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Supporting Students With Autism Spectrum Disorder:
Implementing Applied Behavior Analysis Strategies Within the
Classroom Setting

by
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Project Abstract

This project provides both general and special educators with effective, evidence-based strategies needed to support students with Autism Spectrum Disorder (ASD) in the educational setting. With the prevalence of ASD continuing to increase, parents are not the only ones who need to be more prepared and informed. Educators are considered one of the most prevalent adult figures in children’s lives as they grow up. It is the job of an educator to advocate and provide successful learning opportunities for all of our students. Applied Behavioral Analysis (ABA) has been proven to be the most effective treatment for ASD. Due to the research showing the effectiveness of ABA with children with ASD and the law requiring educators to use evidence-based programs, parents are beginning to demand our educators implement ABA in their classrooms. This module provides educators with the knowledge needed in order to successfully implement ABA strategies into their classrooms. This way, students with ASD will be provided with support and with successful learning opportunities throughout their educational career.

Keywords: Applied Behavioral Analysis, Autism Spectrum Disorder, Discrete Trial Training, Shaping, Chaining, Modeling,
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Chapter One: Definition of Problem

In 2014, 1 in 68 children were diagnosed with Autism Spectrum Disorder (ASD), according to the Centers for Disease Control and Prevention (CDC). This is a tremendous jump of 30% since 2012. With the rate of ASD and the need for inclusion increasing, our educators need to be more prepared than ever before. Even though there are numerous methods for supporting ASD, Applied Behavioral Analysis (ABA) is recognized as the leading methodology. “Applied Behavioral Analysis (ABA) is recognized as an essential and scientifically valid method of education and managing children and youth with Autism Spectrum Disorders (ASD)” (Simpson, 2001, p. 68). Currently, the majority of our educators are not trained in these techniques, even though there is research data to show that these interventions are effective when working alongside students with ASD. As the prevalence of students with ASD continues to increase in our classrooms, our educators need to be trained in order to best support these students. Right now, general and special educators are not required to be trained in ABA, even though they are the most extensive adult contact that students with ASD have, because they see these students for “six hours a day, five days a week, and 40 weeks a year,” (Fantuzzo & Atkins, 1992, p.38). Fantuzzo and Atkins (1992) also stated that not only do educators spend a large amount of time with these students, but they do so in a setting where the students have access to a wide variety of physical, emotional, cognitive and social tasks. ABA has a range of effective strategies that its implementation in the aforementioned areas is not just possible, but imperative; and it starts with both special and general educators acquiring the skills and understanding of ABA.

With the understanding that ABA is like an iceberg; it has its most recognizable and wide range of applicable teachings on the surface. However, also like icebergs, ABA has other
underlying components that can go unrecognized because not all of ABA strategies are applicable to the education setting. Those that are, can be intertwined throughout the entire curriculum, academic and nonacademic, in both special and general education settings. In order for ABA to be successful in the school setting, special and general educators need to work collaboratively to best support students with ASD. While in most cases the special educators will serve as the primary leader in planning these ABA interventions, the general educator should also be actively engaged in assessing, goal setting and implementation of different ABA procedures (Leach, 2010). This is why both special and general educators need to be trained in ABA strategies that compliment the school setting.

This chapter will be an introduction to this project by explicitly explaining the purpose of the project, provide an overview of the literature and methodology used, and concluding with the significance of the project along with key definitions.

**Purpose of Project**

This project is a three-day professional development for teachers to become educated and trained in the implementation of ABA within the education setting when working with students with ASD. According to Alberto and Troutman (2012), the most common concern in regard to ABA, are that behavioral approaches are too much work and take up a lot of time. This is true because, “implementing behavior support plans is a lot harder than sending students to the principal’s office and subsequently suspending or expelling them” (Alberto & Troutman, 2012, p.23). However, once provided with training in ABA, according to Cooper (2001), classroom educators often comment about how the principles of ABA are not new. Generally, he stated, educators discover them through trial and error, observations, and reports from master educators
(2001). In all, most educators already have a basic understanding of how behaviors work and typically how they can be managed.

Although some educators might have a foundation already set, ABA consists of many different components including, data collection, differential reinforcement, stimulus control, replacement behaviors, and multiple strategies that need to be individualized for students with ASD. All these components and more are addressed in this project fulfilling the need for participating educators to be trained in ABA. A common quote in the field of ASD states that, “If you have met one person with Autism, you have met one person with Autism.” This means that every student with ASD is completely different, so some strategies that worked with one student might not work with another. ABA is known and proven to be an extremely strong individualizing treatment according to Rosenwasser & Axelrod (2001), which is why it works well in the education setting.

With this, the purpose of this project is to address the question of what elements of Applied Behavioral Analysis are essential for educators to know and how do educators use these strategies in the educational setting.

**Preview Literature**

The review of literature will be covering three themes related to this project. The first area of research presents the history and impact ABA has on ASD. Mayer, Sulzer-Azaroff & Wallace (2012) discussed the history of behavior as far back as prehistoric times through 1968, when the previous label “behavior modification” officially turned into ABA. The 1960’s were also a time when Ivar Lovaas began gearing ABA interventions toward children, according to Rosenwasser & Axelrod (2001) who also provided a more detailed timeline of those practices. They also supported a statement by the surgeon general of the United States (1999, David
Satcher) regarding ABA as the treatment of choice for ASD. It stated that, “thirty years of research demonstrated the efficacy of applied behavioral analysis methods in reducing inappropriate behavior and increasing communication, learning, and appropriate social behavior” (Rosenwasser & Axelrod, 2001, p.671).

The second theme presented is a rationale for ABA within the classroom setting. Leach (2010) supported this rationale by explaining how the school environment naturally fosters opportunities for students with ASD to engage with typically developing peers. This type of environment includes the playground, hallways, and classrooms, which are environments that the National Research Council, suggests are the best place for students with ASD to receive the specialized ABA instruction (Leach, 2010). Research studies have been conducted that provides evidence of the effectiveness ABA strategies has in the education setting when working with students with ASD, in comparison to students with ASD receiving typical mainstreaming education. There were significant differences that favored the ABA class group. Currently, with ASD being considered the fastest growing developmental disability, it is clear that ABA would be beneficial to students with ASD within school settings (Loiacono & Allen, 2008). Loiacono and Allen also addressed the issue that, “most teachers graduate from colleges with minimum training in evidence-based practices for children with Autism” (p. 120) and that training educators in ABA would be keeping up with the No Child Left Behind Act of 2001.

