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INVESTIGATING EVIDENCE-BASED PRACTICES AND INTERVENTIONS USING MULTIFACETED LEARNING THEORY FOR STUDENTS IN A SPECIAL EDUCATION SELF-CONTAINED CLASSROOM

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INVESTIGATING EVIDENCE-BASED PRACTICES AND INTERVENTIONS USING MULTIFACETED LEARNING THEORY FOR STUDENTS IN A SPECIAL EDUCATION SELF-CONTAINED CLASSROOM

Dissertation

Submitted in partial fulfillment
of the requirements for the degree of Doctor of Education
in the Carter and Moyers School of Education
at Lincoln Memorial University

by

Adam M. Maitland

February 2023

Dedication

This dissertation is dedicated to my husband and daughter who supported and believed in me throughout this entire process. I dedicate this dissertation to Amanda Hazenfield, who collaborated with me and helped translate my thoughts and words for everyone else to know what I really meant to say. I also dedicate this dissertation to Mrs. Debbie Bottone, my special education teacher, who always saw my potential to go above and beyond.

Beyond family and friends, I dedicate this dissertation to Ry, CJ, Easton, Hank, and all the students I worked with throughout my career. They will always be the spark to my passion and advocacy to make sure every student has the right to an education and a purpose.

Acknowledgments

I would like to acknowledge and thank Dr. Julia Kirk for serving as my dissertation chair. Dr. Kirk kept me on track with encouragement and belief in my study. Dr. Kirk advocated for me, engaged in brainstorming sessions, and provided the support I needed to develop a research study of which I am truly proud of. I would also like to thank Dr. Cherie Gaines for her insights and knowledge throughout the dissertation process. Finally, I would like to thank Dr. Lindsey Cochran for serving on my dissertation committee and providing valuable feedback and insights for my research topic.

Abstract

Teachers working in a special education self-contained classroom were required to implement evidence-based practices and interventions, rarely researched in a school setting, with fidelity to meet the needs of students with intellectual disabilities. Evidence-based practices and interventions for students with intellectual disabilities were researched in clinical settings with one to three student participants and without a common evaluation tool. The purpose of this qualitative case study was to use the Tennessee Educator Acceleration Model General Educator Rubric to investigate how experienced teachers used multifaceted learning theory when implementing evidence-based practices and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. Special education teachers from eight different schools across Tennessee were interviewed and observed using the Tennessee Educator Acceleration Model General Educator Rubric, which I aligned to different learning theories. I found how special education teachers planned activities, used reinforcements, and developed their knowledge of the content and their students to accommodate and modify evidence-based practices and interventions. I observed teachers in special education self-contained classrooms apply 150 (50%) behavioral learning theory strategies, 106 (36%) cognitive learning theory strategies, and 42 (14%) constructivist learning theory strategies. These findings should continue to be explored to further develop a common evaluation tool to monitor the use of multifaceted learning theory in a special education self-contained classroom instead of requiring fidelity of evidence-based practices and interventions.

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Chapter I: Introduction

Odom et al. (2010) explained how the Elementary and Secondary Elementary Act of 1965, as amended by the No Child Left Behind Act of 2001, mandated access and achievement utilizing general education curriculum and classrooms for all students with disabilities. Russo-Campisi (2017) reviewed how the Individuals with Disabilities Education Act (IDEA), 20 U.S.C. § 1400 of 2004 and Every Student Succeeds Act of 2015 (ESSA), stated students with disabilities must have access to general education curriculum to the maximum extent possible. Teachers were tasked in special education self-contained classrooms to implement evidence-based practices (EBPs) and interventions focused on state standards and the general education curriculum in addition to functional skill development, such as vocational, community, daily living, financial, independent living, transportation, social/relationship, and self-determination skills (Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009). Curriculum planners for general education typically did not address the specific functional needs of students with severe intellectual disabilities; however, special education teachers modified the curriculum to meet students' functional developmental needs which interfered with implementation fidelity of the designed curriculum (Browder et al., 2008, 2012).

Students with intellectual disabilities who may not be able to participate in general education programs attended a special education self-contained classroom (Baker-Ericzén et al., 2007; Browder et al., 2008, 2012; Ducharme & Ng, 2012; Hicks et al., 2011; Lee et al., 2009). Researchers defined special education self-contained classrooms as a placement for student with disabilities who

received instruction from a special education teacher utilizing a smaller class size to provide specialized EBPs and interventions (Baker-Ericzén et al., 2007; Browder et al., 2008, 2012; Ducharme & Ng, 2012). Special education teachers required additional support from teaching assistants who took instruction from the special education teacher and assisted the students with intellectual disabilities and their complex needs (Browder et al., 2008, 2012; Ducharme & Ng, 2012). These disabilities included autism spectrum disorder (ASD), emotional disturbances, severe intellectual disabilities, multiple handicaps, and children with serious or fragile medical conditions (Browder et al., 2008, 2012; Hicks et al., 2011; Lee et al., 2009; Wang & Lam, 2017). Special education teachers catered to a specific group of students with the same disability or learning needs or a mixed group with unique abilities in this self-contained setting (Browder et al., 2008, 2012; Ducharme & Ng, 2012; Hicks et al., 2011; Lee et al., 2009).

Students identified with an intellectual disability demonstrated problems in both intellectual and adaptive functioning (American Psychiatric Association, 2013). A student with an intellectual disability was diagnosed in three areas of adaptive functioning: Conceptual – language, reading, writing, math, reasoning, knowledge, memory; Social – empathy, social judgment, communication skills, the ability to follow rules and the ability to make and keep friendships; and Practical – independence in areas such as personal care, job responsibilities, managing money, recreation, and organizing school and work tasks (American Psychiatric Association, 2013; Flores et al., 2013; Hicks et al., 2011; Lee et al., 2009). The authors of the American Psychiatric Association (2013) defined ASD as a neurodevelopmental disorder characterized by impairments with social

communication and interactions as well as restricted and repetitive patterns in behaviors, interests, and activities. According to the authors of the American Psychological Association (2022), every racial, ethnic, and socioeconomic status level has occurrences of ASD.

Researchers focused on the mandate of IDEA and ESSA to provide access to the general education curriculum with specific EBPs and interventions for students in a special education self-contained classroom (Odom et al., 2010; Russo-Campisi, 2017); however, at the time of this study there was minimal research on a combined academic and functional curriculum aligned with multifaceted learning theory used in a special education self-contained classroom (Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009). Browder et al. (2008, 2012) explained the need for teachers to use different learning theories when modifying and accommodating EBPs and interventions for students with intellectual disabilities. Teachers in some school districts used Applied Behavior Analysis (ABA) programs to individualize the curriculum for each student with multiple assessments and interventions; however, teachers must complete the application of each procedure with fidelity to maintain the characteristics and individualization of interventions to achieve the best results (Rosenwasser & Axelrod, 2001; Steege et al., 2007; Weiss, 2001).

Teachers applied ABA interventions with a comprehensive program to assess the behaviors taught, the goals of instruction, and the teaching methods (Myles et al., 2007, 2009; Steege et al., 2007; Weiss, 2001). Researchers explained to develop a student's cognitive, social, academic, leisure, and functional living skills needed for success at school, at home, and in the

community required multiple types of interventions (Myles et al., 2007, 2009; Steege et al., 2007; Weiss, 2001). Researchers claimed difficulty in assessing comprehensive programs and interventions for students in a special education self-contained classroom (Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009) because researchers found it difficult to identify which aspect of the comprehensive program provided students with intellectual disabilities the most benefit (Odom et al., 2010).

In this chapter, I provided the reader with an overview of comprehensive programs used to support the access of academic and functional skills for students placed in a special education self-contained classroom. I then explained the theoretical framework focused on supporting students' acquisition of learning using a comprehensive program and the use of different learning theories in a special education self-contained classroom. Finally, I concluded this chapter by describing the terms associated with the research questions and provided the reader with an overview of the dissertation document.

Statement of the Problem

All students' access to the general education curriculum became an expectation in federal law governing the educational services to ensure the involvement and progress of students with special needs (Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009). Researchers explained how students placed in a special education self-contained classroom could progress further in their learning when teachers applied modifications and accommodations to the physical classroom setting and instructional strategies and learning theories to meet the needs of the students (Hess et al., 2008; Lee et al., 2009). Students with

intellectual disabilities who received instruction in the general education classroom worked on activities linked to general education content standards; however, they did not always have access to the types of curriculum modifications and accommodations to support their progress (Hess et al., 2008; Lee et al., 2009). Students with more severe intellectual disabilities who received instruction in a special education classroom were observed 46.11% of the time working on an activity linked to below grade level general education standards (Lee et al., 2009). Hess et al. (2008) explained without clear EBPs and intervention guidelines for students with intellectual disabilities at different grade levels in classroom settings, teachers had little support and were left to their own devices when deciding which EBPs and interventions to use.

Teachers used their knowledge of different learning theory strategies to make significant modifications and adaptations to the EBPs and interventions used in the classroom (Ertmer & Newby, 2013; Hess et al., 2008; Lee et al., 2009). Researchers addressed the need for EBPs to include state standards for students in special education self-contained classrooms because these students had to participate in alternative state assessments (Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009). Special education teachers, who successfully implemented an experimental curriculum, focused on reading skills which led researchers to suggest the path to reading may be possible for students with severe disabilities; however, the students may need more years of instruction (Browder et al., 2008; Ruppar, 2015). Students with moderate and severe intellectual disabilities needed opportunities to learn general education content, in whatever

setting they received instruction, to have an equitable chance of accessing and showing progress on state standards (Browder et al., 2008, 2012; Ruppar, 2015).

Students with ASD needed multifaceted EBPs which included a wide range of ABA interventions and learning theory strategies to support the broad behaviors and needs in this population (Arick et al., 2003; Ertmer & Newby, 2013; Myles et al., 2007, 2009; Renshaw & Kuriakose, 2011; Stahmer et al., 2012; Steege et al., 2007). Teachers working with students with ASD needed detailed descriptions of EBPs and interventions for application in the classroom (Renshaw & Kuriakose, 2011; Stahmer et al., 2012, 2015). Stahmer et al. (2012) stated research on the effectiveness of interventions designed for students with ASD were rarely conducted in schools. Teachers serving students with ASD in public-schools found it challenging to implement EBPs and interventions with fidelity because few comprehensive interventions were rigorously and systematically evaluated in school settings (Browder et al., 2008, 2012; Stahmer et al., 2012, 2015; Suhrheinrich et al., 2007).

Russo-Campisi (2017) found researchers focused on implementing EBPs without common concerns surrounding the absence of training and resources, limited collaboration between researchers and teachers, and a lack of fit between the intervention and environment to support the learning and progression of students in a special education self-contained classroom. Cook et al. (2008) claimed EBPs and interventions could cause a change in student outcomes when researchers ruled out alternative explanations for those outcomes. Researchers explained there was little distinction between interventions demonstrating to be

ineffective by multiple studies and interventions demonstrating little effect in one or two studies (Cook et al., 2014; Odom et al., 2010; Stahmer et al., 2015).

Special education teachers, evaluated with the Tennessee Educator Acceleration Model (TEAM) General Educator Rubric (see Appendix A), showed how they implemented instruction connected to students' individualized education programs (IEPs) and state standards through questions, activities, assessments, and different learning theory strategies (Tennessee Department of Education, 2016). A teacher scoring at a level three to five demonstrated at or significantly above expectations for excellent instruction in the classroom (Tennessee Department of Education, 2016). Researchers found there was no agreement within the field about what constituted effective EBPs for the entire range of students with ASD (Browder et al., 2008, 2012; Stahmer et al., 2012, 2015); however, officials from the Tennessee Department of Education (2016) approved the use of the TEAM General Educator Rubric to observe effective EBPs and interventions in general and special education. Teachers used comprehensive programs including a variety of EBPs, ABA interventions, and learning theory strategies to meet the complex challenges and spectrum of characteristics associated with students with intellectual disabilities (Dunlap et al., 2001; Schoen, 2003; Shepley & Grisham-Brown, 2019; Stahmer et al., 2012; Weiss, 2001). Odom et al. (2010) concluded a great need exists for treatment integrity for implementation and fidelity of teachers in special education self-contained classrooms using a comprehensive program including different EBPs, interventions, and learning theory strategies. The purpose of this qualitative case study was to use the TEAM General Educator Rubric to investigate how

experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards.

Research Questions

Through the following research questions, I aimed to use the TEAM General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. I used these research questions to guide this qualitative case study with the TEAM General Educator Rubric to observe and identify learning theories potentially implemented in EBPs and interventions aligned to state standards taught in a special education self-contained classroom. The focus of this study included the following research questions.

Research Question 1

How did experienced teachers use the Tennessee Educator Acceleration Model (TEAM) General Educator Rubric to influence the use of evidence-based practices and interventions in a diverse special education self-contained classroom investigated through interviews?

Research Question 2

How did experienced teachers in a diverse special education self-contained classroom apply multifaceted learning theory in a lesson aligned to Tennessee state standards investigated through observations?

Theoretical Framework

Researchers used a theoretical framework as a lens to support concepts, build a stance, and develop questions to conduct their study (Creswell & Creswell, 2018; Merriam & Tisdell, 2016). For this study, I used the TEAM General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. Teachers may have used the principles of behavioral learning theory, cognitive learning theory, and constructivist learning theory, the top three learning theories applied to education, as guidelines to select tools, techniques, and strategies to promote learning (Tasheva & Bogdanov, 2018). I found in the literature how special educations teachers used EBPs and interventions with behavioral learning theory by applying reinforcements to modify student behaviors in the classroom, cognitive learning theory to teach a skill step by step, and constructivist learning theory to allow students with intellectual disabilities to use their experiences to solve problems and learn new information.

Ertmer and Newby (2013) stated behavioral learning theory equated learning to changes in either the form or frequency of observable performance. In the late 1950s, teachers shifted away from the use of behavioral learning theory models to cognitive learning theory models (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018; Tracey & Morrow, 2017; Yilmaz, 2011). Cognitivists began to de-emphasize a concern with overt, observable behavior and instead focused more on complex cognitive processes such as thinking, problem

solving, language, concept formation, and information processing (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018; Tracey & Morrow, 2017; Yilmaz, 2011). Ertmer and Newby (2013) explained how constructivist learning theory equated learning to creating meaning from experiences. Constructivists do not share with behaviorists and cognitivists the belief on how knowledge is mind-independent and mapped onto a learner (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018; Tracey & Morrow, 2017; Yilmaz, 2011).

Behavioral Learning Theory

John B. Watson and Burrhus F. Skinner rejected introspective methods as being subjective and unquantifiable, thus behaviorism started as a reaction against introspective psychology in the nineteenth century (Ertmer & Newby, 2013; Tracey & Morrow, 2017). Psychologists supported behavioral learning theory because they wanted to focus on observable, quantifiable events, and behaviors (Ertmer & Newby, 2013; Tracey & Morrow, 2017). Behaviorist teachers believed they should consider only observable indicators to accurately measure and understand a student's behaviors instead of opinion-based indicators (Ertmer & Newby, 2013; Tracey & Morrow, 2017).

Behaviorists identified the stimulus-response sequence as a key element of understanding behavioral learning theory (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). A student received a stimulus, for example a bell rang, and the response was what happened next, a student opened a door (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Behaviorists argued

even complex actions could be broken down into a stimulus-response (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017).

In the classroom, teachers used behavioral learning theory to understand how to motivate and help students respond correctly during instruction (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Teachers transferred information to students from a response to the right stimulus (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Students were passive participants in behavioral learning theory because teachers gave the information as an element of stimulus-response (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Teachers used behavioral learning theory to show students how they should react and respond to certain stimuli (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). A teacher needed to do this in a repetitive way, to regularly remind students what response the teacher was looking for (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017).

Researchers explained how positive reinforcement and motivation were essential in behavioral learning theory (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). For example, if students got a sticker every time they get an A on a test, and then the teacher stopped giving the sticker as a positive reinforcement, less students may get As on their tests because the behavior was not connected to a reward for them (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Researchers explained how repetition and positive reinforcement go together with behavioral learning theory (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Teachers gave positive and negative reinforcement as motivators for students (Ertmer & Newby, 2013;

Muhajirah, 2020; Tracey & Morrow, 2017). For example, a student who received praise for a good test score was more likely to learn the answers effectively than a student who received no praise for a good test score (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). The student who received no praise experienced negative reinforcement because their brain told them though they got a good grade, it did not really matter, so the material of the test became irrelevant to them (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Conversely, teachers of students who received positive reinforcement saw a direct correlation to continued excellence, completely based on their response to the positive stimulus (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017).

Cognitive Learning Theory

Researchers explained how cognitive learning theory focused on the processes of the mind and how learning is determined by how a student's mind took in, stored, processed, and then assessed information (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018; Tracey & Morrow, 2017; Yilmaz, 2011). When a student tried to learn something new, there was usually some sort of prior knowledge used to anchor and connect the new information to make sense of their world (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018; Tracey & Morrow, 2017; Yilmaz, 2011). Cognitivists believed their theory was the primary foundation for explaining how we learn things and supported cognitive learning theory as the mainstream for all research and foundations of learning design (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018; Tracey & Morrow, 2017; Yilmaz, 2011).

Jean Piaget was one of the main contributors to cognitive learning theory (Ertmer & Newby, 2013; Tracey & Morrow, 2017). Piaget identified stages of cognition all students passed through universally based on their age and stage of mental development (Ertmer & Newby, 2013; Tracey & Morrow, 2017). Piaget identified the predictable stages of cognition as sensorimotor, pre-operational, concrete operational, and formal operational (Ertmer & Newby, 2013; Tracey & Morrow, 2017). Cognitivists believed real learning depended on the students' ability to access information from their long-term memory when they needed it (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018; Tracey & Morrow, 2017; Yilmaz, 2011).

When a student learned something new, the process occurring in the student's mind began with the activation of prior knowledge (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). If a student learning something new had a schema, defined as a familiar structure to compare to the new information, then the knowledge flowed through the pathways of their brain and built connections (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). The student's schema created a framework to understand the new information received (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017).

A student who learned new information opposed to something they already believed to be true, had to accommodate and work to unlearn the previous concept and replaced the old information with the correct concept by making a new connection (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). When a student was first exposed to new information, the information

went into their short-term memory (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). When learning was meaningful to the students or the students successfully connected it to something they knew, it was more likely the student would store the new information into their long-term memory (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017).

Constructivist Learning Theory

Ertmer and Newby (2013) stated early learning theorists helped establish the constructivist learning theory based around the idea students were active participants in their learning journey and knowledge was constructed based on experiences (Ertmer & Newby, 2013). Students reflected on events and experiences in their life to incorporate the new information they learned with prior knowledge (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Students developed schemas to organize the new information (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Constructivists believed this process was vital to understand how students learned (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Students added or built their new experiences on top of their prior knowledge (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017).

Teachers used constructivist learning theory to understand how each student who entered their classroom had a unique perspective on life created by their unique experiences which impacted their learning (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Constructivists believed students constructed new knowledge on what they already knew which meant the entry point of their learning journey was of utmost importance (Ertmer & Newby, 2013;

Muhajirah, 2020; Tracey & Morrow, 2017). Students actively engaged with others through group work and discussions to construct knowledge because it created understanding (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). When students reflected on their past experiences, they saw how their relationship with others connected to the information they learned (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Constructivists believed it was not possible for students to take a passive role and retain information (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017).

Students constructed knowledge from situations within the context of their lives by reflecting and classifying new information as it fits into their current perspective (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). As each student moved through their learning journey, they got better at selecting and organizing information by getting better at classifying ideas and creating more meaningful systems of thought (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Students did not learn if they were unwilling to reflect on their prior knowledge and activate their thought process (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Teachers needed to motivate and engage their students in the learning journey (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017).

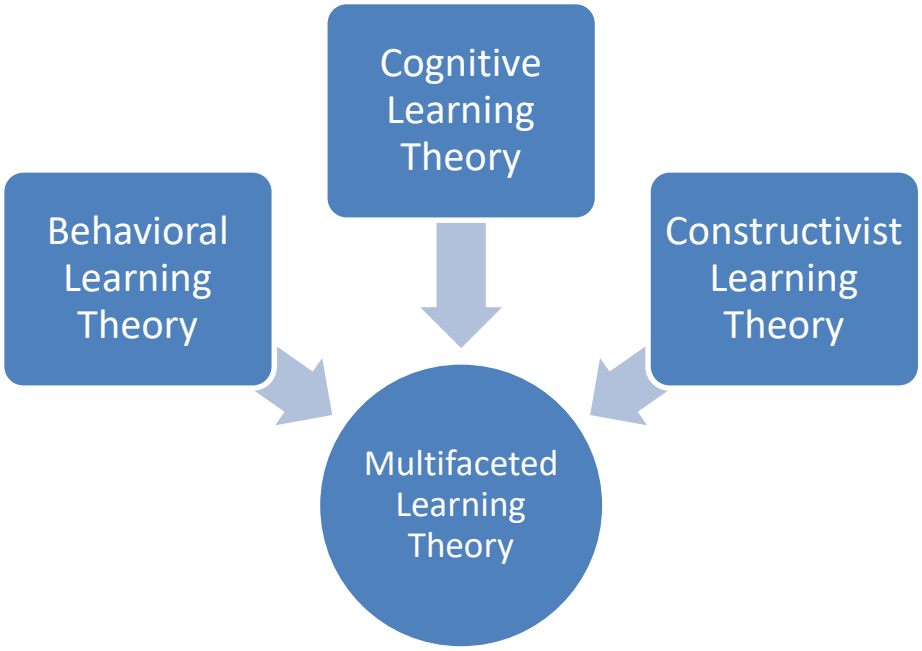
I used behavioral learning theory, cognitive learning theory, and constructivist learning theory as a framework for this research to use the TEAM General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access

Tennessee state standards. Behavioral learning theory, cognitive learning theory, and constructivist learning theory provided a framework to observe teachers in a special education self-contained classroom with the TEAM General Educator Rubric as an observation tool. Leaders from the Tennessee Department of Education (2016) applied the framework for teaching developed by Danielson (2015) to the TEAM General Educator Rubric as a tool to enhance professional practices by providing a common language for instructional practices grounded in different learning theories to understand the nature of learning though a set of discrete practices.

I used the TEAM General Educator Rubric to observe what learning theories teachers applied in a lesson aligned to Tennessee state standards. Researchers viewed learning theories as valuable as credentials to teachers and it was important to understand what affected the learning journey of their students (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017; Yilmaz, 2011). I wanted to observe teachers who designed lessons for students in a special education self-contained classroom and how they may have used aspects of the three learning theories used to define multifaceted learning theory, shown in figure 1, to help students access Tennessee state standards.

Figure 1

Theoretical Framework



Significance of the Study

Special education teachers experienced challenges in identifying and tracking which EBPs and interventions worked best for students with intellectual disabilities for specific activities and data collection (Arick et al., 2003; Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009; Myles et al., 2007, 2009; Ruppar, 2015). Special education teachers did not implement EBPs and interventions with fidelity because limited training was provided and they were not designed for school settings, which made them more difficult to implement appropriately in the classroom (Cook et al., 2014; Odom et al., 2010; Schreibman, 2000; Stahmer et al., 2015). Special education teachers typically modified EBPs and interventions for use in the classroom by combining and adapting various EBPs and interventions as a comprehensive program to fit their own teaching preference and the needs of the individual student (Arick et al., 2003; Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009; Myles et al., 2007, 2009; Ruppar, 2015; Schreibman, 2000; Stahmer et al., 2012).

Researchers claimed difficulty in assessing comprehensive programs for students with intellectual disabilities in a special education self-contained classroom (Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009). Researchers explained how few comprehensive programs were rigorously and systematically evaluated in school settings (Browder et al., 2008, 2012; Stahmer et al., 2012, 2015; Suhrheinrich et al., 2007) because research on using multiple EBPs and interventions as a comprehensive program made it difficult to identify which aspect of the program provided students with intellectual disabilities the most benefit (Odom et al., 2010). Browder et al. (2008) stated the main issues

with comprehensive programs emerged with whether school districts endorsed and funded one program model or worked to embed EBPs and interventions into existing programs.

I found no common evaluation tool in any of the studies used for observing EBPs and interventions used in a comprehensive program for students with intellectual disabilities in a special education self-contained classroom. Researchers had not observed teachers in a special education self-contained classroom using an evaluation tool, such as the TEAM General Educator Rubric, to identify key strengths and areas of improvement of a comprehensive program. Odom et al. (2010) concluded a great need exists for treatment integrity for implementation and fidelity of special education self-contained classrooms using a comprehensive program. The purpose of this qualitative case study was to use the TEAM General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. I sought to add research to the literature focused on special education self-contained classrooms by observing teachers with the TEAM General Educator Rubric to identify the learning theories used in comprehensive programs to instruct students with intellectual disabilities. Researchers stated there was no agreement within the field about what constitutes effective EBPs and interventions for the entire range of students with ASD, which is why teachers used comprehensive programs to meet the complex challenges and spectrum of characteristics associated with students with ASD (Dunlap et al.,

2001; Schoen, 2003; Shepley & Grisham-Brown, 2019; Stahmer et al., 2012; Weiss, 2001).

Description of the Terms

I provided the description of terms for the reader to better understand the terminology utilized in the study. Creswell and Creswell (2018) suggested readers needed identification of terms and the definitions to understand a research study. I provided the following terms to clarify how I used the TEAM General Educator Rubric to investigate teachers potential use of multifaceted learning theory when implementing EBPs and interventions in a special education self-contained classroom to help students access Tennessee state standards. For a complete list of acronyms and initials (see Appendix B).

Applied Behavior Analysis (ABA)

Lovaas (1987) defined applied behavior analysis (ABA) as a scientific discipline applying empirical approaches based upon the principles of respondent and operant conditioning to change behavior of social significance. Shillingsburg et al. (2015) provided examples of applied behavior analysis in the classroom such as when teachers took time to learn how to determine the motivation and purpose of behavior, understood how to deliver reinforcement and consequences, and modified the classroom environment to promote appropriate behavior.

Diverse

Baker-Ericzén et al. (2007) defined diverse as a group including or involving people from a range of different social and ethnic backgrounds, of different genders, and of different intellectual ability.

Evidence-Based Practices (EBPs)

Cook et al. (2008) defined evidence-based practices (EBPs) as instructional techniques supported by a strong, high-quality evidence base to effectively impact student learning.

Experienced Teachers

For this study, I defined experienced teachers as someone with special education credentials and three or more years of experience in a special education self-contained classroom.

Interventions

Browder et al. (2008, 2012) defined interventions as strategies to identify, target, monitor, and adjust methods of instruction to help a student improve their area weakness by removing educational barriers.

Multifaceted Learning Theory

I defined multifaceted learning theory as the integration of behavioral learning theory, cognitive learning theory, and constructivist learning theory. Students were conditioned to meet set expectations monitored by measurable goals through sequenced tasks and reinforcements. Teachers personalized instruction with relevant, complex, and developmentally appropriate content to help students build connections. In addition, students discovered and applied different perspectives through social learning opportunities and varied presentations.

Behavioral Learning Theory. Ertmer and Newby (2013) defined behavioral learning theory as explaining human and animal behavior in terms of

conditioning, without appeal to thoughts or feelings, and treating psychological disorders by altering behavior patterns.

Cognitive Learning Theory. Ertmer and Newby (2013) defined cognitive learning theory as a mental process to mediate learning and the construction or reshaping of mental schemas**.**

Constructivist Learning Theory. Ertmer and Newby (2013) defined constructivist learning theory as active participation by students in their learning journey, and the students' experiences constructed their knowledge.

Special Education Self-contained Classroom

Browder et al. (2008, 2012) defined a self-contained classroom as a group of students who share similar academic goals due to similarities in disability who benefited from services within a classroom outside of the general education classroom.

Tennessee Educator Acceleration Model (TEAM) General Educator Rubric

Tennessee Department of Education (2016) defined the Tennessee Educator Acceleration Model as the official teacher evaluation rubric for the state of Tennessee. Moran (2015) explained how the TEAM General Educator Rubric included indicators to observe a teacher's instruction, planning, environment, professionalism, motivation of students, presentation of instructional content, lesson structure and pacing, activities and materials, questioning, academic feedback, grouping of students, teacher content knowledge, teacher knowledge of students, thinking, and problem solving.

Organization of the Study

I organized this study into five chapters. In Chapter I, I included a brief background of EBPs and interventions approved for students with intellectual disabilities to access the general education curriculum. I also included a statement of the problem surrounding EBPs and interventions used to support students with learning disabilities and the theoretical framework of behavioral learning theory, cognitive learning theory, and constructivist learning theory used as a basis for this research. In addition, I included the significance of this study in educating students in a special education self-contained classroom. In Chapter I, I also included research questions and definitions of terms related to special education, EBPs, and interventions for clarification. In Chapter II, I wrote a comprehensive literature review related to the study and the research questions. I included literature on EBPs and interventions used with students with intellectual disabilities and how the behavioral learning theory, cognitive learning theory, and constructivist learning theory applied to each practice and intervention. I used the literature about the TEAM General Educator Rubric to make connections between the standards for designing instruction, the learning theories, and the application of EBPs and interventions in a special education self-contained classroom.

In Chapter III, I discussed the qualitative case study approach to provide a rich detailed description of a lesson aligned to Tennessee state standards taught in a special education self-contained classroom and how I used a questionnaire with snowball sampling method to select experienced special education teachers working in a diverse classroom. I described the interview protocol used to collect data on how special education teachers plan and implement instruction for

students with intellectual disabilities and the observation protocol for how I used the TEAM General Educator Rubric to observe teachers in the classroom. I then explained the coding I used to analyze the data collected from the TEAM General Educator Rubric, questionnaires, interviews, and observations. After completing the study, in Chapter IV, I reported my findings and provided a detailed description of my data analysis. Finally, in Chapter V, I provided my conclusions, implications, and recommendations for possible further research. I included more research to guide this qualitative case study in the following *Review of the Literature* chapter of this document.

Chapter II: Review of the Literature

I designed this study to use the Tennessee Educator Acceleration Model (TEAM) General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing evidence-based practices (EBPs) and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. Russo-Campisi (2017) explained how the Individuals with Disability Act and Every Student Succeeds Act of 2015, formerly the No Child Left Behind Act of 2001, required the use of EBPs or instructional techniques shown by research to improve student outcomes. Researchers identified quality indicators for EBPs such as single-subject, group experimental, and quasi-experimental designs to ensure measured reliability (Cook et al., 2008, 2014; Russo-Campisi, 2017; Wang & Lam, 2017).

Researchers used Applied Behavior Analysis (ABA) as EBPs for students with autism spectrum disorder (ASD) (Dunlap et al., 2001; Shepley & Grisham-Brown, 2019; Weiss, 2001). Students with ASD received ABA interventions at their functional level with short, explicitly planned procedures, 30-40 hours per week, by trained behavior therapists (Bottoni et al., 2020; Dixon et al., 2017; Dunlap et al., 2001; Lane et al., 2016; Lovaas, 1987; Shepley & Grisham-Brown, 2019; Shillingsburg et al., 2015; Solares & Fryling, 2018; Weiss, 2001). Teachers used ABA programs to individualize the intervention for each student with multiple assessments and strategies to achieve the best results (Rosenwasser & Axelrod, 2001; Steege et al., 2007).

Just et al. (2012) described ASD as an enigma in three ways: the symptoms are diverse and unrelated; the syndrome did not bear an obvious

correspondence to a particular biological function; and occasionally ASD manifested as a perceptual advantage. Church et al. (2015) defined deficits in neuroplasticity as the inability of neural networks in the brain to change through growth and reorganization to make new connections. Students with ASD with neuroplasticity deficits may have difficulties generalizing skills and may have perceptual learning deficits impacting other abilities; however, these neuroplasticity deficits were not specific to the acquisition of social skills (Church et al., 2015; Just et al., 2012). Students with ASD's diversity of symptoms could be a manifestation of a neural systems disorder which distressed the complex system of the brain and led to negative impacts on system functioning (Church et al., 2015; Just et al., 2012).

