template provided a place for a clear activity/objective, as well as the amount of time allowed, materials needed, the desired pre-service teacher behavior, and the connection to the conceptual framework. There was also a section for memos to be recorded during class time. The memos were then used to create the next lesson plan along with the journal document and observation document.

The purpose of the journal document was to scaffold the pre-teachers' understanding of ASD and inclusion. There were 12 journal documents with each document including all 26 pre-service teachers' reflections that provided evidence of their understanding and knowledge. Additionally, the journal document provided a place for the teacher educator to write ideas for planning based on the information from the journals. The observation document was also used to plan class periods and write lesson plans.

The teacher educator used the observation document during each observation of the pre-service teachers. The document was a way of having a specific focus during the observations and to look for the same concepts during each observation. Several things were included on the observation document, such as, the students' grade, date, time, the physical arrangement of the classroom, the direct and indirect supports that were provided for students, and the interactions observed. There was also a place for the teacher educator to provide memos after the observation was completed. These memos

were recorded immediately after the observation was finished. The observation document was also referred to when the lesson plans were created.

Data Analysis

Data analysis in qualitative research is an ongoing process that continuously analyzes journals, observations, interviews, field notes, and documents simultaneously as data collection takes place (Bazeley, 2013). The analysis continued even after the data was collected. The systematic process of collecting data, organizing data, synthesizing it, searching for patterns, and making decisions about what is worthy of being reported was carefully considered by the researcher (Creswell, 1998). Simultaneous data collection and analysis created an organized study and prevented the researcher from being overwhelmed by the large amount of data.

Level 1 Analysis: Coding with Starter Codes

An initial stage of coding occurred with identification and labeling using a priori or starter codes which came from the four components of the conceptual framework: community centered, learner assessment, assessment centered, and knowledge centered (Donovan et al., 1999). The conceptual framework aligned with the five research questions that guided the study. Coding was used to analyze all five data sources: journals, observations, interviews, field notebook, and documents (Creswell, 1998; Lake et al., 2010; Miles & Huberman, 1994).

During level one analysis each source of data was carefully considered:

1. Observations: Analysis of the observations took place as the observations occurred and immediately after by recording notes and memos on the

observation document (Appendix B). The observation documents were then coded using the conceptual framework starter codes.

2. Interviews: Interviews were transcribed from the audio recording. Interpretations and conclusions were made to narrow the focus as I transcribed the participants' conversations from the interviews. These interpretations and conclusions were recorded in the field notebook. The interviews were then coded using the conceptual framework starter codes.

3. Journals: Journal analysis occurred each week by using the journal document (Appendix C) to scaffold pre-service teachers' knowledge and understanding and to plan the following class period. The journals were then coded using the conceptual framework started codes.

4. Field Notebook: The memos created in the field notebook made coding more straightforward (Bazeley, 2013). As the researcher attempted to understand the descriptions and patterns that coding created and triangulate the five data sources, an audit trial was kept by writing memos about coding decisions in the field notebook (Lincoln & Guba, 1985). The field notebook was also coded using the conceptual framework starter codes.

5. Documents: The four documents that were included in this study: lesson plans, observation documents, journal documents, and the journal rubric each had a specific purpose. The documents were not only used to keep the study organized, but also supported the other sources of data that were coded using the conceptual framework as starter codes.

Level 2 Analysis: Within Case Analysis

The second level of analysis involved coding to develop more analytical categories or clusters. For level two analyses, patterns were located within each case (Bazeley, 2013). For this study, a case was defined as a pre-service teacher. Therefore, patterns were identified across the data types within one case or one pre-service teacher. For example, the researcher looked to see if the same patterns existed throughout the journal, observation, interview, field notes, and documents from one case, or one pre-service teacher. A comparative analysis involved looking at all five data sources to begin to recognize the pre-service teachers' understanding and experiences from more than one perspective (Bazeley, 2013). Throughout the analysis process memos were created when the researcher made a choice, created a label, or created a pattern name (Bazeley, 2013). All five of the coded data sources were read through carefully and thoroughly while searching for existing patterns and then a memo was created for new patterns that arose (Glesne, 2011). Within case analysis looked at the pre-service teachers individually to answer the five research questions.

The journals, observation document, interview transcription, and field notebook was read thoroughly during and after coding throughout level 1 and 2 analysis. The fifth data source of documents that consisted of raw data supported the other forms of data. Therefore, each of the documents was analyzed by comparing to see if the findings aligned with each of the data sources within a case, establishing triangulation. The field notebook was utilized to record memos about the data comparisons within each case. In summary, the five data sources for each individual pre-service teacher

were compared to answer the five research questions and align with the conceptual framework.

Level 3 Analysis: Cross-Case Analysis

During level 3 analysis all of the pieces came together with the goal of answering the research questions (Bazeley, 2013). Cross-case analysis explored similarities and differences while increasing understanding and identifying patterns (Bazeley, 2013). The connection between pre-service teachers as a whole group was examined during the cross-case analysis, as well as summaries of the patterns. The patterns for each case was brought to the big picture by comparing how each case answered the research questions and aligned with the conceptual framework by looking at the cross-case analysis. Data was interpreted and analyzed during level 3 analysis, which included differences and reasons for the differences across cases. Differences in cross-case analysis include experiences, knowledge, or compassion. Memos were kept in the field notebook as I reflected upon each comparison cross-case.

Triangulation of the data was also part of level 3 analysis. Trustworthiness and credibility of qualitative research occurred by providing triangulation. Multiple sources allowed for data to be checked and compared with other data types within the study. Triangulation took place by comparing the information from each of the five data types to one another (Bazeley, 2013; Glense, 2011). It was important to not rely on any single piece of data (Mills, 2000), therefore, journals, observations, interviews, field notebook, and documents were triangulated during the data analysis process.

Goodness and Trustworthiness

Quantitative researchers check for *reliability* while qualitative researchers check for *credibility* to show that the findings of the research are steadfast. The four areas of trustworthiness for qualitative research were implemented: credibility, conformability, transferability, and dependability (Lincoln & Guba, 1985).

Credibility

- Credibility required prolonged engagement, which is the result of an investment in a sufficient amount of time to gather data. Data gathering began at the beginning of the semester and continued throughout the entire semester. Therefore, data was collected for 16-weeks. Persistent and frequent observation identified the characteristics and elements in the situation that were relevant to the topic being explored. The weekly meetings with the participants during class time, reading journals each week, and observing often assisted in planning the following class session which allowed me to be persistent and intentional as I found things that were relevant to the study.

- Peer debriefing with other doctoral students who have impartial views assisted in establishing credibility. The doctoral students meet weekly and examined the methodology, transcripts, documents, notes, and analysis that helped to determine areas that needed improvement. The doctoral students also assisted in the process by finding new ways of thinking about the study and provided an overall better understanding of the research. This process helped keep the researcher honest, allowed questions to surface, clarifications to arise, and the

researcher's interpretations explored from a disinterested party (Lincoln & Guba, 1985).

- When outliers were revealed I learned from them and grew in my understanding because in qualitative research outliers cannot be ignored. In addition, outliers added to the overall picture (Bazeley, 2013). Once data was collected, member checking took place. Member checking is the most crucial technique for establishing credibility. The accuracy of descriptions, explanations, and interpretations were provided to participants for member checking during this research study to verify the accuracy of the data (Miles & Huberman, 1994). Once the interviews were transcribed, the participants were invited to member check their interview transcript. Additionally, an audit trail was included in the field notebook to keep track of decisions during the data collection and analysis. Each time a decision was made regarding data analysis, a memo was recorded in the field notebook.

Transferability

Providing thick description was necessary to reach a conclusion about whether the findings from this study are transferable to other studies (Bazeley, 2013). Therefore, I used detailed, thick, rich descriptions to explain my findings in a way that makes sense to the reader. Transferability took place with the variety of data sources that were collected during the 16-week semester. The data illustrated evidence supporting each of the five research questions that guided this study, as well as the conceptual framework.

Dependability and Confirmability

Dependability and confirmability was established by a properly managed audit trail. I kept an audit trail in my field notebook to report how I collected and analyzed data throughout the study so that it could be duplicated by another researcher. Other doctoral students analyzed the data at each level of analysis along with me. We analyzed a sample of the data individually to see if we got the same results. If they were different results, I decided whether my peers' analysis was a useful way of looking at the data. Taking external steps in relation to credibility gives the research accuracy and value (Lincoln & Guba, 1985).

Triangulation of the Data

Using multiple sources of data is considered triangulation (Mills, 2000). Triangulation of journals, observations, interviews, field notebook, and documents occurred during the data analysis process. "Researchers should not rely on any single source of data, interview, observation, or instrument" (Mills, 2000, p. 49). Taking external steps in relation to credibility gave the research accuracy and value (Lincoln & Guba, 1985). Triangulating the data minimized any bias that could have transpired within the conclusions or findings. Examining this research context in different ways and from different perspectives was important in attempting to describe and understand the data.

Data types were compared to see if the inferences drawn from one type was comparable with those obtained in other types of data (Bazeley, 2013). The researcher also looked to see if possible patterns were revealed not only between the types of data, but within. Finding a code one time was not enough to justify creating a code, it would

have had to be in several cases. Triangulation also occurred by connecting the research

back to the existing body of literature (Lincoln & Guba, 1985).

Conclusion

Connections from the literature to the findings provide teacher researchers a way

to share with colleagues the existing knowledge base in an area of focus and to

acknowledge the unique contribution the teacher researcher has made to the

understanding of the topic studied (Mills, 2000). Comparing the themes to existing

literature and relating the findings fulfilled the purpose of this research study. It is

significant to explore the understanding, learning, and experience of pre-service

teachers as they engage in theory to practice using strategies for children with ASD to

be included in the general education classroom. This study contributes to the existing

literature about pre-service teachers' learning inclusion strategies and teacher educators

being intentional about creating opportunities for pre-service teachers to have

experience with inclusion. In addition, this research could impact the curriculum in

Pre-1 Clinical Education courses by providing a research based significance in teaching

early pre-service teachers introductory practices in teaching students classified with

exceptionalities, specifically autism spectrum disorder.

CHAPTER FOUR: Findings

Exploring how pre-service teachers demonstrated knowledge of theory to practice throughout a college course in which the instructor provided scaffolding while incorporating strategies for inclusion for children with ASD, yielded several findings. In this chapter, the findings are presented through an explanation of how they connect to each of the four components of the conceptual framework, *How People Learn* (Donovan et al., 1999): community centered, learner centered, assessment centered, and knowledge centered. Within each of the four components of the conceptual framework, the five questions that guided this study are answered.

