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Delving Into the STAR Curriculum and How It Enhances Or Detracts From a Federal Level III Setting

Erika Hennen

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by

Erika Hennen

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Primary Advisory: Trish Harvey
Content Reviewer: Betsy Hennen
Peer Reviewer: Kellen Hennen

DEDICATION

To my loving husband, because he is so awesome, I can’t stand it.

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CHAPTER ONE

Introduction

Over the last few decades, individuals with intellectual and developmental disabilities (IDD) have made significant progress toward increasing their equality within the community thanks to the introduction of the Americans with Disabilities Act (ADA) (Conrad, 2018). Individuals with intellectual and developmental disabilities are now recognized as citizens who have the rights others have been afforded for years. The ADA helps fight discrimination by giving access to free and appropriate education (FAPE), health care, and employment, amongst other critical civil rights (Conrad, 2018). Despite the societal progress that has been made through efforts such as passing the ADA, much more work needs to be done to truly achieve equality. This work is important to keep in mind because although our society has come a long way, there is still so much more to be done. Kappel (1985) wrote, "As a society, not just as a collection of people concerned about people with mental handicaps, we desperately need to decide what kind of society we want, and then to vigorously build that society" (p 14). This statement holds true as much today as it did when it was originally written.

The school district that I am currently employed by took a major step just this year in desegregating their center-based special education students. Center-based is an unofficial term that certain school districts use to define classrooms where students spend more than 60% of the day in that specific classroom. In practice, it is synonymous with Federal Level III. Before, all center-based students were required to attend a single school within their district in order to receive services, and now they are able to attend their home school. This change has had a positive impact by allowing these students to attend

the same school as their siblings, as well as being around peers who live geographically near them. My district has had trouble in the past running a successful center-based classroom program. They are now looking for me to mentor and lead all three of our elementary buildings in a successful direction. The purpose of this capstone project is to create a professional development opportunity for those who would benefit in my school district, specifically targeting the elementary level. The depth of this professional development will be tailored to one of three intended audiences: other SUN (Students with Unique Needs) teachers, paraprofessionals involved with the SUN program, and other special education teachers and staff. It will include topics such as an overview of the STAR program, lesson executions, data tracking, room layout, and how to incorporate supplemental materials, amongst others.

Chapter Overview

This chapter speaks to my personal and familial history with special education, including being identified as having a learning disability and my brother, who also happens to have Down Syndrome. It also discusses my educational background, career thus far, positionality as a researcher, and a brief explanation of the STAR Autism Support Program. Chapter One will also explain the importance of successfully completing this capstone project. For the purposes of this capstone project, the terms Federal Level III, center-based, and self-contained classroom will be used interchangeably, defined as a classroom where students spend the majority of their day due to being unable to manage being with their general education peers. My personal experiences are highlighted due to the unique perspective I have to offer. I have finally

come full circle from being a special education resource student to an expert in this field. This is the major rationale behind my research question.

History of STAR

The Strategies for Teaching based on Autism Research (STAR) autism support program is a curriculum that is based on research started by Dr. Joel Arick and Dr. Dave Krug in 1973. The STAR program was first introduced to schools in 1997. In early 2004, the program was expanded upon in order to provide support to school districts on the effective use of the program. The STAR program incorporates the applied behavior analysis (ABA) instructional methods of discrete trial training, pivotal response training, and teaching functional routines.

Discrete trial training (DTT) breaks down learning into learning trials. These trials are repeated multiple times with the learner receiving reinforcement for responding correctly. Pivotal response training (PRT) is another subsection of the STAR program that utilizes antecedent-behavior-consequence during play interactions. Lastly, functional routines (FR) are activities of daily living that occur within the school day, i.e., arrival and departure from school, transitioning between activities, and using the restroom. Routines can break complex tasks into small teachable steps by telling a student where to go, what to do, and what will happen next. All three subsections of the STAR program are areas that can be beneficial to a Federal Level III setting center-based classroom.

The Minnesota Department of Education defines a Federal Level III setting as a classroom where students spend 60 percent or more of their time in special education (Special Education Funding Guide, 2016). These types of classrooms include, but are not limited to Developmental Cognitive Delay (DCD), Autism Spectrum Disorder (ASD),

and Emotional and Behavior Disability (EBD). Students in these types of classes need a high level of small-group instruction and structure to teach foundational skills.

The STAR program is a tiered system that offers linear movement for students to increase basic foundational skills. Some of the most basic (level I) skills are tasks such as responding to one's name, learning how to play with a toy functionally, sitting, walking, and attending to a task for seconds at a time. Most students in a center-based classroom need intensive one-on-one support throughout the day to be able to learn basic classroom routines and pre-academic skills. Once basic foundational skills are in place, students would move into the STAR Level II program which includes academic skills, playing with others, independence, and functional routines. The final level, Level III, is building and increasing the workload for the previously learned tasks (Arick et al., 2015).

The Project

For my capstone project, the plan is to create a professional development that will be tailored to be able to present to one of three different groupings of faculty and staff. It will cover the implementation of the STAR Autism Supports Program into a self-contained classroom curriculum and management techniques to make other center-based special education teachers' jobs more efficient. This will help create a roadmap to ease the struggles of teaching in a center-based classroom. This will be done by walking teachers through classroom management, expectations for the roles of the paraprofessionals and students, and creating station rotation lesson plans. This information will be disseminated through a professional development workshop that includes access to supplemental materials to help the curriculum. This leads to my

research question: *How can teachers effectively implement the Strategies for Teaching based on Autism Research (STAR) program in a Federal Level III setting classroom?*

Positionality of Researcher

I identify as a middle-class, white female educator. I have worked in special education in the public school system for over 12 years, first as a paraprofessional in an affluent school district and then as a teacher in two different lower-income districts. I hold a teaching license in Developmental Cognitive Disabilities and a certificate in Autism Spectrum Disorder. I also identify with having a learning disability, depression, anxiety, and Attention Deficit Hyperactive Disorder, which were acquired throughout my educational career and which affected my own education. These diagnoses can be considered "invisible" disabilities, meaning they would be unknown if not verbalized to an outsider. These disabilities affect how I live my life and worldview. It is important to examine how my personal experiences and biases affect how I conduct my research and interpret results.