I used the following keywords when selecting research for this literature review: EBPs, ABA, ASD, intellectual disabilities, special education self-contained classrooms, interventions, discrete trial training (DTT), multiple exemplar instruction (MEI), direct instruction (DI), errorless teaching (ET), pivotal response training (PRT), behavioral learning theory, cognitive learning theory, constructivist learning theory, and the TEAM General Educator Rubric. I referred to educators, behavior therapists, therapists, researchers, and experimenters as teachers for this study. In this literature synthesis, I investigated literature pertaining to special education self-contained classrooms, students with intellectual disabilities, students with ASD, interventions, and EBPs to support student learning, standards for designing instruction, and the use of the TEAM General Educator Rubric to evaluate instruction and learning theories in the classroom.

Special Education Self-contained Classrooms

Leaders in the Tennessee Department of Education promoted educational services and programs for all Tennessee students with special education needs (Tennessee Department of Education, 2016). The educational leaders were committed to systematic planning along with implementation, tracking, and accountability as a vehicle for fulfilling the purpose of supporting students with special education needs in a public learning environment called the self-contained classroom (Tennessee Department of Education, 2016). On average, teachers in a general education classroom had anywhere from twenty to thirty students providing a good part of each school day with a group of their peers (Baker-Ericzén et al., 2007; Browder et al., 2008, 2012; Ducharme & Ng, 2012). For students with intellectual disabilities, 20 to 30 peers can become overwhelming and cause them to fall behind in their learning (Baker-Ericzén et al., 2007; Browder et al., 2008, 2012). Special education teachers in self-contained classrooms focused on the idea of smaller groups and one-on-one instruction to support the learning and progression of students with intellectual disabilities (Baker-Ericzén et al., 2007; Browder et al., 2008, 2012; Ducharme & Ng, 2012).

Special education teachers used the self-contained classroom to give students with intellectual disabilities specialized interventions and support (Baker-Ericzén et al., 2007; Browder et al., 2008, 2012; Ducharme & Ng, 2012). The special education teacher's class was sometimes smaller in size than a general education class; however, the complex needs of the students with intellectual disabilities required additional support from teaching assistants who took instruction from the special education teacher and assisted the students (Browder

et al., 2008, 2012; Ducharme & Ng, 2012). Teachers in special education self-contained classrooms typically had class sizes of five to ten students with intellectual disabilities (Baker-Ericzén et al., 2007; Browder et al., 2008, 2012; Ducharme & Ng, 2012). Students with intellectual disabilities spent most of their day in the special education self-contained classroom (Baker-Ericzén et al., 2007; Browder et al., 2008, 2012; Ducharme & Ng, 2012; Hicks et al., 2011; Lee et al., 2009).

Students with disabilities who may not be able to participate in general education programs full time attended a special education self-contained classroom (Baker-Ericzén et al., 2007; Browder et al., 2008, 2012; Ducharme & Ng, 2012; Hicks et al., 2011; Lee et al., 2009). These students with disabilities included ASD, emotional disturbances, intellectual disabilities, multiple handicaps, and students with serious or fragile medical conditions (Browder et al., 2008, 2012; Hicks et al., 2011; Lee et al., 2009; Wang & Lam, 2017). The special education teacher and teaching assistants catered to a specific group of students with the same disability or learning needs or a mixed group with unique abilities (Browder et al., 2008, 2012; Ducharme & Ng, 2012; Hicks et al., 2011; Lee et al., 2009).

Students with Intellectual Disabilities

Students identified with an intellectual disability demonstrated problems in both intellectual and adaptive functioning (American Psychiatric Association, 2013). A student's intellectual functioning was measured with individually administered valid, comprehensive, culturally appropriate, psychometrically sound tests of intelligence (American Psychiatric Association, 2013). Students no

longer needed to participate in a specific full-scale IQ test for diagnosis; however, standardized testing was used as part of diagnosing the condition (American Psychiatric Association, 2013; Flores et al., 2013; Hicks et al., 2011; Lee et al., 2009). Students with a full-scale IQ score of around 70 to 75 indicated a significant limitation in intellectual functioning; however, the IQ score must be interpreted in the context of the person's difficulties in general mental abilities (American Psychiatric Association, 2013). Moreover, a student's scores on subtests could vary to where the full-scale IQ score may not accurately reflect overall intellectual functioning which then required clinical judgment to interpret the results of IQ tests (American Psychiatric Association, 2013).

A student's diagnosis with an intellectual disability was considered around three areas of adaptive functioning: 1. Conceptual - including language, reading, writing, math, reasoning, knowledge, memory; 2. Social - including empathy, social judgment, communication skills, the ability to follow rules and the ability to make and keep friendships; and 3. Practical - including independence in areas such as personal care, job responsibilities, managing money, recreation, and organizing school and work tasks (American Psychiatric Association, 2013; Flores et al., 2013; Hicks et al., 2011; Lee et al., 2009). A student's adaptive functioning is assessed through standardized measures with the individual and interviews with others, such as family members, teachers, and caregivers (American Psychiatric Association, 2013). A student with intellectual disability was identified as mild, moderate, or severe (American Psychiatric Association, 2013). A student's symptoms of intellectual disability began during childhood by delays in language or motor skills around two years old (American Psychiatric

Association, 2013); however, a student with mild levels of intellectual disability may not be identified until school age when they have difficulty with academics (Flores et al., 2013; Hicks et al., 2011; Lee et al., 2009).

Researchers identified many different causes of intellectual disability (American Psychiatric Association, 2013). Students with intellectual disabilities were associated with a genetic syndrome, such as Down syndrome or Fragile X syndrome (American Psychiatric Association, 2013). Researchers also found intellectual disabilities developed following an illness such as meningitis, whooping cough, or measles; from head trauma during childhood; or from exposure to toxins such as lead or mercury (American Psychiatric Association, 2013). Researchers stated other factors contributing to intellectual disability included brain malformation, maternal disease, and environmental influences such as alcohol, drugs, or other toxins (American Psychiatric Association, 2013). Additionally, a student's intellectual disabilities may have been the result of a variety of labor- and delivery-related events, infection during pregnancy, or problems at birth, such as not getting enough oxygen (American Psychiatric Association, 2013).

Students with Autism Spectrum Disorder

The authors of the American Psychiatric Association (2013) defined autism spectrum disorder (ASD) as a neurodevelopmental disorder characterized by impairments with social communication and interactions as well as restricted and repetitive patterns in behaviors, interests, and activities. According to the authors of the American Psychological Association (2022), every racial, ethnic, and socioeconomic status level has occurrences of ASD. Researchers explained

how ASD affected a student's perception of the world and how the student learns from their experiences (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Lovaas, 1987). Researchers defined ASD as a complex developmental disability typically appearing during the first three years of life of a child and is the result of a neurological disorder affecting the normal functioning of the brain, impacting development in the areas of social interactions and communication skills (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Lovaas, 1987; Renshaw & Kuriakose, 2011; Schreibman, 2000).

Students with ASD showed difficulties in verbal and nonverbal communication, social interactions, and leisure or play activities (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Lovaas, 1987; Renshaw & Kuriakose, 2011; Schreibman, 2000). Researchers explained ASD as a spectrum disorder affecting each person differently and at varying degrees (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Lovaas, 1987; Myles et al., 2007, 2009; Stahmer et al., 2010, 2016). Researchers found ASD affected essential human behaviors such as social interaction, ability to communicate ideas and feelings, imagination, and establishment of relationships with others (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Lovaas, 1987). Students with ASD also showed abnormal responses to sensory stimuli, such as touch, sound, and sight (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Lovaas, 1987).

Parents and teachers created goals for the education of students with ASD to address independence, social responsibility, language development, social interactions, and adaptive goals not part of the general education curricula (Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009; Stahmer et al., 2010, 2016). Teachers provided opportunities for students with ASD to gain knowledge and enhance their personal independence and social behaviors (Hess et al., 2008; Lee et al., 2009; Stahmer et al., 2010, 2016). In comparison with neurotypical students, a student with ASD may need to learn different behaviors to manifest independence and responsible participation in the community (Stahmer et al., 2010, 2016). Neurotypical students learn behaviors without direct teaching, but this is not so for students with ASD (Stahmer et al., 2010, 2016). A student with ASD may have rote learned to count but lack the ability to name things they used daily (Browder et al., 2008; Stahmer et al., 2010, 2016). For example, as students with ASD grow older, they may be able to operate electronic equipment but not be able to dress themselves appropriately (Browder et al., 2008; Stahmer et al., 2010, 2016).

Teachers who worked with students with ASD needed to cover academic skills in addition to social adaptive skills, language and communication skills, and reduction in noncompliant behaviors (Browder et al., 2008; Stahmer et al., 2010, 2016). Researchers found students with ASD responded well to structured educational programs tailored to their specific needs (Browder et al., 2008, 2012; Myles et al., 2007, 2009; Stahmer et al., 2010, 2016). Researchers also stated students with ASD learned better with an educational program following a behavioral approach implemented in one-to-one or small group settings (Browder

et al., 2008, 2012; Myles et al., 2007, 2009; Stahmer et al., 2010, 2016). Students with ASD had difficulty with abstract, language-based, and conceptual tasks requiring sequencing and organization (Browder et al., 2008, 2012; Stahmer et al., 2010, 2016). Researchers found typical methods of teaching such as verbal explanation, demonstration, and modeling may not be successful approaches for students with ASD due to social, communication, and limited imitative behaviors (Browder et al., 2008; Stahmer et al., 2010, 2016; Verschuur et al., 2020); however, visual tasks relying more on eye-hand integration, spatial, or motor capacities allowed students with ASD to better comprehend and enjoy the tasks (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Lovaas, 1987; Schreibman, 2000).

Teachers capitalized on the strengths of students with ASD while remediating their weaknesses by structuring the instruction and teaching environment to address the unique features of ASD (Browder et al., 2008, 2012; Renshaw & Kuriakose, 2011; Schreibman, 2000; Stahmer et al., 2010, 2016; Verschuur et al., 2020). Teachers worked to enable students with ASD to understand what was expected of them, encourage self-control, and enhance skills to cope with the ever changing and dynamic social situations (Browder et al., 2008, 2012; Renshaw & Kuriakose, 2011; Schreibman, 2000; Stahmer et al., 2010, 2016). Researchers explained how structured teaching approaches provide familiar, predictable, and structured environments to reduce anxiety, promote independence, and increase flexibility and tolerance for change (Browder et al., 2008, 2012; Lovaas, 1987; Renshaw & Kuriakose, 2011; Schreibman, 2000; Stahmer et al., 2010, 2016).

I wrote this section to define a special education self-contained classroom and the students who received educational services in this setting. Throughout this literature synthesis, I reviewed studies focused on students with intellectual disabilities and ASD. I found research specific to evidence-based practices and interventions which focused on supporting students with ASD. I noted how special education self-contained classrooms contained students with the same disability and learning needs or mixed groups with unique abilities, which is why I defined intellectual disabilities and ASD.

Evidence-Based Practices and Interventions for Students in Special Education Self-contained Classrooms

I researched specific intervention methods categorized under ABA, such as DTT, MEI, DI, ET, and PRT. Shillingsburg et al. (2015) explained how teachers used an ABA-based intervention to explicitly plan instruction, provide immediate reinforcement, and include proper prompting. Students with language delays required explicit instruction when building mands and tacts. (Ganz & Flores, 2009; Rosenwasser & Axelrod, 2001). Researchers defined mands as making requests and tacts as verbal labels (Ganz & Flores, 2009; Rosenwasser & Axelrod, 2001). Students with ASD used tacts as a type of language behavior to describe characteristics of the environment, such as, *this crayon is red* (Rosenwasser & Axelrod, 2001). Rosenwasser and Axelrod (2001) explained tacts are often the least motivating form of language and require reinforcers generalized and conditioned through acknowledgement and praise. Students with ASD used mands as a type of language as a behavioral learning theory strategy specified as its own reinforcement, such as, *I want ball* (Ganz & Flores, 2009;

Rosenwasser & Axelrod, 2001). Ertmer and Newby (2013) explained how behavioral learning theory could not explain the acquisition of skills requiring a greater depth of processing, such as language development, problem-solving, inferencing, and critical thinking. Schreibman (2000) stated research was contradictory and inconclusive as to whether IQ and language ability predicted treatment outcomes for PRT.

According to Weiss (2001), modified ABA interventions based on advantages for the student interfered with the integrity of the intervention because teachers must complete the application of each procedure with fidelity to maintain the characteristics and individualization of such ABA interventions. Teachers used behavioral learning theory strategies to improve cognitive deficits in students with ASD assuming the students' learning mechanisms were intact and comparable to typical developing students, even though students with ASD demonstrated perceptual learning deficits or instances of accelerated learning (Church et al., 2015; Just et al., 2012; Markram & Markram, 2010). Markram and Markram (2010) noted if the perceptual inputs individuals with ASD received were abnormal, then the perceptual, cognitive, and social skills they acquired over a lifetime may differ from those of typical developing students. If students with ASD had dysfunctional neural plasticity mechanisms of perception and were exposed to abnormal learning experiences during development, students with ASD would have dramatically different skill acquisition and perceptual representations of events (Church et al., 2015; Dovgopoly & Mercado, 2013; Just et al., 2012).

Teachers analyzed performance data on a regular basis to evaluate the efficacy of interventions, and when necessary, made modifications or removed irrelevant parts to enhance the effectiveness of the intervention (Steege et al., 2007). When a student with ASD's unique characteristics matched the right interventions, the effectiveness and efficiency of the interventions was maximized (Myles et al., 2007, 2009; Steege et al., 2007). Church et al. (2015) explained if students with ASD had problems learning to perceptually distinguish and conceptually organize sensory events, then early interventions could identify and redirect deviant perceptual and categorical learning trajectories to promote better developmental outcomes.

Discrete Trial Training

Researchers defined DTT as a one-on-one intervention based on ABA principles including task presentation, a prompt to provoke a correct response, the response, a consequence, and consistent timing between trials (Cariveau et al., 2019; Lovaas, 1987; McKenney & Bristol, 2015). Teachers used DTT to teach functional skills to students with intellectual disabilities by breaking skills down to their foundation for learning (Brand et al., 2017; Lovaas, 1987; Tews, 2007). Students with ASD who do not learn incidentally have shown skill acquisition through an efficient single-task format demonstrated with DTT (Bottoni et al., 2020; McKenney & Bristol, 2015). Lovaas (1987) stated behavior modifications and ABA are founded in operant learning theory, made famous by B.F. Skinner, whereby it was hypothesized for behavioral excesses and deficits observed in students with ASD could be controlled by reinforcements, consequences, and extinction.

Lovaas (1987) analyzed the first systematic study of application of ABA for the intervention of students with ASD using DTT to develop language, increase social behaviors, and promote cooperative play. In addition, Lovaas' (1987) intervention worked to decrease socially inappropriate behaviors, such as excessive rituals and aggressive behaviors. Lovaas (1987) evaluated three groups of students with ASD, under four years old at intake, with an experimental group of nineteen students who received intensive DTT treatment consisting of forty plus hours per week of one-to-one intervention at their home; a control group of nineteen students who received minimal treatment of ten hours per week or less; and a second control group consisting of twenty-one students treated at other agencies having no contact with Lovaas's clinic. While the students in the three groups did not appear to differ at intake, the intensely treated children outperformed the children in control groups at age seven with their mean IQ at 83, compared to the other students' IQ at 52 and 58 (Lovaas, 1987). Nine out of nineteen students from the experimental group received passing grades without special assistance in classes for typically developing students compared to only one of forty in the control groups (Lovaas, 1987).

McEachin et al. (1993) followed-up with the students, who averaged twelve years of age, from Lovaas's 1987 study. The students from the experimental group who received the intensive treatment maintained their gains and functioned more satisfactorily than the students from the control groups in adaptive behaviors and personality (McEachin et al., 1993). McEachin identified the strengths of Lovaas' 1987 study which included experimental and control groups not differing on 19 of 20 intake variables, intake and follow-up

evaluations conducted by blind examiners independent of the study, reliance on treatment approaches developed from extensive research on reducing maladaptive behaviors and enhancing skills in students with ASD, use of detailed treatment manuals and associated videotapes to standardize the interventions students received, and follow ups to assess maintenance of treatment gains conducted many years after termination of treatment. Tews (2007) stated the effectiveness of Lovaas' approach using ABA and DTT has yet to be conclusively refuted.

Students who received the Lovaas style treatment scored on average 28 IQ points higher than the comparison group who did not receive the same style of treatment (Sheinkopf & Siegel, 1998). Students who received an average of 25 hours per week of treatment appeared to make similar gains when compared to those who received an average of 35 hours per week (Sheinkopf & Siegel, 1998). Lovaas (1987) explained a critical aspect of ABA was high intensity of service, which consisted of one-to-one intervention provided by a trained teacher. According to Tews (2007) the two most problematic aspects of Sheinkopf and Siegel's (1998) study was all the information regarding the treatment was based upon parental telephone reports and observation treatments not done by the researchers.

Smith et al. (2000) studied students with ASD and students with intellectual disabilities in an individual intensive treatment group for two years, and a parent training group, which received three to nine months of training. Twenty-three students were male and five were female (Smith et al., 2000). Fourteen students were White, six were Hispanic, four were Black, and four were Asian (Smith et al., 2000). Smith et al. (2000) outlined intensive treatment

allocated for 30 hours a week of intervention maximized student intellectual, adaptive, and socioemotional functioning; and reduction of their need for special education services. Smith et al. (2000) reported intensively treated students did not differ from students in the parent training group on standardized tests of behavior problems and adaptive functioning in everyday settings; however, McEachin et al. (1993) found substantial advantages for intensely treated students on these variables.

Dixon et al. (2017) questioned the instructional protocols for implementing DTT as research was not aligned on the success of remediating identified skill deficits through any assessment. Teachers needed to consider other factors when using DTT, such as stimulus fading to the natural environment, other functional impairments presented by the student, and the instructional setting (Bottoni et al., 2020; Dixon et al., 2017). Researchers reasoned the instructional demands during DTT can correspond to conditioned aversive stimuli, defined as non-compliant behaviors, in which students showed negative reinforcement, such as trying to escape or disrupt the instruction (Cariveau et al., 2019; Kelly et al., 2015). Weiss (2001) indicated a need to expand the repertoire of approaches utilized for students with ASD in response to each student's diverse learning style. Teachers applied DTT to teach specific words or phrases, followed by an unrelated reinforcement; however, students with ASD did not display the targeted behaviors outside the instructional contexts (Bottoni et al., 2020; Dixon et al., 2017; Lane et al., 2016; Weiss, 2001). Ertmer and Newby (2013) explained a critical factor for learning is the arrangement of stimuli and consequences within

the environment, and situations involving identical or similar features allowing behaviors to transfer across common elements.

Researchers also contended the need for treatment integrity for implementation and fidelity of DTT (Brand et al., 2017; Steege et al., 2007). Brand et al. (2017) studied the treatment integrity of DTT sessions by enlisting three teachers to work with three male students, ages eight to nine years old. Two students worked in their home setting and one student worked in a room located in the student's school (Brand et al., 2017). Brand et al. (2017) used a one-step Markov transition matrix for the observations recorded to identify 42% treatment integrity based on incorrect application of the error-correction procedures, incorrect application of response prompts, and incorrect application of prescribed time between trials.

Steege et al. (2007) observed considerable variation in the types of assessments and interventions used among school-based ABA programs using DTT. Teachers' total instruction time equated to seven hours a week, which is less than the recommended 25 to 40 hours (Steege et al., 2007). Steege et al. (2007) stated DTT may be an effective method for teaching specific skills, but it is not applicable to teaching sequential or chained responses, such as self-help, leisure, or vocational skills. Teachers were limited by the structured DTT intervention as students became cue dependent, lacked spontaneity, lacked self-initiated behaviors, started rote responding, and failed to generalize behavioral gains across settings and responses (Bottoni et al., 2020; Dixon et al., 2017; Lane et al., 2016; Schreibman, 2000; Weiss, 2001).

Multiple Exemplar Intervention

Researchers defined MEI as a one-on-one intervention to teach generalization and abstraction in a student's speaking and listening skills by using different examples of the same stimulus, such as using different pictures of dogs (Bryne et al., 2014; Eby et al., 2010). Students with language delays or developmental disabilities missed prerequisite skills for tacting, which require direct teaching for naming (Bryne et al., 2014). Students with ASD who had a higher nonverbal IQ were better able to discover alternative strategies for learning from MEI (Dovgopoly & Mercado, 2013). Researchers suggested MEI could develop a student's ability to categorize based on causal and functional similarities and build a student's acquisition of academic skills (Eby et al., 2010; Snape et al., 2018).

Bryne et al. (2014) used MEI in a study and found naming occurred when a student responded to classes of stimuli as both a speaker and listener, thus leading to a student's ability to categorize. Students with ASD demonstrated difficulty integrating information and generalizing previously learned concepts to new situations (Klinger & Dawson, 2001), yet a teacher who used MEI focused on different examples of the same stimulus, such as auditory and visual stimuli to teach a concept (Bryne et al., 2014; Eby et al., 2010). Students with ASD demonstrated enhanced perceptual discrimination abilities with different learning styles, but often are impaired in perceptual processes requiring complex configural or dynamic information (Church et al., 2015; Dovgopoly & Mercado, 2013; Just et al., 2012;). In addition, students with ASD did not engage in structural alignment of multiple exemplars to construct categories but do construct

categories relying on a rule-based approach (Klinger & Dawson, 2001; Snape et al., 2018).

Students with ASD's learning interactions were characterized by attention over selection, which typically limited their response patterns to a restricted range of environmental cues preventing them from differentiating between various parts of a learning task (Dovgopoly & Mercado, 2013; Renshaw & Kuriakose, 2011). Researchers explained how atypical perceptual category learning in students with ASD was caused by a deficit in neuroplasticity, especially plasticity involved in modifications of perceptual processing and categorizing (Church et al., 2015; Dovgopoly & Mercado, 2013). Church et al. (2015) defined perceptual processing as a sequence of steps beginning with the environment and leading to one's perception of a stimulus and action in response to the stimulus. Students with high functioning ASD who were atypical learners in a standard task performed better when trained with highly simplified stimulus sets consisting of a single exemplar rather than multiple exemplars of the category (Church et al., 2015; Dovgopoly & Mercado, 2013; Snape et al., 2018). Students with ASD performed better with a single exemplar because repeated experiences with the same stimulus provided a constant representation or rule the student referred to when generalizing a skill (Church et al., 2015; Dovgopoly & Mercado, 2013; Snape et al., 2018).

Researchers evaluated the effects of teaching students with ASD using multiple exemplars by showing how students transferred knowledge between verbal and writing skills (Eby et al., 2010) and the structural alignment of teaching single or multiple exemplars (Snape et al., 2018). Eby et al. (2010) evaluated the effects of MEI on the transfer of stimulus function (TSF) across

verbal and written spelling responses of three seven-year-old males with ASD. Eby et al. (2010) defined TSF as acquiring an untaught response to a stimulus previously evoking only a single taught response. Snape et al. (2018) conducted a mixed experimental study with eleven males and four females with ASD, with a mean age of five, compared to two groups of fifteen typically developing students.

Eby et al. (2010) instructed students with ASD to write and spell four words verbally. The students could not write any of the presented words before the study (Eby et al., 2010). A teacher instructed students with ASD and typically developing students about nouns with single and multiple exemplars to examine their ability to match similar nouns to the original (Snape et al., 2018). Eby et al. (2010) reported MEI was an effective intervention for all three students as the number of correct untaught spelling responses increased. Eby et al. (2010) stated the students performed TSF by transferring their stimulus response to say and spell the four words.

Students with ASD gained no benefit from seeing multiple exemplars of the same category (Church et al., 2015; Snape et al., 2018); however, they outperformed the typically developing students when presented with a single exemplar when asked to identify categories (Snape et al., 2018). Students with ASD with atypical generalization in perceptual categorization tasks benefited from training with a single exemplar from a category (Church et al., 2015; Snape et al., 2018). Students with ASD showed difficulties generalizing skills from MEI because of perceptual and neural plasticity deficits (Church et al., 2015). Dovgopoly and Mercado (2013) proposed deficits in neural plasticity mechanisms

may be sufficient to account for the atypical patterns of perceptual category learning and generalization associated with ASD, but they do not account for why only a subset of students with ASD would have such deficits.

Direct Instruction

Teachers used DI because it is an easily implemented, explicit, systematic, and scripted intervention which showed effectiveness for a broad range of content for students of varied ages diagnosed with ASD and intellectual disabilities (Carbone et al., 2010; Flores et al., 2013; Ganz & Flores, 2009; Hicks et al., 2011; Shillingsburg et al., 2015). Hicks et al. (2011) defined DI as a well-researched ABA instructional method designed to maximize teacher efficiency and effectiveness. Teachers used DI to provide short, clear, sequenced instruction, and error correction procedures to target a variety of skills such as math, reading, and language (Carbone et al., 2010; Flores et al., 2013; Ganz & Flores, 2009; Hicks et al., 2011; Shillingsburg et al., 2015).

Researchers reported DI accommodated students with ASD in learning in a one-to-one or small group instructional setting (Flores et al., 2013; Ganz & Flores, 2009; Hicks et al., 2011). Ganz and Flores (2009) conducted a single-subject changing criterion design study with three students and found DI was effective for teaching verbal language skills to identify what materials make up an object. Eighteen males with ASD, ages seven to thirteen, were divided into two groups via placement assessment to participate in a DI reading comprehension intervention (Flores et al., 2013). Flores et al. (2013) used a one-way within-subjects analysis of variance (ANOVA) statistical procedure to show students' reading comprehension improved in all portions of the lesson when

moving from one lesson to the next. Certified teachers implemented a DI comprehension program without modification, teaching multiple skills using whole lessons for thirty minutes a session (Flores et al., 2013).

Hicks et al. (2011) evaluated two fourteen-year-old Black males with ASD participating in a DI intervention in use and response of prepositions, which took place in a small room adjoining their self-contained classroom. The students participated in daily sessions for fifteen minutes and assessed before each lesson to ensure proficiency in naming twelve objects (Hicks et al., 2011). The students participated in all portions of the DI lessons replicating previous research and showed growth in skills and participation (Flores et al., 2013; Hicks et al., 2011). Researchers reported DI improved reading skills such as decoding, comprehension, and language intervention in students with ASD; however, the research was limited by only using one-to-one or small group instruction (Carbone et al., 2010; Flores et al., 2013; Ganz & Flores, 2009; Hicks et al., 2011; Shillingsburg et al., 2015).

Errorless Teaching

Ducharme and Ng (2012) and Markham et al. (2020) defined ET as an intervention designed to increase cooperative responding without punishment or coercive consequences. Students with noncompliant behaviors were instructed with ET and showed a broad range of behavioral improvement (Cariveau et al., 2019; McGill, 1999). Students' errors often impeded the acquisition of new skills and trial and error learning led students with intellectual disabilities to engage in noncompliant behaviors (Ducharme & Ng, 2012; Markham et al., 2020). Students with ASD had not previously experienced intensive exposure to challenging

teaching demands, thus making them more resistant to follow and participate in a lesson (Ducharme & Ng, 2012; Markham et al., 2020).

Teachers used ET as procedures for requesting, reinforcing students for compliance, ignoring noncompliance, and providing prompts to students to complete required tasks (Ducharme & Ng, 2012; Markham et al., 2020). Teachers manipulated tasks by providing prompts to ensure correct responses to reduce noncompliant behaviors during the intervention (Carbone et al., 2010; Cariveau et al., 2019; Ducharme & Ng, 2012; McGill, 1999). Ducharme and Ng (2012) gave an example of rather than delivering the request, *stand in line*, the teacher might say, *we are joining the line*, and guide the student by the hand while reinforcing the student with praise or a token board.

Teachers applied ET in a special education self-contained classroom with three teaching staff and three white male students with ASD, ages seven to nine (Ducharme & Ng, 2012). Ducharme and Ng (2012) used a multiple baseline across subject design as the teaching staff delivered academic requests with ET and provided reinforcement for compliance. Ducharme et al. (2003) evaluated ET with two males and one female with ASD, ages four to seven, in various settings of each student's home. Teachers used a graduated request hierarchy defined as requests yielding more compliance to requests yielding less compliance (Ducharme et al., 2003; Ducharme & Ng, 2012).

Students improved compliance to classroom requests with ET which initially caused noncompliant behaviors (Ducharme & Ng, 2012). The teaching staff slowly increased the requests to maintain compliance. Teachers who used reinforcements for compliance in isolation ineffectively reduced students'

behaviors compared to using a graduated request hierarchy which showed positive changes in the students' behaviors (Ducharme et al., 2003; Ducharme & Ng, 2012). McGill (1999) explained even with instructional modifications, reducing the problem behavior without resolving the aversive response to the task's demand was an unsatisfactory solution. Teachers used ET to foster cooperation between the student and the teacher by increasing the student's engagement in the classroom (Ducharme et al., 2003; Ducharme & Ng, 2012; Markham et al., 2020).

Pivotal Response Training

Researchers defined PRT as a naturalistic, behavioral intervention designed to increase generalization and maintenance of responding in students with ASD with behavioral, communicative, social, and academic impairments (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Stahmer et al., 2010, 2012, 2016; Suhrheinrich et al., 2007). Students improved with PRT because it was a loosely structured intervention relying on naturally occurring teaching opportunities and consequences to improve generalizing a skill, increasing spontaneity, reducing prompt dependency, and increasing motivation (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Schreibman, 2000; Stahmer et al., 2010; Verschuur et al., 2020). Koegel, Koegel, Harrower, and Carter (1999) explained how teachers used PRT to focus on pivotal areas central to a wide range of a student's functioning to produce improvement in nontargeted behaviors.

Renshaw and Kuriakose (2011) stated PRT emphasizes principles over procedures and focuses on enhancing students with ASD's motivation to learn in natural environments. Stahmer et al. (2012) defined the pivotal responses as

motivation, initiation, and responsivity to multiple cues. Researchers explained pivotal responses were demonstrated by gaining the students' attention, presenting clear and appropriate instructions, interspersing maintenance tasks, sharing control, requiring the student to respond to multiple cues, providing contingent consequences, ensuring a direct relationship between the student's response and the reinforcer, and reinforcing the student's attempts (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Stahmer et al., 2012; Suhrheinrich et al., 2007). O'Laughlin and Thagard (2000) explained how cognitive impairment in students with ASD displayed abnormally weak central coherence, or the capacity to integrate information to make sense of one's environment.

Stahmer et al. (2010) observed PRT with a teacher altering a geography lesson about China by using a student with ASD's interest in cars to discuss cars made in China to gain the student's attention to task. Teachers used PRT for maintenance tasks by having students with ASD work on easier tasks they already mastered between difficult tasks they have not mastered to minimize frustration during learning (Baker-Ericzén et al., 2007; Stahmer et al., 2010, 2012; Suhrheinrich et al., 2007). Another student with ASD's interest in cars was applied to an activity by using car stickers to complete addition problems on a mathematics worksheet (Stahmer et al., 2010).

Motivating students with ASD was enhanced by keeping the overall success and reinforcement level high with previously mastered tasks interspersed among new, more difficult tasks (Baker-Ericzén et al., 2007; Stahmer et al., 2010, 2012; Suhrheinrich et al., 2007) such as mixing concrete questions with lengthy

inquiries or having the student use language at varying levels to request something of interest (Stahmer et al., 2010). Teachers used DTT and MEI with two or more aspects of the environment or stimuli to broaden attention when it was developmentally appropriate, such as asking a student with ASD for a red marker in a mixed box of crayons and markers (Baker-Ericzén et al., 2007; Stahmer et al., 2010, 2012; Suhrheinrich et al., 2007). Students found a red color and not a different color, paired to a crayon and not a marker (Stahmer et al., 2010), thus requiring the student to discriminate between the correct and incorrect stimuli which supports the student's attention development to become normalized towards functional use of multiple environmental cues (Baker-Ericzén et al., 2007; Stahmer et al., 2010, 2012; Suhrheinrich et al., 2007).

Teachers rewarded a student's behavior with direct reinforcement as a natural consequence related to the behavior (Baker-Ericzén et al., 2007; Stahmer et al., 2010, 2012; Suhrheinrich et al., 2007) such as a student giving the verbal response *Car* and gaining access to a toy car, instead of food or a token reinforcer (Stahmer et al., 2010). Teachers integrated direct reinforcers in the classroom by requiring students to use language to request the next activity at circle time or to ask for specific materials for an art project (Stahmer et al., 2010, 2012). A teacher reinforced student attempts as a strategy to keep the student motivated (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Stahmer et al., 2010, 2012). A student was reinforced by a teacher blowing bubbles after the student pointed and produced the sound *Buh* for bubbles, even though the student said the entire word *Bubbles* previously (Stahmer et al., 2010).