The last theme that will be discussed is how to implement ABA within the classroom. ABA has many strategies with the most relevant for the school setting being chaining, shaping, discrete trail training, and modeling. Leach (2010) went into great detail on what these ABA teaching procedures look like, whether it is in the classroom or in a lesson plan. While Mayer, Sulzer-Azaroff and Wallace (2012) described what these strategies are and how to implement
them. There were a wide variety of research studies that provided evidence that supported DTT effectiveness in the educational setting. Also, when looking specifically at shaping, beneficial research studies were conducted that are in support of using this strategy, especially when correcting unwanted behaviors. Next, there is valuable research that provided evidence that is in favor of video modeling, as a way of teaching children with ASD desired behaviors. Lastly, chaining is another strategy of ABA that several studies both received similar results that favored chaining as a beneficial and effective strategy to use when working with students with ASD. All of these strategies required and benefited from different types of reinforcement. According to Alberto & Troutman (2012), there is a way to arrange consequences that increase behavior and this is through a variety of reinforcements including positive and negative reinforcement, and positive and negative punishment. However, “reinforcement is a naturally occurring phenomenon. Applied behavior analysts have simply applied the effects of reinforcement in a thoughtful and systematic manner” (Alberto & Troutman, 2012, p. 212). There are many components to ABA when working with behaviors and teaching instruction.

**Preview Methodology**

The methodology section of this project will describe the steps taken to create and produce a three-day development. This professional development is for both general and special educators to deepen their understanding of what ABA is and how to implement it within their classrooms. The first step taken in the project was to find and assess peer-reviewed research studies and well-respected books in the field of ABA that relate to the guided question of this thesis. These included research data and books on what ABA is, the history of ABA, how to implement ABA strategies, and evidence that documents ABA is effective in a classroom. Since Applied Behavioral Analysis is currently a hot topic, there was a large amount of research and
data already on these components. Due to this, there was not a need to generate any new data, but rather to create a three-day training based off of these research articles that addresses the challenge educators face when learning how to implement ABA. This information can then be broken down into chunks, which can be more comprehensible and relatable to educators. With this, after the research had been gathered, the next step was to start creating this three-day development. This project followed a structure module template that highlighted and broke down key components of ABA into the three-day sections. This ensured that all three components were into thoroughly covered and participants had to opportunities to connect with the information through activities. The information presented in each day is built upon each other for a deeper understanding of ABA. Finally, agendas and PowerPoint presentations were also created to provide a visual and reference the educators can refer to after the three-day training has ended.

**Significance of Project**

This project provides both general and special educators with a three-day professional development that presents them with information on how to best support students with ASD through ABA strategies. Since each student with Autism is different and has their own strengths and weaknesses, the strategies used to teach them need to be just as individualized as they are. ABA strategies provide that individualized and deep instruction that has been proven to be effective when working with these students. Since the likelihood of an educator having a student with Autism continues to increase, they need to be prepared on how to best support and create opportunities for them to succeed, just like they do with typically developing students. By introducing educators to this project, both the educators themselves and students with ASD will benefit greatly by this bridging of the gap from the theory of ABA to the real life situations in a classroom.
Summary of Chapter

This first chapter provided an extensive overview of the project by first introducing the concepts of defining ABA and the importance of having our educators implement these strategies. Three themes were discussed including the history and impact of ABA on Autism, a rationale for ABA within the classroom setting, and implementing ABA within the classroom. Several main researchers were mentioned in support of the themes. The methodology used in this project explains the steps taken to create the three-day professional development. Finally, the significance of this project was clearly stated due to the proven need for educators to gain knowledge in ABA strategies, in order to provide success opportunities for students with Autism.

Definitions of Terms

**Antecedent**

An antecedent is what happens or are already happened before the target behavior occurs that triggers the behavior (Kearney, 2007, p. 31)

**Applied Behavioral Analysis (ABA)**

“ABA is an approach to changing socially useful behaviors that employs scientifically established principles of learning to bring about these changes”

(Kearney, 2007, p.19)

**Autism Spectrum Disorder (ASD)**

Autism Spectrum Disorder “is a group of developmental disabilities that can cause significant social, communication and behavioral challenges”

(http://www.cdc.gov/ncbddd/autism/index.html)

**Behavior**

Behavior “is any external or internal observable and measurable act of an organism”
Consequence

Consequence is what happens after a behavior occurs and in this case, the targeted or unwanted behavior

Continues Schedule of Reinforcement (CRF)

Continues Schedule of Reinforcement is the “delivery of reinforcement on a continuous basis” (Alberto & Troutman, 2012, p.243)

Differential Reinforcement

Differential Reinforcement “refers to reinforcing a behavior in some situations, but not in other situations” (Kearney, 2009, p.83).

Differential Reinforcement of Alternative Behavior (DRA)

“With this procedure, an inappropriate or challenging behavior is replaced by a behavior considered (by student, parent, teacher) as more appropriate, positive, or standard. DRA refers to reinforcing an alternative behavior, the performance of which decreases the likelihood that the inappropriate behavior will be performed”(Alberto & Troutman, 2012, p.265).

Differential Reinforcement of Other Behavior (DRO)

“DRO is an application of interval reinforcement schedule...In DRO any other behavior except of the target behavior is reinforced” (Kearney, 2007, p.84).
**Discrete Trial Training (DTT)**

Discrete Trial Training “refers to certain structured intense teaching strategies that are sometimes used to teach very specific behaviors. These approaches can be highly scripted and repetitive involving a series of repetitive trials employing the same antecedent, behavior and consequences” (Kearney, 2007, p.88).

**Extinction**

Extinction “reduces behavior by withholding or terminating the positive reinforcer that maintains an inappropriate target behavior” (Alberto & Troutman, 2012, p.269).

**Fixed-Interval Schedule**

A fixed interval schedule is where “the student is reinforced the first time he or she performs the target response following the elapse of a specific number of minutes or seconds” (Alberto & Troutman, 2012, p.245).