The Formative Years

Progressing through my educational years, teaching was not a profession I wanted to pursue. The educational system was flawed and it seemed unfixable. Being around individuals with disabilities my entire life helped me arrive at this conclusion. My brother, who was eight years older than I, was born with Down Syndrome. In the second grade, my friend told me that he had a disability. To me he did not have a disability; he was just my big brother. When speaking with my mother she told me he did have a disability. By seeking out and being shown resources explaining the wide variety of disabilities, I accepted how diverse the world truly is. My perception of what

neurotypical meant changed to be inclusive of every person regardless of their ability because I had grown up in such a diverse environment.

Due to my brother's disability, I felt the elementary school teachers were keeping a close eye on me. I was tagged in the early 1990's as a "slow learner". I was taken from the general education classroom to sit in a tiny room with a stranger for multiple tests without being told why. After asking questions about what the tests were for, I was ignored or told to focus. As a result, I did not put the effort forth. All of these things culminated in being taken from the general education classroom during certain parts of the day to have small group instruction with my brother's previous special education teacher.

I was removed from math classes for extra reading intervention. As time went on, I fell even more behind my same-aged peers academically. Finally, in the sixth grade, I remember finding a book series I enjoyed. From then on, I have had an insatiable love of reading. However, because I had been pulled out of so much math, I lacked the basic foundational mathematical skills to be successful moving forward.

Transitioning to Secondary

When the time came to transition to junior high, I remember my case manager wanting me to exit from special education services completely. I wanted to cry. To me, the damage had already been done. I had never actually needed an individualized education plan (IEP) for reading in the first place, I just needed something that would interest me. But now having missed so many years of mathematics there was no catching up. I was still counting on my fingers while my same-aged peers were doing complicated math equations. I was not able to sit down and take a test within the allotted amount of

time because I was so fearful of getting answers wrong. Luckily, they decided to keep me on the IEP by switching my goals to be more math and time-management related.

In middle school, I excelled in English and Social Studies classes, but I was often criticized for being inattentive. Specifically, I would read through materials so quickly that I would have to pull out a novel to read until it was time for something new. I had a study hall where my case manager would try to help me with math, but unfortunately with little success. I struggled significantly as I lacked the foundational skills that both math and science classes are based on. Throughout the rest of my career as a student from high school through college, I just learned to avoid any classes that had anything to do with math.

Becoming a Teacher

For my undergraduate, I went to college for Recreation and Sport Management where I also studied Therapeutic Recreation. I knew that I wanted to work with individuals with disabilities due to my brother and his friends. When I finally left school with my shiny new degree in hand, I set out to find employment. I found my dream job as a therapeutic recreationist working with individuals with disabilities, but this was only a part-time position. I needed to fill my extra time so I applied to be a paraprofessional in a special education classroom. I was working with wonderful kids who had a wide variety of disabilities. It was here that I fell in love with teaching. Unfortunately, while I loved working with all my students, I felt as if I was not being heard when advocating for them. I felt that my thoughts and ideas, being the one who actually worked with the students, were ignored by their case managers. It frustrated me so much that I felt I could do it better, which prompted me to go back to school to obtain my teaching license. I wanted

to listen to the students and meet them where they were, trying to instill a positive school experience that I felt I lacked in my own educational career.

I first went for my DCD licensure because I wanted to work with students like my brother, guaranteeing that I would work in a center-based classroom. After five years of teaching, I wanted to learn more about different disabilities to be able to understand and help more students. I felt there was a strong correlation between DCD students and ASD students. Within my DCD classroom, I had not only DCD students on my caseload but low-functioning students with autism as well. This is how I discovered the similarities between individuals with Down syndrome and autism. To stay on top of the growing trend and to be able to best support my students, I decided to return to school yet again. I then obtained a certificate for ASD alongside working towards completing a Master's program all to try to better help students in need.

Project Rationale

In order for a self-contained classroom to be successful there needs to be a cohesive curriculum. I was able to take an intensive training course, learning the ins and outs of the STAR program. I felt that it would be very beneficial to use with the wide range of students I would be having in my classroom. I am now developing a plan for how to utilize this program within my classroom and throughout my school district. I am interested in the use of the STAR Autism Supports program in a center-based classroom because it seems to have multiple boxes checked for how to smoothly run a classroom. One of the potential strengths of the STAR program is to keep students highly engaged by utilizing multiple learning strategies. I feel that this topic is important for people in the same position because, if it is effective, there would finally be a cohesive curriculum. At

this time, in the school where I teach there is no designated special education curriculum. The materials are borrowed from the general education teachers, media services, or found on our own. This leads to a vast amount of duplication of effort. Often when searching for materials one would try to find if it already exists within the school or district. That involves coordinating with other teachers who may or may not even know if they have the materials, in the case of an inherited room or materials from a previous teacher. Items may have been misplaced or overlooked, so the next step would be to try to source the needed materials. This could involve researching what curriculum is readily available, possible purchase orders from the school, or spending your own money on something. If no suitable materials are found, one would then need to create the materials from scratch by themselves. Once a suitable material is found, it is generally then prepared by being printed, cutout, and laminated for longevity sake. This process may be quick or may take a considerable time investment, sometimes to the dismay of then having another teacher "find" what you were originally asking for days, weeks, or months later. With the STAR program being so rigorous, there are some shortfalls within it that will be addressed in this capstone project.