Teachers targeted pivotal areas such as motivation, responsivity to multiple cues, self-management, and self-initiations leading to gains in the areas of interest but also addressed untargeted areas such as academic skill acquisition (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Renshaw & Kuriakose, 2011; Stahmer et al., 2010, 2012, 2016; Suhrheinrich et al., 2007, 2020; Verschuur et al., 2020). Teachers used PRT to improve students with ASD's autonomy, self-learning, and generalization of new skills by increasing language, social, and play skills, while decreasing noncompliant behaviors (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Schreibman, 2000; Stahmer et al., 2010, 2012, 2016).

Teachers used task variation for a variety of goals within a single session because it increased accuracy of responding, interest, and enthusiasm, as well as decreased noncompliant behaviors in students with ASD (Dunlap & Koegel, 1980; Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Renshaw & Kuriakose, 2011). Researchers defined task variation as teaching different task demands sequentially rather than presenting the same task demands in a skill and drill format (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Renshaw & Kuriakose, 2011; Stahmer et al., 2010, 2012, 2016; Suhrheinrich et al., 2007, 2020; Verschuur et al., 2020). Ertmer and Newby (2013) explained the goal of instruction is to accurately portray tasks, not to define the structure of learning required to achieve the task, and how the appropriate and effective use of

knowledge comes from engaging the learner in using the information in real-world situations.

Students with ASD's self-initiating was considered a pivotal response because acquisition of this skill led to natural gains of new knowledge, such as initiating a question where the provided answer allows the student to interact with the stimulus as a natural reinforcer (Dunlap & Koegel, 1980; Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Renshaw & Kuriakose, 2011; Stahmer et al., 2010, 2012, 2016; Suhrheinrich et al., 2007, 2020). Teachers and peers encouraged students with ASD to use a variety of statements, questions, prompts, and directives when speaking to increase opportunities to respond to multiple cues (Renshaw & Kuriakose, 2011; Stahmer et al., 2010, 2012, 2016; Suhrheinrich et al., 2007, 2020). Renshaw and Kuriakose (2011) provided an example of a student with ASD self-initiating by asking *what is it*, and then receiving the response, *it is a box*, followed by the student being able to interact with the box as a natural reinforcer. Teachers also used PRT to help students with ASD develop self-management skills because it facilitates the development and maintenance of any behavior it was applied to, as well as facilitating a more socially valid intervention experience, requiring less involvement from a teacher and more engagement from the student with ASD (Koegel, Koegel, Harrower, & Carter, 1999; Koegel, Koegel, Shoshan, & McNerney, 1999; Renshaw & Kuriakose, 2011; Stahmer et al., 2010, 2012, 2016; Suhrheinrich et al., 2007, 2020).

Researchers studied the treatment integrity for implementation and fidelity of PRT for students with ASD based on the community, school setting, and

teacher perspective (Baker-Ericzén et al., 2007; Stahmer et al., 2016; Suhrheinrich et al., 2007). Baker-Ericzén et al. (2007) enrolled 158 families in a parent education program at a children's hospital in Southern California from 1999 to 2003 with a racial/ethnic distribution for the entire sample consisting of 35.4% Hispanic, 27.5% White, 19.5% Asian/Pacific Islander, 4.4% Black, 2.7% Native American, and 10.6% Unknown/other. Students showed significant improvements in daily living skills, socialization, motor skills, and adaptive behavior; however, girls performed better in communication skills and students six years and older only improved their daily living skills (Baker-Ericzén et al., 2007). Baker-Ericzén et al. (2007) stated PRT seems to benefit all types of students, regardless of gender, age, or race/ethnicity.

Twenty teachers who worked with students with ASD in a special education classroom learned PRT strategies after a brief training period and felt satisfied with the training and materials to improve student engagement (Stahmer et al., 2016). Teachers from twenty-one classrooms in two different cities used PRT to implement antecedent strategies, such as providing a clear cue with fidelity, but did not consistently use student choice or multiple cues (Suhrheinrich et al., 2007). Suhrheinrich et al. (2020) found the outcomes of a large, randomized trial training of 126 teachers on PRT showed limited fidelity, even when paired with training and a one-on-one coach in each teacher's classroom. Stahmer et al. (2016) stated it was difficult for teachers to meet fidelity of implementation criteria even when they used PRT consistently and received training.

Reinforcing Interventions for Students with Autism Spectrum Disorder

Myles et al. (2007, 2009) stated without reinforcement there was no intervention. Students with ASD required quality interventions including pictures, schedules, and learning strategies to clarify activity structure and increase academic and social performance (Myles et al., 2007, 2009); however, Mirenda and Brown (2007) stated interventions should not solely focus on readjustments of environments or antecedent events. Mirenda and Brown (2007) explained the substitution of a more appropriate means of communication or the use of specific strategies such as visual supports or schedules was required to reduce noncompliant behaviors in students with ASD; however, students with ASD also required interventions emphasizing the development of coping and adaptive strategies to regulate their emotional responses (Williams et al., 2018). Teachers who used interventions designed to address students' noncompliant behaviors without the consideration of the underlying cause of the behavior, reduced their effectiveness in changing the behaviors or sustaining the changed behaviors; as opposed to teachers using multiple interventions as a comprehensive program to address sensory and biological needs, reinforcements, structure and visual supports, task demands, and academic skills (Myles et al., 2007, 2009).

Students with ASD demonstrated noncompliant behaviors impeding their skill acquisition, thus weakening the intervention (Ducharme & Ng, 2012; Kelly et al., 2015). Students with ASD exhibited noncompliant behaviors such as leaving the table, crying, or disrupting instruction (Cariveau et al., 2019; Ducharme & Ng, 2012; Kelly et al., 2015; Shillingsburg et al., 2014). Students with ASD also demonstrated repetitive patterns in play or communication and

excessive avoidance as a coping function to reduce their anxiety (Cariveau et al., 2019; Ducharme & Ng, 2012; Shillingsburg et al., 2014). Williams et al. (2018) explained how verbal ability was not strongly related to the severity of noncompliant behaviors; however, lower adapting and coping scores were significantly associated with increased severity of noncompliant behaviors, even when accounting for verbal ability. Students with ASD with more verbal skills did not necessarily mitigate noncompliant behaviors because communication is not only important to express wants and needs, but it is also important for responding to and controlling the responses of others (Williams et al., 2018).

Williams et al. (2018) stated an individual's ability to cope or respond with flexibility to environmental demands may also be a powerful predictor of noncompliant behaviors for students with ASD. Researchers defined differential reinforcements as reinforcing only correct responses to reduce noncompliant behaviors (Cariveau et al., 2019). Kelly et al. (2015) and Shillingsburg et al. (2014) identified differential reinforcements as teaching a student to request a break, providing breaks, not reinforcing noncompliant behaviors, and removing demands for a set amount of time. Teachers used DTT to engage students to teach specific skills (Shillingsburg et al., 2014); however, students with ASD demonstrated noncompliant behaviors and social avoidance to interrupt the instruction (Shillingsburg et al., 2014; Steege et al., 2007). Teachers paired with reinforcements in the instructional setting increased compliant behavior and decreased social avoidance, as the teacher became part of the reinforcement (Cariveau et al., 2019; Shillingsburg et al., 2014).

Cariveau et al. (2019) defined demand fading as initially removing demands until the noncompliant behaviors decreased and gradually reintroducing the demands. Kelly et al. (2015) defined presession pairing as an antecedent manipulation where a teacher engaged a student with preferred items before an instructional session. A teacher worked with a student with ASD, using presession pairing, by allowing the student to access preferred toys and activities while interacting with the teacher before a DTT session started (Shillingsburg et al., 2014).

Kelly et al. (2015) described antecedent manipulation as strategies which modified the environment to reduce noncompliant behaviors among students with ASD. When a student disengaged from a task, the teacher used antecedent manipulation by presenting reinforcers, such as preferred toys or snacks, paired with vocal and physical attention (Cariveau et al., 2019; Kelly et al., 2015; Shillingsburg et al., 2014). Researchers recommended antecedent manipulation such as pairing, rapport-building, or presession pairing, because differential reinforcements may reduce noncompliant behaviors but not alter the antecedent triggering those behaviors (Cariveau et al., 2019; Kelly et al., 2015; McGill, 1999). Cariveau et al. (2019) and Kelly et al. (2015) suggested teachers use antecedent manipulation such as a visual schedule, a token board, a timer, or a visual cue to reduce noncompliant behaviors.

Cariveau et al. (2019) evaluated nine female students with ASD, younger than five years old, with minimal verbal skills and noncompliant behaviors, as they completed DTT sessions. Cariveau et al. (2019) used a nonconcurrent multiple baseline design across all participants to show noncompliant behaviors

declined when paired with differential reinforcement and demand fading for seven out of nine students. Kelly et al. (2015) used an experimental design with two females and one male with ASD between the ages of nine and eleven who presented noncompliant behaviors such as task refusal, crying, running, and self-injury. Kelly et al. (2015) conducted each session in an office space located in the students' school. Shillingsburg et al. (2014) used a multi-element design with a reversal study with two males ages two to three in a daycare playroom and showed the social approach was higher and the social avoidance was lower in sessions with the pairing teacher. Students no longer emitted noncompliant behaviors and provided more accurate responses when presented with presession pairing (Cariveau et al., 2019; Kelly et al., 2015; Shillingsburg et al., 2014).

Students with ASD demonstrated noncompliant behaviors when task demands exceeded their ability; however, if a task was too easy, it allowed a student with ASD to be independent but did not expand their skills (Myles et al., 2007, 2009). Myles et al. (2007, 2009) explained how improvements may be seen as a direct result of attending to an individual's biological needs, providing meaningful reinforcers, addressing the need for structure and predictability, and carefully matching demands to task; however, comfortability with behavior gains can lead teachers to overlook academic skills to teach, which does not allow for independence, promote generalization, or growth.

Williams et al. (2018) used data from the Autism Inpatient Collection to examine the relationship associated between noncompliant behaviors and verbal ability. Williams et al. (2018) compared 169 minimally-verbal and 177 fluently verbal White male psychiatric inpatients with ASD, ages four to 20 years old, by

the severity of self-injurious behavior, stereotyped behavior, aggression, and tantrums, and found no significant difference when controlled for age and verbal ability. Participants' verbal ability was not strongly related to the severity of problem behaviors; however, lower adapting/coping scores significantly associated with increasing severity of each type of problem behavior, even when accounting for verbal ability (Williams et al., 2018). Students with ASD were required to demonstrate flexibility and differential response to contextual demands when presented with social or academic tasks (Myles et al., 2007, 2009; Williams et al., 2018). A student with ASD, with the ability to change their behavior in response to other persons and contextual information, showed fewer noncompliant behaviors (Williams et al., 2018).

Procedural Implementation Fidelity of Interventions

According to Russo-Campisi (2017), research focused on implementing EBPs without common concerns surrounding the absence of training and resources, limited collaboration between researchers and teachers, and a lack of fit between the intervention and environment. Students required individualized instruction with modifications and accommodations; however, the modifications and accommodations impacted the fidelity of implementation (Russo-Campisi, 2017). Researchers explained an indicator of intervention quality was procedural implementation fidelity, defined as the degree to which a teacher implemented an intervention as prescribed (Odom et al., 2010; Stahmer et al., 2010, 2012, 2015, 2016).

Cook et al. (2008) stated to claim educational practices cause a change in student outcomes, researchers must show they have ruled out alternative

explanations for those outcomes. Researchers explained there is little distinction between interventions demonstrating to be ineffective by multiple studies and interventions demonstrating little effect in one or two studies (Cook et al., 2014; Odom et al., 2010; Stahmer et al., 2015, 2016). Teachers who participated in clinical research reported some students with ASD improved a great deal, some showed moderate improvement, and others failed to improve (Cook et al., 2014; Odom et al., 2010; Schreibman, 2000). Teachers did not implement EBPs and interventions because limited training was provided and most EBPs and interventions were not designed for school settings, which made them more difficult to implement appropriately in the classroom (Cook et al., 2014; Odom et al., 2010; Schreibman, 2000; Stahmer et al., 2015). Pellecchia et al. (2015) stated there was little research on the association between fidelity and outcomes for students with ASD.

Stahmer et al. (2015) examined procedural implementation fidelity of three EBPs used in fifty-seven special education self-contained classrooms from a large urban school district. Mandell et al. (2013) used randomized field trials to compare Strategies for Teaching Based on Autism Research (STAR) and Structured Teaching (ST) with teachers in thirty-three kindergartens through second grade classrooms. Eighteen teachers who used STAR and fifteen teachers who used ST participated in randomized field trials (Mandell et al., 2013). The students in the STAR group were 81.7% males and 18.3% females with 70% Black, 20% White, 1.7% Hispanic, and 8.3% other; and the students in ST group were 89.8% males and 10.2% females with 35.6% Black, 32.2% White, 15.3% Hispanic, and 16.9% were other (Mandell et al., 2013). Pellecchia et al. (2015)

evaluated the association of fidelity to each of the strategies used in STAR with 191 students ages five through eight years old from a large public school district and analyzed student outcomes, measuring intensity as well as accuracy. The students were ethnically diverse; 53% Black, 30% White, 10% Hispanic, 5% Asian, and 2% were of other ethnicities (Pellecchia et al., 2015).

Students in the STAR group and the ST group demonstrated an IQ increase in one academic year, but neither group achieved high fidelity; average fidelity with STAR was 57% and average fidelity with ST was 48%. Teachers used variations of interventions in the classroom based on the needs of their students with ASD affecting the procedural fidelity of each intervention used (Mandell et al., 2013; Pellecchia et al., 2015; Stahmer et al., 2015). Teachers implemented structured interventions, such as DTT, with higher fidelity and less structured interventions, such as PRT, with less fidelity (Mandell et al., 2013; Pellecchia et al., 2015; Stahmer et al., 2015). Pellecchia et al. (2015) reported fidelity to all strategies as low, despite considerable training and support; however, the students showed gains in cognitive ability.

Steege et al. (2007) characterized ABA programs using interventions empirically demonstrated effective with a specific population in a particular context. Students in a special education self-contained classroom showed progress when their learning aligned to the concepts of behavioral learning theory because of the task structure and reinforcement regiment (Myles et al., 2007, 2009; Renshaw & Kuriakose, 2011). I chose to review these EBPs and interventions based around behavioral learning theory, but to also show how they incorporated strategies from cognitive learning theory and constructivist learning theory. I

analyzed how teachers used behavioral learning theory with DTT and MEI to explicitly train students to produce a correct response. I also analyzed how teachers used behavioral learning theory and cognitive learning theory with DI and ET to preface how the brain processes information with multiple exemplars, step by step instructions, and opportunities to always respond correctly. In addition, I analyzed how teachers used constructivist learning theory with PRT to allow students to direct their own learning and construct meaning from their environment. I found a lack of research on using multiple EBPs, interventions, and learning theories as a comprehensive program because researchers found it difficult to identify which aspect of the program provided students with intellectual disabilities the most benefit (Odom et al., 2010); however, teachers typically modified EBPs for use in a special education self-contained classroom by combining and adapting EBPs from various interventions to fit their own teaching preference and the needs of the individual student (Arick et al., 2003; Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009; Myles et al., 2007, 2009; Ruppar, 2015; Schreibman, 2000; Stahmer et al., 2010, 2012, 2015, 2016).

As I reviewed studies pertaining to ABA interventions. I found a shift occurred from explicitly teaching students set skills to giving students more control over their learning. I noted how teachers adjusted interventions because of noncompliant behaviors and found ways to engage students with ASD and intellectual disabilities in their learning. I found PRT appeared more adaptable to the classroom setting because the required parameters for implementation allowed a teacher to educate students in the natural environment of the classroom instead of manipulating the environment to meet the needs of the content taught. I

realized PRT differed from DTT in how PRT allowed for students to choose what they wanted to learn about while teachers filled in the learning gaps, as opposed to DTT which focused on what the teachers wanted the student to learn. I identified a shift in ABA interventions from students with ASD being passive learners with DTT and MEI described in behavioral learning theory to being active learners with DI, ET, and PRT described in cognitive learning theory and constructivist learning theory.

Researchers have recommended measures other than the traditional standardized tests be employed to determine the effectiveness of EBPs interventions because in using a variety of outcome measures, researchers could discover benefits of EBPs and interventions not captured by traditional standardized tests (Arick et al., 2003; Browder et al., 2008, 2012; Lee et al., 2009). Schreibman (2000) reported outcomes such as improvements in IQ gave little information regarding the totality of the treatment impact, but chronological age, degree of cognitive impairment, language level, and the specific behavioral profile manifested by a student with ASD had more influence over the treatments' effectiveness. Teachers and researchers stated there was no one-size-fits-all treatment for students with ASD and there was, as of yet, no established protocol for relating specific student, family, target behavior, and treatment variables to an individualized comprehensive program (Browder et al., 2008, 2012; Lee et al., 2009; Ruppar, 2015; Schreibman, 2000).

Standards for Designing Evidence-Based Practices and Interventions for Students in a Special Education Self-contained Classroom

Teachers often experienced challenges in identifying and tracking which materials and supports matched student needs and materials required for specific activities and data collection (Arick et al., 2003; Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009; Myles et al., 2007, 2009; Ruppar, 2015). Teachers typically modified EBPs for use in the classroom by combining and adapting EBPs from various interventions to fit their own teaching preference and the needs of the individual student (Arick et al., 2003; Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009; Myles et al., 2007, 2009; Ruppar, 2015; Schreibman, 2000; Stahmer et al., 2012). Ertmer and Newby (2013) explained learning is a complex process generating numerous interpretations and theories of how it is effectively accomplished.

Ertmer and Newby (2013) explained a critical factor for selecting an instructional strategy is based on the degree to which the student processes information. Cook et al. (2014) outlined the design standards of EBPs and interventions in accordance with What Works Clearinghouse and the Council for Exceptional Children as the following:

1. Researchers described the setting sufficiently.
2. Researchers provided demographic information, as well as a method for determining disability status.
3. Researchers delineated the role and background of the teacher, as well as training and qualification requirements.

4. Researchers outlined procedures and materials prescribed for replication and were measured regularly across conditions.
5. Researchers demonstrated experimental control, described intervention conditions, and designed controls for threats to internal validity and attrition.
6. Researchers reported socially valid outcomes and reliability measures.
7. Researchers illustrated appropriate research design techniques and statistically or visually demonstrated effects.

Cook et al. (2014) explained the approach to categorizing EBPs and interventions for special education required two methodologically sound research methods: group comparison research and single-subject research. Researchers used the quantity, effects, and research design of methodologically sound studies to categorize practices as EBPs, potentially EBPs, mixed effects, insufficient evidence, or negative effects (Cook et al., 2014; Odom et al., 2010; Schreibman, 2000).

Connecting Learning Theories to Evidence-Based Practices

Muhajirah (2020) defined learning theories such as behavioral learning theory, cognitive learning theory, and constructivist learning theory, as a collection of thoughts, ideas, and systems in which to practice the learning process between teacher, student, and the environment related to the learning activities. Humans, through their intelligence, had the cognitive ability to learn, understand, reason, form concepts and ideas, plan, solve problems, make decisions, retain information, and use language to communicate (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018). According to

Yilmaz (2011), learning theories provided the essential framework for effectively teaching the various aspects of each student's learning process. Teachers required in-depth knowledge of content, as well as a strong command of learning theory strategies in their applications for all instructional practices (Ertmer & Newby, 2013; Muhajirah, 2020; Yilmaz, 2011).

Teachers used behavioral learning theory strategies to produce observable and measurable outcomes with assessments to monitor student progress (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018). Teachers relied on using prompts and reinforcement, whether a tangible reward or informative feedback, to impact students' mastering individual steps of a complex task to ensure a strong stimulus response association (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018; Yilmaz, 2011). Stahmer et al. (2010) explained how ABA is based on the belief teachers can shape a student's behavior by altering environmental events surrounding the student's behavior. Teachers used antecedent stimuli to produce changes in behaviors with consequences, or the event happening after a behavior occurs (Lovaas, 1987; Stahmer et al., 2010; Tasheva & Bogdanov, 2018), such as asking a student what color a crayon is and reinforcing the request by giving the crayon to the student after he or she named the color (Stahmer et al., 2010). Teachers used DI to break down and model skills with immediate corrective feedback and repeated practice to support students' ability to learn specific skills (Ganz & Flores, 2009; Hicks et al., 2011; Shillingsburg et al., 2015; Stahmer et al., 2010).

Researchers defined cognitive learning theory as an active involvement of the student in the learning process to structure, organize, sequence, and connect

previously learned information to new information (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018; Yilmaz, 2011). Ertmer and Newby (2013) explained key elements to cognitive learning theory strategies included ways to help students attend to, code, transform, rehearse, store, and retrieve information. Teachers used cognitive strategies to teach and apply skills by anchoring learning in meaningful, real-world scenarios (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018). Ertmer and Newby (2013) explained how giving students control and the capability to manipulate information allowed the students to apply what they learned.

Teachers used constructivist learning theory strategies by presenting information in a variety of ways, for different purposes, and from different perspectives to support the use of problem-solving and pattern-recognition skills (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018). Students with ASD initiated their learning with PRT as opposed to teacher-directed learning with DTT (Koegel, Koegel, Shoshan, & McNerney, 1999; Schreibman, 2000; Stahmer et al., 2010; Verschuur et al., 2020). Teachers needed to target how students built personal interpretations of the world based on the student's individual experiences and actively used what they learned (Ertmer & Newby, 2013; Muhajirah, 2020; Schreibman, 2000; Stahmer et al., 2010; Verschuur et al., 2020).

Schreibman (2000) explained how the education system was responsible for targeting the wide range of needs interfering with a student with ASD's ability to benefit from general education, including improving learning skills, attention and engagement, and core symptoms of ASD. Researchers noted many studies

demonstrated effectiveness of PRT and other ABA interventions in reducing ASD symptoms; however, there was not a specific treatment approach effective for every student (Schreibman, 2000; Stahmer et al., 2012, 2015). In addition, researchers stated EBPs and interventions for students without disabilities or for students with specific learning disabilities may not necessarily be designed for students with intellectual disabilities (Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009).

Browder et al. (2008) explained the science of reading provided important guidance for phonemic awareness and other early literacy skills used to develop emerging readers; however, there was no translation for limited language or nonverbal students who required intensive instruction to master emerging reader skills. According to Ruppar (2015), literacy programs emphasizing a few discrete skills did not result in the integration of literacy concepts and skills for everyday purpose for students with intellectual disabilities, which is why effective translation of research into practice was needed for all students to have access to multifaceted, communication-rich literacy curricula and instruction. Browder et al. (2008) stated the importance of building on the science of reading already available for typically developing students was the best starting point for adapting interventions, until research indicates otherwise. Researchers defined the science of reading as an interdisciplinary body of scientifically based research established in the 1970s outlining the cognitive process of reading and issues related to reading and writing (Browder et al., 2008).

Teachers effectively used behavioral learning theory strategies to facilitate the mastery of the skills taught (Ertmer & Newby, 2013; Muhajirah, 2020;

Tasheva & Bogdanov, 2018). Teachers also used cognitive learning theory strategies to teach problem-solving tactics where defined facts and rules apply to unfamiliar situations (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018). In addition, teachers used constructivist learning theory strategies to teach ill-defined problems through reflection in action (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018). All students learn differently, such as learning through stimulus-response associations, through practice and feedback opportunities, and through the process of collaboration and social negotiation; which is why no single approach should be used (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018).

Shepley and Grisham-Brown (2019) explained the relationship between the behavioral approach of ABA and education intersected due to federal policy recognizing the benefits of applying ABA's guiding principles. Teachers applied ABA principles effectively in all aspects of education, including classroom systems of motivation, behavior management, and assessments (Dunlap et al., 2001; Shepley & Grisham-Brown, 2019; Stahmer et al., 2012; Weiss, 2001). While teachers effectively used the ABA principles to build skills in students with ASD, the addition and integration of other approaches may further enhance instructional outcomes (Stahmer et al., 2012; Weiss, 2001). How teachers delivered high-quality EBPs and interventions to students with intellectual disabilities was a necessary and crucial step toward effective treatment, warranting the attention of researchers (Dunlap et al., 2001; Shepley & Grisham-Brown, 2019; Stahmer et al., 2012; Weiss, 2001).

Students with ASD showed positive effects when taught with ABA interventions; however, different forms of an intervention may be more beneficial than others and finding those variables influencing the effectiveness is an ongoing process (Dunlap et al., 2001; Schoen, 2003; Shepley & Grisham-Brown, 2019). In addition, Schoen (2003) explained ABA is intense and intrusive in its format and delivered stressful reactions by the student, which should be carefully monitored. Students with ASD's difficulties, range of abilities, age, culture of the family, and overall characteristics combined to suggest the use of a single treatment would be poor advice (Dunlap et al., 2001; Schoen, 2003; Shepley & Grisham-Brown, 2019). Researchers suggested teachers used comprehensive programs to meet the complex challenges and spectrum of characteristics associated with students with ASD (Dunlap et al., 2001; Schoen, 2003; Shepley & Grisham-Brown, 2019; Stahmer et al., 2012; Weiss, 2001). Tasheva and Bogdanov (2018) explained how the principles of behavioral learning theory, cognitive learning theory, and constructivist learning theory provided teachers guidelines to select tools, techniques, and strategies to promote learning. Teachers used their knowledge of students, knowledge of the content, and the objective of the lesson to decide on and implement the best instructional strategies (Ertmer & Newby, 2013; Tasheva & Bogdanov, 2018).

Lovaas (1987) indicated one may have to intervene with a student on all behaviors, in all environments, and with the help of all significant persons. Realistically, students with ASD required a plethora of individualized treatments starting early in life and continuing intensely for a long period of time (Dunlap et al., 2001; Schoen, 2003). Odom et al., (2010) explained how EBPs and

interventions utilized without the essential elements of the classroom setting would not likely produce the positive outcomes demonstrated by researchers in a clinical setting; however, teachers have effectively applied and modified EBPs and interventions for students with intellectual disabilities (Asaro-Saddler et al., 2017).

Tennessee Educator Acceleration Model General Educator Rubric

Church (2012) reported Tennessee became one of the first states to implement a comprehensive teacher evaluation system based on multiple measures of a teacher's performance during the 2011 and 2012 school year. Teachers were evaluated using the Tennessee Educator Acceleration Model (TEAM) General Educator Rubric, which included instruction, planning, environment, professionalism, motivation of students, presentation of instructional content, lesson structure and pacing, activities and materials, questioning, academic feedback, grouping of students, teacher content knowledge, teacher knowledge of students, thinking, and problem solving (Moran, 2015); reflecting the framework for teaching developed by Danielson (2001). Teachers received a score on a scale from one to five which supported the improvement of their instruction and focus on student growth (Church, 2012; Moran, 2015).

Danielson (2015) explained the framework for teaching as a tool to enhance professional practice by providing a common language for instructional practice grounded in different learning theories to understand great teaching and the nature of learning though a set of discrete practices. Teachers used the framework for teaching to accelerate growth in their skills, improve student outcomes, enrich self-reflection, and enhance collaboration (Church, 2012;

Danielson, 2001; Moran, 2015). Danielson (2001) stated the framework for teaching directly impacted student learning and development.

Evaluators used the TEAM General Educator Rubric to document teacher effectiveness and guide professional growth (Church, 2012; Danielson, 2001; Moran, 2015). Church (2012) explained the TEAM General Educator Rubric supports a shared understanding of effective practices used by teachers to establish evidence-based feedback and collaboration (Church, 2012; Moran, 2015). Administrators in public-schools had to ensure each classroom was in the care of an effective teacher and the evaluation system recognized, cultivated, and developed strong teaching practices (Danielson, 2001, 2015). Since 1996, teachers used Danielson's framework for teaching to develop a common language when discussing observation data, assessment results, the rigor of activities and assignments, and student work samples (Church, 2012; Danielson, 2001, 2012, 2015; Moran, 2015). According to Danielson (2001, 2015) teaching was not a matter of following a prescribed set of procedures, like a recipe, but a matter of juggling multiple demands involving all students, each with their own background, characteristics, and perspectives, to create an environment in which students were engaged and took responsibility for their learning. Teachers required a repertoire of practices because different factors affect student learning and it was difficult to attribute learning solely to one specific variable (Danielson, 2001, 2015; Moran, 2015).

Evaluators conducted defensible observations because the standards, instruments, and procedures of practice set clear expectations for teachers to demonstrate their skills (Danielson, 2001, 2012; Moran, 2015). Trained and

certified evaluators used the TEAM General Educator Rubric to document accurate and consistent judgements observed in the classroom (Danielson, 2001, 2012; Moran, 2015). Special education teachers evaluated in the state of Tennessee with the TEAM General Educator Rubric had to develop their lessons with connections to their students' individualized education programs (IEPs) and state standards with questions, activities, and assessments (Tennessee Department of Education, 2016). A teacher scoring as a level three to five was reported to demonstrate at or significantly above expectations for excellent instruction in the classroom (Tennessee Department of Education, 2016). Evaluators scored lessons to look for strengths and areas of improvement by looking for the effectiveness of teacher actions based on evidence of student actions and learning during a lesson (Tennessee Department of Education, 2016).

Teachers developed lessons using different learning theory strategies to enrich each student's experience in the classroom. Students in a special education self-contained classroom should have access to the same learning experience with the needed accommodations and modifications to support their learning and progress. Evaluators who used the TEAM General Educator Rubric observed teachers performing a multitude of indicators from the rubric, which highlighted strategies aligned to behavioral learning theory, cognitive learning theory, and constructivist learning theory. I wanted to use the TEAM General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards.

Through this research, I found learning theories as the foundation to implement different EBPs and interventions used to support students in a special education self-contained classroom. I noticed a focus on the fidelity of implementation for EBPs and interventions to measure specific strengths and weaknesses; however, the settings and participants did not always match a special education self-contained classroom. I chose to include the TEAM General Educator Rubric because it does not measure the fidelity of implementation of a program, but instead focused on implementing strategies aligned to behavioral learning theory, cognitive learning theory, and constructivist learning theory. I wanted to show how a state approved evaluation tool could be used to observe strengths and weaknesses within a Tennessee state standard aligned lesson taught to students in a special education self-contained classroom.

Learning Theories and Special Education Self-contained Classroom Instruction

Student access to the general education curriculum became an expectation in federal law governing educational services for students with intellectual disabilities, among other requirements about student involvement in the general education curriculum (Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009). Students with intellectual disabilities required special education services through the Individuals with Disabilities Education Improvement Act of 2004 (IDEA) to have access to educational programs with supplementary aids and services to ensure student involvement and progress in the general education curriculum (Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009). Lee et al. (2009) defined supplementary aids and services as modifications and

adaptations to the curriculum, to the physical structure of the classroom, the use of technology, accommodations for assessments and tasks, and the availability of teaching assistants or peer supports. Steege et al. (2007) explained how comprehensive programs needed to be dynamic, ever-changing processes which used assessments and interventions to reconsider the behaviors taught, the goals of instruction, the teaching methods, and interventions required to develop a student with ASD's cognitive, social, academic, leisure, and functional living skills for school, home, and in the community.

Researchers used observations and surveys to analyze EBPs implemented in special education self-contained classrooms (Arick et al., 2003; Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009; Ruppar, 2015). Lee et al. (2009) observed nineteen students, ages seven to twelve years old; twelve male and seven female; fifteen White students, two Asian Pacific Islander students, one Black student, and one Hispanic student from three suburban school districts in the Midwestern United States, to identify predictors of student and teacher variables on the access to the general education curriculum. Hess et al. (2008) used the web-based Autism Treatment Survey to include a representative sample of 185 teachers across the state and reported on 226 students with ASD in grades preschool through twelfth grade, to identify strategies used in education of students with ASD in Georgia. Teachers made significant modifications and adaptations to the EBPs and interventions used in the classroom (Hess et al., 2008; Lee et al., 2009).

Teachers' knowledge of students were strong predictors of student access to the general education curriculum, which emphasized the self-evident

importance of teachers in instruction (Lee et al., 2009). Teachers used cognitive learning theory strategies to organized the learning objectives to engage students in more difficult tasks (Ertmer & Newby, 2013; Tasheva & Bogdanov, 2018; Tracey & Morrow, 2017; Yilmaz, 2011) by modifying how the content was presented and how the students responded (Lee et al., 2009). When teachers presented new information broken down into smaller parts, students did not become overwhelmed with incoming information because they had time to process the smaller bits of information (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018; Tracey & Morrow, 2017; Yilmaz, 2011).