**Fixed-Ratio Schedule**

“Under a fixed-ratio schedule, the student is reinforced on completion of a specified number of correct responses” (Alberto & Troutman, 2012, p.244).

**Frequency Data**

Frequency data is “recording the number of times something occurs” (Leach, 2010, p.75).

**Level of Independence Data**

Level of independence data is a “method used by creating a rating system that indicates how much support the student needs to meet the objective” (Leach, 2010, p.72).
Modeling

“The strategy entails first modeling or showing the student what you expect the student to do, then providing an opportunity for the student to imitate the model, with immediate support and feedback provided to the student” (Leach, 2010, p.59).

Negative Punishment

Negative punishment “entails removing or reducing positive reinforcers as a consequence of a response, to reduce the rate of that response” (Mayer, Sulzer-Azaroff & Wallace, 2012, p. 596).

Negative Reinforcement

“Negative reinforcement describes a relationship among events in which the rate of a behavior’s occurrence increases when some (usually aversive or unpleasant) environmental condition is removed or reduced in intensity” (Alberto & Troutman, 2012, p.12).

Percentage Data

Percentage data is the most common data method for monitoring and determining mastery on goals set. It is a data collection method using percentages (Leach, 2010).

Positive Punishment

Positive punishment is “the weakening (decrease in rate) of a response as a function of the individual receiving an aversive stimulus following that response”(Mayer, Sulzer-Azaroff & Wallace, 2012, p. 621).

Positive Reinforcement

Positive reinforcement is the continuous presentation of a stimulus, immediately following a response that increases the rate of that response happening again in the future.

**Schedule of Reinforcement**

“Schedules of reinforcement are patterns of timing for delivery of reinforcers” (Alberto & Troutman, 2012, p.243).

**Shaping**

Shaping “consists of teaching new behavioral properties by differentially reinforcing successive approximations toward the behavioral objective” (Mayer, Sulzer-Azaroff & Wallace, 2012, p. 246)

**Stimulus Control**

Stimulus control is when a behavior is clearly influenced so that it consistently occurs when its reinforcement is there but does not occur without the reinforcement (Kearney, 2007 p.33).

**Replacement Behavior**

Replacement behaviors are behaviors that “yield functions equivalent to that which the problem behavior(s) previously provided the client”(Mayer, Sulzer-Azaroff & Wallace, 2012, p. 196).
Chapter Two: Literature Review

Applied Behavioral Analysis (ABA) is one of the most common and effective programs for people with Autism Spectrum Disorder (ASD). So why do only a handful of schools and educators incorporate ABA into their classrooms? That is a good question especially since the rise of ASD is continuing to increase. Our educators need to be prepared and equipped with the right tools in order to help students with ASD succeed. This would mean training our educators in ABA. In order to do so, research has been done on which ABA strategies will be the most effective and can strive in the education setting. The information that will be provided in this literature review chapter will include documents presented by multiple researchers. Currently, there is a gap between the proven research done on the effectiveness ABA has when working with students with Autism and actually bringing ABA strategies into the classroom setting. This project addresses that issue and creates a bridge that connects these two parts and begins to fill in that gap. A majority of this research focuses on answering the guided research question of how can educators bring ABA into their classrooms. By creating a three-day professional development, there is an opportunity for educators to become trained in ABA and start including those strategies in their instruction. The first section of this chapter discusses the history and impact ABA has on Autism in order to develop some background information. The next section provides a rationale and supporting research as to why ABA should be included in the classroom setting. Finally, the last section incorporates the actual implementation of ABA in the classroom discussing what it would look like and providing steps on how educators can put it into place.

History and Impact of ABA on Autism

Applied Behavior Analysis is derived from experimental analysis of behavior (Cooper, 2001). It was not until 1968 when “behavior modification” was officially relabeled as applied behavior
analysis with the definition of ABA being “an evidence-based method of examining and changing what people (and other living creatures) say and do” (Mayer, Sulzer-Azaroff, & Wallace, 2012, p.4). According to Mayer and colleagues, (2012) this was also a time when there was a shift from experimental investigations to a study of behavior including examining the behavior-environment relationships. This eventually led to discovering the effectiveness ABA has on people with Autism, which put a spotlight on ABA, receiving a lot of attention from scientists and researchers. Over the past 47 years since ABA has become a popular topic, the definition has evolved into ABA being “an approach to changing socially useful behaviors that employs scientifically established principles of learning to bring about these changes” (Kearney, 2007, p.19).

According to Rosenwasser and Axelrod (2001), behavior analysis interventions began to be implemented with children with Autism in the 1960s. One study produced by Ivar Lovaas in 1987 has been seen to lead the way for this concept of applying ABA techniques when working with children with Autism.

First, it demonstrated the primacy of language training in the educational process. Next, it showed that intervention must begin early, be intense, and be of sufficient duration that normal functioning can be achieved. Finally, it showed that inclusion of children with autism was an achievable goal. (Rosenwasser & Axelrod, 2001, p. 673)

It is important to note that since ABA has been linked to being an effective strategy when working with children with Autism, it also has been linked to full inclusion within the educational setting. The studies implemented throughout the 1960s and 1970s, have provided teachers the capability to use analysis techniques in their classroom (Cooper, 2001). After all, as
Simpson (2001, pg. 69) states, “ABA is clearly a highly utilitarian and flexible method that can be applied in a variety of ways and settings with students with Autism…”

Today, ABA is seen as an effective tool for Autism and continues to receive a lot of attention from researchers, governmental organizations and also from the popular media (Rosenwasser & Axelrod, 2001). Some examples include Newsweek magazine that featured Autism on the front cover and talked about ABA as a “godsend” (2001). That same year, the New York Times published an article spotlighting the educational system for failing to meet the needs of students with Autism by not providing ABA services (2001). In just 47 years, ABA has evolved, and gained a lot of attention from governmental organizations and the media, all while integrating itself into the school setting through the trend of inclusion.