Community Centered

Community Centered Environments

Collaboration, part of community centered environments, acknowledges that learning is influenced by the context in which it takes place. Norms are established in classrooms that have strong effects on students' achievement, such as encouraging inquiry, promoting academic risk taking, learning from mistakes, and providing opportunities for feedback and revisions. Teacher educators must build a sense of community in which pre-service teachers help each other solve problems, build on each other's knowledge, ask questions to clarify, and explain and suggest ways to move the group toward the goal. In community centered learning environments, teacher educators implement, plan, guide, and assess the acquisition of learning of pre-service teachers (Donovan et al., 1999). Question five of this study aligned with community centered learning environments and asked: How the teacher educator implemented, planned, guided, and assessed the acquisition of learning of the pre-

service teachers during the course when information about ASD was explicitly implemented?

Risk–taking, mistakes, and feedback. For this study, the community centered environment was the college classroom and the pre-service teachers' internship classrooms with children. Academic risk-taking, chances to make mistakes, and opportunities for feedback and revisions were encouraged and fostered throughout the semester. Pre-service teachers received continual feedback through in-class assignments, discussions, and their internship placement experiences. Feedback for the pre-service teachers was an important element in scaffolding theory to practice in the classroom with children (Leko & Brownell, 2011).

Through questioning, I created the opportunity for the pre-service teachers to share situations they had observed during their internship that offered the opportunity for feedback. The pre-service teachers felt comfortable enough to seek feedback from their peers and instructor because the classroom norm was positive and supportive (Donovan et al., 1999). When one pre-service teacher shared, this opened the opportunity for others to compare and contrast as a group, their experiences and how their mentor teachers handled specific situations. In addition to these informal opportunities for academic risk-taking, the in-class assignments provided more of a formal theory to practice scaffolding (Donovan et al., 1999; Stayton & Miller, 2008; Trent et al., 1999). For example, when I required the pre-service teachers to participate in small group assignments with specific objectives, the chances to make mistakes and opportunities for feedback were supported by their peers and instructor through conversations of problem solving and feedback.

Teacher educators must build a sense of community that fosters and encourages pre-service teachers to help each another solve problems, build on other's knowledge, ask questions to clarify, and explain and suggest ways to move toward a goal (Donovan et al., 1998). These elements were intentionally included throughout the weekly lessons in order to increase pre-service teachers' knowledge, interest, and excitement regarding inclusion of children with ASD in the general education classroom.

In-class activities. For this study, the term community centered included in-class activities or anything associated with the pre-service teachers' peers. It also included a sense of their ownership of new ideas and the connection of theory to practice. One student who had previous experience working with children with ASD as a para-professional stated in a memo how important she thought it was for her peers to know how to work with children with ASD. She also shared how she felt about including ASD information as part of the final. Mandy wrote:

> I cannot begin to tell you how happy it made me that this was part of the final. Not only because it was something I enjoyed, but because students in general put a lot of effort into doing well on finals. With that being said, you will have a lot of students leaving your class knowing what to expect if/when they have a student with ASD in their classrooms! I love that not only will they know what to expect, but they will have some strategies on how to go about handling certain situations with these students! It brings me joy, perhaps I do have a special place in my heart for these students, but it brings me joy to know that future educators are being educated about students with ASD. It breaks my heart when new educators (or just educators in general for that matter) are mean, hateful, annoyed, or unpleasant to these students because they think they are being rude or disrespectful. The truth is, those teachers probably just weren't educated about students with ASD behavior and didn't know what to fully expect. After having your class, I love knowing that my peers, future educators, will know what to expect as well as what strategies to use and how to use them for students with ASD!

Two of Mandy's peers' affirmed how Mandy felt about the importance of learning how to incorporate strategies to support children with ASD. "I really did not

know that much about inclusion actually; and then throughout this course, I have gained

so much knowledge about that [inclusion] and in the internship classroom. I didn't

know a whole lot before," stated Jenny. Just like several of the other pre-service

teachers, Jenny did not have much knowledge about inclusion. With the requirements

of IDEA, it is important for pre-service teachers to learn how to teach children with

disabilities (Rademacher et al., 1998).

Since the four areas of conceptual framework overlap, Mandy and Jenny's

statements are examples of both community centered and knowledge centered

(Donovan et al., 1999). Mandy's excitement, interest, and engagement with the

learning were also part of the knowledge centered environment. The inclusion and

ASD content that became part of the course, also became the norm, which was

community centered. Jenny's statement was considered part of the community centered

environment because it illustrated her sense of ownership of new ideas. Her statement

also supported the theme of knowledge centered because she understood why ASD

content was important to learn (Donovan et al., 1999).

It can be a difficult responsibility to effectively include children with disabilities

in the general education classroom without training for pre-service teachers. Bethaney

shared her understanding of the responsibility of teaching children with disabilities.

"Including every student is one huge responsibility for an educator. Students with

exceptionalities have a great ability to learn, but often need accommodations…"

(Bethaney). It was important for pre-service teachers to learn how to create effective

classroom environments with explicit support for children with ASD. Creating a

structured learning environment for children to experience successful learning is a big

responsibility (Fengfeng & Tami, 2013). The pre-service teachers in this course learned ways to successfully teach children with disabilities, which supported Mandy's statement about how important she felt it was for her peers to know how to work with children with ASD. Bethaney's ownership of her new knowledge that teaching children with disabilities was a great responsibility was part of a community centered environment (Donovan et al., 1999).

Class assignments and discussions were also an intentional part of building the community centered environment. Many of the assignments and activities served to provide immediate knowledge, but they were included to also serve as future references as a way to continue scaffolding pre-service teachers once they completed the course. One of the class assignments required students to read an article, "Supporting Students with Autism Spectrum Disorders in Inclusive Settings" by Leach and Duffy (2009), and answer specific questions. Kay discussed that she "…enjoyed the article that detailed preventative, supportive, and corrective strategies. I will keep it for future reference." Other students also shared that they would continue to research the topic of ASD. "I will use what I learned in this semester by referring to resources for particular subjects. In other words, this class taught me how and where to refer to an educative subject" (Maynard). Additionally, Olivia wrote:

> I will keep all of the information I have received from this class and continue to learn through other classes, seminars, and podcasts to ensure that when I start in my future classroom, that every person is provided the best opportunity to learn.

The pre-service teachers' ownership of their learning and their excitement to continue to learn after the semester was over displays community centered learning characteristics. Their recognition of how necessary it was to learn about inclusion and

ASD was also community centered. However, the interest these pre-service teachers displayed and their understanding of how important the learning of inclusion and ASD were, was part of knowledge centered, demonstrating again how the four components of *How People Learn* (Donovan et al., 1999) continually overlap.

The in-class activities (e.g. class discussions, article readings, graphic organizers, creation of visual supports, etc…) generated a desire to learn more about ASD. As these pre-service teachers progress through their education program and learn more about teaching, inclusion, children with ASD, and strategies, their understanding and knowledge base will increase and build on the foundation provided in this course. Donovan et al. (1999) explained community centered as a sense of ownership or excitement of new ideas. As the pre-service teachers continue to apply their learning to the classroom with children with ASD and build their sense of excitement for learning, they will apply the theories they have learned (Donovan et al., 1999).

During the course, we discussed how children with ASD often shared their thoughts and feelings when it might not have been the right thing to say or the right time to say it (Heward, 2013; Maloret & Sumner, 2014). Rochelle linked her learning from the course to a circumstance that occurred during her internship. She explained how her mentor teacher spoke to children with ASD and exceptionalities, "She always tells her students like it is, and she does the same for her students with exceptionalities. I think they appreciate it, after learning in this clinical course that many children with autism tell you what they think." Without the knowledge provided in this course through class discussions, activities, and assignments, Rochelle may not have understood why her mentor teacher chose to use very direct statements for the children

with ASD. Using clear and concise statements for children with ASD was an important strategy taught throughout the university course (Lombardi & Hunka, 2001; von der Embse et al., 2011), and for Rochelle, her mentor teacher also modeled them. Rochelle linked her university learning to the classroom (Donovan et al., 1999).

The Teacher Educator Implemented, Planned, Guided, and Assessed the Acquisition of

Learning

Donovan et al. (1999) stated that establishing norms in college classrooms had positive effects on pre-service teachers' achievement. Therefore, a new norm for this course was created when the ASD content was integrated with the existing course content. By weaving the ASD activities and assignments throughout the 16-week semester, I intentionally modeled for the pre-service teachers how to integrate content. Integration of several forms of instruction and content enhanced the knowledge, skills, and dispositions necessary for pre-service teachers to understand inclusion (Levin et al., 2002). After analyzing the lesson plans, approximately 25% of the course was ASD content. Due to the addition of ASD content, school reform and history received less emphasis during this semester when compared to previous semesters.

Two examples where I integrated inclusion content with the existing content were classroom management and diversity. When I focused on how to create positive classroom climate and a community of learners (Kauchak & Eggen, 2014), the content of integrating children with disabilities was a natural part of the discussion. Additionally, when the course focused on educational responses to cultural diversity, children with disabilities was included as a distinct culture with distinct needs (Kauchak & Eggen, 2014).

Ongoing learner friendly assessments that monitored progress were also a part of the conceptual framework (Donovan et al., 1999). Using their weekly journals, I analyzed the pre-service teachers' knowledge of ASD at three checkpoints during the semester. At the beginning of the semester before any ASD content was taught, I assessed the pre-service teachers' knowledge level based on their prior knowledge and past experiences. At about the midterm and at the end of the semester, the pre-service teacher's journals were analyzed and coded as: no knowledge, little knowledge, some knowledge, and a lot of knowledge of ASD.

As mentioned above, journal number one asked the pre-service teachers what they knew about ASD, how much experience they have had with people with ASD, and any assumptions or biases they had regarding ASD. The findings, outlined in Table 5, showed that only three pre-service teachers had a lot of knowledge about ASD before this course. All three of them previously or currently worked with individuals with ASD. Ten of the pre-service teachers had little or some knowledge and 12 had no prior knowledge or experiences interacting with individuals with ASD.

Table 5: Pre-Service Teachers Knowledge and Experience

	No Knowledge & Experience	Little Knowledge & Experience	Some Knowledge & Experience	A lot of Knowledge & Experience
Beginning of Semester	12	6	4	3
Middle of Semester	0	18	4	3
End of Semester	0	0	22	3

At midterm of the semester, the weekly journals were analyzed again to assess growth or an increase in ASD knowledge. At this point, none of the pre-service

teachers could state that they had no knowledge of ASD since the integration of content had begun, and as Table 5 shows, the 12 pre-service teachers who began the class with no knowledge had increased their knowledge enough to move to the *little* category. However, no pre-service teacher moved from *little* to the *some* category. This lack of movement was not surprising since the field portion of the semester had just started, so the pre-service teachers were not able to fully connect theory to practice.