According to Hess et al. (2008) fewer than ten percent of the strategies used with students with ASD in Georgia public-schools were research based EBPs and interventions. Researchers reported a critical concern around the lack of adequate training and preparation for teachers and teaching assistants when implementing EBPs and interventions (Hess et al., 2008; Lee et al., 2009; Stahmer et al., 2012). Researchers addressed the need for EBPs and interventions to address multiple state standards for students with intellectual disabilities because these students participated in alternative state assessments (Browder et al., 2008, 2012; Hess et al., 2008; Lee et al., 2009).

Researchers stated the appropriate instructional strategies and classroom setting predicted greater access to the general education curriculum for students with intellectual disabilities (Hess et al., 2008; Lee et al., 2009). Students with intellectual disabilities who received instruction in the general education classroom worked on activities linked to general education content standards; however, they did not always have the types of curriculum modifications and

accommodations to support their progress (Hess et al., 2008; Lee et al., 2009). Students with intellectual disabilities were observed 46.11% of the time receiving instruction in a special education self-contained classroom working on an activity linked to general education standards; however, none of the general education standards were on grade level (Lee et al., 2009). Hess et al. (2008) explained without clear EBPs and intervention guidelines for students with intellectual disabilities at different grade levels and classroom settings, teachers had little support and were left to their own devices when deciding which strategies to use. Teachers expressed the desire to provide EBPs and interventions; however, the results showed teachers used both researched and non-researched based strategies (Hess et al., 2008).

Browder et al. (2008) evaluated the impact of an experimental curriculum called the Early Literacy Skills Builder, designed to help students with intellectual disabilities develop language and early literacy skills. Seven special education teachers from a large urban school district in the Southeastern United States volunteered to participate in the study (Browder et al., 2008). Each teacher selected students enrolled in grades kindergarten through fourth grade with an IQ of 55 or below, comparable deficiency in adaptive behavior, who read below a first-grade level, and had adequate hearing and vision to respond to curricular materials and instruction (Browder et al., 2008). Twenty-three students met the criteria for inclusion in the study, thirteen males and ten females; twelve Black students, eight White students, and three students who identified as other (Browder et al., 2008). Students in the experimental groups received the experimental curriculum with a mean fidelity of 85% for following the prescribed

template of the steps implemented across fifty-five observations of all seven teachers (Browder et al., 2008). The students made significant gains with phonemic awareness, which suggested the experimental curriculum promoted skills to develop emerging or beginning readers (Browder et al., 2008). Researchers also suggested the path to reading may be possible for students with intellectual disabilities but may require more years of instruction (Browder et al., 2008; Ruppar, 2015). Cognitivists believed the difficulty of the material must match the cognitive level of the student, so the student can both attend to and relate to the materials regardless of how much time it may take the student to learn the content (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018; Tracey & Morrow, 2017; Yilmaz, 2011). Students' ability to understand written text required basic phonics, phonemic awareness, and vocabulary skills, and yet these skills alone do not fully encompass what it means to be literate (Browder et al., 2008; Ruppar, 2015).

Browder et al. (2012) evaluated strategies to teach secondary math and science content to students with moderate and severe intellectual disabilities in a quasi-experimental group design with special education teachers randomly assigned to either the math or the science treatment group. Teachers in the math group implemented four math units representing four of the five national math standards, and the science teachers implemented units with three of the eight National Science content standards (Browder et al., 2012). Teachers from a large urban school system in the Southeastern United States taught the math and science content in a special education self-contained classroom (Browder et al., 2012). Sixteen students were in the math group, ages fourteen to twenty years old,

with an IQ range from 30 to 54; seven male and nine female; nine White students, one Hispanic student, and six Black students (Browder et al., 2012). Twenty-one students were in the science group, ages fourteen to twenty-one years old, with an IQ range from 33 to 53; twelve male and nine female; seven White students, one Hispanic student, and thirteen Black students (Browder et al., 2012).

The math teachers used story-based problems, DI, and graphic organizers to increase students' acquisition for specific math skills (Browder et al., 2012). The science teachers used inquiry-based science instruction to show how students could learn the meaning of science vocabulary words with word to picture matching (Browder et al., 2012). Teachers used behavioral learning theory strategies, such as matching symbols (Browder et al., 2012), provided students with set expectations to assess if the objective of a lesson was achieved, and provided students with feedback so they could monitor how they were doing and take corrective action if required (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Teachers used cognitive learning theory strategies such as DI and graphic organizers (Browder et al., 2012), helped students chunk information and then apply, analyze, and evaluate their learning to support the transfer of information to their long-term memory (Ertmer & Newby, 2013; Tasheva & Bogdanov, 2018; Tracey & Morrow, 2017; Yilmaz, 2011). Teachers used constructivist learning theory strategies such as story-based problems (Browder et al., 2012) to make the learning interactive and help students develop knowledge, skills, and attitudes as they made sense of the world around them (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017).

Five teachers who received mathematic training and four teachers who received science training completed the intervention rating profile to show their level of agreement with statements about the EBPs and interventions, and they agreed the comprehensive program was useful, practical, and beneficial to their students, based on a mean rating of 5.75 on a scale of six (Browder et al., 2012). Teachers required learning materials sequenced appropriately to promote learning either in the form of simple to complex, known to unknown, or knowledge to application as expected with behavioral learning theory and cognitive learning theory (Browder et al., 2012; Ertmer & Newby, 2013; Tracey & Morrow, 2017). Lee et al. (2009) explained how access to the curriculum for students with intellectual disabilities required a focus on how content was delivered, how students respond to the content, the classroom setting, and how teachers interacted with students.

Asaro-Saddler et al. (2017) studied writing practices implemented with students with ASD by observing two teachers who taught in special education self-contained classrooms from suburban elementary schools in the Northeast United States with fifteen students, ages five to ten years old, with varied intellectual and writing abilities. Teachers utilized the instructional practices recommended for all writers with some unique support provided based on the individual needs of the students with ASD (Asaro-Saddler et al., 2017). Asaro-Saddler et al. (2017) stated EBPs and interventions for writing have not been identified for students with ASD, but information was available regarding research-based practices in writing for students both with and without disabilities, such as using mnemonics, graphic organizers, peer writing structures,

goal-setting, technology, verbal prompts, visual representations to generate or organize ideas, and inquiry activities. Teachers also used a process writing approach, reinforcing writing productivity, increasing the time students spend writing, and teaching basic writing skills (Asaro-Saddler et al., 2017).

Teachers used behavioral learning theory strategies such as verbal prompts, visual representations, models of good writing, writing productivity reinforcement, and time adjustment spent on writing (Asaro-Saddler et al., 2017) because researchers found using prompts, feedback, and direct and natural reinforcers with a task demand increased both the rate and quality of responses from students with ASD when compared with reinforcers not related to the task or presented as a natural consequence (Myles et al., 2007, 2009; Renshaw & Kuriakose, 2011). Teachers utilized cognitive learning theory strategies such as mnemonics, graphic organizers, and goal setting (Asaro-Saddler et al., 2017) to link ideas and concepts to students' prior knowledge and develop stronger comprehension of new information (Ertmer & Newby, 2013; Muhajirah, 2020; Tasheva & Bogdanov, 2018; Tracey & Morrow, 2017; Yilmaz, 2011). Teachers implemented constructivist learning theory strategies such as peer writing structures and inquiry activities (Asaro-Saddler et al., 2017) for students to take control of their learning and engage in an activity where they collaborate and develop an understanding of the importance of the problem, comprehend the relevance of the topic, and construct knowledge through their experience (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017).

Arick et al. (2003) tracked the educational progress of sixty-seven students with ASD, ages two to six years old, through performance observations, parent

and teacher surveys, and standardized assessments. Students with ASD were nominated from eight Oregon regional programs to participate in a study designed to track program implementation variables and outcome data in school or home programs (Arick et al., 2003). The students made significant progress in the areas of social interaction, expressive speech, and use of language concepts, as well as significant decreases in noncompliant behaviors associated with ASD based on the data collected from the first sixteen months of using a comprehensive program with DTT, MEI, and DI (Arick et al., 2003).

Special education professionals with expertise on behavioral learning theory strategies and extensive knowledge in designing early education curriculum for students with ASD visited each classroom to observe the students, view data collected on the students, and provide individualized advice to the teacher (Arick et al., 2003). While in the classroom, the special education professional observed the student in their program and completed a form rating the appropriateness of six areas: placement; interventions; one-to-one instruction; group instruction; social interaction; and communication instruction (Arick et al., 2003). Students made significant progress in the areas of social interaction, expressive speech, and adaptive language concepts (Arick et al., 2003).

Ruppar (2015) selected four special education teachers from public-schools in the suburbs of a major Midwestern city with different teaching duties, years of experience, grade levels taught, and general theoretical orientation toward literacy; and then asked the selected teachers to nominate two students on their caseload for this study. Eight students with severe intellectual disabilities, three males and five females ages twelve to nineteen years old, participated in this

study (Ruppar, 2015). The students participated in seventy-five literacy activities which analyzed the content, materials, student engagement, context of location, and instructional arrangement (Ruppar, 2015). Ruppar (2015) coded observations, reviewed teaching materials, and conducted follow-up teacher interviews and questionnaires. Students with intellectual disabilities spent a disparaging amount of time in a special education self-contained classroom passively engaged in one-to-one instructional reading activities where the students listened without the opportunity to respond (Ruppar, 2015). Students were passive learners as defined by behavioral learning theory which meant teachers gave them the information and trained the students to react and respond correctly during a lesson (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017).

Renshaw and Kuriakose (2011) outlined the core principles of PRT and discussed the school-based applications to show how PRT was different from other highly structured ABA interventions for students with ASD. Renshaw and Kuriakose (2011) explained how PRT emphasized principles over procedures and focused on enhancing a student's motivation to learn in natural environments. Constructivists believed learning should be an active process for students to construct their own knowledge rather than accepting what the instructor taught (Ertmer & Newby, 2013; Muhajirah, 2020; Tracey & Morrow, 2017). Teachers used constructivist learning theory when they facilitated collaborative learning through projects, problem solving, and guided discovery with content meaningful to the students (Ertmer & Newby, 2013; Tracey & Morrow, 2017).

Ruppar (2015) noted active engagement in written and expressive communication was under emphasized in the special education self-contained

classroom, where teachers used worksheets and picture symbols as the common learning materials and activities rarely occurred under natural circumstances. Students with intellectual disabilities received 88% of instruction in a one-to-one setting which rarely occurred under natural circumstances (Ruppar, 2015), which showed teachers did not utilize constructivist learning theory strategies to make the learning activities relevant for the students with intellectual disabilities to construct knowledge and meaning through collaboration or relate new information to their own experiences, beliefs, and attitudes (Ertmer & Newby, 2013; Tracey & Morrow, 2017).

Ruppar (2015) observed students with severe intellectual disabilities in literacy instruction as independent work for eleven percent of their time, small group instruction was seven percent, and large group instruction was four percent (Ruppar, 2015). Teachers implemented behavioral learning theory strategies to apply behavior modification through reinforcement which allowed students to react in a predictable way under certain conditions and cues, guaranteed specific measurable learning, and was easy to implement (Ertmer & Newby, 2013; Tracey & Morrow, 2017) using worksheets (Ruppar, 2015). Students with moderate and severe intellectual disabilities needed opportunities to learn general education content, in whatever setting they received instruction, to have a fair chance of demonstrating progress on state standards (Browder et al., 2008, 2012; Ruppar, 2015).

Browder et al. (2012) reported research on teaching mathematics and science to students with intellectual disabilities was limited in both quantity and scope; however, what was available offered guidance for effective instruction

with meaningful activities, systematic prompts, and constant feedback. Arick et al. (2003) stated there was disagreement between researchers on the best nationally known and validated EBPs and interventions for students with ASD; however, researchers agreed in addition to early intervention, services should include specialized curriculum, individualization, intensity of engagement, systematic instruction, and family involvement (Browder et al., 2008, 2012; Lee et al., 2009).

Teachers stated the focus on the general curriculum could include functional skills allowing students with severe intellectual disabilities to have access to instruction in the same content as those without disabilities (Browder et al., 2008, 2012). Students with ASD required multifaceted EBPs and interventions to support the broad behaviors and needs in this population (Arick et al., 2003; Myles et al., 2007, 2009; Renshaw & Kuriakose, 2011; Stahmer et al., 2010, 2012, 2015, 2016; Steege et al., 2007). Teachers who worked with students with ASD needed additional detailed descriptions of EBPs and interventions for application in the classroom (Renshaw & Kuriakose, 2011; Stahmer et al., 2012, 2015). Stahmer et al. (2012) stated research on the effectiveness of EBPs and interventions were rarely conducted in schools, and teachers expressed skepticism about the clinical utility of EBPs and interventions for the classroom. Teachers had challenges serving students with intellectual disabilities in public-schools because few comprehensive programs were rigorously and systematically evaluated in school settings (Browder et al., 2008, 2012; Stahmer et al., 2012, 2015; Suhrheinrich et al., 2007).

Summary of Literature Review

Stahmer et al. (2012) stated there is no agreement within the field about what constitutes effective EBPs for the entire range of students with ASD. Teachers used comprehensive programs to meet the complex challenges and spectrum of characteristics associated with students with ASD (Dunlap et al., 2001; Schoen, 2003; Shepley & Grisham-Brown, 2019; Stahmer et al., 2012; Weiss, 2001). Browder et al. (2008) stated the main issues with comprehensive programs emerged with whether school districts endorsed and funded one program model or worked to embed EBPs and interventions into existing programs. Odom et al. (2010) concluded a great need exists for treatment integrity for implementation and fidelity of teachers in special education self-contained classrooms using a comprehensive program including different EBPs, interventions, and learning theory strategies.

Throughout my literature review for Chapter II, I observed a lack of diversity in the research for EBPs and interventions used for students with intellectual disabilities. I also observed the preponderant use of one-to-one or small group settings without application methods for a whole-group class setting in which students must adhere to state standards. Additionally, I noticed the evolution of ABA interventions went from explicitly measuring goals with DTT, to organizing and structuring content from previously learned material with MEI, DI, and ET, and evolved again to providing control of the learning environment to the student with PRT. More research on designing instruction through multifaceted learning theory for students with intellectual disabilities in a self-contained classroom to access state standards was needed. Researchers have

not observed teachers in a special education self-contained classroom using an evaluation tool, such as the TEAM General Educator Rubric, to identify key strengths and areas of improvement for EBPs and interventions implemented to support the access of Tennessee state standards for students with intellectual disabilities.

The purpose of this study was to use the TEAM General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. In the following chapters, I discussed the methodology, analysis and results, and conclusions and recommendations of the research. In Chapter III, I described the population, participants, the methods of data collection, and analysis of this study.

Chapter III: Methodology

In Chapter II, I reviewed the literature which revealed a gap in the research on using evidence-based practices (EBPs) and interventions with multifaceted learning theory in diverse special education self-contained classrooms to helps students access Tennessee state standards. Researchers had not observed teachers in a special education self-contained classroom using a common evaluation tool, such as the Tennessee Educator Acceleration Model (TEAM) General Educator Rubric, to identify key strengths and areas of improvement of EBPs and interventions. Stahmer et al. (2012) stated there was no agreement within the field about what constitutes effective EBPs and interventions for the entire range of students with ASD; however, teachers used comprehensive programs to meet the complex challenges and spectrum of characteristics associated with students with ASD (Dunlap et al., 2001; Schoen, 2003; Shepley & Grisham-Brown, 2019; Stahmer et al., 2012; Weiss, 2001).

The purpose of this qualitative case study was to use the TEAM General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. In Chapter III, I defined specific methods I applied to this study which involved the research design, the role of the researcher including background information and potential bias, and the participants in this study. I described the data collection, procedures for managing and recording data, and data analysis procedures. Finally, I explained the strategies I used to establish trustworthiness, limitations, delimitations, and assumptions of the study.

Research Design

Merriam and Tisdell (2016) explained how qualitative researchers wanted to know how people used their experiences to make sense of the world. Creswell and Creswell (2018) defined qualitative research as a focus on understanding the perception and complexity of a specific topic or situation. I used a qualitative case study method to conduct my research where I used the TEAM General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. Merriam and Tisdell (2016) explained a qualitative case study was an in-depth description and analysis of a bounded system using an inductive, investigative strategy with the product being richly descriptive.

I investigated the bounded system of the special education self-contained classroom through a questionnaire (see Appendix C), a semi-structured interview protocol (see Appendix D), and an observation protocol using the TEAM General Educator Rubric (see Appendix E). I used a questionnaire to ensure special education teachers had experience and worked with a diverse class of students. I then enlisted teachers willing to be interviewed and observed. I interviewed experienced special education teachers to investigate their knowledge of students and content by how they planned activities, chose materials, presented instructional content, and motivated their students (Tennessee Department of Education, 2016). I did not intend to observe every teacher I interviewed. I chose to observe experienced teachers who explained how they thoroughly planned and implemented a lesson aligned to Tennessee state standards. I selected teachers to

be observed who answered the semi-structured interview questions with explicit examples of instruction matching indictors from three or more domains on the TEAM General Educator Rubric. I scheduled a date and time to conduct classroom observations where I transcribed what the teachers did in a diverse special education self-contained classroom and then categorized aspects of the lesson using the TEAM General Educator Rubric I coded (see Appendix F) to find the learning theories applied in a lesson aligned to Tennessee state standards. Merriam and Tisdell (2016) defined transcription as putting data from speech, thought, or observation into written or printed form.

As part of the qualitative case study design, I used a questionnaire to collect information from special education teachers about their teaching experiences, additional trainings and certifications, the demographics of the students they taught at the time of this study, and to request their interest in being interviewed and observed for this study. Creswell and Creswell (2018) and Merriam and Tisdell (2016) categorized questionnaires as highly structured interviews because the researcher had complete control over the line of questioning. Creswell and Creswell (2018) described questionnaires as an acceptable qualitative data collection method through email or telephone when the participants were not interviewed face-to-face. Researchers also categorized questionnaires as asynchronous text-based interviews because participants completed the questionnaire at varying times (Creswell & Creswell, 2018; Merriam & Tisdell, 2016). I used the website Google Forms to create and collect data using a questionnaire via emailing potential participants I found through snowball sampling. According to Merriam and Tisdell (2016), the internet

allowed me to reach a larger group of potential participants without geographical constraints. I used the data collected through my questionnaire to draw attention to themes of special education teachers' certification and experience in the classroom, the diversity of students in the teacher's special education self-contained classroom, and to enlist teachers willing to be interviewed and observed.

I used the collected data from the questionnaire to target experienced teachers working in diverse special education self-contained classrooms to contact and schedule a date and time to interview each potential participant. I conducted semi-structured interviews with experienced special education teachers interested in being observed while teaching a lesson aligned to Tennessee state standards. Merriam and Tisdell (2016) defined the semi-structured interview format as using more open-ended questioning to allow the participants to share their unique way of defining the world. I chose questions from the TEAM General Educator Rubric pre- and post-conference questions for the semi-structured interview protocol to ask experienced teachers about their knowledge of students and content, planning activities, choosing materials, presenting instructional content, and motivating their students (Tennessee Department of Education, 2016). I used the data collected through the semi-structured interviews to identify which experienced special education teachers I would observe in the classroom using the TEAM General Educator Rubric. As each teacher responded to the interview questions, I could investigate the influence of the TEAM General Educator Rubric by their responses. I analyzed participants' responses for explicit examples of strategies they used to teach lessons aligned to Tennessee state standards. I used the TEAM

General Educator Rubric as a popular culture document, which Merriam and Tisdell (2016) defined as a society produced material designed to inform and persuade the public. In my literature review, I found leaders in education chose to use the TEAM General Educator Rubric to evaluate and inform teachers how effective their instruction was in the classroom (Tennessee Department of Education, 2016) which is why I categorized the TEAM General Educator Rubric as a popular culture document.

Merriam and Tisdell (2016) defined observations as a systematic research tool used to address specific research questions. Merriam and Tisdell (2016) also explained how researchers must subject an observation to checks and balances to provide trustworthy results. Merriam and Tisdell (2016) stated a researcher should observe the physical setting, the participants (the teachers and students), the activities and interactions, the conversations, the subtle factors such as nonverbal communication and unplanned activities, and one's own behavior while observing. I was considered an observer as participant. Merriam and Tisdell (2016) defined an observer as participant as a researcher whose objectives were known to the group, but the researcher's participation with the group was second to gathering information. I used the data collected from the observations to summarize learning theory strategies applied when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards.

Role of the Researcher

My role as the researcher of this study included collecting the questionnaire data, conducting the interviews, and completing the observations

(Merriam & Tisdell, 2016); however, Creswell and Creswell (2018) noted concerns in the qualitative research approach, such as research bias, due to the researcher's background, researcher's personal values, and socioeconomic status. I had first-hand experience teaching in a special education self-contained classroom for six years while achieving a level five score based on the TEAM General Educator Rubric. I also had first-hand experience designing and implementing curriculum which included discrete trial training (DTT), multiple exemplar intervention (MEI), direct instruction (DI), errorless teaching (ET), and pivotal response training (PRT) while addressing Tennessee state standards for students with intellectual disabilities in kindergarten through twelfth grade. In addition, I was a certified TEAM evaluator from 2015 to 2017, and again in 2022, which allowed me to use the TEAM General Educator Rubric to observe, evaluate, and score a teacher's lesson. I also spent one year as a special education resource teacher for third through fifth grade, four years teaching second grade, and one year teaching science, technology, engineering, and mathematics for kindergarten through eighth grade. I used the literature and TEAM General Educator Rubric to categorize the questionnaire responses, semi-structured interview responses, and observations to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help diverse students access Tennessee state standards.

I triangulated the data collected by receiving questionnaire responses to target the teacher's experience and to ensure the teacher taught a diverse body of students for this study from different Tennessee public-schools. I focused the

questionnaire to ask each teacher how many students they had, how many students were male or female, how many students were White, Black, Hispanic, Asian/Pacific Islander, Native American, or other.

The criteria I set to target a diverse special education self-contained classroom was a caseload of students consisting of one or more male students, one or more female students, and students of two or more ethnicities/races. I utilized the internet-based program Google Forms for the questionnaire data collection and emailed participants an implied consent request with the Google Forms link (see Appendix G). I used this program for my questionnaire data collection because it allowed me to reach participants from varying locations in Tennessee. I then used the questionnaire responses to contact teachers interested in being interviewed and observed. I emailed a permission and informed written consent (see Appendix H) to the teachers who showed interest in being interviewed and observed and their principal to sign and return. Once I received the written informed consent with the teacher's and their principal's signatures, I scheduled an interview via Zoom with each participant.

I used the data I collected from the interviews to select experienced special education teachers who clearly explained their knowledge of students and content by how they planned activities, chose materials, presented instructional content, and motivated their students (Tennessee Department of Education, 2016). Finally, I selected special education teachers and transcribed my observations of them in the classroom using the TEAM General Educator Rubric I coded. Prior to the classroom observations, I generated selective coding for each indicator on the TEAM General Educator Rubric to categorize them into to behavioral learning

theory, cognitive learning theory, or constructivist learning theory. This allowed me to categorize the transcribed classroom observations with the TEAM General Educator Rubric indicators aligned to either behavioral learning theory, cognitive learning theory, or constructivist learning theory, and identify the learning theory strategies participants used throughout their lesson.

To prevent bias, I asked the same questions to each participant for the questionnaire. I asked the same questions during the interviews and adhered to an interview protocol for each participant. I also transcribed each observation and categorized the lesson with the same TEAM General Educator Rubric indicators coded with behavioral learning theory, cognitive learning theory, and constructivist learning theory. I conducted a pilot study to confirm my questionnaire and semi-structured interviews to provide participants with questions and opportunities to answer my two research questions.

Participants in the Study

Creswell and Creswell (2018) stated researchers conducting a qualitative study should purposefully select participants who helped them best understand the problem and answer their research questions. Merriam and Tisdell (2016) defined snowball sampling as the most common form of purposeful sampling for a researcher to select key participants who met the criteria established for participation in the study. The criteria for participation in this study was being a teacher with three or more years of experience working in a special education self-contained classroom with a group of diverse students with intellectual disabilities in a Tennessee public school. The criteria I set to target a diverse special education self-contained classroom was a caseload with one or more male

students, one or more female students, and students of two or more ethnicities/races. Employees of the Tennessee Department of Education (2016) reported 7,520 special education teachers worked in the state of Tennessee. I wanted to investigate experienced teachers working in diverse special education self-contained classrooms in Tennessee public-schools. I could not find exact information on how many special education self-contained classrooms there were in Tennessee at the time of this study. I chose to investigate special education self-contained classrooms in Tennessee with experienced teachers working with a diverse body of students.

I began the snowball sampling by reaching out to five different Tennessee special education self-contained classroom teachers. I requested teachers submit their responses within two weeks of receiving the Google Forms link. I used the questionnaire to have teachers state their experience in the classroom, the demographics of their students, and their interest in being interviewed and observed. As the initial participants completed the questionnaire sent via email, the final question asked participants for a referral of three other participants who met the established criteria: having three or more years working in a special education self-contained classroom with a diverse body of students and teaching lessons to Tennessee state standards. Ultimately, I emailed an implied consent request with the Google Forms link to a total of 80 special education teachers. I had 19 questionnaires submitted, I interviewed 9 teachers, and I completed 8 classroom observations. The snowball sampling method allowed my participant group to grow larger each time the questionnaire was completed. I sent the questionnaire via email to educators in various Tennessee public-schools.

Questionnaire Participants

I sent the questionnaire to a total of 80 individuals, through snowball sampling. Nineteen participants completed the questionnaire to report their experience and demographic information, describing their caseload (see Table 1). I sent the questionnaire to participants via email with a link to the Google Form. I used the collected data to screen for participants who met the criteria of having three or more years of teaching experience, one or more male students, one or more female students, and students of two or more ethnicities/races.

Table 1

Questionnaire Participants

			Students' Demographics						
Participant	Years' Special Education Experience	Years' General Education Experience	Caseload	Male	Female	White	Black	Asian/ Pacific Islander	Hispanic
1	5	0	12	11	1	10			2
2	33	0	10	4	6	3	2		5
3	19	0	9	3	6	8	1		
4	11	0	12	7	5	8	4		
5	22	0	8	5	3	7	1		
6	6	0	7	4	3	6	1	1	
7	40	0	9	8	1	6	2		1
8	9	0	7	4	3	3			1
9	8	3	6	5	1	5	1		
10	25	25	38	18	20	35	1	1	1
11	10	0	5	1	4	1	4		
12	10	0	18	14	4	11	3		
13	15	0	7	4	3	6			1
14	15	16	6	5	1	4	2		
15	24	0	901	619	282				
16	9	9	18	14	4	17	1		
17	15	15	6	5	1	3	2		
18	1	0	10	7	3	7	2	1	
19	7	1	5	2	3	4	1		

Interview Participants

I interviewed nine participants who met the criteria of having three or more years of teaching experience and a caseload with one or more male students, one or more female students, and students of two or more ethnicities/races (see Table 2). I scheduled a date and time with each participant and conducted the semi-structured interviews via Zoom. I used the collected data to analyze how experienced education teachers used the TEAM General Educator Rubric to plan lesson aligned to Tennessee state standards in a diverse special education self-contained classroom.

Table 2

Interview Participants

				Students' Demographics						
Participant	Years' Special Education Experience	Years' General Education Experience	Grades	Caseload	Male	Female	White	Black	Asian/ Pacific Islander	Hispanic
1	5	0	3-5	12	11	1	10			2
2	33	0	18-22*	10	4	6	3	2		5
3	19	0	7-9	9	3	6	8	1		
4	11	0	6-8	12	7	5	8	4		
5	22	0	9-12	8	5	3	7	1		
6	6	0	K-5	7	4	3	6	1	1	
7	40	0	K-5	9	8	1	6	2		1
8	9	0	9-12	7	4	3	3			1
9	8	3	6-8	6	5	1	5	1		

*18-22 was a transition program for students with intellectual disabilities ages 18 to 22 years old and received on-site training for jobs based in their community.

Observation Participants

Eight participants met the criteria for this study and agreed to be observed teaching a lesson aligned to Tennessee state standards (see Table 3). I used the TEAM General Educator Rubric for the observation protocol. I transcribed each observation to summarize how many times participants used behavioral learning theory strategies, cognitive learning theory strategies, and constructivist learning theory strategies during their lesson.

Table 3

Observation Participants

				Students' Demographics						
Participant	Year's Special Education Experience	Years' General Education Experience	Grades	Caseload	Male	Female	White	Black	Asian/ Pacific Islander	Hispanic
1	5	0	3-5	12	11	1	10			2
2	33	0	18-22*	10	4	6	3	2		5
3	19	0	7-9	9	3	6	8	1		
4	11	0	6-8	12	7	5	8	4		
5	22	0	9-12	8	5	3	7	1		
6	6	0	K-5	7	4	3	6	1	1	
7	40	0	K-5	9	8	1	6	2		1
8	9	0	9-12	7	4	3	3			1

*18-22 was a transition program for students with intellectual disabilities ages 18 to 22 years old and received on-site training for jobs based in their community.

Data Collection

Creswell and Creswell (2018) described the focus of qualitative research on the purposeful selection of participants to provide data to the researcher to understand the statement of the problem and research questions. Creswell and Creswell (2018) also explained how a set number of participants for data collection was hard to narrow down and how the researcher must collect data until

they reach saturation. Merriam and Tisdell (2016) defined questionnaires, semi-structured interviews, and observations as qualitative research tools.

Instrumentation

I used questionnaires, semi-structured interviews, and observations to serve as qualitative research tools to achieve saturation as I investigated how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. Merriam and Tisdell (2016) defined triangulation as using multiple sources to compare and cross-check data through observations and interviews of different people in various times and places. I used questionnaires, semi-structured interviews, and observations to triangulate my research in an effective manner to reach a specific participant sample and collect data from participants teaching in Tennessee public-schools with different perspectives from various locations.

Questionnaire. I developed the questionnaire to have 13 questions consisting of 11 open ended questions and two multiple choice questions (see Appendix C). I used question one, two, three, and four to develop a rich description of each participant's background and identify participants with three or more years of experience in the classroom for this study. I created question one to ask participants how many total years of experience they had in the classroom, question two to ask how many years of experience they had as a special education teacher, question three to ask how many years of experience they had as a general education teacher,

and question four to ask what additional training or certifications they acquired.

I developed questions five, six, seven, and eight to have participants describe the diversity of the students they currently worked with in the classroom, also known as their caseload. I used question five to know how many students each participant worked with in all, question six to identify the number of male students, and question seven to identify the number female students. I used this information to identify special education self-contained classrooms with at least one male student and one female student. I wrote question eight as a multiple-choice question to have participants share the ethnicity/race of each student on their caseload to identify special education self-contained classrooms with students of two or more ethnicities/races.

I developed question nine as a multiple-choice question with yes or no answers to have participants share their interest in being interviewed and observed. If the participants agreed to be interviewed and observed, they completed question ten by providing their contact information and their principal's contact information. If a participant agreed or disagreed to be interviewed, they were still asked to reference other special education teachers working in self-contained classrooms for questions 11 through 13. I selected participants to interview based on meeting the criteria of being a special education teacher in a self-contained classroom with three or more years of teaching experience and a caseload with one or more male students, one or more female students, and students of two or more ethnicities/races.

Interview Protocol. I used the data collected from the questionnaire to target experienced teachers working in diverse special education self-contained

classrooms willing to be interviewed and observed. I scheduled a date and time to conduct an interview via Zoom with the participants who met the criteria. I chose questions from the TEAM General Educator Rubric pre- and post-conference questions for the semi-structured interview protocol to investigate how experienced special education teachers planned and implemented EBPs and interventions to teach lessons aligned to Tennessee state standards (see Appendix D) (Tennessee Department of Education, 2016). I used the semi-structured interview protocol to directly answer Research Question 1 by investigating how experienced teachers used the TEAM General Educator Rubric to plan activities, present instructional content, motivate students, and apply their knowledge of students and content (Tennessee Department of Education, 2016).