**Rationale For ABA Within The Classroom**

The need for Applied Behavior Analysis within the classroom is essential, especially when working with students with Autism. Loiacono and Allen (2008, p. 120) stated that, “ABA is recognized by many as a very effective instructional methodology in teaching children with Autism.” They also discuss the growing request from parents, that educators become trained and incorporate ABA within classroom instruction (2008). Building on those requests, according to Individuals with Disabilities Education Improvement Act (IDEIA), students with disabilities need to receive services that are free and appropriate. In order to comply with this federal law, students with disabilities must be in the least restrictive environment that they can succeed in, with the ultimate goal being the general education classroom. From this, there became a consensus throughout the field of special education that identifies ABA as the key strategy to provide instruction to children with Autism (2008).
Also in accordance to Loiacono and Allen (2008), Leach (2010) further states that, “although implementing ABA in general education classrooms appears to be a clear way to address federal mandates and implement best teaching practices for students with ASD, there is little support for teachers to learn how to do so effectively” (p.2). Mukherjee, Rupani, Dave, Subramanyam, Shah and Kamath (2014) conducted a research study to assess the effectiveness of an integrated intervention with students with ASD in the educational setting. They included in their study a comprehensive special education service including ABA instruction, Occupational therapy and Speech therapy. All services addressed Individualized Education Plan goals for each student. Progress was monitored with 18 students with ASD, ages ranging from 4-15 years old, and over a 3 year time period. They found that “there was statistically significant improvement in most domains under the ambit of special education based on ABA” (p.342). Students were assessed in different domains for special education based on ABA, including fine motor initiation, general knowledge, signs, clock reading, addition and subtraction, sitting compliance, eye contact, one-step command, expressive language skills, imitation, oral motor, social information, rote count, receptive language skills, recreation, writing, and behavior manifestation. The researchers noted an improvement that was “noticeable with every year of therapy as compared to baseline ad more importantly, showed a marked improvement after third year as compared to first year values” (p.342). This further enhanced the rationale for ABA instruction to be implemented within the classroom specifically is critical, which is why our educators need to be supported and trained.

According to Fantuzzo and Atkins (1992), not only are educators the most extensive adults in children lives, but also the school environment provides opportunities for tasks in all competencies. Grindle, Hastings, Saville, Hughes, Huxley, Kovshoff, Griffith, Walker-Jones,
Devonshire, and Remington (2012) results from their research study complimented Fantuzzo and Atkin’s push for ABA instruction in the school environment. Their research study specifically looked at the outcomes of ABA skills used in the school setting with students with ASD, in comparison to students with ASD receiving typical mainstreaming education. There were statistically significant group differences in both IQ and VABS scores and were in favor of the ABA class group. Currently, most ABA interventions are being conducted in home, clinical or segregated settings, which impedes the children’s ability to generalize the skills they learn into more natural settings (Leach, 2010). “Natural settings include everyday routines, activities, and places across home, school, and community contexts in which children participate regardless of whether or not they have a disability” (Leach, 2010, p.1). In schools, these types of settings include playgrounds, cafeterias, hallways and general education classrooms where students with Autism are confronted with frequent opportunities to use the ABA skills they have learned (2010). Grindle, Hastings, Saville, Hughes, Huxley, Kovshoff, Griffith, Walker-Jones, Devonshire, and Remington (2012) also results showed that

Clinically, there were significant advantages of locating the ABA class in a mainstream school setting. First, there were multiple, daily, opportunities to target inclusion with mainstream peers and teachers. Second, teachers in the mainstream school learned a great deal about autism and also about their particular learning needs and how these can be addressed using ABA methods. Increased awareness about autism was positive, but even more positive was the chance to communicate about ABA in a positive context rather than battling with educationalists’ common misconceptions about ABA (p.17-18).
In addition to multiple natural settings, another component to the school setting that enhances ABA instruction is the fact that students with Autism can interact with typically developing students. In 2001, the National Research Council recommended that,

Children with ASD should receive specialized instruction in settings in which ongoing interactions occur with typically developing peers, interventions should be individualized to meet their unique needs, they should actively engaged in systematically planned instruction for at least 25 hours per week, and ongoing progress monitoring should be conduct. (Leach, 2010, p.1-2)

Not only does ABA strategies require all of these recommendations but the school setting provides the opportunities to interact with typically developing peers; thus the need for ABA within the school setting.

**Implementing ABA Within The Classroom**

According to Autism Speaks, ASD is currently the fastest-growing developmental disorder in the U.S. Loiacono and Allen supported this statement stating the prevalence of ASD is increasing as much as 10% to 17% annually. Due to these astounding statistics, ABA needs to be implemented in our schools. Since there are many strategies for ABA and no child is the same, “best-practice services for children with Autism are multifaceted and include a wide range of ABA methodologies…” (Steege, Mace, Perry & Longenecker, 2007, p. 94). According to the National Autism Center’s Parent Guide to Evidence-based Practice and Autism, of the 11 most effective treatments for ASD, 9 of them are ABA based. Included in these treatments are the ABA strategies discrete trail training, chaining, shaping and modeling.
Discrete Trail Training, according to Leach (2010) is when skills are broken down into smaller tasks and uses a “structured behavioral teaching approach to ensure mastery of each skill” (p.19). This type of format includes the Antecedent-Behavior-Consequence teaching style, followed with prompts or cues that can be verbal, gestural or physical, to assist the student when the skill is being taught (Leach, 2010). The trials of DTT are then recorded and are often consistently repeated until mastery of the skill has been determined. Eikeseth, Smith & Signmund Eldevik (2002) conducted a research study to look at the effectiveness of an intensive behavioral treatment within the school setting, for 4-7 year old children with ASD. They wanted to see the comparison between and intensive behavioral intervention and an eclectic intervention. They state their purpose of this research study by the fact that “many children with autism do not have an opportunity to start intensive behavioral treatment prior to age 4” (2002, p.50). The participants of this study were assigned both a special education teacher and one or more aides to provide treatment. Treatment for the intensive group included one-to-one discrete trial format in the beginning and then a switch of focus to helping generalize the skills taught to the more natural setting with their peers and classroom routines. Results concluded that, “At a 1-year evaluation, 13 children who had received intensive behavioral treatment made significantly larger improvements than a comparison group of 12 children who had received intensive, eclectic intervention” (2002, p.63). Since this study was also implemented within the educational setting, these results also suggested that the intensive behavioral intervention, including DTT, could be successfully implemented in school settings for children with ASD.