By the end of the semester, all of the pre-service teachers had *some* to *a lot* of knowledge regarding ASD, demonstrating that the assignments and activities were appropriate and successful in increasing their knowledge. The three pre-service teachers who began the semester with *a lot* of knowledge, ended the semester the same way. Since this was an introductory course, it was not designed for pre-service teachers with advanced knowledge and experience with ASD. However, the in-class activities and assignments were open ended enough to allow them to increase and/or apply their knowledge. Given the increase in knowledge of children with ASD throughout the semester, the pre-service teachers' organization and knowledge of inclusion will help prepare them to be effective in the classroom setting (Trent et al., 1998).

Teacher education programs have been called upon to include knowledge of children with special needs (Chang, Early, & Winton, 2005; NCATE, 2010; Rademacher et al, 1998) and experiences for pre-service teachers to interact with a variety of learners (Tomlinson et al., 1997), yet no model of effective integration has been proposed. *How People Learn* (Donovan et al., 1999) offered "research-based messages that are clear and directly relevant to classroom practice" (p. 1). Intentionally following and implementing the four areas of *How People Learn* helped me to be very

deliberate about the ASD material I included and integrated throughout the course. The pre-service teachers' increase of knowledge of children with ASD was a result of this intentionality. Donovan et al. (1999) state that practices that do not consider the research based on learning and teaching result in weak outcomes for the learners. Pre-service teachers would have learned about children with special needs without me intentionally utilizing *How People Learn,* but would they have learned as much? *How People Learn* provided the "knowledge, tools, and resources that … promote student learning and achievement" (Donovan et al., 1999, p. 8) and maximizes learning.

ASD material. Throughout the course, I intentionally modeled how to connect the existing content to the new ASD material, just as the pre-service teachers will have to integrate and connect content in their classrooms. Provided in this section are details of how each type of activity: weekly journals, PowerPoints, in-class discussions, in-class activities, and assignment were included in the course.

Journals. Learning with understanding takes time and is often more difficult to accomplish than simply memorizing (Donovan et al, 1999). Therefore, the largest assignment was the 12 weekly journal reflections, or ejournals, that allowed me to continually scaffold each pre-service teacher's knowledge and understanding. It was important to teach the pre-service teachers how to provide detail and answer the journal questions completely by providing detailed examples and rich descriptions. Pre-service teachers created a list of important things to include in a journal. Then we listed the elements as a class: facts, feelings, thoughts, subjective ideas, and objective details were a few of the elements the pre-service teachers said needed to be included for a journal to

be effective. Additionally, we discussed how to elaborate when it seemed there was

nothing left to write in the journal by practice journal writing.

The practice journaling activity used the familiar topic of driving. Pre-service

teachers first made bullet points about driving. Then, they chose one of the bullet

points and elaborated on it. Next, the pre-service teachers switched their driving journal

with a peer and elaborated on the peer's journal. They then switched back to show that,

there was always more that could be added even when it seemed there was nothing left

to write about.

Three examples of journals were analyzed by the pre-service teachers using the

list they created as a class with the elements of an effective journal. They identified the

effective elements and addressed the things that were included in the journals that were

not productive components to include in a journal. First, they discussed with a peer and

then we discussed as a whole class. A journal rubric (Appendix D) was provided to the

pre-service teachers. We then looked at the journal rubric to reiterate how to provide

rich description in the 12 journals throughout the semester. I replied to their journals to

clarify a thought, answer a question, or even ask the pre-service teachers a question.

Scaffolding and supporting the pre-service teachers during their field experiences was

part of the learning process in order to increase their knowledge of ASD and inclusion

(Leko & Brownell, 2011).

In-class activities. I began the ASD topic with a short true and false quiz

(Appendix E) that I created for the pre-service teachers to complete individually during

class. Once the quiz was completed, we went over the answers together and used the

quiz to guide our discussion. I was pleasantly surprised at how just a simple, short tool

like the quiz created the opportunity for dialogue. Often, pre-service teachers do not realize what they do not know (Trent et al., 1999). Having the quiz to guide the class discussion provided the opportunity for the pre-service teachers with prior experiences to share and those without experiences with ASD to ask questions and clarify some of their misconceptions.

Building on the quiz information and discussion, I created a PowerPoint that was used to define ASD, discuss characteristics, and create a foundation about ASD; thus, highlighting the subject matter being taught (Donovan et al., 1999). The PowerPoint also included a YouTube video of a teacher who made accommodations and modifications for children with ASD in the general classroom, as well as slides requiring interactive activities and discussions with peers. It was important to share the information on the PowerPoint early in the semester to create a foundation about ASD before the pre-service teachers went into the classroom with children. Later in the semester, I shared the same PowerPoint. The pre-service teachers were able to connect the PowerPoint theory to classroom practice since they had begun working with children in their field. Field experiences in the classroom with children allowed pre-service teachers the opportunity to practice strategies with children (Leko & Brownell, 2011). The pre-service teachers could then think about the children in their classes as they listened, discussed, and connected experiences to the information on the PowerPoint. Using the same PowerPoint at different times in the semester also allowed the pre-service teachers to acknowledge the amount of ASD knowledge they had already learned. As previously mentioned, the components of the conceptual

framework overlap and the second use of the PowerPoint demonstrated an element of self-assessment, which was part of an assessment centered classroom.

The next in-class activity was created as a result of the pre-service teachers' journal two responses. Journal two asked them to discuss some things they feared about teaching children with ASD. In order to relieve these fears, it was important to be prepared and educated on the topic. Therefore, as one of the in-class activities, the pre-service teachers read the article "Understanding Autism Spectrum Conditions" by Maloret and Sumner (2014). First they read the article individually and organized the ideas provided in the article using a graphic organizer that I created (Appendix F). The open-ended nature of the graphic organizer scaffolded the pre-service teachers by helping them organize their thoughts regarding the new knowledge, connecting to prior knowledge, and assimilating the information (Donovan et al., 1999).

The graphic organizer was completed with peers in small groups. Discussing in small groups provided another type of scaffold since the pre-service teachers were listening to their peers' perspectives, thoughts, and ideas. Donavon et al. (1999) explained that teacher educators must provide opportunities for pre-service teachers to help each other solve problems, build on each other's knowledge, ask questions to clarify, and explain and suggest ways to move the group toward the goal. This small group process example was one of the activities implemented to support a sense of classroom community.

A second article, "Supporting Students with Autism Spectrum Disorders in Inclusive Settings" by Leach and Duffy (2009) that elaborated on peer interactions was also a required reading for the pre-service teachers. The addition of this article was

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based on journal reflections and discussions with pre-service teachers that occurred when I observed them in their internship placements. Adding this article is an example of my intentional planning for assignments that scaffolded and supported what the pre-service teachers were going through (Donovan et al., 1999). This article was the first half of the final (Appendix G) because it included many of the strategies that we had discussed throughout the semester. The pre-service teachers had a week to read the article and answer the questions. I wanted them to have the opportunity to read the article individually, make notes, and answer the questions on their own time so they might better understand the strategies discussed, which included peer interactions, visual supports, consistency, and routines.

I taught the pre-service teachers that children with ASD are typically visual learners and often benefit from visual supports (Crozier & Sileo, 2005). Throughout their internship, the pre-service teachers had the opportunity to learn about, create, and apply their knowledge of visual supports and social stories. The pre-service teachers were shown many examples of visual supports for children with ASD. Then in small groups they created visual supports and social stories as one of the in-class activities. Each group shared their creation and a discussion occurred about when the visual support would be effective in the classroom.

As a result of Grace sharing that she had observed a girl with ASD sing on key, pitch, and tune, we discussed how many people with ASD have savant-like behaviors. Since it is important and essential for theories to be meaningful for college students (Stayton & Miller, 2008), examples, a discussion, and a YouTube video about savant behaviors was incorporated in the next class session. The video, Stephen Wiltshire: The

Human Camera (2013), showed how Stephen had a photographic memory and was able to accurately draw what he had only seen one time.

At the end of the semester, once the pre-service teachers had knowledge, experiences, and an understanding of ASD, I provided case studies that required them to discuss in small groups, apply the knowledge learned throughout the course, and then share out with the whole class. As part of their sharing, the pre-service teachers included strategies they had seen in their field classroom and/or that they had learned about in our course.

The semester was concluded by reading the pre-service teachers a book called *Since We're Friends* (Shally, 2012) that is about two friends, one with ASD and one without. The book showed how friends developed relationships and had fun with understanding, acceptance, and patience. Following the story, the pre-service teachers took the second half of the final (Appendix H), which was an in-class essay that included several questions about ASD. The questions included: what did you learn throughout this course that you did not know before this semester, what are the characteristics of ASD, what are *at least* 2 ways you can support children with ASD in *your* classroom, how will *you* use what you learned this semester in *your* future classroom.

Summary

The intentionally planned and implemented course design aligned with the conceptual framework of connecting theory to practice (Donovan et al., 1999) in order to improve or make an existing course more efficient; to solve a particular issue through planning, action, and gathering information (Glesne, 2011; Miles & Huberman, 1994);

and to maximize learning. The intentional scaffolding and support I provided the pre-service teachers resulted in the positive effects of their strong achievement (Leko & Brownell, 2011). I planned assignments based on the pre-service teachers' learning, established norms in the classrooms, monitored progress, and engaged in ongoing assessments that resulted in the pre-service teachers' successfully connecting theory to practice. Learning with understanding is a timely process, is often more difficult to accomplish than simply memorizing, and requires attention to be given to the subject matter being taught (Donovan et al., 1999).

Learner Centered

Learner Centered Environments

Learner centered environments require teacher educators to recognize the knowledge, skills, and attitudes of the pre-service teachers, and as they move forward, identifying the broad understanding of preconceptions and prior knowledge. Teacher educators in learner centered classrooms pay close attention to the individual progress of each pre-service teacher and plan discussions and assignments that are appropriate in order to allow them to increase their knowledge and understanding (Donovan et al., 1999). The teacher educator should guide and support the pre-service teachers as they implement theory to practice as they work with children in learner centered environments (Donovan, et al., 1999).

The term learner centered described any pre-service teachers' preconceptions and prior knowledge relating to ASD, as well as assignments that were created based on the pre-service teachers' previous experiences and preconceptions about ASD. Question two aligned with learner centered environments because it asked how the pre-

service teachers implemented theory to practice when they had the opportunity to work with children with ASD after learning the strategies during their university course.