I asked interview question one to describe a lesson they taught aligned to Tennessee state standards and interview question two to share if they used a specific curriculum. I used question three to have participants share the sequence of their lesson and explain what helped them plan their instruction. I used question four to have participants provide examples of visuals or other materials they used during the lesson and why they used them. I used question five and six to have participants explain how they kept their students engaged during a lesson and how they reinforced student effort.

I used question seven to understand how participants might have incorporated their students interests into the lesson. I used question eight to have participants explain how they connected their lesson to other

subject areas. I used question nine to ask participants if they had any questions or wanted to add any additional information before ending the interview. I targeted experienced teachers who answered all the interview questions and met the criteria for citing explicit examples of instruction matching three or more domains on the TEAM General Educator Rubric when teaching a lesson aligned to Tennessee state standards in a diverse special education self-contained classroom to then schedule a date and time to observe the teacher in their classroom.

Observations. I used the TEAM General Educator Rubric as the observation protocol for this study (see Appendix E). I examined the TEAM General Educator Rubric prior to completing the observations for common words or phrases in each indicator. I coded the TEAM General Educator Rubric into 22 open codes and categorized the open codes as either representing behavioral learning theory, cognitive learning theory, or constructivist learning theory. By doing this, I was able to take the eight transcribed observations and categorize each part of the lesson to an indicator on the TEAM General Educator Rubric, identify the aspect of the lesson as one of the three learning theories, and summarize the number of strategies used for each learning theory.

I used the TEAM General Educator Rubric area of instructional plans with the open code of measurable goals. I used the TEAM General Educator Rubric area of assessments with the open codes of measurable goals and self-reflect. I used the TEAM General Educator Rubric area of managing student behavior with the open codes of conditioned, expectations, and reinforcement/consequences. I used the TEAM General Educator Rubric area of environment with the open codes of environmental stimuli and social learning. I used the TEAM General

Educator Rubric area of respectful culture with the open code of conditioned. I used the TEAM General Educator Rubric area of standards and objectives with the open codes of measurable goals and connections. I used the TEAM General Educator Rubric area of motivating students with the open codes of reinforcement/consequences and discovery.

I used the TEAM General Educator Rubric area of presenting instructional content with the open codes of teacher-centered, task-analysis, organized, and relevance. I used the TEAM General Educator Rubric area of lesson structure and pacing with the open codes of conditioned and developmentally appropriate. I used the TEAM General Educator Rubric area of activities and materials with the open codes of measurable goals, conditioned, complexity, relevance, varied presentations, and discovery. I used the TEAM General Educator Rubric area of questioning with the open codes of teacher-centered, task-analysis, conditioned, measurable goals, sequenced, self-guided, organized, and relevance.

I used the TEAM General Educator Rubric area of academic feedback with the open codes of teacher-centered and personalized. I used the TEAM General Educator Rubric area of grouping students with the open codes of social learning. I used the TEAM General Educator Rubric area of teacher content knowledge with the open codes of teacher-centered, task-analysis, and connections. I used the TEAM General Educator Rubric area of teacher knowledge of students with the open codes of task-analysis, complexity, and personalized. I used the TEAM General Educator Rubric area of thinking with the open code of application. I used the TEAM General Educator Rubric area of problem solving with the open codes of organized, solutions, relevance, and

perspectives. I developed the open codes and categorized them into either behavioral learning theory, cognitive learning theory, or constructivist learning theory to summarize the number of instances the participants used strategies for the different learning theories.

Pilot Study

I piloted the questionnaire and semi-structured interview with two teachers appointed to special education self-contained classrooms. According to Merriam and Tisdell (2016), a pilot study provided trustworthiness to the instruments, as well as ensured understandable instructions, used clear wording, provided sufficient information to collect adequate answers, and confirmed the distribution method, convenience, length of the questionnaire, and the length of the semi-structured interview. I used the pilot study to adjust questions from the semi-structure interview protocol. I made no changes to the questionnaire or the observation protocol.

Questionnaire. As the initial participants completed the pilot for the questionnaire sent via email, the final question asked participants for a referral of three other participants who met the established criteria. The snowball sampling method allowed my participant group to grow larger each time the questionnaire was completed. I sent the questionnaire via email to educators in various public-schools in Tennessee. The questionnaire responses gave me participant data from differing demographics because each pilot participant worked in a different public-school across Tennessee.

Interviews. Through the pilot of the semi-structured interview, I adjusted the wording of two questions I used for the semi-structured interviews to provide

teachers with questions focusing on the specific EBPs and interventions they used to teach a lesson aligned to Tennessee state standards. I then finalized the questionnaire in preparation to send it to special education teachers via snowball sampling. I finalized the semi-structured interview protocol and the observation protocol in preparation to use with the selected experienced special education teachers.

Data Collection Procedures

Before data collection, I was granted approval from the Institutional Review Board (IRB) committee at Lincoln Memorial University. After the IRB approval, I emailed the initial educators the implied consent request to participate (see Appendix G). This included a statement of implied consent prior to the beginning of the study which allowed me to ensure all participants knew their rights and responsibilities, as well as mine as the researcher. The letter also included the direct link to the Google Forms questionnaire. An additional email was sent to the selected teachers and their principals to obtain informed written consent (see Appendix H). This included an overview of the observation protocol used for this study and allowed me to ensure all participants knew their rights and responsibilities, as well as mine as the researcher, for the interview and observation.

I completed my data collection in three parts. I used the questionnaire to identify and enlist experienced teachers working in a diverse special education self-contained classroom. I used the semi-structured interview to summarize how an experienced teacher explained their knowledge of students and content by how they planned activities, chose materials, presented instructional content, and

motivated their students (Tennessee Department of Education, 2016). I used observations to transcribe how an experienced teacher taught a lesson aligned to Tennessee state standards in a diverse special education self-contained classroom.

Questionnaire. Participants received an email with a Google Forms link to complete the questionnaire for this study. I collected information with a questionnaire about each participant's years of teaching experience, number of male students, number of female students, and the number of White, Black, Hispanic, Asian/Pacific Islander, Native American, or other students. Participants completed eleven open ended questions and two multiple choice questions to provide the required information. Once I identified experienced teachers with a diverse body of students willing to be interviewed and observed, I sent a permission and an informed written consent email to be signed and returned to the participant and their principal. Once I received the required signatures, I scheduled and conducted semi-structured interviews via Zoom.

Interviews. I transcribed the semi-structured interview responses to investigate how the experienced special education teachers explained their knowledge of students and content by how they planned activities, choose materials, presented instructional content, and motivated their students (Tennessee Department of Education, 2016). I conducted each of the interviews via Zoom. I used a recording device and transcribed each participant's response to the questions.

Observations. I emailed each selected teacher and their principal a copy of my observation protocol explaining what I would and would not do during the observation. I then scheduled and conducted the classroom observations to collect

data to investigate how experienced teachers may have used multifaceted learning theory when using EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. I transcribed each observation and categorized each aspect of the lesson to an indicator on the TEAM General Educator Rubric. Prior to the observations, I used open codes for each indicator on the TEAM General Educator Rubric and categorized them as behavioral learning theory, cognitive learning theory, or constructivist learning theory to summarize the number of learning theories used during the lessons. I collected data to the point of saturation, which researchers defined as the point at which the data stopped revealing new information (Creswell & Creswell, 2018; Merriam & Tisdell, 2016). I analyzed the questionnaire, semi-structured interviews, and transcribed TEAM General Educator Rubric observations until I reached saturation of data to answer my research questions and conclude the data analysis.

Methods of Analysis

My objective of data analysis was to answer my two research questions. The coding process began with the raw data: participant responses to the questionnaire, participant responses to the semi-structured interview, classroom observations, and the use of the TEAM General Educator Rubric as a popular culture document. As I read each response from the semi-structured interview transcription and analyzed the observation transcriptions, I began the open coding process which identified any parts of the raw data I deemed useful to my research (Merriam & Tisdell, 2016). I used the teachers' experiences and demographics to identify participants who met the criteria for this study. I targeted experienced

teachers with three or more years of teaching experience working in a diverse special education self-contained classroom with one or more male students, one or more female students, and students of two or more ethnicities/races. I used the TEAM General Educator Rubric indicators and the categories of behavioral learning theory, cognitive learning theory, and constructivist learning theory to observe teachers in the classroom and summarize how participants used multifaceted learning theory when implementing EBPs and interventions to help students with intellectual disabilities access Tennessee state standards.

Research Question 1

How did experienced teachers use the Tennessee Educator Acceleration Model (TEAM) General Educator Rubric to influence the use of evidence-based practices and interventions in a diverse special education self-contained classroom investigated questionnaire and interviews? I received responses to the questionnaire, I categorized them by question into an excel spreadsheet to target teachers' experience, training, and diversity in the demographics of the students in the classroom assuring this study incorporated one or more male students, one or more female students, and students of two or more ethnicities/races. I contacted the participants working in a diverse special education self-contained classroom with three or more years of experience in the classroom and indicated an interest in being observed to conduct semi-structured interviews via Zoom. I emailed those teachers and their principal a written informed consent email to be signed and returned to continue with their participation in this study.

I used the semi-structured interviews to learn more about the special education teachers' knowledge of students and content by how they planned

activities, chose materials, presented instructional content, and motivated their students (Tennessee Department of Education, 2016). I printed out the transcriptions of each interview and used the axial codes next to the participant's responses demonstrating recurrent data. I identified special education teachers who clearly explained their process for teaching a lesson aligned to Tennessee state standards in a diverse special education self-contained classroom. According to researchers, the coding process helped generate the common themes within the data, and it gave me the opportunity to organize and label the participants' responses and observations from the transcribed semi-structured interviews accordingly (Creswell & Creswell, 2018; Merriam & Tisdell, 2016).

I generated open codes from the participants' responses shared during the semi-structured interview. I categorized the open codes into 13 axial codes which I used to identify recurrent data to generate themes to answer Research Question 1 (Merriam & Tisdell, 2016). The axial codes I generated, emerged the selective codes or themes for activities and materials, presenting instructional content, motivating students, teacher knowledge of students, and teacher knowledge of content which relates to how the TEAM General Educator Rubric influenced the implementation of EBPs and interventions used to teach Tennessee state standards in a diverse special education self-contained classroom.

Research Question 2

How did experienced teachers in a diverse special education self-contained classroom apply multifaceted learning theory in a lesson aligned to Tennessee state standards investigated through observations? I followed up with the selected experienced special education teachers by scheduling a date and time

to observe them in their classroom after I received a signed copy of their permission and informed written consent. I printed out the transcriptions of each observation and used the indicators on the TEAM General Educator Rubric to categorize the learning theory strategies I observed each participant apply throughout their lesson. I summarized the number of times a learning theory strategy was applied to a lesson by categorizing each aspect of the lesson I observed as either behavioral learning theory, cognitive learning theory, or constructivist learning theory.

I used the TEAM General Educator Rubric as the observation protocol to observe special education teachers in a self-contained classroom teaching a lesson aligned to Tennessee state standards. I defined the TEAM General Educator Rubric as a popular culture document for this study because it was a society produced document to inform the public (Merriam & Tisdell, 2016) on how to evaluate instructional practices in the classroom (Tennessee Department of Education, 2016). I used open coding to identify common words and phrases presented on the TEAM General Educator Rubric. Merriam and Tisdell (2016) defined open coding as making notations next to potentially relevant bits of data for answering your research questions. Then, I used axial codes to categorize each indicator as behavioral learning theory, cognitive learning theory, or constructivist learning theory. I used axial coding, defined by Merriam and Tisdell (2016) as the process of grouping your open codes, by categorizing my observations to the indicators on the TEAM General Educator Rubric. I completed the observation transcriptions to document the physical setting, the participants, the activities and interactions, the conversations, subtle factors such as nonverbal communication

and unplanned activities, and my own behaviors during the observations (Merriam & Tisdell, 2016). I summarized the observation transcriptions to identify number of times each participant applied different learning theory strategies to summarize how teachers used multifaceted learning theory when implementing EBPs and interventions to teach lessons aligned to Tennessee state standards in a diverse special education self-contained classroom.

Trustworthiness

Researchers ensured trustworthiness in a qualitative study by conducting research in an ethical manner (Merriam & Tisdell, 2016). Researchers agreed triangulation was the best strategy to establish trustworthiness in qualitative research (Creswell & Creswell, 2018; Merriam & Tisdell, 2016). Researchers suggested other strategies in addition to triangulation such as member checks, rich description, and reflexivity (Creswell & Creswell, 2018; Merriam & Tisdell, 2016).

A researcher's bias posed the biggest threat to trustworthiness of a study (Merriam & Tisdell, 2016). To maintain the trustworthiness of my data collection, analysis, and reporting, I included participants from different Tennessee public-schools with diverse demographics. I sent questionnaires, conducted semi-structured interviews, and completed classroom observations with participants from a variety of public-schools across Tennessee to summarize a rich description of an experienced teacher working in a diverse special education self-contained classroom. I analyzed the data to develop themes occurring across multiple responses (i.e., questionnaire, semi-structured interviews, and classroom

observation data collected to show different people with different perspectives) (Merriam & Tisdell, 2016).

Creswell and Creswell (2018) stated the triangulation of different data sources is how a researcher establishes trustworthiness of the study. I used a pilot questionnaire and semi-structured interview to identify potential weaknesses and adjusted each protocol for clarity in the participants' responses to mitigate further threats to trustworthiness (Creswell & Creswell, 2018). All participants received the same questionnaire, sent via email with a direct link to the Google Forms questionnaire. All participants answered the same questions asked during the semi-structured interview. I observed each selected participant using the TEAM General Educator Rubric and by looking at the physical setting, the participants, the activities and interactions, the conversations, the subtle factors such as nonverbal communication and unplanned activities, and my own behaviors (Merriam & Tisdell, 2016). The participants were from varying areas of Tennessee, six different school districts, representing urban, suburban, or rural settings.

I triangulated the data with the teachers' years of experience, training, demographics of their classroom, clarity in explaining a lesson aligned to Tennessee state standards, and application of the lesson in their classroom. In addition, the participants varied from teaching elementary school students, middle school students, or high school students in a special education self-contained classroom. The TEAM General Educator Rubric ensured trustworthiness to observing teachers from different classrooms investigating the same expectations

for instruction. As I analyzed the data, I established common themes during the coding process, which further mitigated the threat to trustworthiness.

Limitations and Delimitations

Researchers defined limitations as features affecting the results of a study or the researcher's ability to generalize the research findings (Creswell & Creswell, 2018; Merriam & Tisdell, 2016; Roberts & Hyatt, 2019). A limitation of my study was sample size and population because public-schools tended to have one special education self-contained classroom, presented minimal to no diversity, or did not teach lessons aligned to Tennessee state standards. Another limitation of my study was the willingness of special education teachers to be interviewed and observed, as some participants did not feel comfortable to answer the questions honestly or in detail if the data were collected via face-to-face interviews or by the participant being observed in their classroom. I chose to expand my research throughout Tennessee public-schools to mitigate my inability to gather enough participation for this study.

As a researcher, I was in control of the delimitations of my study. Researchers defined delimitations as features indicating how I narrowed the scope of my study (Creswell & Creswell, 2018; Merriam & Tisdell, 2016; Roberts & Hyatt, 2019). I found geographical location and the use of Tennessee state standards taught in a special education self-contained classroom delimitated my study. My research questions focused on how experienced teachers used multifaceted learning theory when using EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards.

I needed a larger sample size to collect data to the point of saturation to mitigate threats to trustworthiness. A delimitation of my study was the use of the questionnaires as an instrument of data collection which I used to reach a larger sample size of experienced special education teachers working in a diverse special education self-contained classroom willing to be interviewed and observed. I mitigated this limitation by sending an introduction letter, which explained all responses were kept confidential and no person in the school district would know which educators participated in the questionnaire. Participants were not able to ask clarifying questions if any parts of the questionnaire were confusing, but they could ask during the semi-structured interview. The questionnaire allowed me to reach a larger participant pool which mitigated threats to trustworthiness and bias. My use of semi-structured interviews and classroom observations limited finding a large sample size of participants willing to be interviewed and observed.

Assumptions of the Study

Roberts and Hyatt (2019) defined the assumptions as what a researcher takes for granted relative to their study. One assumption I made when I conducted my study was how all experienced special education teachers who responded to my questionnaire and participated in a semi-structured interview answered all the questions openly and honestly. Another assumption I made when I conducted classroom observations was how all special education teachers taught their lessons with the same planning and intent every time. I also assumed participants had personal knowledge about aligning their lessons to the TEAM General Educator Rubric; however, many special education teachers do not think the TEAM General Educator Rubric is applicable in the special education self-

contained classroom. I assumed experienced special education teachers had an in depth understanding of the three learning theories: behavioral learning theory, cognitive learning theory, and constructivist learning theory as they applied them to their teaching practice.

Since I have worked as a certified special education teacher and a TEAM evaluator, I assumed most special education teachers fully understood how the TEAM General Educator Rubric influenced their instructional planning based on the EBPs and interventions they used in their special education self-contained classroom. I also assumed special education teachers received professional development and training to add to their expertise in applying the TEAM General Educator Rubric to help students in diverse special education self-contained classrooms access Tennessee state standards.

An added assumption I made during my study focused on the technological capabilities of special education teachers in Tennessee public-schools. I assumed special education teachers had access to their email accounts outside of school hours, checked emails daily, had the ability to follow the provided link to the Google Forms questionnaire without direction or assistance, and could access Zoom for the scheduled interview. I also assumed I would not face limitations of school districts restricting outside visitors to the schools for classroom observations.

Summary of Methodology

In this study, I used a qualitative case study to answer my guiding research questions. I created a questionnaire via the online platform Google Forms, constructed a semi-structured interview protocol, and used the TEAM General

Educator Rubric as an observation protocol. I focused the questionnaire, semi-structured interview questions, and observations on the study's problem, my research questions, and my interwoven theoretical framework including behavioral learning theory, cognitive learning theory, and constructivist learning theory.

I collected data directly associated with the purpose of this study. The purpose of this qualitative case study was to use the TEAM General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. I conducted a pilot questionnaire and semi-structured interview before I sent the questionnaire via email to teachers working in a special education self-contained classroom in Tennessee public-schools. I used snowball sampling to recruit the remaining participants for my study.

I followed up with the experienced teachers interested in being interviewed and observed in their classroom by conducting semi-structured interviews to investigate how they used their knowledge of their students and the content to plan activities, chose materials, present instructional content, and motivate their students while teaching lessons aligned to Tennessee state standards (Tennessee Department of Education, 2016). I used the semi-structured interview questions to identify special education teachers who gave explicit examples of instruction matching indictors from three or more domains on the TEAM General Educator Rubric to select and schedule a date and time to transcribe an observation of the teachers in their classrooms to identify their use

of multifaceted learning theory when teaching a lesson aligned to Tennessee state standards.

I used the data collected from all the participants who completed the questionnaire, which included eight open-ended questions and four multiple choice questions, the semi-structured interview which included questions about the teacher's lesson, and the classroom observation using the TEAM General Educator Rubric, to focus on my two research questions. When I conducted the data analysis, I developed open codes, axial codes, and selective codes to answer the research questions. In this qualitative case study, I aimed to use the TEAM General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. I described the results from the data analysis in Chapter IV.

Chapter IV: Analyses and Results

In this qualitative case study, I investigated how experienced teachers may have used multifaceted learning theory when implementing evidence-based practices (EBPs) and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. In Chapter II, I reviewed the literature which revealed a gap in the research for evaluating EBPs and interventions in special education self-contained classrooms to help students access Tennessee state standards. Information I obtained from this study may help policy makers, districts, schools, and educational leadership evaluate the influence of teachers in special education self-contained classrooms using multifaceted learning theory with a common evaluation tool such as the Tennessee Accelerator Educator Model (TEAM) General Educator Rubric.

I utilized a qualitative case study design, which was guided by two research questions, to investigate experienced teachers' use of the TEAM General Educator Rubric and the application of multifaceted learning theory in a lesson to support diverse students in special education self-contained classrooms access Tennessee state standards. I presented the relationship between those emergent themes, the research questions, and the results and analysis in this chapter. To address literature gaps, I used Google Forms, a web-based survey platform; Zoom, a web-based communication platform; and in person observations to collect data.

Data Analysis

Merriam and Tisdell (2016) explained how qualitative data analysis and data collection occurred simultaneously, and the meanings may be unclear until

data collection ends. I used a questionnaire, semi-structured interviews, and observations for this study, which I designed to obtain open and thoughtful responses from participants to see how they implemented lessons in their classrooms. Nineteen participants located in Tennessee completed the questionnaire. I conducted a semi-structured interview with nine of the participants who met the criteria for this study. I observed eight of the participants in their classroom teaching a lesson aligned to Tennessee state standards. I assigned each respondent who met the criteria to be interviewed and observed a code for the purpose of organization and confidentiality. I labeled each participant as 1 through 9 when I scheduled their interview. The participants who completed the questionnaire, but did not meet the criteria, were labeled as participants ten through nineteen in the order of when I received their questionnaire responses. I referenced each response by applying the following format: Participants 1 through 9. For example, the fifth participant who responded to the questionnaire, met the criteria, and I interviewed, was listed as Participant 5.

Questionnaire

I set the criteria for participants in this study to be special education teachers in a self-contained classroom with three or more years of teaching experience and a caseload with one or more male students, one or more female students, and students of two or more ethnicities/races. I used the questionnaire to identify participants who met the criteria and agreed to be interviewed and observed.

For this study, 13 of the 19 (68%) participants who responded to the questionnaire agreed to be interviewed and observed; however, two participants

did not meet the criteria of working in a special education self-contained classroom. Two other participants who agreed to be interviewed did not respond to the two follow up emails or phone calls to schedule a date and time to be interviewed. I scheduled a date and time to interview participants one through nine and I reported the collected data in the next section. Therefore, nine out of 19 (47%) participants met the criteria of being a certified teacher with three or more years of teaching experience with a diverse caseload of students with one or more male students, one or more female students, and students of two or more ethnicities/races.

Semi-Structured Interviews

I interviewed nine out of the 19 (47%) participants who completed the questionnaire and met the pre-determined criteria of having three or more years of teaching experience and a caseload with one or more male students, one or more female students, and students of two or more ethnicities/races. The participants included three experienced elementary special education teachers. One participant worked with third through fifth grade and two participants worked with kindergarten through fifth grade. Participants also included three experienced middle school teachers. One participant worked with seventh through ninth grade and two participants worked with sixth through eighth grade. Participants also included two experienced high school teachers who worked with ninth through twelfth grade and students up to 22 years old and one participant who worked specifically with students 18 to 22 years old.

The interview participants all reported having experience in the classroom with a diverse caseload in a special education self-contained classroom.

Participants who matched the criteria for this study ranged from five to 40 years of experience teaching in the classroom. Participants' caseloads had representation of at least one or more male students, or more female students, and students of two or more ethnicities/races. Participants were more likely to give meaningful responses to the interview questions when they were comfortable using their own experiences (Merriam & Tisdell, 2016). The participants' responses provided detailed information about specific examples of EBPs and interventions used, how lessons aligned to Tennessee state standards, and how participants managed students' behaviors during the lesson.

After I transcribed the semi-structured interview responses, I analyzed the data for the emergence of open codes, axial codes, and selective codes or themes. I recorded the responses to each participant's semi-structured interview responses on a separate document, utilizing open coding and axial codes, until saturation occurred to arrive at developed themes. Interviewed participants clearly explained in their response to the semi-structured interview questions how they planned and implemented lessons aligned to three or more areas aligned to the TEAM General Educator Rubric. I grouped recurrent open codes into axial codes to generate 13 categories. I used the axial codes to find five selective codes or themes: activities and materials, presenting instructional content, motivating students, teacher knowledge of students, and teacher knowledge of content. I found these themes related to how experienced teachers in a diverse special education self-contained classroom applied the TEAM General Educator Rubric when planning and implementing EBPs and interventions.

Observations

From the original 19 participants who completed the questionnaire, I interviewed nine of the 19 (47%) participants, and observed eight of the 19 (42%) participants from eight different public schools located across Tennessee who met the criteria for this study. One participant at the end of the semi-structured interview requested not to be observed unless I needed to do the observation. I honored the request but kept the participant's semi-structured interview responses. I observed eight experienced teachers working in diverse special education self-contained classrooms.

The observation participants included three experienced elementary special education teachers. One participant worked with third through fifth grade and two participants worked with kindergarten through fifth grade. I observed two experienced middle school teachers. One participant worked with seventh through ninth grade and one participant worked with sixth through eighth grade. I also observed two experienced high school teachers who worked with ninth through twelfth grade and students up to 22 years old and one participant who worked with students 18 to 22 years old. The observed participants all reported having three or more years of teaching experience and worked in a diverse special education self-contained classroom.

Participants were more comfortable to be observed when they knew the observer (Merriam & Tisdell, 2016). Since I spent time interviewing each of the participants, they felt more comfortable after talking with me to then let me come observe them teach a lesson aligned to Tennessee state standards in their classrooms. Additionally, the observations provided detailed information about

specific examples of EBPs and interventions being used in the classroom and how they aligned to the TEAM General Educator Rubric while teaching a lesson aligned to Tennessee state standards. The observation participants who matched the criteria for this study ranged from five to 40 years of experience teaching in the classroom. Participants' caseloads had representation one or more male students, one or more female students, and students of two or more ethnicities/races.

The observation participants taught lessons which I transcribed and then used pre-coded categorizes developed from the TEAM General Educator Rubric. I used the TEAM General Educator Rubric to identify three categories: behavioral learning theory, cognitive learning theory, and constructivist learning theory. I used these categories to align what I observed in the classroom to one of the three learning theories until saturation occurred. From these categories, I found teachers applied multifaceted learning theory to teach a lesson aligned to Tennessee state standards to students in a special education self-contained classroom.

Research Questions

I created two research questions for this qualitative case study to investigate how experienced teachers used the TEAM General Educator Rubric to influence the use of EBPs and interventions in a diverse special education self-contained classroom and applied multifaceted learning theory in a lesson aligned to Tennessee state standards. I found five themes emerged for Research Question 1 after analyzing the questionnaire responses and the semi-structured interview responses through open coding, selective coding, and developing selective codes or themes.

Research Question 1

How did experienced teachers use the Tennessee Educator Acceleration Model (TEAM) General Educator Rubric to influence the use of evidence-based practices and interventions in a diverse special education self-contained classroom investigated through interviews?

I implemented a qualitative case study format and utilized a teacher-specific questionnaire which allowed for the collection of data including experience, diversity of participant's current caseload, and personal information for participants willing to be interviewed and observed. I followed the completion of the questionnaire by compiling the participants' responses to questions one through ten to ensure participants had three or more years of teaching experience and a caseload with one or more male students, one or more female students, and students of two or more ethnicities/races. I then selected the participants matching the criteria to schedule an interview for further investigation. I implemented a semi-structured interview protocol utilizing eight of the pre- and post- conference questions associated with the TEAM General Educator Rubric evaluation process which allowed for the collection of data on how the TEAM General Educator Rubric influenced a teacher's use of EBPs and interventions in a special education self-contained classroom. I used the semi-structured interview questions one through nine to support Research Question 1.

I conducted nine interviews in which I transcribed the participants' responses to answer Research Question 1. First, I utilized open coding to examine and analyze the data from the semi-structured interviews. Then, I used axial codes

for recurrent responses to the semi-structured interviews. I coded the responses into 92 open codes, 13 axial codes, and five selective codes/themes (see Figure 2).

Figure 2

Participants' Interview Responses Coded for Research Question 1

Axial Codes	Selective Codes/Themes
Conditioned Relevance Complexity Measurable Goals Varied Presentations Social learning	Teachers used activities and materials provided by the school and beyond the curriculum to keep students' attention with relevant, interactive, and appropriately complex learning opportunities to support the lesson's objective.
Task analysis Teacher centered Organized	Teachers used visuals, examples, and labels as they modeled the thinking process when presenting instructional content with concise communication, logical sequence, and all the essential information.
Discovery Reinforcement	Teachers used reinforcements to motivate students while developing learning experiences with inquiry, exploration, and content relevant to the students.
Personalized	Teachers used their knowledge of students to differentiate instruction while displaying an understanding of each student's anticipated learning difficulties.
Connections	Teachers used their content knowledge to connect key concepts and ideas to other powerful ideas.

I categorized the open codes of Identify, Memory, Unique Learning System, Handwriting Without Tears, Project Search Curriculum, and Environmental Print to the axial code of measurable goals because purchased curriculum had lessons aligned to objectives and assessments to measure student

progress towards. I categorized the open codes practice, prerequisite skills, same sequence, differentiated, scripted lessons, same content, and expanded to the axial code of task analysis because this is how teachers explicitly taught content. I categorized the open codes of different materials for tasks, hands on materials, sensory materials, and manipulatives to the axial code of discovery because students were able to explore content through a multitude of experiences. Next, I organized the axial codes and identified selective codes or themes.

From the axial codes, I developed themes specific to Research Question 1 until saturation occurred. I found, through the data analysis process, teachers implemented EBPs and interventions while applying indicators from the TEAM General Educator Rubric. I found five themes emerged from the semi-structured interview responses relating to Research Question 1.

Teachers used activities and materials provided by the school and beyond the curriculum to keep students' attention with relevant, interactive, and appropriately complex learning opportunities to support the lesson's objective. In identifying the first theme from data analysis, I found participants' responses from the semi-structured interview conveyed how participants implemented activities and materials to support the lesson's objective, sustained the students' attention, kept it relevant to the students' lives, provided opportunities for interactions, incorporated technology, used resources beyond the school curriculum, and guided complex thinking and analysis. Of the combined 18 responses to question one and two on the semi-structured interview, 100% of the participants shared they used a school purchased curriculum and 67% of the participants used Unique Learning System. Participant 5 said, "I used Unique

Learning System. It is required by our district to use it." The remaining 33% of the participants used Handwriting Without Tears, Project Search Curriculum, or Environmental Print. Participant 1 said, "I use Handwriting Without Tears because it has a lot of activities to practice identifying, coloring, writing, and building the letter we are learning." Four of the nine participants indicated they use resources outside of the school purchased curriculum, such as worksheets, teacher-created activities, and different books. Participant 4 said, "I find a lot of resources from Teachers Pay Teachers."

Four out of nine (44%) participants described how they made their lessons relevant and interactive to help keep students engaged. Participant 2 shared, "I work with 15- and 30-minute increments because it relates to how long a break is or how long a lunch break is at work." Participant 9 shared, "I used Blooket because it is an interactive game where teachers make vocabulary cards and then they can use it like a game to teach in class." I used the TEAM General Educator Rubric pre- and post-conference questions for activities and materials implemented in the classroom to teach Tennessee state standards and highlighted how teachers did this in special education self-contained classrooms with semi-structured interview questions one and two.

Teachers used visuals, examples, and labels as they modeled the thinking process when presenting instructional content with concise communication, logical sequence, and all the essential information. In identifying the second theme from data analysis, I found participants' responses from the semi-structured interview conveyed how participants included visuals, examples, and labels to establish the purpose of the lesson and used concise

communication, logical sequencing, and presented all the essential information. Out of the 18 responses to questions three and four on the semi-structured interview, 67% shared how they used pictures and objects throughout their lesson to support students' ability to communicate and have choices. Participant 5 shared, "We use picture cards for vocabulary and pictures on communication boards that they have on their desk. I use visuals for communication purposes and visual learning." Five out of nine (56%) participants explained how they modeled the skill, practiced the skill, and provided students with independent practice or an assessment. Participant 1 stated, "Based on what each of my students can do, I plan how much I need to model it and how much support they will need to practice the skills."

Five out of nine (56%) participants shared how they used the same sequence or same content. Participant 6 shared, "I use the same content for two weeks. I found this really helped my students to better understand what I was teaching." Participant 5 stated, "I follow the I do, We do, You do model for each lesson." Participant 7 and 9 shared how they follow the lesson plan provided through Unique Learning System. I used the TEAM General Educator Rubric pre- and post-conference questions for presenting instructional content in the classroom to teach Tennessee state standards and highlighted how teachers did this in special education self-contained classrooms with semi-structured interview questions three and four.