STAR Shortcomings

The largest shortcoming of the program is one that most teachers are unable to control. Staffing shortages and budgetary concerns are detrimental to the utilization of STAR because the students need so much one-on-one interaction. As Santos (2023) explained, "The negative effects of shortages are multidimensional. Students suffer from reduced instructional effectiveness, and schools and districts experience a loss of pedagogical knowledge and skills, as well as professional leadership. There are also fiscal

consequences (para 2).” One of the determinants of being understaffed is that students end up learning unacceptable behaviors rather than what is expected of them. Once a student learns a behavior, it is hard to recondition into the appropriate behavior. Another possible shortcoming is the materials included need more variety to ensure generalization. In my opinion, another gap in the STAR program is that while the methods work well as a singular station in a classroom or treatment center, it is not practical to scale to an entire center-based classroom without sufficient personnel and space. The resolution to shortages does not exclusively lie in recruiting more new teachers or paraprofessionals, but also in improving the retention of existing staff through improvements in the schools themselves as workplaces (Ingersoll & Tran, 2023). This circles back to my research question: *How can teachers effectively implement the Strategies for Teaching based on Autism Research (STAR) program in a Federal Level III setting classroom?*

Summary

Thinking back over the years of my educational history the words that come to mind first are: dread, anxiety, and loathing. If I have such a distaste for school, why do I keep subjecting myself to it? I do it for my students. I want my students to have a better and more positive educational experience than I did. When I peel away those initial emotions I am met with curiosity, challenges, and success. In continuing to push my own boundaries, I am setting the example for my students that they should not be afraid to try. Success or failure does not matter as much as what we have learned in the process. I can say that I have learned far more from my failures than I have from my successes. My educational history is full of peaks and pitfalls, but by trudging along I have learned so

much about myself and how to serve the students I teach. I strive to make their lives better.

In this first chapter, I have given an overview of my research question, outlined my own educational journey, and the rationale for wanting to research this topic. I introduced my research question *"How can teachers effectively implement the Strategies for Teaching based on Autism Research (STAR) program in a Federal Level III setting classroom?"* My purpose is for my school district to have a cohesive special education curriculum which will not only benefit the students, but also other teachers.

The following chapters outline the literature review, project description, and reflections/conclusions. Chapter Two provides a literature review based on the STAR program, the related elements it employs, and how it relates back to my research question. Chapter Three provides a descriptive outline for the professional development workshop series. It describes the supplemental materials to be added to the STAR program to help enhance it, explain how to set up and run a classroom effectively, as well as share insights for questions other teachers may have. Chapter Four is a reflection on the creation of the supplemental materials, professional development, and the effectiveness of implementation from the other teachers receiving the development.

CHAPTER TWO

Literature Review

Introduction

The purpose of this capstone project is to understand fundamentals of the STAR Autism Supports program. The primary research question of this capstone project is: *How can teachers effectively implement the Strategies for Teaching based on Autism Research (STAR) program in a Federal Level III setting classroom?* This chapter reviews relevant literature pertaining to the STAR program and the related elements it employs. Implementations of the STAR programs' elements are also discussed. I chose my focus on the STAR program because I have been put in charge of bolstering the Students with Unique Needs (SUN) program at my current school. This program is being developed inside of a self contained center-based classroom, however it is currently allowing anyone with unique needs into the program rather than following the historically traditional segregation of students with ASD and DCD into their own rooms respectively. SUN is the acronym my school district uses to refer to a center-based classroom, where before the classroom was referred to as the DCD center-based classroom. The rationale behind changing the name was to allow more than just students with intellectual and developmental disabilities into the program. Currently, any students that do not fit into the mold of general education, resource, or EBD are placed into the SUN room because they have unique needs that cannot be met elsewhere in the district. The program has been inadequately run in the past with both parents and teachers being unhappy with the progress of the students. My goal is to find a way to supplement the STAR program and

implement it effectively in my center-based classroom as well as help other teachers do the same to their rooms.

Chapter Overview

Chapter Two of this capstone delves into the research behind STAR. The STAR program is designed to help teach students with disabilities how to learn by breaking down activities into a step-by-step process. The STAR program uses evidence-based research techniques such as applied behavioral analysis (ABA), discrete trial training (DTT), pivotal response training (PRT) and functional routines (FR) to teach students with autism and other disabilities how to learn (Pellecchia et al., 2015). These techniques are helpful to utilize if the SUN students are not connecting with the material, not understanding what is being asked of them, or both. During data collection, if the students are getting a majority of incorrect responses or not responding at all, it shows the data tracker that the lesson is too difficult. There could be a few differing reasons for this, but they come back to teachers needing to get the students to a point where they have buy-in, or motivation to learn. This ties back into my research question, *How can teachers effectively implement the Strategies for Teaching based on Autism Research (STAR) program in a Federal Level III setting classroom?* When both students and teachers are at the appropriate placement within the program, it allows for the curriculum to work the way it was designed to, which has been developed and expanded upon starting in 1978.

STAR

The Strategies for Teaching based on Autism Research (STAR) Program is based on research by Dr. Joel Arick and Dr. Dave Krug. In their original research performed in Oregon in 1978, Arick and Krug studied six children with autism to try to find their learning-acquisition characteristics. Their research was broken into two parts. The first section found a significant curve in how students learn. This was demonstrated by the first step of a color sequencing activity taking four times longer to learn than the subsequent five remaining steps in the sequence. The second section was a confirmation of an earlier study in that external stimulus prompts were not as effective as internal stimulus prompts in an activity (Arick & Krug, 1978).

In 1997, Dr. J. Arick modified his research with the help of L. Loos, MS and Dr. R. Falco to develop the STAR Program for school districts to use. Research validation of the STAR program was completed through three different studies: The Oregon Statewide Outcome Study, The Autism Instructional Methods Study (AIMS), and the Measuring Outcome in Early Intervention Program for Toddlers with Autism Spectrum Disorder (Research | STAR Autism Support, 2010).

The Oregon Statewide Outcome Study was based on tracking the educational progress of 67 students between the ages of two to six whose primary diagnosis is Autism Spectrum Disorder (ASD). This study started in 1998. The first 16 months of the study showed that the majority of the children made significant progress in the areas of social interaction, expressive speech, and use of language concepts. They also displayed

significant decreases in behaviors associated with autism spectrum disorders (Arick et al., 2003).

The AIMS study involved thirty-four kindergarten through third grade classrooms for students with autism during a three year span. Students in The STAR Program showed significantly greater gains academically than the experimental group when program fidelity was obtained (Research | STAR Autism Support, 2010).