Another study produced by Leaf et al. (2012) also provided evidence that supports the use of DTT within the educational setting but gave more insight on the instructional format of DTT if implemented. This study was conducted to evaluate the comparison of DTT
implementation in a one-to-one instructional format and in a group instructional format of 3 students. The effectiveness, maintenance, observational learning and efficiency were the key elements compared between the two formats. Results indicated that both formats were effective and maintained the skills taught to the students.

An analysis of observational learning indicated that students were partially able to learn targets that were not directly taught to them during group instruction as opposed to targets with which they had no contact. Finally, there were mixed results in terms of efficiency. Participants reached mastery criterion in fewer sessions and trials in the group instructional format; however, the amount of teaching time for participants to acquire targets was substantially longer in the group instructional format. This was due to the fact that in the group instruction condition, there was a total of 30 to 60 trials, across three participants per sessions, where in the one-to-one instructional condition, only 10 trials were implemented per session (2012, p. 103).

This study provided the evidence need to support DTT implementation in the educational setting by showing DTT can be conducted in both a one-to-one and group setting.

The last research study looked at the effect of improving teachers’ implementation of DTT on student stereotypy. Dib and Sturmey (2007) selected three children with ASD ranging from 9-12 years old, and three aides. The students worked on different tasks including writing, math, reading, matching, imitating words and body movements, and building with Lego or Lincoln Logs. The results indicated that the increasing accuracy of implementing DTT resulted in “minimizing students’ disruptive or maladaptive behavior [stereotypy] during instruction” (2007, p. 341). Gongola and Sweeney (2012) aligned with this study when they stated “Discrete Trial Training is an intervention that can be implemented in the classroom setting and has been
found to have strong benefits for students when the practice is delivered with consistency” (p.183). Gongola and Sweeny (2012) then went further into providing the first steps on how to implement DTT instruction as an educator. Overall, these researchers contributed to the conversation of inclusion of ABA within the educational setting by providing evidence of the effectiveness of DTT implementation in school settings.

Mayor, Sulzer-Azaroff and Wallace (2012) explains how to use the ABA strategy called shaping. Here, they describe shaping as consisting of “teaching new behavioral properties by differentially reinforcing successive approximations toward the behavioral objective (2012, p.246). The means that an individual is providing reinforcement for slight changes in ones behavior until they have mastered the desired behavior. Alberto and Troutman (2012) complemented this research with explaining what differential reinforcement looks likes when it comes to shaping. Differential reinforcement “is applied to responses that successively approximate (or become increasingly closer to) the target behavior” (2012, p. 323). Both Alberto and Troutman (2012), and Mayer, Sulzer-Azaroff and Wallace (2012) align together and go into detail on the types of differential reinforcement including Differential Reinforcement of Other Behavior (DRO), Differential Reinforcement of Alternative Behavior (DRA), Negative and positive reinforcement as well as negative and positive punishment.

Hupp and Reitman (2000) provided evidence supporting the fact that shaping is effective on children with ASD. Their study focused on an 8 year old boy diagnosed with pervasive development disorder (PDD is a disorder categorized under the ASD umbrella), who portrayed very poor eye contact during conversations. The treatment included a token system (reinforcement) and shaping procedure through intervals. Results showed an increase in “eye contact from 11% baseline to 82% during treatment and 97% follow-up” (2000, p.187). Athens,
Vollmer, and Pipkin (2007) complimented this study by conducting a research experiment looking at the effectiveness of shaping academic task engagement using percentile schedules in an educational setting. A percentile schedule was their method of quantifying the shaping procedure in the educational setting (2007, p. 475). Results indicated an increase in task engagement and determined that “shaping is a powerful method available to practitioners who attempt to promote changes in currently behavioral repertoires” (2007, p.487) and concluded that percentile schedules were beneficial for standardizing shaping procedures. Lastly, a study produced by Knox, Rue, Wildenger, Lamb, and Luiselli (2012) looked at food selectivity of a female student with ASD who exhibited chronic food selectivity and behaviors during mealtime. They took data on the educator implementing prompting, reinforcement, and demand fading (the procedure of shaping). Results concluded that “of significance, at follow-up she consumed 100% of her meals and exhibited no problem behaviors” (2012, p.413).

Next, Alberto and Troutman (2012) paints a detailed picture of what modeling looks like through multiple dialogues and examples of common phrases that can be used during this strategy. Modeling is really all about imitation which “the majority of students, including those who have mild disabilities, easily imitate the behavior of a model” (Alberto & Troutman, 2012, p.303). Leach (2010) adds information on another type of modeling called video modeling. This form of modeling has a student watch a video of the desired behavior and then practice imitating it until it becomes mastered. Cardon and Wilcox (2010), and Charlop, Dennis, Carpenter, and Greenberg (2010) all conducted research studies looking at video modeling and teaching children with ASD desired behaviors. Cardon and Wilcox (2010) looked at a comparison of video modeling verse reciprocal imitation training concluding the effectiveness of both methods, but noticed a rapid increase when using video modeling. However, Cardon and Wilcox only
implemented the study using young children with ASD, Charlop et al. (2010) focused on the effect of video modeling on students with ASD with ages ranging from 7-11 years old. They evaluated the students based upon four appropriate responses including verbal comment, intonation, gesture, and facial expression. Results “successfully promoted socially expressive behaviors in three children with Autism. All of the children in this study reached criterion for acquisition (7 out of 9 opportunities, or approximately 80% for two consecutive sessions) for all four target responses” (2010, p.387).

Chaining is another strategy that according to Alberto and Troutman (2012), is formed by the “components of a task analysis” (p.317) and learning how to perform those components in a behavioral sequence. Following that, reinforcement is provided of each individual response that occurs in the correct sequence; this is referred to as chaining (2012). Mayer, Sulzer-Azaroff and Wallace (2012) additionally goes into chaining by looking at the length, complexity, difficulty, reinforcers, discriminative features, and interrelations among chain links. Further, Tarbox, Madrid, Aguilar, Jacobo, and Schiff (2009) proved the effectiveness of the use of chaining in order to increase the complexity of echoics in children with ASD. Echoics are commonly referred to as vocal imitation and is a common characteristic among people with ASD. “Relatively rapid treatment effects were observed, maintenance was observed in most cases, and all procedures were implemented as a part of the participants’ regular clinical services” (2009, p.905). Slocum and Tiger (2011) complimented this study and further added to it by providing evidence of the efficiency and preference of forward or backward chaining. “Forward chaining involves teaching the initial step in a task analysis to mastery and then sequentially teaching additional steps...Backward chaining involves teaching the final step of the task analysis initially
and progressively teaching early components” (2009, p.793). In the end the children with ASD did not have a preference for either one and both proved to be equally effective and efficient.