Teachers used reinforcements to motivate students while developing learning experiences with inquiry, exploration, and content relevant to the students. In identifying the third theme from data analysis, I found participants'

responses from the semi-structured interview conveyed how participants organized the content, so it was personally meaningful and relevant to the students, as well as regularly reinforced and rewarded students' effort. Out of the 18 responses to questions five and six on the semi-structured interview and the response to question four on the questionnaire, 100% of the participants shared how they used reinforcement and relevance to motivate students. Participants 3 and 4 shared how they built relationships with their students. Participant 3 stated, "I really focus on building relationships with them. We know each other and I take time to learn about what they want to learn." Participants 1, 2, 5, 7, and 9 shared how they reinforce or reward their students with positive praise. Participants 1, 4, 5, 6, and 7 stated they rewarded their students' efforts by giving them a break or free time.

Five out of the nine (56%) participants received training or certifications to support behavior management in the classroom. Participants 3 and 6 were Therapeutic Crisis Intervention certified. Participant 2 was a Crisis Prevention Intervention instructor. I used the TEAM General Educator Rubric pre- and post-conference questions for motivating students in the classroom to teach Tennessee state standards and highlighted how teachers did this in special education self-contained classrooms with semi-structured interview questions five and six and questionnaire question four.

Teachers used their knowledge of students to differentiate instruction while displaying an understanding of each student's anticipated learning difficulties. In identifying the fourth theme from data analysis, I found participants' responses from the semi-structured interviews conveyed how

participants displayed an understanding of each student's anticipated learning difficulties and provided differentiated instruction to ensure students had the opportunity to master what was taught. Out of the 18 responses to questions seven and nine on the semi-structured interview, 78% of the participants shared how they personalized lessons to fit the needs of their students and provided opportunities for success. Participant 2 shared, "I use their names and their jobs in the math problems because they are very interested when the work is about them." Participant 3 stated, "I get iffy about doing a lesson, but I ask them what they want to learn or how the lesson was. I let them choose the experiments they wanted to do." Participant 7 shared, "I try to connect it to their transition stuff in their community. I connect the content back to their experiences and what they might already know." Participant 9 requested not to be observed because, "My students struggle with new people in the room, and it can escalate their behaviors. So, I would prefer not to be observed." I used the TEAM General Educator Rubric pre- and post-conference questions for teacher knowledge of students when teaching Tennessee state standards and highlighted how teachers did this in special education self-contained classrooms with semi-structured interview questions seven and nine.

Teachers used their content knowledge to connect key concepts and ideas to other powerful ideas. In identifying the fifth theme from data analysis, I found participants' responses from the semi-structured interview conveyed how participants highlighted key concepts and ideas from a lesson's objective and used them to connect other powerful ideas across content areas. Out of the nine responses from question eight on the semi-structured interview and responses

from question four on the questionnaire, 100% of participants shared how they connect content areas, such as Reading, Math, Science, Social Studies, and life skills throughout each lesson they taught. Participants 1, 3, 4, 5, 6, and 9 explained how they taught foundational reading skills to support students reading math problems, reading directions for science experiments, and reading current events for Social Studies, as well as accessing their community.

Participant 3 said, "We did an experiment with apples where they had to count and divide. There was also a non-fiction article we read that went along with the lesson." Participant 4 stated, "I connect the lessons to reading. We take turns reading the word problems. We work with our peers to problem solve and develop social skills." Participant 5 said, "We use reading symbols across the curriculum." Participant 6 shared, "We read stories, do role playing, cooking lessons, basic math skills, life skills, and ELA standards. I really try to bring everything into life skills to help them be independent and successful."

Three out of nine (33%) participants received degrees beyond their teaching certification. Participant 3 received a Master's in Human Services and Educational Leadership. Participant 1 and 5 received degrees in educational leadership. Participant 5 also received a master's in curriculum and instruction. Participant 7 received an ESL certification.

Five out of nine (56%) participants received training in addition to their teaching certification. Participants 5 and 8 received PECS and communication support training. Participant 8 received professional development for writing IEPs, technology training, and Unique Learning System training. Participants 2, 3, and 7 received work-based learning certification. I found the semi-structured

interview questions eight and questionnaire question four underscored the domain of the TEAM General Educator Rubric for teacher knowledge of content when teaching Tennessee state standards and highlighted how teachers did this in special education self-contained classrooms.

I interviewed special education teachers with three or more years of teaching experience and a caseload with one or more male students, one or more female students, and students of two or more ethnicities/races. Each participant responded to how they planned instruction for their classroom and how they supported their students' needs to access Tennessee state standards. From the semi-structured interviews, I scheduled observations with eight participants to see how they used multifaceted learning theory when teaching a lesson in a special education self-contained classroom and by using the TEAM General Educator Rubric as the observation protocol.

Research Question 2

How did experienced teachers in a diverse special education self-contained classroom apply multifaceted learning theory in a lesson aligned to Tennessee state standards investigated through observations?

I used the questionnaire to ensure participants had three or more years of teaching experience and a caseload with one or more male students, one or more female students, and students of two or more ethnicities/races. I identified eight participants with five to 40 years of teaching experience and worked in a diverse special education self-contained classroom. I supported Research Question 2 with eight observations of participants teaching a lesson aligned to Tennessee state standards in their special education self-contained classroom. Following the

completion of observing teachers from kindergarten to high school in eight different public schools across Tennessee, I used the popular culture document analysis of the TEAM General Educator Rubric to categorize each aspect of the observed lessons as a strategy aligned to either behavioral learning theory, cognitive learning theory, or constructivist learning theory.

I transcribed eight observations and categorized each part of the lesson to an indicator on the TEAM General Educator Rubric. I transcribed and summarized the number of times participants used learning theory strategies until saturation of data. I summarized 298 instances I observed a learning theory strategy used during each lesson as either behavioral learning theory, cognitive learning, or constructivist learning theory. I found evidence of teachers using and integrating all three types of learning theories represented in multifaceted learning theory for Research Question 2 from the transcribed observations, which I identified using the following areas of the TEAM General Educator Rubric: Instructional Plans, Assessments, Expectations, Managing Student Behaviors, Environment, Respectful Culture, Standards and Objectives, Motivating Students, Presenting Instructional Content, Lesson Structure and Pacing, Activities and Materials, Questioning, Academic Feedback, Grouping Students, Teacher Content Knowledge, Teacher Knowledge of Students, Thinking, and Problem Solving.

Instructional Plans

I observed how participants set measurable and explicit goals aligned to Tennessee state standards with I can statements and stating the objective for the lesson. Eight out of Eight (100%) participants used behavioral learning theory strategies eight times to explain the objective of the lesson to the students at the

beginning and end of the lesson. Participant 3 stated, “We are working on using schedules and telling time.” Participant 5 wrote on the board, “I can identify energy sources and describe their use in daily life. Energy sources: 1. Batteries; 2. Electricity; and 3. Solar.”

Assessments. Three out of eight (38%) participants used behavioral learning theory strategies two times and cognitive learning theory strategies one time to assess with clear measurement criteria. Participant 1 asked students, “State three words that begin with the letter r.” Participant 2 used an assessment checklist to help students review and reflect on their basic job skills as well as their own specific jobs skills for where they currently worked.

Participant 8 asked students, “What do you do in the spring?” Student responded, “I wear a coat.” Participant 8 asked, “Why do you wear a coat?” Student responded, “Because it rains.” Participant 8 had students provide real life examples for each season to show their understanding of how the weather changed during each season.

Expectations. I observed six out of eight (75%) participants use behavioral learning theory strategies three times and cognitive learning theory strategies three times to create learning opportunities for students to experience success while setting high and demanding expectations for all students. Participant 1 gave students differentiated packets to identify, color, and write the letter r. Participant 1 provided individual support to help students as needed and then checked their work at the end to go over everything they got correct.

Participant 2 had students give I can statements. Students said, “I can be on time. I can listen. I can be a team player. I can follow directions. I can make eye contact.”

Participant 6 set up each student’s device for communication with the color response orange. Students pressed their device when Participant 6 or Participant 6’s teaching assistants asked, “What color is this?” Three out of four students in Participant 6’s classroom had only orange as their only choice to ensure success in answering the questions for the lesson.

Managing Student Behaviors. Eight out of eight (100%) participants used behavioral learning theory strategies 17 times to manage student behaviors by setting clear rules for learning and behaviors, overlooking inconsequential behaviors, and dealing with disruptions promptly. Participant 3 had two students who made noises during the lesson, but the class was accepting of the students’ behaviors as the rest of the class remained on task and worked with the teacher or one of the two teaching assistants.

Participant 4 said, “Do not do anything with these papers yet, I am just handing them out.” Student responded, “Yes ma’am.” Participant 4’s students sat quietly at their desk ready to work while Participant 4 handed out their work.

Participant 8 stated, “Okay friends, we won’t get started until the timer goes off.” The timer went off and Participant 8 said, “I need you to get your work boxes and come to the table.” Once all the students got to the table, Participant 8 continued, “I need your eyes. I need your eyeballs on me. You can sit at your desk, or you can sit with me.”

Environment. I observed eight out of eight (100%) participants use behavioral learning theory strategies five times and constructivist learning theory strategies six times to make supplies and resources readily available and arranged the classroom to promote individual and group learning. Participant 2 had students work as a whole group at the beginning and end of the lesson. Participant 2 had students break into small groups to work one-on-one with their job coach as well as allowing two students to work independently.

Participant 3 said, "You will need your Chromebook." Two students in Participant 3's class got their Chromebook and logged in independently. Participant 3 assisted two other students by helping them log in to their Chromebook.

Participant 5 had four groups of two desks for students to spread out and work independently. Participant 5 also had a kidney table for students to work in small groups. Participant 7 had students split into three groups to complete three rotations including writing, calendar skills, and social studies.

Respectful Culture. Seven out of eight (88%) participants used behavioral learning theories 11 times to establish caring and respectful interactions between teacher to student and student to student to develop positive relationships and interdependence. Participant 2 stated, "Do we have to like everybody we work with?" Students responded, "No." Participant 2 continued, "But you have to be what?" Students responded, "Respectful." Participant 2 concluded, "Right! Sometimes you just have to act like you like them even if you don't."

Participant 4 had a student call out, “Wait! Wait! Wait! I need help here. Teacher assistant, can you come help me?” The teaching assistant sat with the student in Participant 4’s classroom to clarify where the student needed to put the token on the Bingo board.

Participant 6 and the teaching assistants constantly cheered on the students for participating and communicating with their devices or verbally during the lesson. Participant 6’s teaching assistants prompted students to be ready to work before Participant 6 got to the student. Participant 6 made sure every student had multiple opportunities to participate throughout the lesson.

Standards and Objectives. I observed six out of eight (75%) participants used behavioral learning theory strategies four times and cognitive learning theory strategies four times to communicate all learning objectives while connecting to what students previously learned, student’s life experiences, and other content areas. Participant 1 asked students, “What letter are we working on today?” Student responded, “R.” Participant 1 asked, “What are you doing with your R?” Student 1 answered, "Gluing it.” Student 2 answered, “Writing.” Student 3 answered, "Stickers.” Participant 1 explained, “Students practiced R for two days prior to this lesson. This is day three of working with R.”

Participant 6 stated, “We are going to learn about the color orange and all the things that are orange in our homes and in our classroom. We will watch and listen to our videos about the color orange, too. This is our last day for our unit on the color orange.”

Participant 7 said, “Do you remember what we talked about yesterday? Some people decorate a tree. Some people will use a pinata and hit the pinata.

What falls out of the pinata?" Student responded, "Candy." Participant 7 continued, "Some people eat a big meal, and some people watch fireworks. What traditions or holidays do you celebrate?"

Motivating Students. Seven out of eight (88%) participants used behavioral learning theory strategies five times and constructivist learning theory strategies six times to develop learning experiences where inquiry, curiosity, and exploration are valued while also reinforcing and rewarding students' effort. Participant 5 explained, "The students earn stickers for being on tasks and completing their work. Once they earn so many stickers, they can earn free time when they finished all of their work."

Participant 7 asked, "What do you see here?" Students did not respond. Participant 7 continued, "Look! It's a Christmas tree. Look at this picture. It's people dancing. Where do you think that might be?" Students did not respond. Participant 7 prompted students, "Will you answer the question for a puzzle piece?" Students nodded yes and responded, "Party." Participant 7 then gave the student a puzzle piece and I observed both students in the group answer more questions without earning another puzzle piece until the end of the group.

Participant 8 began the lesson by saying, "Help! Help me! We have been talking about seasons. What in the world is a season? We talked about them this morning." Student responded, "There are four of them." Participant 8 continued, "That's right. So does the weather stay the same?" Student responded, "No. It changes."

Presenting Instructional Content. I observed eight out of eight (100%) participants use behavioral learning theory strategies 14 times and cognitive

learning theory strategies 21 times to present instructional content with visuals, examples, models of thinking, labels for new concepts paired with concise communication, a logical sequence for instruction, and all essential information. Participant 2 said, “Quick review! Let’s count by fives.” Teacher and students counted from five to 60 aloud. Participant 2 continued, “Why do we stop at 60?” Student responded, “Because that is an hour.”

Participant 3 asked a student, “Will you point to nighttime?” Student who was non-verbal points to nighttime on the board. Participant 3 responded, “Excellent! That is nighttime because it is dark outside and there are stars, we can see in the sky.”

Participant 4 played Money Bingo and showed a student a visual of a dime to see if they had it on their card. The student found the dime on their card and placed a token on it. Participant 4 exclaimed, “Alright! There you go! Good job!”

Participant 6 stated, “We talked about yesterday what we would see in our homes that is orange. We said couch, lamp, rug, fireplace, and chair.” Participant 6 showed pictures for each orange item found in a home on the board. Participant 6 continued, “Alright, so today, we are going to look to see what we see in our classroom. We are going to go around and look for what we see that is orange and put it on our paper.”

Lesson Structure and Pacing. Eight out of eight (100%) participants used behavioral learning theory strategies 13 times and cognitive learning theory strategies three times to pace lessons and routines for individual students who progress at different learning rates, so no instructional time was lost. Participant 1 setup tasks for students to complete in three to five minutes during whole and

small group instruction. Participant 4 worked step by step during whole group instruction keeping students on tasks by having them continuously participate. Participant 7 used timers to maintain 15-minute lessons for each small group rotation. Participant 8 had picture vocabulary cards ready for each student to use during the weather activity.

Activities and Materials. I observed eight out of eight (100%) participants use all three learning theories with the activities and materials they selected for their lesson. I observed participants using behavioral learning theory strategies 11 times, cognitive learning theory strategies 17 times, and constructivist learning theory strategies 15 times to implement challenging and relevant activities supporting the objective with curriculum and non-curriculum resources to sustain the students' attention. Participant 3 had four students complete their work on a Chromebook and submit their finished work through the Unique Learning System website. Participant 5 printed out a packet from Unique Learning System which used reading and writing activities paired with the symbols students have practiced expanding their learning about the different forms of energy.

Participant 4 said, "They gave us stuff to practice so no matter where you go, you will be able to use the dollar up method. Student likes to shop at clothing stores. We have two stores like that in our work today."

Participant 6 included four videos of different songs to reinforce learning about the color orange by identifying what orange is, how orange is different from other colors, and how to spell orange. Participant 6 also had student place orange

objects in a basket with a label showing the color and word orange. Participant 6 asked student to identify the color of the object and then place it in the basket.

Participant 7 said, “This story is called Mr. Soto’s Traditions. What I want you to do is try to remember something Mr. Soto does as a tradition. Let’s read about Mr. Soto’s Traditions.”

Participant 8 stated, “Alright! Let me get your cards. I hope you are ready for some hard work with your eyes and ears. We are going to make flip books with our pictures of the seasons and weather.” Participant 8’s teaching assistants worked with students who required additional support.

Questioning. Eight out of eight (100%) participants used behavioral learning theory strategies 28 times and cognitive learning theory strategies 21 times to ask varied, high-quality questions to assess and advance students’ learning. All participants provided students five to 15 seconds of wait time before providing support or repeating the question. Participant 1 asked, “Tell me the pictures that start with the letter R.” Student responded, “robot, rhino, and rainbow.”

I observed Participant 2 read a social story to the class and reference real life scenarios the students dealt with matching the same challenges the character in the story dealt with. Participant 2 stated, “Remember when student changed her job because of the language barriers. Maria in our story who is struggling and needs to make a change. There are always going to be struggles, but there are ways to work through them.”

Participant 6 had students identify the color of an object presented to them. Participant 6’s students responded verbally or with their device to answer

orange. Participant 6 repeated this questioning process five times throughout the lesson to reinforce students answered a question aligned to the lesson's objective.

Participant 7 picked students and let students volunteer to answer one of five comprehension questions about Chapter 1. The questions had pictures paired with vocabulary words for answer choices. The students pointed to the picture and Participant 7 worked with the students to say each answer verbally.

Academic Feedback. I observed eight out of eight (100%) participants use behavioral learning theory strategies 19 times and cognitive learning theory strategies five times to give frequent feedback and prompts to accomplish the goal of the lesson. Participant 2 said, "Pay attention to the minutes. The little hand goes first. It's important to tell the time in the correct order. It's not 17:8." The student responded, "Oh yeah! Its 8:17."

Participant 3 worked with three students in the center of the classroom helping each student as needed. Participant 3 checked students' work and had students explain their answers. Participant 3 responded, "Great job! Look how well you did it!"

Participant 6 went to the student sitting at the round table and asked the student, "What color is this?" The student was not responding and getting frustrated. Participant 6 said, "Okay, student is not ready to work, I'll come back when you are ready." Participant 6 moved on to the next student and then returned to the student who was struggling but was now ready to complete the task.

Grouping Students. I observed eight out of eight (100%) participants used constructivist learning theory strategies nine times to group students in a way to support students' understanding and learning efficiency. Participant 1 worked

with a small group of students consisting of two males and one female, while the other two groups worked in different centers around the classroom with the teaching assistants. Participant 3 had two pairs of four male students work together in the middle of the classroom. Participant 3 also had two male students and one female student work individually with teaching assistants in different areas of the classroom. Participant 7 had three groups of students. One group had one student who required the most support. The other two groups had two students each with one male and one female.

Teacher Content Knowledge. Four out of eight (50%) participants observed used behavioral learning theory strategies six time and cognitive learning theory strategies three times to highlight key concepts to connect to other powerful ideas by teaching limited content in depth for the development of understanding. Participant 1 said, "This is what you are looking for, uppercase R." Participant 1 continued to support student with three non-verbal prompts by pointing to areas on the worksheet with an uppercase R. Participant 1 asked, "Why is R so important to you?" Student responded, "Because my name starts with R!"

Participant 2 asked, "Do you remember why it is important to know time?" Student responded, "Because you only have a 30-minute lunch and then you have to go back to work." Participant 2 responded, "That's right, it is important to get back to work on time."

Participant 5 said, "Remember when we read this, we go from left to right. Let's start at the left. We will read this together."

Teacher Knowledge of Students. I observed eight out of eight (100%) participants use behavioral learning theory strategies four times and cognitive learning theory strategies 12 times to display an understanding of each students' anticipated learning difficulties through differentiated instruction while incorporating student interests and cultural heritage. Participant 1 stated, "What sound does R make?" The student was not sure of the answer. Participant 1 models the sound for the letter R. The student mimicked Participant 1. Participant 1 asked, "What sound does R make?" Student responded, "Rrrrrr."

Participant 3 had a student whose first language was Spanish. Participant 3 and the teaching assistant used the language translator on the Chromebook to give directions when they felt they could not effectively convey the directions to the student. Participant 3 also counted in Spanish with the student from one to ten and learned phrases to tell the student to first complete the task then the student would earn Legos. I observed how this made the student happy because the student smiled when Participant 3 spoke about earing Legos in Spanish.

Participant 5 printed out differentiated packets provided by Unique Learning System to match the instructional level for each student. Participant 5 had packets with picture-to-picture matching, picture to word matching, and word to word matching. Participant 5 had students working on their packets independently, with a peer, or with a teaching assistant.

Thinking. Three out of eight (38%) participants used cognitive learning theory strategies two times and constructivist learning theory strategies two times to have students analyze and explain their thinking as well as apply their learning into real life scenarios. Participant 2 asked students, "Give me a safety

precaution." Student responded, "Wear safety googles." Participant 2 continued, "How many eye injuries happen each year? Where is the best place to wear safety googles?" Student responded, "When mixing chemicals." Participant 2 said, "Good! What's another safety precaution?" Student responded, "Don't download dangerous apps?" Participant 2 continued, "Why?" Student answered, "Because you can get a computer virus." Participant 2 asked, "What about a ladder?" Student responded, "Don't go pass the second wrung."

Participant 8 said, "Let's talk about the seasons. I am building a snowman. It is super cold outside. Why in the world would you want to be outside when you can be inside with hot chocolate?" Two students responded, "Winter!" Five other students responded with their picture vocabulary card for winter.

Problem Solving. I observed five out of eight (63%) participants use cognitive learning theory strategies eight times and constructivist learning theory strategies four times to categorize, draw conclusions, observe, predict outcomes, improve solutions, generate ideas, and identify relevant and irrelevant information. Participant 1 asked, "Could you tell me three words that start with the letter R?" Student responded, "Rhino, rose, robot." Participant 1 responded, "Excellent! See if you can think of anymore words that start with the letter r."

Participant 3 saw a student got a math problem incorrect. Participant 3 stated, "Okay, let's look at this together. What are the clues?" Student responded, "Evening, nighttime, and PM." Participant 3 continued, "So if those are the clues, what do we need to do to solve this problem?"

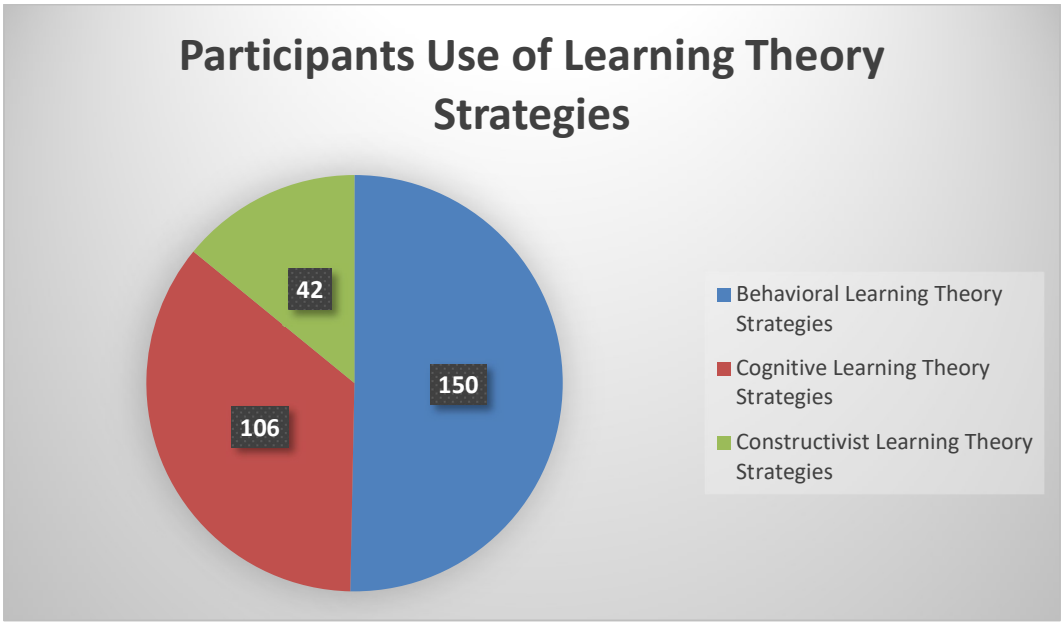
Participant 5 had students categorize pictures of vocabulary words dealing with energy into the different types of energy they learned about in the lesson.

Participant 7 had a student who was non-verbal to categorize cubes into seven different containers by their colors. Participant 7 kept the student engaged during the activity by providing prompts to help the student successfully complete the task.

Through this data analysis process, I found teachers who worked in special education self-contained classrooms used a variety of behavioral learning theory strategies, cognitive learning theory strategies, and constructivist learning theory strategies to teach a lesson aligned to Tennessee state standards. The observed participants demonstrated the application of multifaceted learning theory by using 298 learning theory strategies. I observed participants use 150 (50%) behavioral learning theory strategies, 106 (36%) cognitive learning theory strategies, and 42 (14%) constructivist learning theory strategies (see Figure 3).

Figure 3

Participants Use of Learning Theory Strategies



I coded the TEAM General Educator Rubric into 22 open codes and categorized the open codes as either behavioral learning theory, cognitive learning theory, or constructivist learning theory. Participants used the following behavioral learning theory strategies aligned to the open codes I generated from the TEAM General Educator Rubric: Teacher-centered (22); Task-analysis (20); Conditioned (36); Expectations (15); Measurable Goals (15); Sequenced (10); Environmental Stimuli (10); Reinforcements and Consequences (22). Participants used the following cognitive learning strategies I generated from the TEAM General Educator Rubric: Complexity (16); Self-guide (5); Organized (17); Solutions (6); Relevance (26); Connections (7); Personalized (15); Developmentally Appropriate (13); and Self-reflect (1). Participants used the following constructivist learning theory strategies aligned to the open codes I generated from the TEAM General Educator Rubric: Perspectives (4); Social Learning (14); Varied Presentations (8); Discovery (13); and Application (3). I observed participants use these learning theory strategies to support each of their students with intellectual disabilities while still teaching content aligned to Tennessee state standards.

Summary of Results

I used a qualitative case study process to analyze questionnaire data, semi-structured interview data, and observation data to answer two research questions for this study. I analyzed the questionnaire data, semi-structured interview data, and observation data with a coding process which led to open codes, axial codes, and themes derived from the responses of experienced teachers working in diverse special education self-contained classrooms from Tennessee. Through

detailed analysis of the nine completed semi-structured interviews, I assessed five themes which answered Research Question 1 of this study. Through detailed analysis of the eight completed observations with the TEAM General Educator Rubric, I found 298 instances participants applied learning theory strategies, which answered Research Question 2 of this study.

To find the answer to Research Question 1, I uncovered five themes in the data. I determined experienced teachers with three or more years of experience in the classroom working in a diverse special education self-contained classroom from kindergarten to high school, with at least one or more male students, one or more female students, and students of two or more ethnicities/races, applied learning theory strategies reflecting indicators from the TEAM General Educator Rubric when teaching lessons aligned to Tennessee state standards.

Teachers used activities and materials provided by the school and beyond the curriculum to keep students' attention with relevant, interactive, and appropriately complex learning opportunities to support the lesson's objective. Teachers used visuals, examples, and labels as they modeled the thinking process when presenting instructional content with concise communication, logical sequence, and all the essential information. Teachers used reinforcements to motivate students while developing learning experiences with inquiry, exploration, and content relevant to the students. Teachers used their knowledge of students to differentiate instruction while displaying an understanding of each student's anticipated learning difficulties. Teachers used their content knowledge to connect key concepts and ideas to other powerful ideas.

To find the answer to Research Question 2, I found 298 instances participants applied learning theory strategies when teaching a lesson aligned to Tennessee state standards in a special education self-contained classroom. I determined teachers in a special education self-contained classroom used behavioral learning theory strategies, cognitive learning theory strategies, and constructivist learning theory strategies in special education self-contained classroom to teach lessons with measurable goals, relevance, and discovery. Participants used behavioral learning theory strategies 150 (50%) times, cognitive learning theory strategies 106 (32%) times, and constructivist learning theory strategies 12 (18%) times. Participants used strategies from all three types of learning theories in multifaceted learning theory approach to set expectations to meet measurable goals with relevant and developmentally appropriate content used to help student discover and understand different perspectives.

I discussed the results of the study in Chapter V and then reported the implications of these results. I also offered recommendations for future research on the topic. I concluded my study with information to be used by future researchers and a statement regarding the impact of my study topic.

Chapter V: Discussion of the Study

Stahmer et al. (2012) stated there is no agreement within the field about what constitutes effective evidence-based practices (EBPs) for the entire range of students with autism spectrum disorder (ASD). Teachers used comprehensive programs to meet the complex challenges and spectrum of characteristics associated with students with ASD (Dunlap et al., 2001; Schoen, 2003; Shepley & Grisham-Brown, 2019; Stahmer et al., 2012; Weiss, 2001). Odom et al. (2010) concluded a great need exists for treatment integrity for implementation and fidelity of teachers in special education self-contained classrooms using a comprehensive program including different EBPs, interventions, and learning theories.

Teachers did not implement EBPs and interventions because limited training was provided, as well as most were not researched in school settings, which made them more difficult to implement appropriately in the classroom (Cook et al., 2014; Odom et al., 2010; Schreibman, 2000; Stahmer et al., 2015). Pellecchia et al. (2015) stated there was little research on the association between fidelity and outcomes for students with ASD. Steege et al. (2007) characterized Applied Behavior Analysis (ABA) programs using interventions empirically demonstrating effectiveness with a specific population in a particular context.

Throughout my literature review for Chapter II, I observed a lack of diversity in the research for EBPs and interventions used for students with intellectual disabilities. I also noted research rarely occurred in a special education self-contained classroom setting in which students must adhere to state standards. Researchers had not observed teachers in a special education self-contained

classroom with an evaluation tool, such as the Tennessee Educator Acceleration Model (TEAM) General Educator Rubric, to identify key strengths and areas of improvement for EBPs and interventions implemented to support students' access to Tennessee state standards.

I hoped to fill a gap in the existent literature about teachers' use of the TEAM General Educator Rubric and application of multifaceted learning theory when implementing lessons aligned to Tennessee state standards in a diverse special education self-contained classroom. The purpose of this study was to use the TEAM General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. Using a qualitative case study research design, I developed research questions, a questionnaire, which 19 participants completed, a semi-structured interview protocol, which I used to conduct nine interviews, and an observation protocol, which I used to observe eight teachers across Tennessee. I collected information from all participants guided by the theoretical framework of behavioral learning theory, cognitive learning theory, and constructivist learning theory. I used these three learning theories as the foundation to develop a new theory, multifaceted learning theory. I developed multifaceted learning theory to detail the integration of strategies from the three learning theories when implementing EBPs and interventions in a special education self-contained classroom.

I defined multifaceted learning theory as the integration of behavioral learning theory, cognitive learning theory, and constructivist learning theory. I

developed the framework for multifaceted learning theory to show how students were conditioned to meet set expectations monitored by measurable goals through sequenced tasks and reinforcements. Teachers personalized instruction with relevant, complex, and developmentally appropriate content to help students build connections. In addition, students discovered and applied different perspectives through social learning opportunities and varied presentations. The framework I developed for multifaceted learning theory should be applied to how special education teachers receive professional development to implement EBPs and interventions and as a tool to evaluate comprehensive programs used in special education self-contained classrooms. The multifaceted learning theory should replace the requirement for the implementation with fidelity of EBPs and interventions based on how I observed 298 learning theory strategies applied in eight observations to support students with intellectual disabilities. I did not observe any participant follow a specific EBP or intervention script because of the different needs for each of the students in their classroom.

I completed nine interviews with experienced teachers from Tennessee in the fall of 2022. All nine participants reported using a school purchased curriculum. Six of the nine (67%) participants shared how they use the Unique Learning System. All nine participants planned activities aligned to Tennessee state standards, incorporated visuals to present instruction, and helped students develop communication skills. Participants implemented reward systems to motivate students, differentiated their instruction to meet the needs of their students, and connected key concepts of a lesson to other content areas. Experienced teachers in special education self-contained classrooms who used a

school purchased curriculum still had to accommodate and modify content to support their students access to Tennessee state standards.

I conducted eight observations with experienced teachers working in diverse special education self-contained classrooms from Tennessee in the fall of 2022. After each observation, I used the TEAM General Educator Rubric to categorize the transcribed observations and identify what strategies special education teachers used to teach a lesson aligned to Tennessee state standards. Nine out of nine (100%) participants demonstrated the application of multifaceted learning theory by using behavioral learning theory strategies, cognitive learning theory strategies, and constructivist learning theory strategies. Experienced teachers in special education self-contained classrooms applying multifaceted learning theory to teach lessons aligned to Tennessee state standards points to an area of needed research.