Some of the knowledge the pre-service teachers had regarding ASD before taking this course was accurate, such as the information Maynard shared in his first journal. "From what I've read it's apparent that kids and adults on the spectrum have a difficult time putting themselves in the shoes of others. Social cues and gestures are more easily disregarded or misread by people with autism." Although Maynard had read facts about ASD, he did not know what they meant for the classroom and teaching children with unique needs. Rosenberg (2012) explained that the classroom environment should be individualized for each student's unique need. And….Jimmy explained that "these [unique] needs vary from needing extra space, a quiet room, extra time, and assistance with comprehending things." Pre-service teachers, such as Maynard and Jimmy, were able to learn several strategies throughout the semester that allowed them to individualize the learning environment for each child.

Jimmy and Maynard's examples emphasize the learner centered environment because they required the teacher educator to observe the knowledge and attitudes that the pre-service teachers brought to the classroom (Donovan et al., 1999). Jimmy and Maynard's previous knowledge about children with ASD was limited per their initial journal entry. However, throughout the semester, they were provided with information, experiences, and support that enabled them to individualize the learning environment for each child (Donovan et al., 1999).

Pre-service teachers who had some prior knowledge about children with ASD,

but did not know how to effectively include them in the general education classroom,

now felt prepared. Nicole stated on her final exam:

> Throughout this course, I learned a lot about ASD. I was familiar with it before, but would not have known what to do with a student who has ASD. However, now I am confident that I have the knowledge, tools, and strategies to create an effective learning environment for students with ASD.

It was important for pre-service teachers to know what inclusion meant, as this

awareness and understanding would enable them to connect theory to practice in the

classroom learning environment (Donovan et al, 1999). LeeAnn shared that how her

initial definition of inclusion was not accurate:

> I thought inclusion is different from what it is. I thought it was putting them [children with ASD] in a classroom and making it work. Now I realize it is based on a child's needs and what their least restrictive environment is. It is not always full inclusion; it could just be some parts of the day, or most of the day, or a minor part of the day. So I have learned a lot about that this semester.

A preconception that Danielle shared in her first journal was:

> The only assumption I had of autism is that those with autism scream a lot and get irritated easily. I'm not sure if that is the case or not, that is just what I have in my head of what those with autism do.

Danielle had the opportunity to learn why children with ASD might have had this

reputation and explained what components needed to be implemented in order to reduce

the meltdowns. Later in the semester she said:

> I, the teacher, would need to be well organized. Being organized and prepared will eliminate confusion and anxiety in students with ASD. I will need to have visual set rules so students will have an understanding of what to do and what not to do. I will need to create structure in the classroom by visually displaying schedules so students can know what is going to happen and what they can expect. I will use simple, concrete language, and get my point across in as few words as possible. I will encourage peer interaction and socialization. The main thing is to have a calm, peaceful, welcoming, encouraging, friendly, learning

environment where students with ASD can begin to establish acceptance from peers and their independence.

These pre-service teachers began to understand, just as teachers do, that it was necessary to implement effective practices so that all children experience success (Corbett et al., 1998; Stayton & Miller, 2008). They learned theories and strategies in the college classroom, and then implemented them with children with ASD in their internships (Stayton & Miller, 2008; Tomlinson et al., 1997). I purposefully required assignments, activities, and discussions as part of the college course to support the connection of theory to practice. This strategy was effective for allowing the pre-service teachers to gain knowledge, as illustrated in the findings presented above. Without opportunities to directly interact with children with disabilities, the pre-service teachers would not have been able to directly connect theory to practice, which is considered by Trent et al. (1998) to be the most important component for pre-service teachers' learning.

Pre-Service Teachers Practicing Coursework in Field Placement Classrooms

Several pre-service teachers were excited to share what they learned throughout our college course because it helped them to understand how to meet the needs of the variety of learners in their field classroom. They had the opportunity to connect theory to practice. Inclusion was a part of many of the pre-service teachers' internships and they had the opportunity to observe several of the strategies they had learned during the college course throughout the semester. College classrooms should address pre-service teachers' knowledge of inclusion in order to best prepare them to be effective in the classroom setting (Trent, et al., 1998). The in-class assignments and discussions that

the pre-service teachers engaged in throughout the semester, assisted in their understanding of why the teachers chose to implement specific strategies.

Rather than just reading and discussing strategies, pre-service teachers interacted with children with disabilities in classrooms. Theory to practice involves learning effective theories and strategies in a college course and then having the opportunity to see the strategies implemented in the classroom with children (Stayton & Miller, 2008). Therefore, theories and strategies were better understood when applied in the classroom with children, rather than just reading about or discussing them in a college classroom. Sandy made the connection of learning about inclusion and seeing it implemented during her internship:

> I got a lot of knowledge from this class and my special education class. I actually recommend taking them together because it helped tie everything together. What I learned in my special education class, this class, and during my internship.

The pre-service teachers made applicable connections when they learned how to teach children with and without disabilities in our college course, as opposed to a separate course (Tomlinson et al., 1997). Tomlinson et al. (1997) state that pre-service teachers' college course work should include experiences for them to engage in classrooms with interactions with a variety of learners. Providing a broad mix of educational experiences and learning opportunities were an important element to include in the course in order for pre-service teachers to be prepared for their classrooms that will include children with and without disabilities.

When I observed Rochelle at her internship site, she shared that there was a boy in the classroom that she would have just thought was odd if she did not have the background knowledge from class. We discussed many of the characteristics of

children with ASD and how they might look in a classroom setting. It was important

for me to provide this information to the pre-service teachers before they went into the

classroom so they could recognize characteristics they otherwise may not have without

the information. It was necessary for me to develop ways for the pre-service teachers'

learning to be linked to the classroom with children with ASD (Donovan et al., 1999).

Summary

Many pre-service teachers were unaware of inclusion and how effective

inclusion is when teachers understand specific disabilities and unique needs. The pre-

service teachers finished this course informed, empowered, and grateful for the

information they saw during their internship experiences, the challenge of including

children with ASD in the general education classroom, and recognized the value of this

new knowledge and how important it is for their future students. For example, they

recognized behaviors in children that could have ASD and were able to identify useful

accommodations and modifications.

Assessment Centered

Assessment Centered Environments

Assessment centered learning environments use a variety of learner friendly

assessments in order to monitor pre-service teachers' learning. The monitoring of new

knowledge and understanding of the pre-service teachers as they demonstrated how to

teach children with ASD was also assessment centered learning. These environments

help monitor pre-service teacher's progress, which helps identify where inquiry and

instruction should focus and also permits the teacher educators to design instruction

according to the pre-service teachers' preconceptions and understanding (Donovan et

al., 1999). Assessments should provide pre-service teachers with opportunities to revise and improve their thinking from informal to formal as teacher educators focus on intentionally and explicitly providing new knowledge for the pre-service teachers in assessment centered learning environments (Donovan et al., 1999). Question three aligned with assessment centered environments: What new knowledge and understanding did the pre-service teachers demonstrate regarding teaching children with ASD after they completed a course when the teacher educator intentionally implemented information about ASD?

By definition, assessment centered and learner centered are closely related; therefore, I used assessment centered for pre-service teachers' ideas or topics that I wanted to continue to monitor throughout the semester. I planned activities based on my assessments as I scaffolded the pre-service teachers' learning. In addition, assessment centered was also used as a category for when pre-service teachers moved from informal to formal thinking, which was when their knowledge went up a level or they revised and improved their thinking (Donovan et al., 1999).

As previously mentioned, several of the pre-service teachers had little or no knowledge of working with children with ASD. A few of them shared some of their fears early in the semester in journal two. I monitored these fears through their journals to see if they gained confidence once ASD content was taught in the college course. The goal was for them to increase their understanding and learn effective strategies throughout the semester in order to decrease their fears and increase their confidence. Sandy shared a question in her journal two, "How am I supposed to control the environment so that the child doesn't get over stimulated?" Five weeks later, in the

middle of the semester, Sandy started to move from informal to formal thinking as evidence by her journal seven statement:

> I think that children on the spectrum should have exposure to the general classroom. I think that it is beneficial to both students with and without exceptionalities. I feel that children with ASD should be integrated into classrooms with positive behavior. I learned that patience is an important key factor when dealing with children on the spectrum. Also, there is a lot of active discovery that takes place. The teacher has to be able to adapt to the student's needs.

The pre-service teachers' learning was scaffolded through questioning and discussions (Van de Pol et al., 2010), as well as through their journals, assignments, and observations. This scaffolding provided me with the information necessary to know what to include in the course moving forward. Throughout the rest of the semester, we continued to learn about characteristics of ASD, strategies to create productive learning, ways to create an effective learning environment that fosters strengths and reduces anxiety, and how to set all children up for success in the classroom.

By the end of the semester, Sandy felt confident because of her new knowledge and experiences provided throughout the course. She continued to gain understanding and relieve the fears and anxieties that she had when the class started. Sandy's journal 11 said exactly what the researcher aimed to do when the action research started:

Honestly, I feel like I learned more about ASD through you and your instruction. I just want to encourage you to keep doing that with each student that walks into your classroom. I didn't realize how important it was to understand ASD until I met you. You have completely changed my perspective, and I am a strong advocate for inclusion in the classroom. I feel way more prepared than I did in the beginning of the year. When I have a child with ASD introduced into my classroom, the first thing I will do is build a relationship with the parent/guardian. I want to know his/her strengths, triggers, and what sort of actions cause a trigger and how to soothe him/her. I also want to know any sensory sensitivities that the child might have. I feel that if I get this foundation built in the beginning of school, the rest will fall into place.

Sandy's tone had dramatically altered from her journal entry at the beginning of the semester. She now has the opportunity to create her future classroom in a way that will allow learning for all children. Pre-service teachers recognized that there were many different strategies, and they needed to identify which strategies would be effective in order to teach the children in their classes (Corbett et al., 1998).

Pre-Service Teachers' Understanding of ASD

It was important to provide the knowledge base to the pre-service teachers before they entered the classroom and then continue with the information as they were in their internship placements. The material was continually revisited and discussed during class as the pre-service teachers were able to see children with ASD in the classroom and connect theory to practice. It was a spiral approach, learning content, connecting the content to the classroom, learning more content, and connecting it again when they were in the classroom again. Each time the content was more explicit and detailed because the pre-service teachers began to have experience with ASD in the classroom. Darcey, Leigh, and Josie provided examples of their new knowledge.