Finally, these strategies are proven to be effective, but only when implemented by persons who are educationally trained in them. In order for the strategies to reach their full potential, all personnel instructing students with Autism need to be informed and trained which includes both special and general educators. According to Loiacono and Allen (2008), special educators should not be the only ones who receive training in ABA, but also general educators due to this push for inclusive classrooms. Even though special educators may serve as the leading role when planning ABA interventions, especially in a co-teaching and inclusive setting, they should be working collaboratively with the general education teacher to determine which interventions are appropriate for a specific student (Leach, 2010). Leach (2010) also reiterates the importance for taking the teaching style of the general educator and the context of the classroom into consideration when deciding which ABA strategies to use. The overall primary role of the special educator should be to “facilitate the team’s activities throughout the assessment, goal-setting, teaching procedures development, implementation and progress-monitoring phrases” (Leach, 2010, p.87). On the other hand, the general educator should be in charge of implementing the strategies, collecting data and also be actively engaged in the assessment and planning phrases (2010). Lastly, Leach (2010) states that in order for ABA to be successful in the education setting, special educators should be working collaboratively with the general education teacher to determine which interventions are appropriate in order for that specific student to succeed.
Summary of Chapter

There is a wide variety of research already produced regarding the topic of ABA. This research included key researchers like Rosenwasser & Axelrod (2001) and Mayer, Sulzer-Azaroff and Wallace (2012) whom all provide information on the history of ABA and its impact on people with Autism. According to Loiacono and Allen (2008), and Leach (2010) there are strong recommendations for ABA to be used within the school setting to benefit students with Autism and to fulfill state regulations. Grindle, Hastings, Saville, Hughes, Huxley, Kovshoff, Griffith, Walker-Jones, Devonshire, and Remington (2012) and Mukherjee, Rupani, Dave, Subramanyam, Shah and Kamath (2014) conducted research studies that further proved this point through their significant results. Furthermore, Mayer et al. (2012), Leach (2010), Gongola and Sweeny (2012) and Alberto and Troutman (2012) all aligned together to provide information on how ABA should be implemented within the classroom. Eikeseth, Smith & Signmund Eldevik (2002), Leaf et al. (2012), and Dib and Sturmey (2007) all provided evidence that supported DTT effectiveness in the educational setting through the results produced from their research studies. On the other hand, Hupp and Reitman (2000), Athens, Vollmer, and Pipkin (2007), and Knox, Rue, Wildenger, Lamb, and Luiselli (2012) conducted research studies that were in support of shaping procedures used with students with ASD and within the educational setting. Next, Cardon and Wilcox (2010), and Charlop, Dennis, Carpenter, and Greenberg (2010) specially looked at video modeling and teaching children with ASD desired behavior types of modeling and their results were in support of this ABA strategy. Lastly, Madrid, Aguilar, Jacobo, and Schiff (2009), and Slocum and Tiger (2011) discussed their results, which favored chaining as a beneficial and effective strategy to use when working with students with ASD. After thoroughly going through these studies and their findings, it is clear that there is a need for
additional resources on the implementation of ABA in the classroom that are easy to comprehend and engaging.
Chapter Three: Methodology

Applied Behavioral Analysis (ABA) has years of evidence for its effectiveness when used with people with Autism Spectrum Disorder (ASD). It is discussed through a variety of ASD agencies and nation organizations including Autism Speaks, National Autism Center, and Autism Society. ABA is currently in the spotlight and because of this, parents of children with ASD are starting to question why our educators are not trained and using ABA strategies. Law mandates the use of evidence-based strategies and the least restrictive environment (LRE) be applied for all students. ABA is evidence-based and can be the key to providing a successful LRE for students with ASD. This methodology section outlines the components and procedures that were taken to develop this project of a three-day professional development. First, the design section goes through the process of choosing how to represent the information gathered and the purpose of the different parts created in the project. For example, the purpose of the activities was to give educators practice with using the strategies they learned and for them to deepen their connection with the material. Next, the participants are clearly addressed along with the instruments used. Finally, a step-by-step procedure is given on exactly how the professional development was created.

Design

In the three-day professional development that was created, educators were trained in Applied Behavioral Analysis strategies that they could use within their classrooms, especially when working with students with Autism. The activities provided were created in a hopeful confidence to deepen the understanding of the strategies and the opportunity for the educators to practice using some of these strategies. For the purpose of this project, an important concept that needed to be addressed was in regard to the fact that all these strategies need to be individualized
for each specific student with Autism. This is due to the fact that all behaviors can serve different functions and one reinforcer or strategy might work for one student, but not for another. Educators were also encouraged to come up with their own ideas for incorporating the strategies into their lesson plans. This was to help the educators take the information provided in this training and customize it to fit their own students and teaching style after the training has been completed.

**Participants/Setting**

The project is intended for both general and special educators to become trained in Applied Behavioral Analysis strategies. Educators are intended to use these ABA strategies with students specifically with ASD across all age and grade levels. The setting of this project was designed to be for both a separate special education classroom and an inclusive general education classroom in public and private schools.