The Measuring Outcome in Early Intervention Program for Toddlers with Autism Spectrum Disorder study found that students who were provided early intervention using the STAR Program made remarkable goal progress over a period of two years. The study also found that the STAR Student Learning Profile correlated highly with other standardized measures and provided additional useful information about student skills learned (Bacon et al., 2014). These three studies were instrumental in validating the success of the STAR program.

The Strategies for Teaching Based on Autism Research (STAR) Program has the goal of developing children's skills in a highly structured environment and then taking those skills and using them in the child's natural environments (Stahmer et al., 2014). The curriculum is divided into six main areas: expressive language, receptive language, spontaneous language, functional routines, pre-academics concepts, and play and social interaction skills. The program has three levels of instruction that meets the needs of children up to eight years old, at different developmental stages, and provides lesson plans for highly specific activities designed to improve skills in various curriculum areas (Pellecchia et al., 2015). The STAR Program is based on three research-based methods. These three methods are discrete trial training (DTT), pivotal response training (PRT) and

teaching functional routines (FR). STAR recommends that each student receive a minimum of two DTT sessions and at least one PRT session per day. Since functional routines instruction occurs naturally throughout the daily activities, it is recommended that each student receive targeted instruction on only one or two functional routines they participate in per day (Pellecchia et al., 2015). These are evidence-based, basic ABA teaching strategies for working with students with ASD (Research | STAR Autism Support, 2010).

According to the No Child Left Behind Act (NCLB), "scientifically based research" is defined as "research that involves the application of rigorous, systematic, and objective procedures to obtain reliable and valid knowledge" (No Child Left Behind Act of 2001, 2002, p.540). Before the mid-2000s, identification of evidence-based practices for children with ASD was left to narrative reviews by different sets of researchers. Although these reviews were well run and helpful narratives of what others had accomplished, they had not been rigorously tested or made to follow a standardized process for execution. Even in the case where a standardized process was followed, single case design studies were left out of the randomized control trials. Even limited research, such as single case design studies, is now understood to be necessary for students with Autism. Recent research, by Wong et al. (2015), has shown that there is empirical support for more focused individual intervention practices. Overall, a total of twenty-seven practices were eventually identified as meeting the criteria for being based on evidence. These practices are considered fundamental ABA techniques, assessment and analytical techniques, and combinations of behavioral practices used in systematic ways that create a replicable procedure (Wong et al., 2015). Lindgren and Doobay (2011)

stated that particular standards must survive the process of peer review, as well as reliably yield positive results. In their paper, they list several interventions that are supported by significant scientific evidence including ABA, DTT, PRT, and FR amongst others. These particular evidence-based practices make up the core of what the STAR program is. Each practice, discrete trial training, pivotal response training, and functional routine, is a subsection of the broader applied behavioral analysis concept.

Applied Behavior Analysis

Applied behavior analysis is based on the belief that one can shape an individual's behavior by altering the features of the environment that surround a behavior. Treatments based on ABA represent a wide range of intervention strategies for children with autism. These include highly structured programs conducted in one-on-one settings to naturalistic strategies that use the child's preferred activities to build skills (Stahmer et al., 2010). It is a type of therapy that provides a scientific approach to understanding behavior. It focuses mainly on positive reinforcement through understanding antecedent, behavior, and consequence (ABC). An example would be an adult asking a student to do something (A), the student complying with the demand (B), and the student earning a reward for complying (C) (Autism Speaks, 2021). The basic premise behind ABA is to target specific behavior goals to modify behaviors to be more appropriate/functional. The four functions of behavior are escape/avoidance, attention seeking, access to tangibles/reinforcements and instant gratification. On the opposite side, the four principles of behavior analysis are: behaviors are affected by their environment, behaviors can be strengthened/weakened by consequences, behavior changes are more effective with positive instead of negative effects, and behaviors need to be

reinforced/disciplined to be effective (Tatum, 2020). “The three strategies included in this program, DTT, PRT, and FR…, share an underlying theoretical base, but rely on different specific techniques (Stahmer et al., 2014, p183)”. ABA is the fundamental backbone not only of the STAR program, but effective classroom management strategies. Applied interventions teach behaviors that are significant for the learners. Staff is then able to observe behaviors objectively and target them for change. Finally, data is then analyzed to see where to proceed next in the methods of DTT, FR, and PRT.

Discrete Trial Training

Discrete Trial Training (DTT) is an ABA technique that breaks down the skills into smaller “discrete” parts. The teacher teaches these skills one by one, all while increasing the difficulty level. These sessions are usually done with intensive one-to-one teaching in an environment that is free from distractions. DTT usually involves mass trials, or the repeated practice of the same response for several successive teaching sessions (Pellecchia et al., 2015). Teachers will use tangible reinforcements to encourage desired behaviors such as something to eat or a token for a token board. A token board is a visual representation of how close a student is to earning a tangible reward of their choosing that is functionally unrelated to the response.

Discrete trial training (DTT) is a multifaceted intervention for teaching individuals with autism. Various aspects of the discrete trial (e.g., the antecedent, the consequence) may be manipulated with differential results for the learner (Turan et al., 2011). DTT often incorporates the use of errorless learning, shaping, modeling, prompting, facing, correction, and reinforcement to encourage skill acquisition. It is especially well-suited for skills that can be taught in small, repeated steps. Lindgren and

Doobay indicated that DTT can produce powerful behavioral outcomes in the areas of language, motor skills, imitation and play, emotional expression, academics, and the reduction of self-stimulatory and aggressive behaviors (Lindgren & Doobay, 2011). DTT is used in STAR for teaching pre-academic and receptive language skills. There is a very specific instruction that occurs to achieve the desired behavior in the students. Examples of learning pre-academic skills found in the first box (Level 1) of the STAR program are learning to match colors, shapes, scribbles, and how to use a token board. A few of the receptive language skills that are taught are: nonverbal imitation, attending, and matching (Stahmer et al., 2014). DTT requires concentration from the students. Teaching students in small groups or one-on-one is best to prevent distractions. Due to this, it does not work well in a typical center-based classroom setting. A classroom would need to be segmented into small sections in order to keep outside stimulus from interfering with DTT. Keeping external stimuli out while working with DTT is important to keep students engaged and on-task. Interestingly, the opposite is true for PRT. The stimuli from the engagement inside of the PRT section needs to be shielded from the rest of the classroom so that outsiders do not try to converge and interrupt the teaching of PRT.