> I know that I need to be accepting and understanding. I need to welcome every child and try to understand their side of things. In addition to that, I need to make sure that my classroom stays in routine. Most children with ASD do not adapt well to change. So I will remember not to make any drastic changes. They also like to know what is to come. I can have my goals and objectives posted weekly. This will help these children with anticipating what will happen each day and help to make them feel more comfortable. Along with inclusion, children with ASD need to have time with their peers because they tend to feel more comfortable and will open with them and learn more. This can happen with group work or by having the child sit next to a peer during class for any help or questions. Another thing I learned is children with ASD usually have an object or topic that they are absolutely obsessed with. It is something that these children understand and can relate to. So it is important for me to incorporate those objects or topics in my instructions. It will help these students with connecting with the curriculum. Lastly, I need to be flexible and be sure to accommodate when needed. (Darcey)

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Leigh explained:

The effective classroom with children with ASD included involves a teacher who is willing and able to use preventive strategies to maximize the learning opportunity for the student, and it involves the implementation of several learning strategies such as cooperative learning, small group discussion, visual routines, clear and concise expectations and consequences with follow through. The effective classroom provides a safe, comfortable environment for students with ASD and the teacher is able to recognize the student's least restrictive environment and facilitate that for the child.

Additionally Josie shared, "The reason to keep a strict schedule is because students with ASD tend to have an issue with change." Josie realizes this so to keep her classroom orderly and to keep her students calm she sticks to a schedule that she does her best to follow so that her students are not thrown off guard. "Keeping students with ASD in the classroom can be a challenge, but when you encourage peer interaction and stick to a schedule this makes learning and teaching students with ASD a lot easier and even fun for everyone involved (Josie).

Teacher preparation programs that include research-based practices that support development and education for young children with and without disabilities provide important knowledge for pre-service teachers (NCATE, 2010). The pre-service teachers' statements regarding their new knowledge and understanding of how to effectively include children with ASD in the general education classroom demonstrated what they learned throughout this course after I intentionally included ASD and inclusion content.

Darcey, Leigh, and Josie learned how important schedules were for children with ASD. Children diagnosed with ASD prefer routine, a set schedule, and to be informed when the school day is going to be different (Heward, 2013; Leach & Duffy,

2009). Furthermore, the pre-service teachers recognized the need for peer interactions through cooperative and small group learning. Social integration of children with ASD in the general education classroom is a useful inclusion technique (Frost et al., 2012; Leach & Duffy, 2009). Inclusive classrooms support interactions of children with ASD and their peers, promote positive behaviors and social benefits, which play a central role in promoting learning, relationships, and quality of life (Carter et al., 2010; von der Embse et al., 2011).

Summary

Teachers should be able to identify the least restrictive environment for children with ASD and facilitate that environment for the child (Carter et al., 2010). However, the task of successfully including children with ASD in the classroom is a challenge for general education teachers (Leach & Duffy, 2009). The responsibility lies with the teacher educators to prepare pre-service teachers for this challenging task. The pre-service teachers in this study connected new knowledge received from their college course regarding inclusion for children with ASD to the general education classroom during their internship placement. Connecting theory to practice allowed knowledge to grow. Meaningful opportunities through connections of content to classroom created an understanding of concepts and allowed for application (Donovan et al., 1999).

Knowledge Centered

Knowledge Centered Environments

Knowledge centered classrooms required the teacher educator to be focused on the pre-service teachers' understanding of knowledge. Important pieces of the knowledge centered environments included prior knowledge, previous experiences, and

the application of new knowledge. Questions one and four of this study aligned with knowledge centered environments by asking: What prior knowledge and experiences do these pre-service teachers know about children with ASD when they begin their education as a future teacher? and How do these pre-service teachers plan to apply their new knowledge about inclusion with children who have ASD in their future classroom? Attention was given to the information or subject matter being taught, recognizing what competence or mastery looked like, and the pre-service teachers' interest or engagement in a task. Therefore, learners' understanding, organization, and future application of new knowledge were part of knowledge centered learning environments (Donovan et al., 1999).

In this course, the term knowledge centered was anything that included the subject or topic of ASD or the pre-service teachers' interest, engagement, or excitement regarding ASD. Also, the pre-service teachers' understanding of their knowledge level or the importance of learning about ASD was considered knowledge centered.

When passion or excitement about teaching is evoked, it leads to interest and engagement for pre-service teachers to further understand and delve deeper into how to create learning environments for children (Donovan et al., 1999). Ultimately, the result is more effective for teaching and productive learning for children. As such, it was important for me to spark the pre-service teachers' interest and excitement about appropriate inclusion strategies. When a sense of excitement of learning is created, it can then be transferred to the classroom with children, convening a sense of ownership of new ideas (Donovan et al., 1999).

The confidence regarding teaching children with ASD was evident for Josie, when she wrote on her final, "I can support children with ASD in my classroom by always following a set schedule, keeping classroom noise to a minimum, and using Picture Exchange Systems to help students communicate." In addition to Josie's confidence, Sandy's excitement was prevalent: "I feel very prepared to teach a child with ASD. I think the strategies will benefit all my students collectively." Empowering pre-service teachers by providing them with information and learning opportunities created passion and excitement about teaching children with a variety of learning needs.

Pre-service teachers being aware of their personal knowledge level and understanding the importance of learning about ASD was another element of the knowledge centered environment. Beverly stated, "I have never thought about how I would teach children who have more of a challenge learning new information." The fact that she recognized her knowledge level allowed her to take in as much information as possible throughout the semester in order to be more prepared and confident about teaching children who have challenges learning new information. Donovan et al. (1999) explained that the understanding of why new information was being taught and what mastery looked like as an important piece of the knowledge centered learning environment.

Throughout the semester Beverly connected theory to practice from our college course to her internship. She said, "There is a young man with ASD in my internship class and he is never in the room, she does not know how to handle him or treat him, I feel like." Beverly's statement of her internship experience was another example of why providing inclusion and ASD information to pre-service teachers was important. If

pre-service teachers had a child with ASD in their classroom, they needed to know strategies for how to effectively create a learning environment for all children, not just some; reinforcing that general education teachers should have at least a minimal understanding about working with children with disabilities (Taylor & Sobel, 2001; von der Embse et al., 2011).

Accommodations and Modifications

Knowledge was implemented about crafting inclusive classroom environments for children to have some level of independent performance through the use of accommodations, modifications, and strategies that supported and fostered their independence. Although multiple strategies have been found to be successful when teaching children with ASD in the general education classroom, we discussed how there was not a single best strategy (Fengfeng & Tami, 2013; Prizant & Rubin, 1999).

Inclusion requires that all children in general education classrooms learn; this can be accomplished successfully with appropriate supports (Slavin, 2015). As pre-service teachers worked with children who had ASD, they needed to know how to individualize instruction and use effective strategies that matched each student's unique learning needs (Rosenberg, 2012). Effective accommodations and modifications use the children's strengths while focusing on their challenges.

The in-class activities and assignments provided opportunities for the pre-service teachers to express their concerns about working with children with ASD. One of Ruthie's concerns was about how to practically and adequately meet the needs of all the children in her future classroom. "With a classroom of children, I don't want to take attention from the other children and teach that autistic child individually, nor do I want

to give the class all the attention and forget about their special needs." Intentionally planning for pre-service teachers to discuss their concerns allowed me to directly connect the content of accommodations and modifications to them. The integrated new content included: how accommodations and modifications, when implemented appropriately, eliminated the need for the teacher to have to focus on only one child in the classroom (Rosenberg, 2012); that visual supports and role modeling of peers often replaced the need for individual instructions for children with ASD (Leach & Duffy, 2009); and that accommodations and modifications were commonly implemented and found effective in assisting children in understanding the expectations of the classroom (Patten & Watson, 2011).

Another concern discussed was the additional learning support children with ASD would require. "Children with autism are going to need more attention and more help when it comes to learning and not in a bad way by any means, but autism will make them struggle in school" (Jake). These are valid concerns for teachers, especially for pre-service teachers or first year teachers who do not have teaching experience. Subsequently, the strategies, modifications, accommodations, and supports that were discussed and taught throughout this semester provided a foundation that pre-service teachers could build on throughout their teacher education program and beyond. This foundation would allow them to prepare a classroom that fostered learning for all children (Corbett et al., 1998; Stayton & Miller, 2008).

Children with ASD's interest. A strategy that the pre-service teachers learned throughout the semester was to use the children's extreme interest to reach desired goals. A dominant characteristic of many children with ASD is their intense interest in

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particular subjects (Heward, 2013). Teachers could use children's interest to their advantage and turn a perceived deficit into a strength.

> I plan to apply the new knowledge about the inclusion with children who have ASD by making sure that I have communication with their parents, my colleagues, and special education teachers so that I know what they [the children] like and do not like. Finding the thing that they [the children] really have an interest in and taking advantage of, that will be something I will try to do. (Tommy)

Active learning could be achieved by incorporating children's preferences and special interests into the curriculum. Teachers could also use the intense interest in a topic as a reinforcement that produces appropriate behaviors (Leach & Duffy, 2009).

Visual supports. Early in the semester, Jenny said:

> I am nervous that I will not know enough to help my students. When I made a decision to become a teacher, I knew I would come across children who are autistic. In order to best teach a child with autism, I must understand the disorder.

Later in the semester when I observed Jenny at her internship, she told me about how effective visual supports and timers were for the child with ASD in the classroom. She reiterated her thoughts about providing supports for children during her interview.

Jenny was able to understand how the strategies implemented helped that child be productive, content, and learn along with the other children in the classroom. The indirect supports, such as the visual supports and timer, were examples of how to eliminate the necessity for the teacher to have to focus on only one child in the classroom. Jenny was able to witness how children with ASD have experienced success through positive behaviors and increased learning when they were taught to use visual supports in the general education classroom (Heward, 2013).

Typical peers interactions. Mandy explained:

> Peer support meets a variety of functions and is a necessary strategy to help us meet the multiple needs of the child with autism. The benefits of peer support are immeasurable. The child with autism who receives this support builds relationships, learns to focus on others rather than self, and experiences cooperative learning and valuable social skills. Best of all, non-disabled individuals become more informed and tolerant citizens. In turn, children with autism will hopefully gain new friendships and will want to contribute more to their class.

Interactions with peers playing a central role in promoting learning and relationships for children with ASD was a common discussion throughout the semester. In addition, the pre-service teachers learned how children with ASD reaped benefits such as an increase in quality of life, academic performance, and educational success from interactions with typically developing peers (TDP) (Carter et al., 2010).

> Danielle said:

> Children with autism need that social interaction and time with their peers. They want to feel accepted and have friends like everyone else. I know there are those students with autism who can only handle so much of a situation, but any interaction with their peers would be good.

Danielle understood that social integration was a major goal of inclusion for children with ASD in order to develop social competence and make friends (Frost et al., 2012). Without those necessary interactions, opportunities would be lost for children to interact and create friendships.