**Instruments**

Since this is a project, a three-day professional development for educators was created. This professional development is interactive and the information taught is easy to comprehend. The audience of this professional development includes both general and special educators. There are three sections to represent the three days of the professional development. Within those sections includes the PowerPoint slides, agendas, and activities presented on that day. An evaluation is given on the last day in order for the presenter to assess the information that was understood and any areas of improvement needed.
Procedures

The first step in this project was to go through existing research and determine and gather information and evidence to provide an answer to the guided research question. The answer was to create a three-day professional development that was relevant and relatable to all educators. This lead to the creation of agendas, PowerPoint slides, and activities that teach educators how to implement these ABA strategies within their classrooms through an existing, structured template that was provided. Each day was specifically designed to build off of the following day. The first day is dedicated to defining what Applied Behavioral Analysis is. It also includes defining behavior and looking at its components from an A-B-C perspective (antecedent, behavior, consequence). Participants were asked to practice taking A-B-C data on a given sheet, while watching a video of child exhibiting a behavior. Discussion questions were created to provide deeper insight and highlight the point that behaviors can be interpreted differently. The second day consists of going over the multiple differential reinforcements and also describing extinction and stimulus control. Participants are asked on this day to provide realistic examples of each type of reinforcement. They are also provided the opportunity to act out a skit of the different types of schedules of reinforcement discussed. On the final day, educators will watch clips and then partake in multiple activities for them to practice and learn the ABA strategies they can use in their classrooms. All information in the module is to be checked for understanding by the presenter and connected to the participants’ real life experiences within their classrooms.

Summary of Chapter

The methodology used in the project produced a three-day professional development that teaches educators about ABA and how they can use it in their classrooms. This project was determined and supported by articles and journals of research already produced from a wide
variety of sources. With strong evidence supporting the research question, a three-day professional development was created by a structured template, agenda, and PowerPoint presentation. The development goes through what ABA and behavior is and specific strategies educators can use in their classrooms in great detail. The goal of this research was to train educators to use ABA strategies within their classroom.
Chapter Four: Project

Supporting Students With Autism Spectrum Disorder:
Implementing Applied Behavior Analysis Strategies Within the Classroom Setting

A Master’s Project

By:

Aimee Beauchane
Professional Development

Supporting Students With Autism Spectrum Disorder: Implementing Applied Behavior Analysis Strategies Within the Classroom Setting

The purpose of this inservice training module is to enable individuals to facilitate one to two-hour training sessions appropriate for teachers, administrators, paraprofessionals, related services and human services personnel, parents, and/or community members who want/need to increase their effectiveness supporting students.

PART I: PREPARATION TO FACILITATE THE MODULES

Module Overview

This module is designed for general and special educators in order to equip them with Applied Behavioral Analysis (ABA) strategies that they can access and utilize in their classrooms, specifically when working with students with Autism Spectrum Disorder (ASD). Specifically, the module will:

- a) define behavior including the ABCs (antecedent, behavior, consequence) sequence and how to collect data
- b) introduce and explain the different types of reinforcement
- c) explain and model four ABA strategies and how they would look/sound like in the educational setting

Rationale for the Need for and Importance of the Module

This module provides both general and special educators with strategies that are evidence-based, and essential to providing successful opportunities for students with ASD. It has been known that each person with ASD is completely different. A common quote in the ASD community describes this as “If you have met one person with Autism, you have met one person with Autism”. Due to the uniqueness of ASD, students have their own strengths and weaknesses. ABA strategies are known for their flexibility to adjust and alter them and can be just as individualized as the students are.

Currently the likelihood of having a child with ASD continues to increase and is now 1 in 68. Due to this, an educator having one or several students with ASD in their classroom is extremely likely to occur. So why are our educators not being trained with the knowledge needed to best support these kinds of students? This module answers that question by providing educators knowledge, and practice with specific ABA strategies they can use in their classrooms.
In summary, by introducing educators to this module, both the educators themselves and students with ASD will benefit greatly. Educators will have the tools needed to support and provide successful learning opportunities for students with ASD. In return, those students are provided with the most thriving opportunities that are individualized just for them, which is something they rightfully deserve.

Module Objectives

By the end of this module participants will demonstrate:

1. a clear understanding of what behavior is by successfully being able to take ABC data
2. the ability to provide examples of different types of reinforcement and scenarios that are realistic and where reinforcement can be utilized
3. the ability to define ABA and be able to conduct all four strategies learned and practiced in this module

Needed Materials and Advanced Preparation

1. Computer, projector and screen
2. Copies of Agendas for each participant
3. Blank sheets of paper
4. Pencils and markers
5. Poster paper
6. Token boards
7. 3 pairs of sight word cards per partner group

PART II: ELEMENTS OF THE MODULE

Total Time: about 7 hours broken up into three 90-180 minute sessions

A. Anticipatory Set (Warm Up)  Time Limit/Range: 15 minutes

1. Ask participants to define ABA what it is, what it looks like ect. using words or pictures on their poster paper as a group. (5 minutes)
2. Have groups present what they have
3. Encourage participants to add in their experiences or thoughts regarding ABA strategies
4. Tell the participants the objectives of this module and

B. Body of the Lesson  Time Limit/Range: 90-180 minutes (3x)
Note: This module is designed to be delivered in three 90-180 minute sessions. Each section would be considered a new day. The Modules also may be given in one 6-8 hour session although this would be discouraged due to the complexity and quantity of the content.

Section 1: Applied Behavioral Analysis and Behavior  Time Limit/Range: 90-120 minutes

Lecturette 1.1

1. Pull up Day One PowerPoint slide up on the screen
2. Discuss the importance and rationale for the implementation of ABA in the educational setting when working with students with ASD (see above rationale). This establishes a purpose for the participants to want to engage and make the most out of the module. Encourage educators to share their experiences
3. Next, discuss the components of behavior. Ask participants what a behavior is. Observable and measurable. Give example scenario. “When you are driving and come up to a red light, you stop. What is the behavior?” The behavior is not the car stopping, it is the foot pushing down on the break.
4. Ask each participant to provide an example of a behavior. Model responses: kicking, hitting, and crying. Ask each participant to provide an example of a description of behavior that contains assumption or judgment. Model responses: frustrated, throwing a temper tantrum. Note: emphasize the importance of leaving assumptions and judgments out of data collection. Be as factual as you can.
5. Next, discuss what the function of the behavior could be. Ask for thoughts and ideas from participants. Then, briefly touch on replacement behavior. Provide definition and mention this will be touched upon more the follow day.
6. Then, describe the ABCs of behavior and pull up an example of data collection sheet on the ABCs. Note: typically when conducting and ABC data collection, observer already has predicted behaviors that they are specifically looking for.