Pivotal Response Training

Pivotal response training (PRT) is a behavioral treatment geared towards individuals with Autism, although it can be used for anyone. A pivotal behavior is one that is central to performing a variety of other behaviors in various areas of functioning (Carrero et al., 2014). PRT is customized for each individual participant and focuses on language, play and social skills. PRT is considered a naturalistic form of ABA that occurs during structured and unstructured times, which is soundly supported in the scientific

literature (Lindgren & Doobay, 2011). The term naturalistic can be described as an approach in which the teacher follows the student's interactions rather than trying to direct or lead them; this has also been called activity-based or incidental teaching (Odom et al., 2010). It can occur in a 1:1 to setting with teacher and student or in a small group setting. There are several PRT strategies that have positive play results and decrease inappropriate behaviors for children with ASD, including child choice, natural reinforcers, and reinforcing attempts (Carrero et al., 2014). Child choice is a strategy that STAR subscribes to that is considered to be student-led. This is where the student gets to choose the activity with which to engage. Staff then withholds access to the desired item until the student can request the items at a level that is appropriate to them (Stahmer, 1999). Depending on the student's ability, an example of this might look like a student saying, "Can I have the train please?" or a student making the initial "T" sound to request the train after staff prompts them. Items that are used within the PRT station are rotated through on a frequent basis to increase student motivation and acquisition of generalized skills making PRT appropriate for targeting expressive and spontaneous language skills (Stahmer et al., 2014). The most important thing to remember is instruction within PRT involves following the child's lead, while capturing and contriving teachable moments related to the context (Pellecchia et al., 2015). PRT can be very difficult in classrooms where any of the toys or objects of engagement are openly accessible such as on a rack, open shelving, or even behind a cabinet door. Items that make students want to engage are often distractors and the students will strive for them at inappropriate times. This ties back into room segmenting as discussed in the DTT section. However, this time the intent is to keep the stimuli of the PRT section from entering the classroom at large. One of the

best combatants to this is to instill good functional routines in the students. Once strong functional routines have been established, there is better understanding of how to control/interact with all stimuli, thus making the need to shield it less important.

Functional Routines

Functional Routines are transitions that occur throughout the day including, but not limited to arrival and departure, eating, bathrooming, and transitioning between activities. Every one of those routines would be broken down into small steps called a task analysis and then interlocked together using behavior analytic procedures such as visual and verbal prompts while reinforcing each step in the routine. An example of transitioning between activities could include using a verbal prompt to cue the transition, using a visual prompt such as checking the schedule then pulling a picture card from the schedule to indicate the next activity. Next, taking the card to the location of the new activity and placing the visual onto a landing pad to utilize a match-to-sample technique. This starts a new activity, followed by a token for routine completion (Arick et al., 2015) The advantage of this strategy is that each transition component is taught within the context of performing the routine, so that the child learns to respond to natural cues and reinforcers (Stahmer et al., 2014). Functional routines are predictable activities with an expected sequence of events that occur naturally throughout the day (Arick et al., 2004). There is a saying that has been passed down from my mentor by her mentor and that is for a child to truly have learned something they must be able to demonstrate it to three different individuals in three different settings. Breaking down everyday functional routines into smaller segments helps individuals with disabilities truly understand what is being asked of them. Functional routines are not something that only occur in a school

setting, but also in everyday and home life. Students, however, are not able to broadly apply lessons learned to every area of their life without constant attention and reinforcement. While we may be able to teach them a routine at school, it might not translate to their home life. This is a very unfortunate shortcoming of FR's which can really only be dealt with if the families are willing to continue the training in the home. This training helps reinforce the functional routines which in turn helps reinforce the various other aspects of the STAR program.

Summary

This chapter discussed the fundamentals of the Strategies for Teaching based on Autism Research (STAR) program. With my research question in mind, *How can teachers effectively implement the Strategies for Teaching based on Autism Research (STAR) program in a Federal Level III setting classroom?* I reviewed literature in the areas of STAR research, ABA, evidence-based practices, Pivotal Response Training, Discrete Trial Training, and Functional Routines to provide background on the strengths and shortcomings of each of the STAR program's constituent parts. This research has given a strong foundation in which to start building a professional development that includes supplemental material to fill in gaps in the program when it is expanded to a whole center-based classroom. Finally, I summarized the procedures for implementing the STAR program.

Chapter Three provides an in-depth description of my capstone project. A comprehensive professional development workshop series was devised to cater to a specific audience, comprising of other elementary SUN teachers, SUN paraprofessionals,

and other special education teachers within the elementary building. A timeline will be provided for the completion of the research project.

CHAPTER THREE

Project Description

Introduction

This capstone project sought answers to the question of *How can teachers effectively implement the Strategies for Teaching based on Autism Research (STAR) program in a Federal Level III setting classroom?* Chapter Two reviewed literature pertaining to the Strategies for Teaching based on Autism Research (STAR) autism support program, as well as explored possible pros and cons to the assessment-based curriculum. The literature review showed that with the right support, STAR is a valuable resource to utilize. It is not, however, designed for a center-based classroom, which includes such a diverse set of students with unique needs, and therefore leaves room for improvement.

When I started in the SUN (Students with Unique Needs) program, I was given an empty room, the three levels of the STAR program, and a myriad of leftover materials. I saw the need for creating a roadmap of how to set up a center-based classroom. The roadmap included room layouts, pictures of station setups, and supplemental materials not included in STAR. This enhanced the flow of the program and helped the implementation of STAR in my own classroom. To disseminate this knowledge, I assembled a series of professional development workshops.