Peer interaction content also included how children without disabilities benefited from inclusion and interactions with children with disabilities. The benefits for children without disabilities include independence, confidence, and social skills (Carter et al., 2011; Causton-Theoharis & Malmgren, 2005). Jimmy said:

> I think it is also very important for general education students to learn how to interact with those students with autism. General education students need to

learn how to teach, mentor, and truly accept students with autism. With acceptance, the teacher does not have to worry about bullying, or students getting picked on. The teacher can rely on his/her students to help and support any student with a disability.

The pre-service teachers learned how TDPs could be taught to act as role models for children with ASD (Krebs, et al., 2010).

In summary, many of the pre-service teachers' recognized and acknowledged what they did not know about ASD prior to this course. Before this semester, many had little to no experience working with children with ASD; therefore they needed to understand why learning about ASD and how to teach children with ASD was important. Tapping into the pre-service teachers' interest or engagement in a task was an important piece of the knowledge centered environment. As the findings illustrate, they were able to make connections between the knowledge and theories we learned in the college course to the classroom with children who have ASD. In addition, the pre-service teachers were able to learn effective accommodations and modifications for children with ASD that they could use in their future classrooms. The knowledge centered learning environment answered questions one and four.

Prior knowledge and Experiences

Question one needed to be answered early in the semester before any content about ASD was provided to the pre-service teachers. Journal one required the pre-service teachers to explain what prior knowledge, experiences, assumptions, and biases in regards to ASD they had. As previously discussed, the amount of knowledge and experience varied from a lot of knowledge, some knowledge, little knowledge, and no knowledge or experiences working with children with ASD. This variety was not

unexpected, as Leko and Brownell (2011) also found that pre-service teachers' previous experiences and knowledge varied greatly.

Samantha was one of the several pre-service teachers who did not have any prior knowledge or experiences with ASD before taking this course. She wrote on her essay final, "I had absolutely zero knowledge of ASD at the beginning of this semester. I learned strategies to help students with ASD and that every case may be different." Samantha then added on her final, "I will use many things I learned in this semester for my classroom. Finding out what works for each specific child is important." This reiterates that, although there are shared characteristics across ASD, every child with ASD has unique learning needs (Heward, 2013). Without the ASD content being integrated into this course, Samantha would not have learned the strategies. Teacher education programs that integrate ASD content in their college courses are preparing pre-service teachers, such as Samantha, for inclusion (Hutchinson & Martin, 1999).

Samantha, Darcey, Beverly, and Danielle were examples of the many students enrolled in this course who did not have prior knowledge or experience working with children with ASD. Darcey stated:

> Even though there is so much more to learn about ASD, I feel like I have learned a lot about it. I started this class with a clean slate. I did not know much about ASD. However, after taking this course, I feel more comfortable with teaching a child with ASD.

Beverly said, "To be completely honest, I do not know anything about Autism Spectrum Disorder. I have never been in contact with or known anyone that has been diagnosed with this disorder." Danielle stated:

> I have learned so much about autism and the autism spectrum. I really had no thoughts on autism before this semester. I know there is so much more to learn

and much more to experience. What I have learned about inclusion of students with autism is, it's a necessity.

In addition to the pre-service teachers who had no prior knowledge about ASD, a few students had a little knowledge about ASD, such as Sandy. Sandy had a family member who had ASD, which provided her with background knowledge. Sandy said:

> I don't know much detail about autism. I know there are different levels of severity with autism. I also know that males are more likely than females to be diagnosed with autism. I can explain it better through personal experience. I have a cousin who has autism. Growing up I noticed he wasn't like my siblings or myself.

Although Sandy knew facts about ASD such as more males have ASD than females, she did not know how to effectively serve children with ASD in the classroom.

Ruthie had some level of experience with ASD because she previously worked at a preschool where a child with ASD attended. She shared her personal story and understanding of ASD by saying:

> I personally experienced this as I had an autistic child in a preschool I worked in a couple years ago. I was a teacher's aide, and in our classroom we had an autistic little boy. My job was to get him refocused on the activity and then we would be on the right track again. Being around him taught me that even though he was autistic, he could still learn and achieve just as high as the other children in the classroom. Yes, he might learn a little different, but it is my job as a teacher to make sure to the best of my ability and knowledge that the children in my classroom succeed.

Ruthie recognized and acknowledged that children with ASD were capable of learning; they just learned differently. The teacher has to provide the opportunities for them to be successful. Ruthie's statement declared that she would apply supports for children with ASD to be successful in her classroom, thus exemplifying her knowledge that teachers have to effectively and appropriately include children with disabilities in the general education classrooms (Hutchinson & Martin, 1999; Slavin 2015).

Three pre-service teachers began the semester with a vast amount of background knowledge and experiences. Josie worked with adults with ASD and this semester provided a medium for her to transfer her prior knowledge of working with adults to working with children with ASD. Her prior knowledge allowed her to understand how to intentionally implement strategies in the classroom with children. Josie wrote:

> In my classroom I will not separate students based on disability, but will encourage them to mingle with each other and work together in my classroom, building relationships with people who understand and in a way are on the same level as them. It is important to encourage my students that they need to stick up for one another when other students may be making fun of them or tearing them down.

Josie was aware that she needed to support opportunities to build relationships and create a classroom community that fostered and created support systems among children in her classroom. Josie further understood that, with one in 68 children diagnosed with ASD (CDC, 2015) and IDEA requiring that these children be in the general education classroom (Heward, 2013), the possibility was high that she would teach children with ASD.

Pre-Service Teachers' Application of Knowledge

Children with ASD require meticulously planned and skillfully delivered teaching strategies that are continually evaluated and analyzed for effectiveness by the teacher in order for effective learning to constantly take place (Heward, 2013). The pre-service teachers in this study explained how they planned to apply their new knowledge in their future classrooms. One goal of this course was for the pre-service teachers to learn how to create a classroom environment that fostered strengths, supported challenges, created opportunities for supportive peers, and promoted independence for children in their classroom. This goal was part of the knowledge centered learning

environment, as well as addressed the purpose of the study. Hagiwara and Smith Myles (1999) stated that when children with ASD have opportunities to be a part of classrooms with appropriate educational inclusion strategies, they were productive and responsive to learning. Therefore, it was necessary for pre-service teachers to learn about and create a supportive and welcoming classroom community atmosphere. For example, Stephen said:

> Before the semester began, I knew next to nothing about teaching kids with ASD. This semester has opened my eyes to the methods that can be used to give these students an effective education. The students with ASD are just like any other student who has different needs. No two students have the same exact needs. The methods that need to be used with students with ASD depend on the individual child.

Stephen further explained during his interview at the end of the semester:

> The first strategy is you have to recognize it. Learn their tendencies and you can go from there. The buddy system is great because they may not always be comfortable with you, as much as we try. Learning what they are comfortable with and working with, depending on the kid, there is just not one set thing we need to do.

Stephen understands that there is not a one-size-fits all way to teach. Every child learns differently and, therefore, will need different strategies. There is not a single best strategy for teaching children with ASD in the general education classroom (Prizant & Rubin, 1999). In addition, strategies that have previously worked become unsuccessful, maybe because the children gained new skills that required a change or simply because the child was bored of the same strategy. However, it was important for the pre-service teachers to have a basic knowledge of evidence-based strategies that have been shown to work with children with ASD (Rosenberg, 2012).

Suzy provided yet another example of how students or PSTs planned to integrate their new knowledge into their classroom:

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I now have a basic set of guidelines for how I should interact with and teach my future students with ASD. I know that patience and flexibility will be at the forefront of my future plans. I plan to follow any IEPs they have, any advice their parents may offer to me, and any advice I receive from my fellow teachers. I know that my students will need schedules and routines, visual supports, and assignments that appeal to their interests. Basically, I plan to do whatever I have to do to make sure that my students, ASD or otherwise, are in their most productive learning environment, and are comfortable and safe within my care.

Suzy gained a foundation for teaching children with ASD in the general education classroom. She understood the necessary supports that needed to be in place to set all the children in her classroom up for a successful classroom learning experience (Trent et al., 1998).

Nicole explained in her essay final how she will apply the knowledge learned in her future classroom:

I will use what I learned this semester by being aware of the needs of my students. I will strive to meet the unique learning styles of my students. I will also create an accepting and nurturing classroom environment where all my students are safe to learn and explore. Some ways I will support ASD in my classroom are creating a class schedule that I will update each morning with important things happening that day. I will also do a lot of group work so that students have time to practice social skills and observe and model appropriate behaviors from their peers.

In addition to learning several effective strategies this semester, Nicole learned that it was necessary to be aware of the unique needs of her students. It was important for pre-service teachers to learn how to provide instruction for teaching children with disabilities (Rademacher et al., 1998). Jimmy said:

I will use what I learned this semester in my future class by being well informed of my students' needs and applying the various strategies learned to enhance and enrich each student's learning. I will be constantly learning and improving to better educate my students.

Additionally, Sally stated:

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I will use several strategies that I learned about ASD in my future classroom. I plan to offer students many choices, such as which task to complete first, visually formatted daily schedules, and buddy systems and peer tutoring. I plan to take a constructivist approach in the classroom by offering several hands-on learning activities, different methods of assessment, and discovery learning. I also plan to emphasize cooperation through group work.

Making connections from her past experiences to her new knowledge, Lily was able to provide detailed plans for creating an effective learning environment in her future classroom. Lily wrote in her journal:

In my future classroom I plan to do everything within my power to include students with ASD. I will educate my normal developing students on methods of how to interact with students with ASD and give them ideas of what they can do to relate to their peers. I will make instructions for them to their individual ability levels, and I will ensure that they never feel left out of the loop. If they connect really well with another student in the class, then I would allow them to work as buddies to help my student with ASD and give them chances to build their social and communication skills. I will keep a regular routine within the classroom to help my students adjust and feel comfortable. If there is any deviation from the routine, such as a fire drill, I will make sure to alert them so they will be expecting the change and have an easier time adjusting to the variation in the schedule. I will be flexible with my ASD students also. Sometimes they may not feel comfortable; things may be too loud, too bright, or just overwhelming. To accommodate their increased senses, I will be available to listen to their needs and do what I can to help them be more comfortable in their environments. I can create individual assignments and projects for my ASD students that will foster their interests and motivate them to pursue the learning objectives in their own way. I can create notes for them with more detailed diagrams; fill in the blanks, or assignments with multiple choice answers instead of open response. Sometimes open response or a lack of structure can be too overwhelming for students with ASD, so to avoid meltdowns or conflict, I will push them just enough to encourage growth, but I will ensure that it is still within the limits of their comfort zone.