In analyzing the questionnaire data and semi-structured interview responses, I was surprised by the types of training and certifications teachers shared. Eleven out of 19 (57%) participants from the questionnaire completed training for crisis interventions and managing behaviors. Twelve out of 19 (63%) participants received content knowledge training such as Reading 360 K-12, TN Core Math, and Work Based Learning certification. Fourteen out of 19 (74%) participants received degrees beyond their teaching degree in areas such as human services, educational leadership, and curriculum and instruction. During the interviews, six out of nine (67%) participants expressed using Unique Learning System. Unique Learning System was designed specifically to help students with intellectual disabilities, pre-K through high school, master their state standards by

allowing teachers to deliver high-quality, differentiated, standards-aligned, and symbol supported content with assessments, data tools, EBPs, and interventions. I found from the questionnaire responses, one out of 19 (1%) participants reported receiving Unique Learning System training. Although I could assume participants might have received training, but did not report it in this questionnaire, it is concerning to think school district leaders would purchase a curriculum and not provide adequate training for the special education teachers as school district leaders would when purchasing a curriculum for the general education teacher. School district leaders and school leaders should offer professional development or professional learning communities for special education teachers to participate in and learn how to navigate, implement, and track student progress with the purchased curriculum.

Six out of nine (67%) participants shared how they built relationships and planned activities relevant to the students' lives. Shillingsburg et al. (2015) explained how ABA in the classroom required teachers to learn how to determine the motivation and purpose of behavior, to understand how to deliver reinforcement and consequences, and to modify the classroom environment to promote appropriate behavior. Nine out of nine (100%) participants shared how they used treats, token boards, or puzzle pieces for reinforcing students' behaviors as needed. Nine out of nine (100%) participants stated they used different types of tasks and materials to keep students engaged; however, I observed six out of eight (75%) participants engage, motivate, and sustain students' attentions with personalized activities (cognitive learning theory strategy), a variety of

presentations (constructivist learning theory strategy), and no use of reward or reinforcement beyond verbal praise (behavioral learning theory strategy).

I used the TEAM General Educator Rubric as the observation protocol for this study. I used open codes to highlight similar concepts throughout each indicator and axial codes to categorize them as behavioral learning theory, cognitive learning theory, and constructivist learning theory. The eight participants I observed demonstrated the application of behavioral learning theory strategies 150 out of the 298 (50%) times, cognitive learning theory strategies 106 out of the 298 (36%) times, constructivist learning theory strategies 42 out of the 298 (14%) times. This was an interesting find because researchers focused primarily on behavioral learning theory EBPs and interventions being implemented with fidelity (Arick et al., 2003; Browder et al., 2008, 2012; Lee et al., 2009); however, I found the use of the TEAM General Educator Rubric allowed me to observe and categorize how participants met the needs of their students and adjusted their teaching to support students' access to Tennessee state standards with strategies from all three learning theories.

Mirenda and Brown (2007) explained the substitution of a more appropriate means of communication or the use of specific strategies such as visual supports or schedules was required to reduce noncompliant behaviors in students with ASD; however, students with ASD also required interventions emphasizing the development of coping and adaptive strategies to regulate their emotional responses (Williams et al., 2018). I observed special education teachers focus on accommodating students' needs and modifying content to support students' learning. Students' needs changed throughout the lessons I observed

depending on their behaviors and interests, which cannot be tracked and adjusted when focusing on implementing EBPs and interventions with fidelity.

Teachers required a repertoire of practices because many factors affect student learning and it was difficult to attribute learning solely to one specific variable (Danielson, 2001, 2015; Moran, 2015). I categorized the 298 learning theory strategies I observed in the classroom by using the TEAM General Educator Rubric. Researchers found using multiple EBPs and interventions as a comprehensive program made it difficult to identify which aspect of the program provided students with intellectual disabilities the most benefit (Odom et al., 2010). Researchers should use the framework of multifaceted learning theory to develop the evaluation tool, which would provide consistent language and strategies to support students with intellectual disabilities access to Tennessee state standards. I used the TEAM General Educator Rubric to observe and identify exactly what special education teachers applied during their lesson to support each student. Based on the learning theory strategies I observed, researchers should develop an evaluation tool focused on the learning theory strategies used in a comprehensive program for a special education self-contained classroom.

I found when conducting the research in the classroom with the TEAM General Educator Rubric as an observation tool, special education teachers used a combination of behavioral learning theory strategies, cognitive learning theory strategies, and constructivist learning theory strategies when implementing EBPs and interventions to support each student during the lesson. I found the TEAM General Educator Rubric provided a framework to identify what the teacher

implemented to support student learning as opposed to observing teacher fidelity of implementation of EBPs and interventions. I observed how teachers accommodated and modified the lesson to meet the individual needs of each student while also dealing with behavior issues, working within the school environment, and adhering to the Tennessee state standards. Based on the data from my study, experienced teachers in a diverse special education self-contained classroom application of multifaceted learning theory is an area researchers needed to further explore, as well as an area policy makers and school leaders should target for evaluating comprehensive programs in special education self-contained classrooms.

Implications for Practice

Based on the results of my study, I have determined implications for teachers in diverse special education self-contained classrooms use of the TEAM General Educator Rubric and multifaceted learning theory when implementing EBPs and interventions to help students access Tennessee state standards. This study was important because of the lack of literature about diverse students with intellectual disabilities in special education self-contained classrooms and common evaluation tools for EBPs and interventions beyond requiring fidelity of implementation. Teachers working in diverse special education self-contained classrooms required a way to implement EBPs and interventions while also meeting the dynamic needs of their students in the classroom, as opposed to a clinical setting used for research.

The first implication concerned teachers' use of multifaceted learning theory when planning and implementing EBPs and interventions. In the eight

observations I conducted, I observed 298 instances of special education teachers using a combination of behavioral learning theory strategies, cognitive learning theory strategies, and constructivist learning theory strategies. Special education teachers should use multifaceted learning theory to integrate behavioral learning theory strategies, cognitive learning theory strategies, and constructivist learning theory strategies to support students' access to Tennessee state standards instead of focusing on the fidelity of implementation of a scripted curriculum. Special education teachers use of multifaceted learning theory in the classroom would allow them to accommodate and modify the program to meet the needs of their students instead of making students conform to the requirements of EBPs and interventions.

Teachers used variations of interventions in the classroom based on the needs of their students with intellectual disabilities affecting the procedural fidelity of each intervention used (Mandell et al., 2013; Pellecchia et al., 2015; Stahmer et al., 2015). Teachers implemented structured interventions, such as discrete trial training (DTT), with higher fidelity and less structured interventions, such as pivotal response training (PRT), with less fidelity (Mandell et al., 2013; Pellecchia et al., 2015; Stahmer et al., 2015). Pellecchia et al. (2015) reported fidelity to all strategies as low, despite considerable training and support; however, the students showed gains in cognitive ability. I found participants used different learning theory strategies from behavioral learning theory, cognitive learning theory, and constructivist learning theory to meet the needs of their students and did not observe any participant adhere to a specific EBP or intervention for every student. Researchers, policy makers, school districts'

leaders, and teachers should focus on implementing a comprehensive program using multifaceted learning theory, which allows special education teachers to accommodate and modify the lessons taught to the individual needs of each student on their caseload.

With a better understanding of how and to what extent special education teachers applied multifaceted learning theory to plan and implement lessons aligned to Tennessee state standards, the second implication is for policy makers, district leaders, and school leaders to capitalize on using an evaluation tool over the requirement of EBPs and interventions being implemented with fidelity. Every participant in this study shared and was observed implementing behavioral learning theory strategies, cognitive learning theory strategies, and constructivist learning theory strategies to support their students' access to Tennessee state standards. Policy makers and district leaders should use a state approved evaluation tool to focus on special education teachers implementation of a comprehensive program to support how special education teachers differentiate and support students' access to Tennessee state standards. School district leaders and school leaders would benefit from having an evaluation tool to monitor implemented EBPs and interventions as a comprehensive program and track how each indicator influences students' progress. School district leaders and school leaders should assist special education teachers in applying multifaceted learning theory to support student progress instead of trying to make students fit the requirements of EBPs and interventions.

The third implication focused on how special education teachers should use a state approved evaluation tool to personalize the instruction to each

student's specific needs instead of the required steps of EBPs and interventions researched in a clinical setting. One relevant example of this would be how special education teachers use the Unique Learning System curriculum as a framework for their instruction, but still personalize the content and procedures to make it relevant to their students and keep their students engaged. Lee et al. (2009) explained how access to the curriculum for students with intellectual disabilities required a focus on how content was delivered, how students respond to the content, the classroom setting, and how teachers interacted with students. Company leaders would also benefit from promoting their product to address Tennessee state standards with a framework of instruction matching the state approved evaluation tool.

The fourth implication for the study is to consider the required professional development for implementing multifaceted learning theory in a special education self-contained classroom to support students with intellectual disabilities access to Tennessee state standards. Arick et al. (2003) stated there was disagreement between researchers on the best nationally known and validated EBPs and interventions for students with ASD; however, researchers agreed in addition to early intervention, services should include specialized curriculum, individualization, intensity of engagement, systematic instruction, and family involvement (Browder et al., 2008, 2012; Lee et al., 2009). I observed special education teachers use behavioral learning theory strategies 150 times, cognitive learning theory strategies 106 times, and constructivist learning theory strategies 42 times, which I identified using the TEAM General Educator Rubric to support their students' academic and functional skill development. Policy makers, school

district leaders, and school leaders should provide special education teachers with professional development on strategies aligned to multifaceted learning theory and the purchased curriculum to support the implementation of comprehensive programs.

Recommendations for Further Research

The recommendations for further research are for policy makers, district leaders, school leaders, special education teachers, and anyone in the field of education. While I focused on special education teachers' use of the TEAM General Educator Rubric and multifaceted learning theory, Future researchers should ask school leaders how they evaluate teachers in special education self-contained classrooms or enforce and monitor fidelity of EBPs and interventions. Future researchers should also ask special education teachers how they ensure their implementation of EBPs or interventions with fidelity. These are important areas for further research because it could give more information about why special education teachers modify and personalize EBPs and interventions to create comprehensive programs to support their students' access to Tennessee state standards and functional skills. Further study into the effectiveness of multifaceted learning theory to support students with intellectual disabilities would lend insights into how teachers could use comprehensive programs to effectively instruct and develop students' academic and functional skills.

Researchers interested in special education teachers' use of multifaceted learning theory should include other states and different evaluation protocols. My study was limited to Tennessee and the TEAM General Educator Rubric approved by members of the Tennessee Department of Education. By looking at different

states and each state's approved teacher evaluation protocol, researchers should explore common indicators for state approved EBPs and interventions when evaluating teachers in the classroom. It would also benefit researchers to observe more special education self-contained classrooms with diverse students to gather more information on teachers' use of multifaceted learning theory.

For my study, I utilized a Google Forms questionnaire to collect data through snowball sampling. This was a beneficial way to collect data from multiple locations and receive references for other potential participants, but I was limited to participants not always providing additional references. I also utilized a semi-structured interview protocol and an observation protocol to collect data. This was a beneficial way to collect data on how teachers planned and implemented EBPs and interventions in the classroom, but I was limited by how many participants were willing to be interviewed and observed. Future researchers should use purposeful random sampling to gain approval to reach out to all of the teachers working in special education self-contained classrooms for each approved district to collect data.

While it may be impossible for all researchers to agree on a common evaluation tool for comprehensive programs used in special education self-contained classrooms, researchers should repeat this study and include different locations of Tennessee or other states to determine if similar results could be found with the same evaluation tool, such as the TEAM General Educator Rubric. This would give researchers a broader understanding of multifaceted learning theory across the United States, which could, in turn, lead to reform in the way of evaluating the effectiveness of comprehensive programs

used in special education self-contained classrooms. Multiple researchers should complete this study together to calibrate participants' responses and observations to check the accuracy of the TEAM General Educator Rubric.

Conclusions of the Study

The purpose of this study was to use the TEAM General Educator Rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing EBPs and interventions in diverse special education self-contained classrooms to help students access Tennessee state standards. I utilized a qualitative case study and collected questionnaire responses from 19 participants working in Tennessee public schools, conducted semi-structured interviews with nine special education teachers, and observed eight diverse special education self-contained classrooms across Tennessee. I developed themes to answer two research questions based on participants' responses and observations. I also utilized prior literature and the theoretical framework of behavioral learning theory, cognitive learning theory, and constructivist learning theory in the design of my study and interpretation of data. By reviewing relevant literature and conducting my study, I was able to analyze data specific to the population I was interested in and generate conclusions about my study topic.

Five themes emerged from analyzing questionnaire data and semi-structured interview data. In response to Research Question 1, I found experienced teachers in diverse special education self-contained classrooms used activities and materials provided by the school and beyond the curriculum to keep students' attention with relevant, interactive, and appropriately complex learning opportunities to support the lesson's objective. Teachers used visuals, examples,

and labels as they modeled the thinking process when presenting instructional content with concise communication, logical sequence, and all the essential information. Teachers used reinforcements to motivate students while developing learning experiences with inquiry, exploration, and content relevant to the students. Teachers used their knowledge of students to differentiate instruction while displaying an understanding of each student's anticipated learning difficulties. Teachers used their content knowledge to connect key concepts and ideas to other powerful ideas. For Research Question 2, I found experienced teachers in diverse special education self-contained classrooms used behavioral learning theory strategies, cognitive learning theory strategies, and constructivist learning theory strategies in special education self-contained classrooms. Participants set expectations with measurable goals to teach relevant and developmentally appropriate content for students with intellectual disabilities to develop their own perspective of the content through social learning and discovery.

Students with moderate and severe intellectual disabilities needed opportunities to learn general education content, in whatever setting they received instruction, to have a fair chance of demonstrating progress on state standards (Browder et al., 2008, 2012; Ruppar, 2015). Teachers in special education self-contained classrooms used comprehensive programs to incorporate EBPs, interventions, and the specific needs of their students to teach academic skills aligned to state standards and functional skills. To combat the requirement of fidelity of implementation for EBPs and interventions in response to the lack of connection between research and application in the classroom, policy makers and

school district leaders should evaluate comprehensive programs used in special education self-contained classrooms with an evaluation tool based on multifaceted learning theory. By using multifaceted learning theory as a framework for evaluating comprehensive programs, special education teachers would be able to focus on how to deliver content, how students respond to the content, how to interact with their students, and the classroom setting.

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Appendix A

Tennessee Educator Acceleration Model (TEAM) General Educator Rubric

General Educator Rubric: Instruction

	Significantly Above Expectations (5)	At Expectations (3)	Significantly Below Expectations (1)
Standards and Objectives	• All learning objectives are clearly and explicitly communicated, connected to state standards and referenced throughout lesson. • Sub-objectives are aligned and logically sequenced to the lesson's major objective. • Learning objectives are: (a) consistently connected to what students have previously learned, (b) know from life experiences, and (c) integrated with other disciplines. • Expectations for student performance are clear, demanding, and high. • There is evidence that most students demonstrate mastery of the daily objective that supports significant progress towards mastery of a standard.	• Most learning objectives are communicated, connected to state standards and referenced throughout lesson. • Sub-objectives are mostly aligned to the lesson's major objective. • Learning objectives are connected to what students have previously learned. • Expectations for student performance are clear. • There is evidence that most students demonstrate mastery of the daily objective that supports significant progress towards mastery of a standard.	• Few learning objectives are communicated, connected to state standards and referenced throughout lesson. • Sub-objectives are inconsistently aligned to the lesson's major objective. • Learning objectives are rarely connected to what students have previously learned. • Expectations for student performance are vague. • There is evidence that few students demonstrate mastery of the daily objective that supports significant progress towards mastery of a standard.
Motivating Students	• The teacher consistently organizes the content so that it is personally meaningful and relevant to students. • The teacher consistently develops learning experiences where inquiry, curiosity, and exploration are valued. • The teacher regularly reinforces and rewards effort.	• The teacher sometimes organizes the content so that it is personally meaningful and relevant to students. • The teacher sometimes develops learning experiences where inquiry, curiosity, and exploration are valued. • The teacher sometimes reinforces and rewards effort.	• The teacher rarely organizes the content so that it is personally meaningful and relevant to students. • The teacher rarely develops learning experiences where inquiry, curiosity, and exploration are valued. • The teacher rarely reinforces and rewards effort.
Presenting Instructional Content	Presentation of content always includes: • visuals that establish the purpose of the lesson, preview the organization of the lesson, and include internal summaries of the lesson; • examples, illustrations, analogies, and labels for new concepts and ideas; • effective modeling of thinking process by the teacher and/or students guided by the teacher to demonstrate performance expectations; • concise communication; • logical sequencing and segmenting; • all essential information; • no irrelevant, confusing, or non-essential information.	Presentation of content most of the time includes: • visuals that establish the purpose of the lesson, preview the organization of the lesson, and include internal summaries of the lesson; • examples, illustrations, analogies, and labels for new concepts and ideas; • modeling by the teacher to demonstrate performance expectations; • concise communication; • logical sequencing and segmenting; • all essential information; • no irrelevant, confusing, or non-essential information.	Presentation of content rarely includes: • visuals that establish the purpose of the lesson, preview the organization of the lesson, and include internal summaries of the lesson; • examples, illustrations, analogies, and labels for new concepts and ideas; • modeling by the teacher to demonstrate performance expectations; • concise communication; • logical sequencing and segmenting; • all essential information; • no irrelevant, confusing, or non-essential information.
Lesson Structure and Pacing	• The lesson starts promptly. • The lesson's structure is coherent, with a beginning, middle, and end.	• The lesson starts promptly. • The lesson's structure is coherent, with a beginning, middle, and end.	• The lesson does not start promptly. • The lesson has a structure, but may be missing closure or introductory elements.

1

General Educator Rubric: Instruction

	• The lesson includes time for reflection. • Pacing is brisk and provides many opportunities for individual students who progress at different learning rates. • Routines for distributing materials are seamless. • No instructional time is lost during transitions.	• Pacing is appropriate and sometimes provides opportunities for students who progress at different learning rates. • Routines for distributing materials are efficient. • Little instructional time is lost during transitions.	• Pacing is appropriate for less than half of the students and rarely provides opportunities for students who progress at different learning rates. • Routines for distributing materials are inefficient. • Considerable time is lost during transitions.
Activities and Materials	Activities and materials include all of the following: o support the lesson objectives; o are challenging; o sustain students' attention; o elicit a variety of thinking; o provide time for reflection; o are relevant to students' lives; o provide opportunities for student-to-student interaction; o induce student curiosity and suspense; o provide students with choices; o incorporate multimedia and technology; and o incorporate resources beyond the school curriculum texts (e.g., teacher-made materials, manipulatives, resources from museums, cultural centers, etc.). • In addition, sometimes activities are game-like, involve simulations, require creating products, and demand self-direction and self-monitoring. • The preponderance of activities demand complex thinking and analysis. • Texts and tasks are appropriately complex.	Activities and materials include most of the following: o support the lesson objectives; o are challenging; o sustain students' attention; o elicit a variety of thinking; o provide time for reflection; o are relevant to students' lives; o provide opportunities for student-to-student interaction; o induce student curiosity and suspense; o provide students with choices; o incorporate multimedia and technology; and o incorporate resources beyond the school curriculum texts (e.g., teacher-made materials, manipulatives, resources from museums, cultural centers, etc.). • Texts and tasks are appropriately complex.	Activities and materials include few of the following: o support the lesson objectives; o are challenging; o sustain students' attention; o elicit a variety of thinking; o provide time for reflection; o are relevant to students' lives; o provide opportunities for student to student interaction; o induce student curiosity and suspense; o provide students with choices; o incorporate multimedia and technology; and o incorporate resources beyond the school curriculum texts (e.g., teacher made materials, manipulatives, resources from museums, etc.).
Questioning	Teacher questions are varied and high-quality, providing a balanced mix of question types: o knowledge and comprehension; o application and analysis; and o creation and evaluation. • Questions require students to regularly cite evidence throughout lesson. • Questions are consistently purposeful and coherent. • A high frequency of questions is asked. • Questions are consistently sequenced with attention to the instructional goals. • Questions regularly require active responses (e.g.,	Teacher questions are varied and high-quality providing for some, but not all, question types: o knowledge and comprehension; o application and analysis; and o creation and evaluation. • Questions usually require students to cite evidence • Questions are usually purposeful and coherent. • A moderate frequency of questions asked. • Questions are sometimes sequenced with attention to the instructional goals. • Questions sometimes require active responses (e.g., whole class signaling, choral responses, or	Teacher questions are inconsistent in quality and include few question types: o knowledge and comprehension; o application and analysis; and o creation and evaluation. • Questions are random and lack coherence. • A low frequency of questions is asked. • Questions are rarely sequenced with attention to the instructional goals. • Questions rarely require active responses (e.g., whole class signaling, choral responses, or group and individual answers). • Wait time is inconsistently provided.

2

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	whole class signaling, choral responses, written and shared responses, or group and individual answers). • Wait time (3-5 seconds) is consistently provided. • The teacher calls on volunteers and non-volunteers, and a balance of students based on ability and sex. • Students generate questions that lead to further inquiry and self-directed learning. • Questions regularly assess and advance student understanding • When text is involved, majority of questions are text based	group and individual answers). • Wait time is sometimes provided. • The teacher calls on volunteers and non-volunteers, and a balance of students based on ability and sex. • When text is involved, majority of questions are text based	• The teacher mostly calls on volunteers and high-ability students.
Feedback	• Oral and written feedback is consistently academically focused, frequent, high-quality and references expectations • Feedback is frequently given during guided practice and homework review. • The teacher circulates to prompt student thinking, assess each student's progress, and provide individual feedback. • Feedback from students is regularly used to monitor and adjust instruction. • Teacher engages students in giving specific and high-quality feedback to one another.	• Oral and written feedback is mostly academically focused, frequent, and mostly high-quality. • Feedback is sometimes given during guided practice and homework review. • The teacher circulates during instructional activities to support engagement, and monitor student work. • Feedback from students is sometimes used to monitor and adjust instruction.	• The quality and timeliness of feedback is inconsistent. • Feedback is rarely given during guided practice and homework review. • The teacher circulates during instructional activities, but monitors mostly behavior. • Feedback from students is rarely used to monitor or adjust instruction.
Grouping Students	• The instructional grouping arrangements (either whole-class, small groups, pairs, individual; heterogeneous or homogenous ability) consistently maximize student understanding and learning efficiency. • All students in groups know their roles, responsibilities, and group work expectations. • All students participating in groups are held accountable for group work and individual work. • Instructional group composition is varied (e.g., race, gender, ability, and age) to best accomplish the goals of the lesson. • Instructional groups facilitate opportunities for students to set goals, reflect on, and evaluate their learning.	• The instructional grouping arrangements (either whole class, small groups, pairs, individual; heterogeneous or homogenous ability) adequately enhance student understanding and learning efficiency. • Most students in groups know their roles, responsibilities, and group work expectations. • Most students participating in groups are held accountable for group work and individual work. • Instructional group composition is varied (e.g., race, gender, ability, and age) to most of the time, accomplish the goals of the lesson.	• The instructional grouping arrangements (either whole-class, small groups, pairs, individual; heterogeneous or homogenous ability) inhibit student understanding and learning efficiency. • Few students in groups know their roles, responsibilities, and group work expectations. • Few students participating in groups are held accountable for group work and individual work. • Instructional group composition remains unchanged irrespective of the learning and instructional goals of a lesson.

3

General Educator Rubric: Instruction

Teacher Content Knowledge	• Teacher displays extensive content knowledge of all the subjects she or he teaches. • Teacher regularly implements a variety of subject-specific instructional strategies to enhance student content knowledge. • The teacher regularly highlights key concepts and ideas and uses them as bases to connect other powerful ideas. • Limited content is taught in sufficient depth to allow for the development of understanding.	• Teacher displays accurate content knowledge of all the subjects he or she teaches. • Teacher sometimes implements subject-specific instructional strategies to enhance student content knowledge. • The teacher sometimes highlights key concepts and ideas and uses them as bases to connect other powerful ideas.	• Teacher displays under-developed content knowledge in several subject areas. • Teacher rarely implements subject-specific instructional strategies to enhance student content knowledge. • Teacher does not understand key concepts and ideas in the discipline and therefore presents content in an unconnected way.
Teacher Knowledge of Students	• Teacher practices display understanding of each student's anticipated learning difficulties. • Teacher practices regularly incorporate student interests and cultural heritage. • Teacher regularly provides differentiated instructional methods and content to ensure children have the opportunity to master what is being taught.	• Teacher practices display understanding of some student anticipated learning difficulties. • Teacher practices sometimes incorporate student interests and cultural heritage. • Teacher sometimes provides differentiated instructional methods and content to ensure children have the opportunity to master what is being taught.	• Teacher practices demonstrate minimal knowledge of students anticipated learning difficulties. • Teacher practices rarely incorporate student interests or cultural heritage. • Teacher practices demonstrate little differentiation of instructional methods or content.
Thinking	The teacher thoroughly teaches two or more types of thinking: o analytical thinking, where students analyze, compare and contrast, and evaluate and explain information; o practical thinking, where students use, apply, and implement what they learn in real-life scenarios; o creative thinking, where students create, design, imagine, and suppose; and o research-based thinking, where students explore and review a variety of ideas, models, and solutions to problems. The teacher provides opportunities where students: o generate a variety of ideas and alternatives; o analyze problems from multiple perspectives and viewpoints; and o monitor their thinking to insure that they understand what they are learning, are attending to critical information, and are aware of the learning strategies that they are using and why.	The teacher thoroughly teaches one type of thinking: o analytical thinking, where students analyze, compare and contrast, and evaluate and explain information; o practical thinking, where students use, apply, and implement what they learn in real-life scenarios; o creative thinking, where students create, design, imagine, and suppose; and o research-based thinking, where students explore and review a variety of ideas, models, and solutions to problems. The teacher provides opportunities where students: o generate a variety of ideas and alternatives; and o analyze problems from multiple perspectives and viewpoints.	The teacher implements no learning experiences that thoroughly teach any type of thinking. The teacher provides no opportunities where students: o generate a variety of ideas and alternatives; or o analyze problems from multiple perspectives and viewpoints.

4

General Educator Rubric: Instruction

Problem-Solving 	The teacher implements activities that teach and reinforce three or more of the following problem-solving types: • Abstraction • Categorization • Drawing Conclusions/Justifying Solutions • Predicting Outcomes • Observing and Experimenting • Improving Solutions • Identifying Relevant/Irrelevant Information • Generating Ideas • Creating and Designing	The teacher implements activities that teach two of the following problem-solving types: • Abstraction • Categorization • Drawing Conclusions/Justifying Solution • Predicting Outcomes • Observing and Experimenting • Improving Solutions • Identifying Relevant/Irrelevant Information • Generating Ideas • Creating and Designing	The teacher implements no activities that teach the following problem-solving types: • Abstraction • Categorization • Drawing Conclusions/Justifying Solution • Predicting Outcomes • Observing and Experimenting • Improving Solutions • Identifying Relevant/Irrelevant Information • Generating Ideas • Creating and Designing

5

General Educator Rubric: Planning

	Significantly Above Expectations (5)	**At Expectations (3)**	**Significantly Below Expectations (1)**

Instructional Plans 	Instructional plans include:
	• measurable and explicit goals aligned to state content standards;
	• activities, materials, and assessments that:
	  ○ are aligned to state standards.
	  ○ are sequenced from basic to complex.
	  ○ build on prior student knowledge, are relevant to students' lives, and integrate other disciplines.
	  ○ provide appropriate time for student work, student reflection, and lesson unit and closure;
	• evidence that plan is appropriate for the age, knowledge, and interests of all learners; and
	• evidence that the plan provides regular opportunities to accommodate individual student needs.
		Instructional plans include:
		• goals aligned to state content standards;
		• activities, materials, and assessments that:
		  ○ are aligned to state standards.
		  ○ are sequenced from basic to complex.
		  ○ build on prior student knowledge.
		  ○ provide appropriate time for student work, and lesson and unit closure;
		• evidence that plan is appropriate for the age, knowledge, and interests of most learners; and
		• evidence that the plan provides some opportunities to accommodate individual student needs.
			Instructional plans include:
			• few goals aligned to state content standards;
			• activities, materials, and assessments that:
			  ○ are rarely aligned to state standards.
			  ○ are rarely logically sequenced.
			  ○ rarely build on prior student knowledge.
			  ○ inconsistently provide time for student work, and lesson and unit closure;
			• little evidence that the plan provides some opportunities to accommodate individual student needs.

Student Work 	Assignments require students to: • organize, interpret, analyze, synthesize, and evaluate information rather than reproduce it; • draw conclusions, make generalizations, and produce arguments that are supported through extended writing; and • connect what they are learning to experiences, observations, feelings, or situations significant in their daily lives both inside and outside of school.	Assignments require students to: • interpret information rather than reproduce it; • draw conclusions and support them through writing; and • connect what they are learning to prior learning and some life experiences.	Assignments require students to: • mostly reproduce information; • rarely draw conclusions and support them through writing; and • rarely connect what they are learning to prior learning or life experiences.
Assessment 	Assessment Plans: • are aligned with state content standards; • have clear measurement criteria; • measure student performance in more than three ways (e.g., in the form of a project, experiment, presentation, essay, short answer, or multiple choice test); • require extended written tasks; • are portfolio-based with clear illustrations of student progress toward state content standards; and • include descriptions of how assessment results will be used to inform future instruction.	Assessment Plans: • are aligned with state content standards; • have measurement criteria; • measure student performance in more than two ways (e.g., in the form of a project, experiment, presentation, essay, short answer, or multiple choice test); • require written tasks; and • include performance checks throughout the school year.	Assessment Plans: • are rarely aligned with state content standards; • have ambiguous measurement criteria; • measure student performance in less than two ways (e.g., in the form of a project, experiment, presentation, essay, short answer, or multiple choice test); and • include performance checks, although the purpose of these checks is not clear.

6

General Educator Rubric: Environment

	Significantly Above Expectations (5)	At Expectations (3)	Significantly Below Expectations (1)
Expectations	• Teacher sets high and demanding academic expectations for every student. • Teacher encourages students to learn from mistakes. • Teacher creates learning opportunities where all students can experience success. • Students take initiative and follow through with their own work. • Teacher optimizes instructional time, teaches more material, and demands better performance from every student.	• Teacher sets high and demanding academic expectations for every student. • Teacher encourages students to learn from mistakes. • Teacher creates learning opportunities where most students can experience success. • Students complete their work according to teacher expectations.	• Teacher expectations are not sufficiently high for every student. • Teacher creates an environment where mistakes ar failure are not viewed as learning experiences. • Students demonstrate little or no pride in the quality of their work.
Managing Student Behavior	• Students are consistently well-behaved and on task. • Teacher and students establish clear rules for learning and behavior. • The teacher overlooks inconsequential behavior. • The teacher deals with students who have caused disruptions rather than the entire class. • The teacher attends to disruptions quickly and firmly.	• Students are mostly well-behaved and on task, some minor learning disruptions may occur. • Teacher establishes rules for learning and behavior. • The teacher uses some techniques, such as social approval, contingent activities, and consequences, to maintain appropriate student behavior. • The teacher overlooks some inconsequential behavior, but other times addresses it, stopping the lesson. • The teacher deals with students who have caused disruptions, yet sometimes he or she addresses the entire class.	• Students are not well-behaved and are often off task. • Teacher establishes few rules for learning and behavior. • The teacher uses few techniques to maintain appropriate student behavior. • The teacher cannot distinguish between inconsequential behavior and inappropriate behavior. • Disruptions frequently interrupt instruction.
Environment	The classroom: • welcomes all members and guests. • is organized and understandable to all students. • supplies, equipment, and resources are all easily and readily accessible. • displays student work that frequently changes. • is arranged to promote individual and group learning.	The classroom: • welcomes most members and guests. • is organized and understandable to most students. • supplies, equipment, and resources are accessible. • displays student work. • is arranged to promote individual and group learning.	The classroom: • is somewhat cold and uninviting. • is not well organized and understandable to students. • supplies, equipment, and resources are difficult to access. • does not display student work. • is not arrange to promote group learning.
Respectful Culture	• Teacher-student interactions demonstrate caring and respect for one another. • Students exhibit caring and respect for one another. • Positive relationships and interdependence characterize the classroom.	• Teacher-student interactions are generally friendly, but may reflect occasional inconsistencies, favoritism, or disregard for students' cultures. • Students exhibit respect for the teacher, and are generally polite to each other. • Teacher is sometimes receptive to the interests and opinions of students.	• Teacher-student interactions are sometimes authoritarian, negative, or inappropriate. • Students exhibit disrespect for the teacher. • Student interaction is characterized by conflict, sarcasm, or put-downs. • Teacher is not receptive to interests and opinions of students.