Chapter Overview

Chapter Three of this capstone describes the project that was completed which culminated my research into how the STAR autism support program could be enhanced to aid student learning in a Federal Level III setting. A comprehensive professional

development workshop series was devised to cater to a specific audience, comprising of other elementary SUN teachers, SUN paraprofessionals, and other special education teachers within the elementary building. The training was designed to be modular, with the depth of the development being tailored based on which group mentioned above was receiving the training. The main focus of the professional development was for other center-based special education teachers in elementary schools, specifically for the other SUN teachers in my school district. This project was made in an attempt to help other staff that may find themselves in a similar predicament to my own.

Initially, a two-hour-long development training session was created that could be done in small, even-numbered groups for pairing purposes. Then three smaller modules were created that were given as supplemental training and could be accessed as needed. These smaller modules went more in-depth to deal with the specifics of implementing the program successfully in a center-based classroom. A digital copy of the supplemental materials was developed and specifically curated to align to the workings of the STAR program guide. The main professional development and supplemental training given were then tailored to the target audience.

The first professional development was designed to be given to all three target groups. The purpose was to give everyone involved an overview of the program that would help create a foundation to either have a strong base to build future skills or have the basic knowledge if needed to interact with the SUN program students. From there, the other modules were available for anyone in the above-mentioned groups to enroll in but targeted more towards the SUN teachers and paraprofessionals as they covered topics such as data tracking, prompting, and assistive technology as they would be utilized in a

center-based program. The materials were produced within the school year and were set up to be able to be continuously updated.

This project began prior to the onset of the school year and was completed in May 2024. My classroom was built out and modifications were made for the ease of students, paraprofessionals, myself, and substitute teachers. After being notified that I was transitioning to a center-based classroom, I started sourcing different supplemental materials and had to create some materials that did not exist over the next four months. The professional developments were created over a different four-month period, with implementation and subsequent training provided over a two-month period. Two weeks after the final workshop a post-assessment questionnaire was sent out to participants to determine if the presentation was helpful and if they saw improvements within their classroom. Through my research, hands-on experience, and observation of other center-based classrooms I have come to the realization that there is no one-size-fits-all usage of the STAR curriculum. This capstone project was meant to help alleviate some of the shortcomings of STAR where it could and provide help for any that wish to utilize it.

Project Description

This capstone project was a professional development workshop series created to target three main audiences: elementary SUN teachers, elementary SUN paraprofessionals, and other special education teachers within the elementary school setting who may work with students with intellectual and developmental disabilities (IDD). The professional development series consisted of an initial two-hour-long training that was intended for any and all of the above audiences. Three smaller specialized trainings were geared toward the SUN teachers and the SUN paraprofessionals, though

anyone was able to sign up for extra training if they felt they would benefit. After completing the initial two-hour professional development participants should be able to:

- Understand how to organize and set up a center-based classroom with the STAR program in mind.
- Utilize the materials of the STAR program more effectively.
- Have access to supplemental materials that have been curated and sorted into predefined subjects and themes within the predetermined STAR lessons.
- Understand how to incorporate the supplemental material with the STAR curriculum effectively.
- Use a variety of supports to increase fidelity and consistent implementation in the classroom.
- Implement evidence-based strategies using lesson plans and specific protocols in the STAR curriculum.
- Complete an assessment to identify individual lessons.
- Use behavioral strategies to increase desired behaviors and decrease challenging behaviors.

Literature Supporting Project Approach

Unfortunately, for school-based professional development, the most prevalently used mediums are single-instance trainings, which are ineffective at equipping staff to deliver high-quality instructional support. Experimental studies indicate these single-instance trainings have a minute impact on staff behavior (Brock & Carter, 2013). This professional development workshop considered the seven elements of effective professional development outlined by Darling-Hammond et al. (2017). These elements

were content focused, used models, incorporated active learning strategies, included time for feedback and reflection, collaboration, coaching with expert support, and they had continuation trainings (sustained duration). Their research emphasized the importance of offering professional development to educators to ensure they are effectively facilitating learning opportunities.

Frameworks & Theories

Frameworks that helped guide this capstone project and relay the information gleaned from answering my research question, *How can teachers effectively implement the Strategies for Teaching based on Autism Research (STAR) program in a Federal Level III setting classroom?* were Mezirow's transformative learning theory and Knowles's theory of andragogy.

Mezirow's transformative learning theory refers to the process of learners acquiring new information while critically evaluating their past ideas and understanding. It involves a shift in their worldview as they gain new insights through critical reflection (Mezirow, 1994). This type of learning goes beyond acquiring knowledge and delves into how learners find meaning in their lives and understanding. Such learning experiences result in a fundamental change in our perceptions, prompting learners to question everything they knew or thought before and examine things from new perspectives. Experts and learners believe that this type of learning leads to true freedom of thought and understanding. In this series of professional development workshops, staff were trained to approach task-oriented problem-solving situations that they may encounter while working with students with intellectual and developmental disabilities (IDD). The training covered instrumental learning and communicative learning, with a question and

answer segment at the end of each session. Pre-and post-assessments were conducted to help guide the training content. Through this professional development workshop series staff focused on task-oriented problem-solving situations that occur with IDD students.

According to Knowles, the andragogical learning process needs to be self-directed and problem centered, exploit all relevant resources, as well as connect to participants' internal desire to learn and grow (1984). Given this, there was an attempt to incorporate each of these components to varying degrees throughout the project. Knowles' framework maintains that in an andragogical learning environment, participants, or learners, must be involved throughout the learning process (1984). Learners must be committed to the content, diagnose their needs, develop learning objectives and reflect on their own work (Knowles, 1984). With this in mind, this professional development series was completely optional and participants could sign up for as many or as few of the sessions as they choose. While the pre-assessment survey allowed for some direction by the participants, they did not fully drive the development of the learning objectives for the initial session of this workshop series. However, staff were included in subsequent learning objectives building around specific, individual needs through the use of the post-assessment surveys given after each workshop. Finally, staff were given opportunities to apply their learning immediately and provide feedback on how well they did at implementing suggested strategies with fidelity and discussing what could be done. This was done intentionally to allow for more flexibility and to create an opportunity for participants to guide the dialogue.