Lily discussed many of the effective strategies for inclusion that the pre-service teachers learned throughout this semester in her journal. Learning theories and strategies in college courses, implementing the theories, and practicing the strategies in the

classroom with children builds knowledge for pre-service teachers (Stayton & Miller, 2008).

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

As previously discussed in the community centered environment section, the pre-service teachers began this course with a wide range of knowledge regarding ASD and inclusion in general education classrooms; thus supporting similar findings (Leko & Brownell, 2011). Twelve of the pre-service teachers had no prior knowledge or experience, six had little, four had some, and only three had a lot of experience. Although, all of the pre-service teachers gained knowledge and can no longer claim that they do not have knowledge of inclusion for children with ASD in the general education classroom. The connection of theory to practice with intentional assignments and activities provided these pre-service teachers knowledge and understanding.

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

The purpose of the conceptual framework that guided this study, *How People Learn* (Donovan et al., 1999) was to optimize learning by the design and evaluation of environments, which included four interrelated components: community centered, learner centered, assessment centered, and knowledge centered. Each of the four components are just as important as the other, and all four components have to exist for an effective learning environment to occur.

The four components were used to make sure I was including every aspect of learning for the pre-service teachers to be successful, I realized that each component overlapped the other three constantly. The knowledge centered learning environment focused on what prior knowledge the pre-service teachers had regarding ASD at the

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beginning of the semester. This information was necessary for me to know so that I knew where to start the content. The evaluation of their knowledge overlapped with the assessment centered learning environment. Furthermore, my plans and explicit implementation of the new content was part of the community centered environment. Acquisition of learning was assessed by scaffolding the pre-service teachers continually, which again aligned with knowledge and assessment centered environments. The scaffolding also aligned with the learner centered environment because of the informal assessment of how the pre-service teachers implemented theory to practice after learning the strategies in class. Learning the strategies during class was part of knowledge centered. To summarize, connecting each of the four components resulted in a productive semester with every pre-service teacher achieving positive goals; their knowledge level increased and they made several connections between what we learned in the college classroom to the classroom with children.

In conclusion, IDEA Amendments of 1990 (P.L. 101-476) requires that children with disabilities, including ASD, have the right to an appropriate education in the least restrictive environment (LRE), which is often the general education classroom. Educating all children, with and without disabilities in the same classroom is called inclusion (Levin et al., 2002). Teachers and future teachers have to be prepared for inclusion by learning how to effectively teach all children (Hutchinson & Martin, 1999; Slavin, 2015). Therefore, teacher education programs need to prepare pre-service teachers for inclusion (Trent et al., 1998).

College course work should include theory to practice for pre-service teachers, which includes learning meaningful theories and relevant strategies in college courses,

then implementing the theories and practicing the strategies in the classroom with children (Stayton & Miller, 2008; Tomlinson et al., 1997). Practicing the strategies with children is important because pre-service teachers' amount of knowledge and experiences working with children with ASD varies. Having multiple opportunities to connect theory to practice is more beneficial for the pre-service teachers (Leko & Brownell, 2011; Rademacher et al., 1998; Taylor & Sobel, 2001).

The strategies, modifications, accommodations, and supports that were discussed throughout this semester showed pre-service teachers how to prepare a classroom environment that would foster learning for all children in the classroom. Supports, such as the collaboration of learning with typically developing peers (TDP), using children's interest to learn, and visual supports were part of the pre-service teachers' curriculum throughout the study.

Inclusive classrooms that support interactions of those with ASD and their TDPs have documented evidence of positive results and benefits for all children involved (von der Embse et al., 2011). Teachers can use the child's interest in meaningful ways to meet learning objectives and goals (Leach & Duffy, 2009). Another support to enhance the children's independence is when teachers implement the use of visual supports by empowering the children to select and carry out a sequence of activities in the classroom independently (Heward, 2013).

Although many pre-service teachers did not have knowledge about inclusion or children with ASD before taking this course, they received much knowledge during this course and recognized the need for the topic to be a part of teacher education classes. They made applicable connections when they learned how to teach children with and

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without disabilities in this college course, as opposed to a separate course (Tomlinson et al., 1997). The participants reflected on their own practices in order to determine ways to improve their teaching and promote a positive change through critical reflection in a collaborative learning environment (Hagevika et al., 2012).

The purpose of this research study was to show how pre-service teachers demonstrated knowledge of theory to practice throughout a college course in which the teacher educator provided scaffolding while incorporating strategies for inclusion for children with autism spectrum disorder (ASD). The pre-service teachers connected theory to practice regarding inclusion for children with ASD in a general education classroom with opportunities to connect what the pre-service teachers learned in their college course to what was taking place in the general education classrooms during their internship placements. This study design integrated the topic of ASD into a semester long college course through assignments and in-class activities, although there was existing course content and curriculum.

The assignments and activities that were incorporated into the course were very intentionally placed. When the semester began the pre-service teachers engaged in journal writing activities in order to learn how to provide thick, rich descriptions in their journal assignments. This was important because the journals were the first assignments that were due and because the journals were the largest piece of data in this study. Other class activities required the pre-service teacher to engage in discussions, interactions, and collaboration with peers. Class activities included an interactive true and false quiz, which served as a set induction, a PowerPoint to create a knowledge foundation for the pre-service teachers, and article readings with graphic organizers to

organize their thoughts. As I read the pre-service teachers' journals and observed them in their internship placement throughout the semester, I made decisions of what assignments to include moving forward as supported by Trent et al. (1998) when they explained that adaptations to the course could change as the course evolves.

One of the in-class activities required the pre-service teachers to read the article "Understanding Autism Spectrum Conditions" by Maloret and Sumner (2014) and then organize the article's facts using a graphic organizer that I created (Appendix F). A second article, "Supporting Students with Autism Spectrum Disorders in Inclusive Settings" by Leach and Duffy (2009) was used as the first half of the final (Appendix G) because it was conclusive of the strategies we had discussed throughout the semester. In addition, I shared a YouTube video about a savant who has a photographic memory and is able to accurately draw what he had only seen one time.

I shared examples of visual supports, such as schedules and social stories. The pre-service teachers then created a social story in small groups and shared with the whole class. At the end of the semester, I provided case studies of children with ASD for the pre-service teaches to discuss in small groups and then share with the whole class. The pre-service teachers included strategies they had seen in the classroom, and we had learned about throughout the semester in their case studies. I concluded the semester with a read aloud of *Since We're Friends* by Shally (2012) about two friends, one with ASD and one without. The pre-service teachers completed an in-class essay final (Appendix H) that asked several questions about ASD. The pre-service teachers that were participants of this study did experience positive results, such as increased knowledge and confidence for working with children with ASD. However, this model

is one example of how to integrate a special education topic into an existing course in a

teacher education program.

CHAPTER FIVE: Conclusions

Conclusions

Teachers need to be prepared for all children who could possibly be in their classrooms when the school year begins and throughout the year. With the CDC (2015) reporting that 1 in 68 children are diagnosed with ASD, there is a high possibility that pre-service teachers will have children with ASD in their future classrooms. Pre-service teachers should be able to recognize common behaviors of children with ASD before they begin teaching. Additionally, they should have opportunities to see effective strategies that result in success for children with ASD in order to be able to identify when the strategies would be useful in a classroom. Therefore, they need to be prepared for the education of all children (von der Embse et al., 2011). Learning about ASD as a pre-service teacher while connecting theory to practice is an important part of a pre-service teachers' education. Pre-service teachers who were a part of this research study were thankful that they would have strategies to implement in their classroom.

Very few teacher preparation programs include training for teaching children with disabilities or challenging behaviors as part of their curriculum (Chang, Early, & Winton, 2005). In order to better prepare pre-service teachers, the findings of this action research study provide guidelines for teacher educators to include content for inclusion for children with ASD as part of teacher education programs. The blue print and class requirements that were provided as part of this study evoked pre-service teachers' interest and engagement and could be used in other teacher education programs.

Special education certifications no longer stand-alone in some states. Pre-

service teachers are required to combine special education qualifications with another, such as early childhood, elementary education, or secondary education. If the certifications are not separate, the content knowledge should not be separate. Furthermore, IDEA requires children with disabilities to be educated in the least restrictive environment (Heward, 2013), which is often the general education classroom. In order for these children to learn effectively, thoughtful considerations, appropriate strategies, and flexible classroom environments are necessary.

Teacher educators should provide pre-service teachers with this knowledge through theory to practice opportunities. One of the major findings of this study was the connection the pre-service teachers made between theory and practice. They learned theories and strategies in the college classroom and practiced them in the classroom with children. The findings showed that the purposeful plan and research based framework that was followed was effective when curriculum included inclusion for children with ASD as part of an existing college course. Few teacher preparation programs include curriculum for teaching children with disabilities or challenging behaviors (Chang, Early, & Winton, 2005; NCATE, 2010; Rademacher, 1998). This study provides a model or blueprint for teacher education programs.

The purpose and goal of this study were to integrate inclusion curriculum into a teacher preparation course in which inclusion curriculum did not previously exist. Responses from the participants revealed that not only did they learn the content, but they have the knowledge to implement these practices and assess classroom learning environments so that all children can learn. Teachers have to meet the needs of all children in their classroom, and strategies that work for children with ASD oftentimes

are successful for children with other disabilities. Therefore, the findings of this study

could positively influence teacher education programs by providing inclusion for

children with ASD in the general education classroom as part of the teacher curriculum.

Limitations

In spite of the potential limitations, the purpose of a qualitative study is to gain

an in depth understanding of the phenomenon and this action research study lent itself

to a more in depth study of how pre-service teachers connected theory to practice in an

endeavor to be prepared for meeting the needs of all children. Notably, action research

methodologies have advantages and disadvantages.

The elaboration and quality of data differed for each pre-service teacher. The

pre-service teachers could meet the requirements on the journal rubric, but not

necessarily understand ASD or make the connection of theory to practice. The journal

quality varied for each pre-service teacher even though effective journal writing was

taught at the beginning of the semester. Many things the pre-service teachers learned,

observed, or connected theory to practice may not have been conveyed in their journals.

This is why it was important to provide other data sources, such as interviews and

assignments. To counter this potential limitation, pre-service teachers were provided

feedback from the teacher educator and practiced journaling at the beginning of data

collection.

The conceptual framework for this study focused on theory to practice, for that

reason observation was a necessary data source. However, the structure of this course

allowed for only one observation of each pre-service teacher, which could be a

limitation. The purpose of the observations was for the researcher to get a context of

the setting where the pre-service teachers' internship placement occurred. This allowed connections to be made to the pre-service teachers' journal reflections, assignments, and interviews.