TEAM Observation Guidance Documents: Cover Sheet

BACKGROUND

Certain subgroups of educators, which are listed in the table below, operate in unique situations that may require additional attention to apply the TEAM evaluation model with fidelity and provide educators with meaningful feedback. As such, we have conducted numerous focus groups, with educators working in these areas, to develop additional guidance to support evaluation. The accompanying documents are meant to serve as an instructive, although not exhaustive, list of areas to which administrators should direct additional attention based on the unique instructional or service setting of the educator. These are meant to supplement, not replace, the TEAM evaluation rubric. Together, the pre-observation questions, key areas for gathering evidence, examples of evidence and artifacts, and examples of excellence present an evaluator with additional resources to use to conduct high-quality evaluations.

COMPONENTS

The accompanying documents for each educator group are broken down into two components.

1. **The *Observation Guidance* document provides:**
    - a quick glance at some guiding questions and overarching concerns for each educator group; and
    - examples of pre-observation questions, key areas to focus evidence gathering, and examples of appropriate evidence/artifacts the evaluator may collect.
        - **NOTE:** Key areas for evidence are not intended to replace the indicators in the TEAM evaluation model, but rather are more detailed guidelines for evaluating indicators that educators have identified as particularly tricky to observe.
2. **The *Observation Support* document provides:**
    - additional context for the evaluator when considering the responsibilities of each educator,
    - detailed examples to illuminate some of the key indicators and areas for evidence, and
    - a platform for meaningful discussion between educators and evaluators around best practices.
        - **NOTE:** This can be especially useful for structuring pre-conference discussions.

Available observation guidance documents include:

GENERAL EDUCATOR RUBRIC	SCHOOL SERVICES PERSONNEL RUBRIC
• Alternative Educators • College, Career and Technical Educators (CCTE) • Early Childhood Educators • Pre-K Educators • Early Literacy K-3 Educators • Gifted Educators • Interventionists • Online Educators • Special Educators	• School Audiologists • School Counselors • School Psychologists • School Social Workers • Speech/Language Pathologists (SLP) • Vision Specialists

TEAM Observation Guidance: Special Educators

PRE-OBSERVATION QUESTIONS
1. What is being brought to the classroom that would not be present otherwise? 2. In what ways do you plan with the regular educator? How do you plan using student data? 3. What strategies and modifications do you bring to the classroom? 4. What are the unique circumstances in the classroom setting where you will be observed (e.g., inclusion vs. resource vs. life skills)? 5. How are the indicator descriptors addressed and what they will look like (if modified) in the specific instructional setting? 6. What is the direct link between what is on individual students' IEPs and what will be observed in today's lesson? 7. How do you plan lessons in a way that fulfills the goals and objectives of multiple IEPs? 8. How did you plan for each student? 9. How did you plan for your teaching assistant (TA)? 10. What data are you collecting? How are you collecting this data? How will you use this data to drive your instruction? 11. What evidence will indicate mastery? 12. What is your next step for improving your instruction? 13. What do you do for your own professional development?
KEY AREAS FOR EVIDENCE
1. Instruction—Standards and Objectives • A clear connection between the state standard(s) or the IEP goals/objectives is evident. • The IEP goals are designed in a way to accelerate progress (close the gap). • Students with IEPs are made aware of the goals/objectives on their particular IEP.
2. Instruction—Questioning • Students are pushed to generate developmentally appropriate questions that lead to further inquiry and self-directed learning. • Questions are designed in a manner adapted to the students' particular learning styles. • Questions glean information from students that probably would have otherwise been unknown.
3. Instruction—Grouping of Students • Grouping of students maximizes the impact of specific activities during the lesson and deliberately takes into account diverse learning needs. • Group composition is flexible in order to be most beneficial for the individual needs of diverse learners. • Grouping strategies may be consistently the same depending on the nature of the special educator's role, but in each case the groups maximize student learning. • The grouping of students is directly connected to ongoing data collection, progress monitoring, and the needs of the students.
4. Planning—Instructional Plans • Goals are measurable and explicit, aligned to state standards or student IEPs, and designed to clearly identify the gap between present level of performance and grade level performance. • Goals and objectives are selected in a manner to address deficits, accelerate progress, and close the gap. • There is clear evidence that the plan provides regular opportunities to accommodate individual student needs (inclusion or pull-out). • Instructional plans are written in a concise, efficient manner that maximizes the amount of time spent with the student.

EXAMPLES OF EVIDENCE/ARTIFACTS	
• **Instructional plans** • **"I can" statements** • **IEPs** • **List of objectives and sub-objectives** • **Service logs for IEP implementation** • **List of accommodations and modifications**	• Special education specific assessments • Self-assessments with rubric(s) • TA schedule • Data notebooks • Student work products • Data sheets

TEAM Observation Support: Special Educators

The standards and objectives for special educators must be reframed and adapted within the framework of individual student IEPs. Special educators may use alternate standards for students with significant cognitive disabilities. Questioning must also be reframed according to the diverse needs of the specific populations served. Student grouping strategies do not always apply, depending on the nature of the service or instruction (e.g., grouping may be different in pull-out vs. inclusion). Given this unique setting, lesson plans should be based on and aligned with IEPs. When appropriate, plans should be lesson-specific as well as student-specific.

I. PLANNING

EXAMPLE—INSTRUCTIONAL PLANS
Planning—Instructional Plans: **Teacher develops lesson plans that denote specific groups based on subject and ability to maximize learning for all students. Lesson plans will include grouping instruction for remediation, maintenance, and enrichment of skills. Lesson objectives are clearly scaffolded to build on prior knowledge and provide different levels of learning targeted to specific students' needs.**

II. INSTRUCTION

EXAMPLE—STANDARDS AND OBJECTIVES
Instruction—Standards and Objectives: **Special educator instructs students based on their present level of performance while adding rigor to reach grade level standards. Standard-based IEP goals and objectives denote grade-level standards, and objectives denote present level of performance for current instruction. Students are clearly informed of which standards they are working on mastering and how they have been progressing towards those goals; however, it may be difficult for them to articulate these goals without guidance.**

EXAMPLE—QUESTIONING

Instruction—Questioning (Inclusion):

Special educator follows up with individual students or small groups of students to ask additional clarifying questions and scaffold student thinking. Special educator structures questions for individuals and groups to engage in appropriate levels of rigorous problem-solving. The special educator knows his/her students so well that there is an intuitive exchange that gets at what the student knows to a greater degree. Students are frequently surprised by how much they do know. Students are able to generate questions that lead to further inquiry and self-directed learning.

Instruction—Questioning (Direct Instruction):

Questioning is within the parameters of the curriculum and all questions (forms and frequency) depend on the objective of the lessons. The teacher actively works to develop higher-order thinking skills in students. In order to foster and monitor this development, teacher establishes and maintains communication with students by asking questions.

- **Teacher questions are varied and high-quality, providing a balanced mix of question types:**
  - **What's another way you might...?**
  - **What would it look like if...?**
  - **What do you think would happen if...?**
  - **How was...different from...?**
  - **When have you done/experienced something like this before?**

- **Students ask specific questions :**
  - **Is this problem correct?**
  - **Could you show me the correct way to answer this?**
  - **Could you repeat the directions?**
  - **Should I complete the entire worksheet?**
  - **Can I go on to the next part?**
  - **What does this result mean?**

EXAMPLE—GROUPING OF STUDENTS

Instruction—Grouping of Students:

Teacher develops instructional grouping arrangements (whole class, small group, pairs, individuals, learning style, etc.) to consistently maximize student understanding and learning. The students exhibit evidence of this learning through: group projects, visual presentations, demonstrations, the use of technology, and verbal, gestural, or written communication of their understanding. The teacher then collects data on the effectiveness of these grouping strategies through formative assessment tools. This data is used thoughtfully and effectively to drive future instruction and facilitate meaningful communication with relevant stakeholders.

Appendix B

Acronyms and Initials

Acronyms/Initials	Fully Formed Words
ABA	Applied Behavior Analysis
ASD	Autism Spectrum Disorder
DI	Direct Instruction
DTT	Discrete Trial Training
EBPs	Evidence-Based Practices
ESSA	Every Student Succeeds Act
ET	Errorless Teaching
IDEA	Individuals with Disabilities Education Act
IEP	Individual Education Program
MEI	Multiple Exemplar Intervention
PRT	Pivotal Response Training
TEAM General Educator Rubric	Tennessee Educator Acceleration Model General Educator Rubric

Appendix C

Questionnaire

1. How many years of teaching experience do you have?
2. How many years have you worked in general education?
3. How many years have you worked in special education?
4. List any training or certifications you received in addition to your teaching degree.
5. How many students are currently on your caseload?
6. How many of those students are male?
7. How many of those students are female?
8. How many students fit under the following categories:
    a. White
    b. Black
    c. Hispanic
    d. Asian/ Pacific Islander
    e. Native American
    f. Unknown/Other
9. Would you be interested in being interviewed and observed? By clicking yes, I will be reaching out to you and your principal to received additional consent for your participation in this study.
10. If you are interested in being interviewed and observe, please provide your name, phone number, and email. Also include your principal's name and email.
11. Please provide a reference with an email for an educator who meets the following criteria: certified special education teacher working in a

self-contained classroom and employed by a public school district in Tennessee.

12. Please provide a second reference with an email for an educator who meets the following criteria: certified special education teacher working in a self-contained classroom and employed by a public school district in Tennessee.
13. Please provide a third reference with an email for an educator who meets the following criteria: certified special education teacher working in a self-contained classroom and employed by a public school district in Tennessee.

Appendix D

Semi-Structured Interview Protocol

Candidate Name: Adam Maitland

Date of Interview:

Time Interview Began:

Time Interview Concluded:

Participant Pseudonym/Code:

Participant Information:

Interviewer (I):

This interview should take about 20 minutes.

Do you mind if I record our conversation?

<Begin Recording>

I am gathering data to shed light on instructional practices for students with significant developmental disabilities. As a special education teacher in a self-contained classroom, you have first-hand knowledge of these students and practices, which makes you a valuable source of data.

Your responses will remain confidential.

You may end the interview at any time. Just tell me you want to stop.

Do you understand everything so far?

Do you have any questions?

May we begin?

Participant (P): Participant Affirmation(s)

For these questions, think about ONE lesson you taught that connected to a state standard.

1. Activities and Materials: Tell me about an activity you used for the lesson connected to a state standard.
2. Activities and Materials: Did you use any specific curriculum for this lesson? If so, which ones and why?
3. Presenting Instructional Content: When planning the lesson, how did you decide on the sequencing of the instruction (beginning, middle, and end) within the lesson?
    i. What helped you to plan this instruction in this order?
4. Presenting Instructional Content: Did you use visuals or other materials during the lesson? If so, how?
    i. Why did you choose these visuals or materials for the lesson?
5. Motivating Students: Describe how you kept your students engaged during the lesson.
6. Motivating Students: How did you reinforce or reward the efforts of your students?
7. Teacher Knowledge of Student: Did you identify the interests of your students and incorporate those into your lesson? If so, how?
8. Teacher Content Knowledge: Did the lesson connect to other subjects? If so, how?
9. Do you have anything you would like to add or any questions?

Appendix E

Observation Protocol

The document I planned to use for my data analysis protocol was the Tennessee Educator Accelerator Model rubric as a popular culture document (society procedures materials designed to inform).

- I coded the TEAM rubric to identify the key terms defining the three main learning theories (behavioral learning theory - the structure of the lesson, reinforcement, motivation; cognitive learning theory - thinking, feedback, activities, and materials; constructivist learning theory – problem-solving, environment).
- I transcribed the observations from the start to finish of the lesson.
- I coded each classroom observation using the TEAM rubric indicators coded to either behavioral learning theory, cognitive learning theory, or constructivist learning theory.

The observations I planned to use for my data analysis protocol are:

- Observing experienced special education teachers in a diverse special education self-contained classroom serving diverse students with intellectual disabilities.

I chose teachers based on the demographics of the classroom obtained through the questionnaire and interview responses categorizing the special education teachers' knowledge of students and content by how they planned activities, choose materials, presented instructional content, and motivated their students (Tennessee Department of Education, 2016).

Appendix F

Popular Culture Document: Tennessee Educator Acceleration Model (TEAM) General Educator Rubric with Axial Codes

Team Rubric	Team Description	Key Terms	Learning Theory	Code
Instructional Plans	Measurable and explicit goals aligned to state content standards	Measurable and explicit goals	Behavioral	Measurable goals
	Activities, materials, and assessments are aligned to state standards	State standards	Behavioral	Measurable goals
	Activities, materials, and assessments are sequenced from basic to complex	Basic to complex	Behavioral	Sequence
	Activities, materials, and assessments build on prior student knowledge	Prior knowledge	Cognitive	Connections
	Activities, materials, and assessments are relevant to students' lives, and integrate other disciplines	Relevant to students & integrates other disciplines	Constructivist	Application
	Activities, materials, and assessments provide appropriate time for student work, student reflection, and lesson unit and closure	Student reflection	Cognitive	Self-reflect
	Evidence that plan is appropriate for the age, knowledge, and interests of all learners	Appropriate for the age	Cognitive	Developmentally appropriate

	Evidence that the plan provides regular opportunities to accommodate individual student needs	Accommodations	Cognitive	Personalized
Student Work	Assignments require students to organize, interpret, analyze, synthesize, and evaluate information rather than reproduce it	Organize, synthesize, and evaluate	Cognitive	Organize
	Assignments require students to draw conclusions, make generalizations, and produce arguments that are supported through extended writing	Generalize & produce arguments	Constructivist	Application
	Assignments require students to connect what they are learning to experiences, observations, feelings, or situations significant in their daily lives both inside and outs of school	Connect to experiences inside and out of school	Cognitive	Connections
Assessments	Assessments are aligned with state content standards	Standards	Behavioral	Measurable goals
	Assessment has clear measurement criteria	Criteria	Behavioral	Measurable goals

	Assessments measure student performance in more than three ways (e.g., in the form of a project, experiment, presentation, essay, short answer, or multiple-choice test)	Assessments in 3 ways	Constructivist	Application
	Assessments require extended written tasks	Written task	Behavioral	Task analysis
	Assessments are portfolio based with clear illustrations of student progress toward state content standards	Clear illustrations of student progress	Behavioral	Measurable goals
	Assessments include descriptions of how assessment results will be used to inform future instruction	Future instruction	Behavioral	Sequenced
Expectations	Teacher sets high and demanding academic expectations for every student	High and demanding expectations	Behavioral	Expectations
	Teacher encourages students to learn from mistakes	Learn from mistakes	Cognitive	Solutions
	Teacher creates learning opportunities where all students can experience success	All students can experience success	Cognitive	Personalized

	Students take initiative and follow through with their own work	Students take initiative	Constructivist	Student-centered
	Teacher optimizes instructional time, teacher more material, and demands better performance from every student	Optimized instructional time	Behavioral	Task-analysis
Managing Student Behavior	Students are consistently well behaved and on task	Well behaved and on task	Behavioral	Conditioned
	Teacher and students establish clear rules for learning and behavior	Establish clear rules for learning	Behavioral	Expectations
	The teacher overlooks inconsequential behavior	Overlook inconsequential behaviors	Behavioral	Reinforcement/Consequences
	The teacher deals with students who have caused disruptions rather than the entire class	Deals with disruption	Behavioral	Reinforcement/Consequences
	The teacher attends to disruptions quickly and firmly	Disruptions	Behavioral	Reinforcement/Consequences
Environment	The classroom welcomes all members and guests	Welcoming	Behavioral	Conditioned
	The classroom is organized and understandable to all students	Organized and understandable	Cognitive	Organized
	Supplies, equipment, and resources are all easily and readily accessible	Supplies, equipment, & resources	Behavioral	Environmental stimuli

	The classroom displays student work that frequently changes	Student work	Behavioral	Environmental stimuli
	The classroom is arranged to promote individual and group learning	Individual and group learning	Constructivist	Social learning
Respectful Culture	Teacher-student interactions demonstrate caring and respect for one another	Teacher-student interactions	Behavioral	Conditioned
	Students exhibit caring and respect for one another	Student-student interactions	Behavioral	Conditioned
	Positive relationships and interdependence characterize the classroom	Interdependence	Behavioral	Conditioned
Standards and Objectives	All learning objectives are clearly and explicitly communicated, connected to the state standard(s), and referenced throughout lesson.	Objectives are clear and explicit	Behavioral	Measurable goals
	Sub-objectives are aligned and logically sequenced to the lesson's major objective.	Sequenced to lesson objective	Behavioral	Sequenced
	Learning objectives are: (a) consistently connected to what students have previously learned, (b) known from life experiences, and (c) integrate with other disciplines.	Previously learned, life experiences, integrate other disciplines	Cognitive	Connections

	Expectations for student performance are clear, demanding, and high.	Expectations are clear, demanding, and high	Behaviorism	Expectations
	There is evidence that most students demonstrate mastery of the daily objective that supports significant progress towards mastery of the standard(s).	Evidence of mastering objective	Behaviorism	Measurable goals
Motivating Students	The teacher consistently organizes the content so that it is personally meaningful and relevant to students.	Meaningful & relevant	Cognitive	Personalized
	The teacher consistently develops learning experiences where inquiry, curiosity, and exploration are valued.	Inquiry, curiosity, & exploration	Constructivist	Discovery
	The teacher regularly reinforces and rewards effort.	Reinforce & reward	Behavioral	Reinforcement/Consequences
Presenting Instructional Content	Presentation of content always includes visuals that establish the purpose of the lesson, preview the organization of the lesson, and include internal summaries of the lesson	Visuals, organization, and internal summaries	Cognitive	Organized

	Presentation of content always includes examples, illustrations, analogies, and labels for new concepts and ideas	Examples and labels for new concepts and ideas	Cognitive	Organized
	Presentation of content always includes effective modeling of thinking process by the teacher to demonstrate performance expectations	Model thinking process	Behavioral	Teacher-centered
	Presentation of content always includes concise communication	Concise communication	Behavioral	Teacher-centered
	Presentation of content always includes logical sequencing and segmenting	Sequencing & segmenting	Behavioral	Task-analysis
	Presentation of content always includes all essential information	All essential information	Behavioral	Conditioned
	Presentation of content always includes no irrelevant, confusing, or non-essential information	No irrelevant, confusing, or non-essential information	Cognitive	Relevance
Lesson Structure and Pacing	The lesson starts promptly.	Starts promptly	Behavioral	Conditioned
	The lesson's structure is coherent, with a beginning, middle, and end.	Beginning, middle, & end	Behavioral	Sequenced
	The lesson includes time for reflection.	Reflection	Cognitive	Self-reflect

	Pacing is brisk and provides many opportunities for individual students who progress at different learning rates.	Progress at different learning rates	Cognitive	Developmentally appropriate
	Routines for distributing materials are seamless.	Routines for distributing materials	Behavioral	Conditioned
	No instructional time is lost during transitions.	Smooth transitions	Behavioral	Conditioned
Activities and Materials	Support the lesson objectives	Lesson objective	Behavioral	Measurable goals
	Are challenging	Challenging	Cognitive	Complexity
	Sustain students' attention	Students' attention	Behavioral	Conditioned
	Elicit a variety of thinking	Variety of thinking	Constructivist	Perspectives
	Provide time for reflection	Reflection	Cognitive	Self-reflect
	Are relevant to students' lives	Relevant	Cognitive	Relevance
	Provide opportunities for student-to-student interaction	Student to student	Constructivist	Social learning
	Induce student curiosity and suspense	Curiosity & suspense	Constructivist	Discovery
	Provide students with choices	Student choice	Constructivist	Student-centered
	Incorporate multimedia and technology	Multimedia & technology	Constructivist	Varied Presentation

	Incorporate resources beyond the school curriculum texts (e.g., teacher-made materials, manipulatives, resources from museums, cultural centers, etc.)	Resources beyond the curriculum	Constructivist	Varied Presentation
	In addition, sometimes activities are game-like, involve simulations, require creating products, and demand self-direction and self-monitoring.	Game-like, simulations, self-direction, & self-monitoring	Cognitive	Self-guided
	The preponderance of activities demand complex thinking and analysis.	Complex thinking & analysis	Cognitive	Complexity
	Texts and tasks are appropriately complex.	Appropriately complex	Cognitive	Developmentally appropriate
Questioning	Teacher questions are varied and high quality, providing a balance mix of question types	Mix of question types	Cognitive	Complexity
	Knowledge and comprehension	Knowledge and comprehension	Behavioral	Measurable goals
	Application and analysis	Application and analysis	Cognitive	Relevance
	Creating and evaluation	Creating and evaluation	Constructivist	Perspectives
	Questions require students to regularly cite evidence throughout the lesson.	Cite evidence	Cognitive	Organized

	Questions are consistently purposeful and coherent.	Purposeful & coherent	Behavioral	Task-analysis
	A high frequency of questions is asked.	High frequency	Cognitive	Organized
	Questions are consistently sequenced with attention to the instructional goals.	Sequenced with instructional goals	Behavioral	Sequenced
	Questions regularly require active responses (e.g., whole class signaling, choral responses, written and shared responses, or group and individual answers).	Require active responses	Behavioral	Conditioned
	Wait time (3-5 seconds) is consistently provided.	Wait time	Cognitive	Developmentally appropriate
	The teacher calls on volunteers and non-volunteers, and a balance of students based on ability and sex.	Volunteers and non-volunteers	Behavioral	Teacher-centered
	Students generate questions that lead to further inquiry and self-directed learning.	Students generate questions	Cognitive	Self-guided
	Questions regularly assess and advance student understanding.	Advance student understanding	Behavioral	Measurable goals
	When text is involved, majority of questions are text-based.	Text-based questions	Behavioral	Measurable goals

Academic Feedback	Oral and written feedback is consistently academically focused, frequent, high quality and references expectations.	Feedback is consistent, academic focused, & aligned to expectations	Behavioral	Teacher-centered
	Feedback is frequently given during guided practice and homework review.	Frequent	Behavioral	Teacher-centered
	The teacher circulates to prompt student thinking, assess each student's progress, and provide individual feedback.	Prompt student thinking	Behavioral	Teacher-centered
	Feedback from students is regularly used to monitor and adjust instruction.	Feedback from student	Cognitive	Personalized
	Teacher engages students in giving specific and high-quality feedback to one another.	Student to student feedback	Constructivist	Social learning
Grouping Students	The instructional grouping arrangements (either whole-class, small groups, pairs, individual; heterogeneous or homogenous ability) consistently maximize student understanding and learning efficiency.	Whole group, small group, pairs, & individuals	Constructivist	Social learning

	All students in groups know their roles, responsibilities, and group work expectations.	Roles, responsibilities, and expectations	Behavioral	Expectations
	All students participating in groups are held accountable for group work and individual work.	Accountability for group & individual work	Behavioral	Measurable goals
	Instructional group composition is varied (e.g., race, gender, ability, and age) to best accomplish the goals of the lesson.	Group composition is varied	Constructivist	Social learning
	Instructional groups facilitate opportunities for students to set goals, reflect on, and evaluate their learning.	Students to set goals, reflect, & evaluate	Cognitive	Self-guided
Teacher Content Knowledge	Teacher displays extensive content knowledge of all the subjects she or he teaches.	Teacher knowledge of content	Behavioral	Teacher-centered
	Teacher regularly implements a variety of subject-specific instructional strategies to enhance student content knowledge.	Variety of subject-specific instructional strategies	Behavioral	Teacher-centered

	The teacher regularly highlights key concepts and ideas and uses them as bases to connect other powerful ideas.	Connects key concepts and ideas	Cognitive	Connections
	Limited content is taught in sufficient depth to allow for the development of understanding.	Development of understanding	Behavioral	Task-analysis
Teacher Knowledge of Students	Teacher practices display understanding of each student's anticipated learning difficulties.	Anticipated learning difficulties	Behavioral	Task-analysis
	Teacher practices regularly incorporate student interests and cultural heritage.	Student interests & culture	Cognitive	Personalized
	Teacher regularly provides differentiated instructional methods and content to ensure students have the opportunity to master what is being taught.	Differentiated instruction & content	Cognitive	Personalized
Thinking	Analytical thinking where students analyze, compare and contrast, and evaluate and explain information	Analytical thinking	Cognitive	Complexity
	Practical thinking where students use, apply, and implement what they learn in real-life scenarios	Apply and implementation in real life scenarios	Constructivist	Application

	Creative thinking where students create, design, imagine, and suppose	Create, design, suppose	Constructivist	Perspectives
	Research-based thinking where students explore and review a variety of ideas, models, and solutions to problems	Explore and review ideas, models, & solutions to problems	Cognitive	Organized
	The teacher provides opportunities where students generate a variety of ideas and alternatives	Generate a variety of ideas	Constructivist	Perspectives
	The teacher provides opportunities where students analyze problems from multiple perspectives and viewpoints	Multiple perspectives & viewpoints	Constructivist	Perspectives
	The teacher provides opportunities where students monitor their thinking to ensure that they understand what they are learning, are attending to critical information, and are aware of the learning strategies that they are using and why	Self-monitoring the strategies used knowing why	Cognitive	Self-guided
Problem-Solving	Abstraction	Abstraction	Constructivist	Perspectives
	Categorization	Categorization	Cognitive	Organized

	Drawing Conclusions/Justifying Solutions	Drawing Conclusions/Justifying Solutions	Cognitive	Solutions
	Predicting Outcomes	Predicting Outcomes	Constructivist	Perspectives
	Observing and experimenting	Observing and experimenting	Constructivist	Perspectives
	Improving Solutions	Improving Solutions	Constructivist	Perspectives
	Identifying Relevant/Irrelevant Information	Identifying Relevant/Irrelevant Information	Cognitive	Relevance
	Generating Ideas	Generating Ideas	Constructivist	Perspectives
	Creating and Designing	Creating and Designing	Constructivist	Application

Behaviorism = 52/117: 44%; Cognitivism = 39/117: 33%; Constructivism = 26/117: 22%

Axial Codes

Behavioral	Cognitive	Constructivist
Teacher-centered	Complexity	Perspectives
Task-analysis	Self-guided	Social learning
Conditioned	Organized	Varied presentations
Expectations	Solutions	Student-centered
Measurable goals	Relevance	Discovery
Sequenced	Connections	Application
Environmental stimuli	Personalized	
Reinforcement/Consequences	Developmentally appropriate	
	Self-reflect	

Appendix G

Implied Consent

Researcher: Adam Maitland

EdD Candidate at Lincoln Memorial University

Adam.Maitland@lmunet.edu

XXX-XXX-XXXX

Faculty Sponsor: Dr. Julia Kirk

Professor and Chairperson at Lincoln Memorial University

Julia.Kirk@lmunet.edu

Dear Educator,

Your participation is being requested for the research study entitled *Evidence-Based Practices Applied Through Multifaceted Learning Theory for Students in a Special Education Self-Contained Classroom*. This study is in partial fulfillment of the requirements for the degree of Doctor of Education at Lincoln Memorial University, where I am currently enrolled. Your participation will be extremely valuable to me due to your knowledge and expertise in this subject area; therefore, I am kindly requesting your participation in my research study. Participation in this study is voluntary. Please read the information below and contact me via email or cell phone number listed above with any question you may have before deciding to participate. If you consent to participate, please click the provided link in this email to begin the questionnaire.

You are eligible to participate in this study if you are (a) certified and licensed by the State of Tennessee, (b) work in a public school in Tennessee, (c) work as a special education teacher in a self-contained classroom.

This study includes 13 questions to be completed via an online survey and will require approximately 10 minutes of your time. You may refuse to answer

any question or discontinue your involvement at any time without penalty. If at any time you discontinue the questionnaire, your results will be discarded. Your responses will be kept strictly confidential, and data will be stored in secure computer files and secure storage location in hard copy. Any report of this research made available to the public will not include your name or any other individual information by which you could be identified. Your decision to participate will not affect your current or future relationship with Lincoln Memorial University.

There are no known harms or discomforts associated with this study, as it involves minimal risk and is an effort to highlight your current success as an educator and the support you provide to individuals in your school. To prepare for this study, I am asking that you consider your role as an educator and share those experiences to the best of your knowledge.

The Lincoln Memorial University's Institutional Review Board approved this research. If you have any questions, concerns, complaints, or inquiries about your rights as a participant in this research or are unable to contact the researcher listed at the top of this form or faculty sponsor, you may contact the chair of the Institutional Review Board by email at IRB@lmunet.edu. Additional contact information is available at www.lmunet.edu/adminstration/office-of-research-grants-and-sponsored-programs-orgso/institutional-review-board-irb.

By moving forward and completing the questionnaire linked in the email, you are agreeing that you work as a certified educator in a Tennessee public-school district, you are over the age of 18, and you give your implied consent to participate in this study.

Thank you for your consideration to participate in my study.

Sincerely,

Adam Maitland

By clicking the following link, you are giving implied consent to participate in this study.

https://forms.gle/BVXo6YEv217REzTc8

Appendix H

Permission and Informed Written Consent for Interviews and Observations

Principal Name

Generic Tennessee Public School

Street Address City, State, Zip Code

Dear Principal,

Permission was granted to Adam Maitland through Lincoln Memorial University's Internal Review Board to conduct research with Tennessee public-schools' special education teachers to investigate evidence-based practices using multifaceted learning theory for students in a special education self-contained classroom. I received consent from a special education teacher working in your school, to observe their classroom while teaching a lesson aligned to Tennessee state standards. The purpose of this research study is to use the TEAM rubric to investigate how experienced teachers may have used multifaceted learning theory when implementing evidence-based practices and interventions in a diverse special education self-contained classroom to help students access Tennessee state standards. The purpose of this letter is to ask permission to observe the experienced teacher working in the special education self-contained classroom for data collection purposes to support the research of the study. The observation will be conducted by me, Adam Maitland, in partial fulfillment of the requirements for the degree of Doctor of Education at Lincoln Memorial University.

The process will include me observing the special education teacher during a 20–45-minute lesson aligned to Tennessee state standards. I will transcribe my observation by typing them during the instruction while observing the physical space of the classroom, the teacher's actions and behaviors, the

students' actions and behaviors, as well as my own actions and behaviors. I will not use any recording devices during the observation. I will not document any real names of the participants during the observation. If the teacher is willing to submit a lesson plan or student work, I will request all names be removed from the documents before I receive them. The teacher who volunteered to participate will do so without harm or impact on their current or future professional standing. The teacher participant will be asked to teach their lesson as they normally do.

The Lincoln Memorial University's Institutional Review Board have approved this research. If you have any questions, concerns, complaints, or inquiries about your rights as a participant in this research or are unable to contact the researcher listed at the bottom of this form or faculty sponsor, you may contact the chair of the Institutional Review Board by email at IRB@lmunet.edu. Additional contact information is available at www.lmunet.edu/adminstration/office-of-research-grants-and-sponsored-programs-orgso/institutional-review-board-irb.

With the data collected, this study may help to provide better ways for teachers working in special education self-contained classrooms to plan and implement evidence-based practices and interventions with the TEAM rubric to support student access to Tennessee state standards. As a result, students, teachers, and administrators may benefit from the results of the data. I will complete the observation by the participant's availability. Responses will be confidential without any identifying characteristics. Please sign and return the attached form.

Thank you, in advance, for considering this research.

Sincerely,

Researcher: Adam Maitland

EdD Candidate at Lincoln Memorial University

Adam.Maitland@lmunet.edu

XXX-XXX-XXXX

Faculty Sponsor: Dr. Julia Kirk

Professor and Chairperson at Lincoln Memorial University

Julia.Kirk@lmunet.edu

Dear Teacher,

This form is to obtain participant consent to allow **Adam Maitland, an Ed.D. candidate from Lincoln Memorial University** to complete a field experience in your classroom.

The activities listed below will be completed during the field experience:

- Interview the teacher via Zoom
- Questions during the interview will focus on the teacher explaining how they plan and implement a lesson aligned to Tennessee state standards
- Observe the teacher's lesson aligned with Tennessee state standards
- Complete a case study which involves a review of how the teacher's lesson aligned to the indicators on from the Tennessee Educator Accelerator Model (TEAM) General Educator Rubric
- No students will be recorded, and no student information will be collected

Your signature below indicates approval and consent for your participation in the applicable areas of the field experience.

Printed Name of Participant	Signature of Participant	Date

Printed Name of Principal	Signature of Principal	Date