Project Materials

The workshop was split into multiple sessions, the first session was delivered in person that pertained to all target audience members and then various mini-sessions that were attended as needed. This allowed participants to consider how they would continue their learning to meet the effective professional development principle of sustained duration. The in-person session materials were delivered in the form of a Google Slides/Powerpoint presentation used to facilitate multimodal learning. The STAR program kits were also available for perusal during the developments. The development was split into multiple modules covering the following learning objectives:

- Overview of STAR
- Discrete Trial Training
- Pivotal Response Training
- Functional Routines

Setting

The district in which this project took place was a small, rural Midwest school district. It has three elementary schools, one middle school, and one high school. The current special education population of the entire district is about 19.9% of the population; however, it is projected to continue to increase in the coming years. This professional development workshop series was offered at the elementary level, at the building where I was based. The elementary schools currently have a total of 1909 SpEd students in grades K-5, while the school I teach at has 21.3% (*Minnesota Report Card,* 2024).

Audience

The professional development workshop was intended for other elementary SUN teachers, SUN paraprofessionals, and other special education teachers who would provide opportunities around educating and working with center-based students within my school district. It was assumed that participants had no previous understanding of STAR or of a Federal Level III setting classroom. With these assumptions in mind, the initial two-hour professional development was an introductory level course. The subsequent developments delved more in depth into topics based upon the feedback provided from the post-assessment surveys. The modules were offered in a synchronous learning format to ensure participants were able to digest information in smaller doses and have multiple checks for understanding.

Structure

The first session included a presentation that provided an introduction to the series, overview of STAR, and short breakout sessions to practice the skills and reinforce the topics that were covered. Session one ended with staff taking a survey aimed at addressing confusion, current teachers' attitudes, and their perceptions regarding IDD students. Each subsequent session began with a feedback period where staff shared their triumphs and concerns regarding the use of skills taught in prior modules. After each module, participants took a post survey to measure their growth and understanding related to STAR and working with IDD students. The second through fourth sessions each highlighted a different area of ABA that STAR uses: DTT, PRT, FR. Each of these subsections followed the same structure of explaining set up, reinforcement techniques, the rationale of the ABA strategy, data tracking methods, learning activities for

participants to practice and track data for those lessons, and look into how to enhance STAR through supplemental materials that provide differentiation.

After the completion of the four professional development series participants were given an opportunity to share what they would like to see in future professional development offerings pertaining to IDD students and how to support them using the STAR curriculum. Once the sessions described here have been completed, further professional development sessions will be offered and designed around staff input and need.

Timeline & Implementation

The timeline for this capstone project has been completed, but given the material provided it is ever-evolving and so hopefully will continue to expand upon the successes after its initial trial. The capstone project was developed from January to May of 2024 with planning beginning fall of 2023. Upon completion, the professional development workshop was implemented within my school district during an in-service event. At the end of the initial workshop a feedback form was given to participants to complete. It was used to gather information and determine improvements for future professional development. Following these sessions and with other staff members' feedback, I plan to curate further professional development workshops that delve deeper into the topics covered in the professional development series described here. My overarching goal was to use this as a stepping stone to create regular professional development sessions for subsequent school years based on whatever the current year’s students need and staff interest.

Assessment

The professional development workshop included pre-and post-assessments. Interested parties filled out a questionnaire a month prior to the initial professional development to help guide the structure of the workshop series. At the end of each of the workshops, participants were given time to ask questions and then group-answer while the material was still fresh in their minds and to clear up any issues of concern from a previous workshop.. Then a post-assessment was given two weeks after the workshops to give them time to implement the material and strategies to see what may or may not work in their classrooms. The pre-and post-assessment measured perceptions of participants' awareness of IDD students' needs in a center-based classroom. The assessments will determine whether or not participants are meeting the learning objectives listed above. The pre-and post-assessments were in survey form and the assessments throughout the course included multiple-choice knowledge checks, discussion questions, and role-playing opportunities.

To measure efficacy, it was also important to include questions about facilitation skills related to my research question in the post training surveys sent out to those who will eventually receive training from the facilitators taking this course. This will measure the level of application of skills present in the facilitators after taking the course.

Supplemental Materials

I accumulated different supplemental materials from individual creators that paired with specific STAR lessons, as well as, other curriculums (Reading Milestones, Jolly Phonics, Touch Math, and Touch Money). In the math station, I am currently utilizing level one lessons matching colors and matching shapes. In level two I use

pre-academic concept lessons, such as rote counting 1-10 (counting 1 to 10 objects in tandem with Touch Math). In the reading/writing station, I currently work on receptive identification of first names and tracing names, letters, and numbers along with Jolly Phonics and Handwriting Without Tears. Within the independent workstation, there is a three-drawer system, as STAR suggests. Once students have mastered the three-drawer system academic concepts are organized using the TEACCH (Treatment and Education of Autistic and related Communication-handicapped CHildren) system.

Summary

This capstone sought to answer how teachers effectively implement the Strategies for Teaching based on Autism Research (STAR) program in a Federal Level III setting classroom. Chapter Three offered a detailed overview of this capstone project created to address that research question. The detailed overview included learning objectives for the professional development workshop related to STAR and continuing education opportunities revolving around IDD students in a center-based classroom. Chapter Three also included the rationale for the chosen project format. Evaluation criteria for effective professional development developed by Darling-Hammond et al. (2017) and Knowles (1984) were reviewed to offer a framework for the course. A timeline of development, as well as, plans for implementation in a professional learning environment was included. Upcoming in Chapter Four, a conclusion to the capstone project and process is offered. The final chapter will walk through the learnings acquired throughout the development of the project and will set intentions for moving forward.