Another limitation to this study was the small number of pre-service teachers involved; 25 of the 26 students in the course granted consent to be a part of the research study. Therefore, the scant amount of participants is a potential limitation. This study took place in one course, one time, at one university; it would have been interesting for the study to include more than one course and compare the results. If the research was not confined to just one course, how would the results be different?

I was actively involved in this action research as the researcher and the instructor of the course. While some may see action research as a limitation, others see it as a strength (Glesne, 2011; Miles & Huberman, 1994). Although, the participants were my students and I was able to build relationships with them, seeing how the data would change if I was an observer and not as actively involved would be interesting. When the researcher is not as intimately involved in a study, the findings might be different.

<center>**Implications and Further Research**</center>

If teacher educators duplicate this study in the future, there are a few possible implications to further benefit the pre-service teachers' knowledge gain of ASD and inclusion. Research (Chang, Early, & Winton, 2005; NCATE, 2010; Rademacher, 1998) calls for teacher education programs to integrate more special education content into a specific course, yet does not provide a model. It is heavily suggested to use a model, although it does not have to be *How People Learn* (Donovan et al., 1999).

However, the implementation should be intentional, purposefully planned, and very clear on which model is used.

Many of the pre-service teachers may have a child with ASD in their internship placement. However, the pre-service teachers that are placed in a classroom that does not contain a child with ASD can be required to complete some of their internship in a classroom at their placement location that does contain a child with ASD. This is necessary in order to make the connections to the learning they receive from their college course.

During the course, I did not concentrate on IDEA or NCLB because I knew the pre-service teachers would focus heavily on these laws during another required course. Therefore, it is important to know the teacher education program course structure so that the pre-service teachers learn as much content as possible in their college courses cohesively. Based on the lesson plans, only approximately 25% of the course was spent on the added content of ASD. It could be more effective to spend more time on ASD and inclusion. Furthermore, because of time restraints some of the existing course content had to be decreased. For example, school reform or history was not emphasized as much this semester as it was in previous semesters. However, I intentionally connected existing content (e.g. classroom management and diversity) to ASD material in order to model content integration, just as the pre-service teachers will have to do.

A suggestion for teacher educators and/or future researchers is to include as many concrete examples of effective modifications and accommodations as possible given the limited amount of time in a semester. Also, be very deliberate about including examples of modifications and accommodations during class discussions and

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work constantly to integrate content and help the pre-service teachers make connections.

Future research could also incorporate inclusion with ASD in a different course, such as a reading, math, or science course. The teacher educator would have the opportunity to focus on how to create specific classroom supports for specific curriculum. In addition, this research just took place throughout one semester.

This study provided an effective model for teacher education programs; it would be beneficial to see the long-term application of what the pre-service teachers learned throughout this study. A longitudinal study following the same pre-service teachers during their final internship when they are in the classroom daily would be interesting to see if they continue to implement what they learned throughout this course several semesters prior. Did the connection of learning occur and was the material internalized and applied in future educational settings? Furthermore, following the pre-service teachers into their own classrooms after they graduate and become teachers would benefit researchers in knowing if the framework for this study was effective in order for teacher education programs to continue to use this model.

Teacher education programs can use the framework of *How People Learn* (Donovan et al., 1999) to include special education in the teacher education preparation courses, just as this study did. The framework I used was not haphazard; it was intentional and purposeful. Other frameworks may work; future research could compare and contrast different models in order to find the one that fits the goal of their research study.

Reflection

As a teacher and teacher educator, I had children with ASD in my classroom and I wanted to help them. I am also a parent of a child with ASD. These roles inevitably influence my ideas regarding the preparation of pre-service teachers for inclusion of children with ASD. The findings of this study, as well as my time with these pre-service teachers, have inspired me to continue to integrate the topic of inclusion for children with ASD in the general education classroom in all of the courses I teach. Fortunately, the Endowed Chair for Urban Education, Outreach and Research at my university believes the same way I do about integration and is interested in my findings and wants me to share them with the department. As a result of this study, integrating the 25% of ASD content in this course may become permanent from here forward.

I did not receive any negative feedback about adding this information to the course from the pre-service teachers. In fact, the opposite happened. The emails I received from pre-service teaches after the course was over confirmed that this information was important to them and that they were thankful to have been a part of our course. After the semester, a pre-service teacher substituted one day and was able to use what she learned during our course. Another student was able to recognize characteristics in a family friend whom she did not understand before this class. I received several comments from the pre-service teachers about how they were thankful to have this new knowledge.

It was a constant give and take with the curriculum during the semester. I had the responsibility of meeting the existing curriculum objectives for the pre-service teachers in my class as well as adding additional content. The previous topics that were

required were combined and intertwined with the new content. The content naturally connected, which is another example of why the content should be connected in all of the courses, versus taught separately. If the children are not separate, neither should be the learning for the pre-service teachers. It is all integrated and called education.

As a parent of a 13-year-old boy with ASD, I understand that it is crucial for pre-service teachers to be prepared for children with ASD to be a part of the general education classroom. As a previous classroom teacher, I also recognize the importance of this knowledge. I realize that there is much more to learn and understand about inclusion for children with ASD that I did not cover during this semester. What I did cover and the connections that were made from theory to practice is a foundation and knowledge base of how the pre-service teachers can take responsibility to further the learning as teachers and educators. The opportunity to influence teacher education programs with the findings of this study is exciting. More specifically, I hope to make this addition to my university.

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Appendix A: Lesson Plans Template

EDUC 3313: Clinical I/Pre Internship: Spring 2015 Lesson Plans

Date/Week: _____

Activity/Objective	Time	Materials	Desired PST Behavior	Memos Taken During Class	C.F. Connection

Appendix B: Observation Document

Pre-service Teacher	
Grade of Students	
Date	
Time	
Physical arrangement of classroom:	
Direct supports provided:	
Indirect supports provided:	
Interactions observed:	
Memo after observation:	

Appendix C: Journal Document

Journal 1 (repeat for all 12 journal reflections)

Pre-Service Teacher	Understanding	Evidence of Knowledge	Planning

Appendix D: Journal Rubric

	Excellent 2.5 points	Good 2 points	Acceptable 1.5 points	Poor 1 point	Unacceptable 0 points
Overall	Conceptually sophisticated, engaged in a substantive way with the topic.	Well developed and engaged with the topic; lacks conceptual clarity.	Adequate, but reflects superficial engagement with the topic.	Minimal or lacking.	No journal
Content Contribution	Draws directly upon the material to make a creative and substantive point that extends beyond the material.	Content is factually accurate, but does not synthesize information demonstrating understanding for the content.	Repeats some previous content, does not add substantively to new ideas or thoughts.	Is relevant to the topic, but information is incorrect.	Contains irrelevant information, tangential to topic.
Clarity and Mechanics	Organized around a central point/argu-ment, concise, even striking formulations, clear, easy to read style.	Organized, well-edited and thoughtfully composed	Open and respectful tone, some typos, some organization	Contains more than 4 grammatical or writing mistakes, disorganized	Unclear, disorganized, unedited
Reference and Support	Uses references to literature, readings, personal experience, experts, etc. in ways that strongly support the main position.	Incorporates the work/ experiences of other students, scholars and experts.	Includes personal experience, but not to the work/ experiences of others.	Few references or support for position.	No references or support for position.

Appendix E: True/False Quiz

Autism

Unique

Totally

Interesting

Sometimes

Mysterious

Autism: True or False?

Write T for True and

Write F for False

1. _____ You CANNOT catch autism from somebody.

2. _____ There is not a cure for autism.

3. _____ People who are born with autism will one day outgrow it.

4. _____ People with autism can get jobs.

5. _____ Children with autism do NOT need friends like other children.

6. _____ Children with autism need others to be patient with them.

7. _____ Some children with autism get upset when things change.

8. _____ All children with autism are alike.

9. _____ Children with autism cannot learn.

10. _____ More girls are diagnosed with autism than boys.

Appendix F: Graphic Organizer for Article

Maloret, P. & Sumner, K. (2014). Understanding autism spectrum conditions. *Learning Disability Practice, 17*(6), 23-26.

FACTS ABOUT PEOPLE WITH ASD/ASC	MORE FACTS ABOUT PEOPLE WITH ASD/ASC
BEHAVIORS AS A RESULT OF THE DISABILITY	SUGGESTIONS PROVIDED TO ADDRESS THESE BEHAVIORS
QUESTIONS	THINGS THAT ARE UNCLEAR

Appendix G: 1st Half of Final

Half of your final is below-answering the questions related to the article. The other half of the final will be completed during class.

Answer all of the questions according to the article:
Leach, D. & Duffy, M. L. (2009). Supporting students with autism spectrum disorders in inclusive settings. *Intervention in School and Clinic, 45*(1), 31-37.

1. Why is it important for teachers to understand ASD?

2. What unique characteristics do children with ASD display?

3. Discuss in detail the 3 types of strategies Leach and Duffy (2009) discuss.

4. What is the purpose of social stories and how are social stories implemented?

5. What is the purpose of PES and how are PES implemented?

6. What is the purpose of focusing on environmental arrangements and how can this be done?

7. Explain in detail at least 2 preventative strategies you feel are important.

8. Explain in detail at least 2 supportive strategies you feel are important.

9. Explain in detail at least 2 corrective strategies you feel are important.

10. Summarize the conclusion part of this article in your own words.

Appendix H: 2nd Half of Final

Fundamentals of ASD: In-Class Final

1.   What did you learn throughout this course that you did not know before this semester?

2. What are the characteristics of ASD?

3. What are *at least* 2 ways you can support children with ASD in *your* classroom?

4. How will *you* use what you learned this semester in *your* future classroom?

The UNIVERSITY of OKLAHOMA

Institutional Review Board for the Protection of Human Subjects
Final Report – Inactivation

Date:	July 15, 2015	**IRB#:** 4999
To:	Jodi Michelle Legnon	**Inactivation Date:** 07/15/2015

Study Title: PRE-SERVICE TEACHERS' THEORY TO PRACTICE OF INCLUSION WITH CHILDREN WITH AUTISM SPECTRUM DISORDER

On behalf of the Institutional Review Board (IRB), I have reviewed the Final Report for the above-referenced research study. You have indicated that this study has been completed and should be inactivated. This letter is to confirm that the IRB has inactivated this research study as of the date indicated above.

Note that this action completely terminates all aspects and arms of this research study. Should you wish to reactivate this study, you will need to submit a new IRB application.

If you have questions about this notification or using iRIS, contact the IRB at (405) 325-8110 or irb@ou.edu.

Cordially,

Lara Mayeux

Lara Mayeux, Ph.D.
Vice Chair, Institutional Review Board