CHAPTER FOUR

Conclusion

Introduction

This capstone project intended to offer some solutions to the question, *How can teachers effectively implement the Strategies for Teaching based on Autism Research (STAR) program in a Federal Level III setting classroom?* I chose to create a professional development for special education teachers and paraprofessionals that provides some insights to the question at hand. Chapter One spoke to my personal and familial history with special education, my educational background, career thus far, positionality as a researcher, and a brief explanation of the STAR Autism Support Program. Chapter Two reviewed relevant literature pertaining to the STAR program and the related elements it employs. Chapter Three described the professional development that was completed which culminated my research into how the STAR autism support program could be enhanced to aid student learning in a Federal Level III setting.

Chapter Overview

Chapter Four details significant learnings from the development of my capstone project experience, reflects on personally influential sections of the reviewed literature, considers implications for future research, explains limitations, and shares the benefits of utilizing the STAR program when offered the support needed for successful implementation of the curriculum.

Significant Learnings

While reflecting on the significant learning outcomes that resulted during the process of developing this capstone project, the first that immediately came to mind was the experiences I have struggled through in my own classroom. The depth of the involvement in committing to this capstone project has been an immense developmental experience. Considering myself as a lifelong learner, I am devoted to seeking out knowledge and sharing that information with others. I am proud of what has been created for this capstone project, yet I am still looking for new ways to support our special education students best and therefore support teachers. The knowledge gained past the research and development portion, learning that I was capable of creating, and completing a capstone project was a major highlight.

Related to the STAR curriculum and its effective implementation in a Federal Level III setting, the literature enlightened me to the effectiveness of STAR including all the research that went into creating the program. It was also surprising how limited the research and training opportunities were. Taking time to dive into the world of STAR has shown that the single two-day training my district provided right before school started was not nearly enough time or information to utilize the curriculum effectively. More time is needed to digest the information learned, allow for smaller PD's with frequent checks for understanding and a portion dedicated to teaching others the information.

Finding supplemental material to go along with the STAR lessons was time consuming, however, it was necessary to decrease the amount of time teachers were spending on recreating the wheel. A weakness of the STAR curriculum is that it does not

account for differentiation. Differentiation is necessary to decrease boredom and prove the students actually know the material.

Through this capstone project I have been able to delve deeper into the how and why of the ABA strategies that STAR chose to utilize. Because I now have this better understanding, I am able to troubleshoot bumps in the road as they occur. This allows me to use the STAR program with fidelity and help other staff with questions and concerns.

Literature Review Revisited

The professional development module content was drawn mainly from the Chapter Two literature review subsections of Applied Analysis Behavior (ABA): Pivotal Response Training (PRT), Discrete Trial Training (DTT), and Functional Routines (FR). Researching the different works of authors such as Arick, Stahmer, Pellecchia, and others, really gave a deeper understanding of how ABA and its subsections function holistically. With a greater awareness of the whys and hows of PRT, DTT, and FR, implementing and teaching the STAR program to others came easier and was more successful. This deeper comprehension allowed for the creation of this capstone project.

The work of Darling-Hammond et al. (2017) influenced the format of this professional development. I chose to develop a multitude of modules that included opportunities for sustained learning based on recommendations from the work of their work. Instead of offering a single stand-alone professional development workshop, this capstone project offered synchronous modules that built upon each other and allowed time for practice and reflection. There was also a repository of content accessible at any time that contained supplemental materials. They were meant to be completed over the

course of two months so that topics covered and questions that arose would stay fresh in the minds of the participants.

Limitations and Implications

The scope of this capstone project was developed for special education teachers and special education paraprofessionals who already had some initial knowledge of the STAR program. The developments expanded on the basics of the STAR program and how to make adaptations for Federal Level III classrooms. This capstone project was also set up as an initial two-hour-long professional development followed by three 30-minute supplemental developments.

Although teachers and administrators were initially receptive to the idea of holding this multitude of professional development modules when the time came to implement them it was met with resistance. The reasons varied from already having a set schedule of PD's planned to being unable to pay the paraprofessionals to come in early or stay late. This was very disheartening and underlined a more significant problem of staff being overburdened, overworked, and underpaid which leads to low staff retention rates. Arrangements have been made with the special education instructional coach to allow this professional development to be shared with teachers and paraprofessionals in follow years.

Communicating the Project

These professional development modules were originally created to help the other elementary special education teachers, including the SUN (Students with Unique Needs) teachers and SUN paraprofessionals. The process was less well-received than everyone made it seem when this project was started. Adequate time was not provided as was

promised, and interest was flaccid when given during non-contact student time. Without dedicated development time, the paraprofessionals were only able to meet for 15-minute increments twice a week before student contact time, and the other elementary SUN teachers for 30 minutes once a week. There was limited interest and engagement.

These developments were not made for any specific school district, so I will share the supplemental materials and offer them to the new school district where I will be employed next school year. This is also an ever growing task that will be added to as new materials are found.

Benefits to Profession/Future Research

This capstone hoped to enhance the quality of instruction for students utilizing the STAR program. A digital library of themed materials was curated for teachers to use to alleviate the overwhelming feeling of having to gather materials when starting a new curriculum. This is ever-growing as new materials are being added to the library beyond this initial capstone. A tangible library of these resources will be created so that teachers could check them out to use for their classes and return them when done to try to reduce the duplication of effort when it comes to finding resources. I also plan to create structured play boxes that are available to my local district, with material lists included in the supplemental library. My life's goal is to enhance the quality of education for individuals with disabilities, and will continue to source materials and add new topics that were not covered such as assisted technology, data tracking, behavior and classroom management, prompting hierarchy, and supporting paraprofessionals.

Summary

Chapter Four concludes the capstone project paper and highlights significant learnings attained throughout the project's development, limitations and implications of the scope of the capstone project, as well as the implementation of the project's professional developments, and finally the benefits of this capstone and the future of its life. My entire life has been devoted to working with and helping individuals with disabilities. I am proud to have accomplished something that will help not only those special students but also help teachers who may find themselves in a similar place I was once in all because I decided to try to find an answer to *How can teachers effectively implement the Strategies for Teaching based on Autism Research (STAR) program in a Federal Level III setting classroom?*

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