Model 1.1

1. Model what it looks like to fill in a ABC data collection on the projector
2. Videos throughout PowerPoint slides provided visual representation and model for participants

Application 1.1

1. Pass out the data collection sheet to every participant
2. Show video of Joseph having different behaviors. Ask participants to fill in what they see as the antecedent, behavior and consequence on their data sheet. Note: Data sheets provided are not the ones that are used in video. The ones provided are blank on purpose so that each participant can fill in their own thoughts, to emphasize the point that behaviors can be interpreted differently.

Discussion Questions with Model Responses 1.1

1. After each video clip of Joseph, have a discussion as a group about what people wrote down for each section

**Scenario 1 (Stop at 1:00):**
Discussion Question: What did you have written down for the antecedent of this behavior?
Model Response: Demand Situation, Teacher talking to the class
Discussion Question: What was the observable and measurable behavior observed?
Model Response: Speaking out of turn
Discussion Question: What occurred after the behavior? What was the consequence?
Model Response: Verbal redirection, social attention

**Scenario 2 (Stop at 1:55):**
Discussion Question: What did you have written down for the antecedent of this behavior?
Model Response: demand situation
Discussion Question: What was the observable and measurable behavior observed?
Model Response: out of seat
Discussion Question: What occurred after the behavior? What was the consequence?
Model Response: Verbal redirection, social attention, physically guided to comply, task was removed

**Scenario 3 (Stop at 2:52):**
Discussion Question: What did you have written down for the antecedent of this behavior?
Model Response: Demand situation
Discussion Question: What was the observable and measurable behavior observed?
Model Response: Speaking out of turn
Discussion Question: What occurred after the behavior? What was the consequence?
Model Response: Verbal redirection, social attention

Note: If presenter feels like the participants do not understand or are confused and need more practice, continue video for further clips. Do same steps as above.

**Closing 1.1**

1. Ask participants to share one thing they learned today and found interesting.
2. Go over what they should expect for the following day. They will be learning about different types of reinforcement.
Section 2: Reinforcement

Lecturette 2.1

1. Pull up Day Two PowerPoint slides. Ask participants what are some things that motivate or reinforce them to do something. (Connecting to their own experiences)
2. Ask participants what they think differential reinforcement is. Hear out answers and then play video attached to PowerPoint slide and provide an explanation and examples of differential reinforcement. (all examples see below under Model 2.1)
3. Discuss differential reinforcement of other behavior (DRO). Provide examples. Answer questions.
4. Discuss differential reinforcement of alternative behavior (DRA). Provide examples. Answer questions. Check for understanding by asking participants to highlight the difference between DRO and DRA.
5. Discuss negative and positive reinforcement. Provide examples and show video attached to PowerPoint slide. Answer questions. Check for understanding by having participants provide own example of negative and positive reinforcement. Could be something that works for them or something they use in their classrooms with their students.
6. Discuss negative and positive punishment. Provide examples. Answer questions. Check for understanding by having participants provide own example of negative and positive punishment. Could be something that works for them or something they use in their classrooms with their students.
7. Bring up replacement behavior again from previous day. Transition that into a discussion of the Extinction of behavior. Show video attached to PowerPoint slides. Provide examples. Answer questions. Note: Behaviors typically get stronger and more intense before going down.
8. Discuss Stimulus Control what it is and what it looks like with scenario examples. Check for understanding by having participants come up with their own examples of a stimulus control.
9. Discuss the Schedule of Reinforcement. Provide examples of each three sections. Then have participants get into groups and come up with a skit to show whatever schedule of reinforcement they were assigned.

Model 2.1

1. Videos throughout PowerPoint slides provided visual representation and model for participants.
2. Throughout the discussion and different slides. Presenter will be providing examples of each reinforcement and term discussed. Note: All examples should be related to the educational setting.

**DR (stop 1:56):** Providing a table points because they are working well during an activity. However, you do not provide them points every time they do an activity, only when they are doing it well.

**DRO:** Giving a student tokens for doing anything other than leaving his seat.
**DRA (2:18- 4:15):** Giving praise to a student for raising their hand and ignoring when they call out

**NR:** Teacher told the class they were having a math test. One student started screaming. The teacher then asked the student to go to the principal’s office. (student got out of taking a test, will continue to scream to get out of things).

**PR:** Praising a student for participating in class. Student further continued participating.

**NP:** Student was chatting with his classmates and did not finish his work. Teacher took away five minutes of his recess time to finish his work

**PP:** Student was being disruptive in class and talking out. Teacher added on homework due to her disruptiveness. Student no longer was disruptive because they did not want extra homework.

**E:** A student says silly comments for teacher attention. Teacher ignores it and the behavior stopped.

**SC:** A student that has a schedule will complete everything it lists. Without the schedule, does not produce anything.

**SoR:**
Continuous: every time a student participates, they get a token.
Fixed Ratio: after every time a student finish reading a chapter, they get a break.
Fixed Interval: an hour and half after recess students are rewarded by being allowed to leave for lunch

**Application 2.1**

1. All participants are asked to provide their own examples of each type of reinforcement and term discussed. Note: encourage all to participate and connect to their own experiences or things they used in their own classrooms.
2. Then for schedule of reinforcement. Presenter will ask participants to get into groups of 3-4 and assign each a specific type of schedule of reinforcement. Then, presenter will have participants get into groups and come up with a skit to show whatever schedule of reinforcement they were assigned.

**Closing 2.1**

1. Ask participants to write down one thing they learned today and found interesting.
2. Go over what they should expect for the following day. That we will be learning four ABA strategies, discrete trial training (DTT), shaping, chaining, and modeling. They will have a chance to watch videos and then practice each strategy with a partner.

**Section 3: ABA Strategies and Implementation**  
**Time Limit/Range: 120-180 minutes**
Lecturette 3.1

1. Discuss DTT as evidence-based strategy. Describe what it is and show video attached on PowerPoint for a model (4:53-7:50)
2. Afterward, have participants get into pairs and pass out sight word cards needed for them to practice this strategy. Give them 5-8 minutes to practice using this strategy. One partner pretends to be the student while the other is the educator. Then switch. Presenter should be walking around making sure they are implementing it correctly (clearing the field) and answering any questions they may have or provide assistance and scaffolding for deeper understanding.
3. Ask participants to discuss with their partner, how you can utilize and integrate this strategy into your classroom
4. Discuss Shaping as evidence-based strategy. Describe what it is and show video attached on PowerPoint for a model.
5. Afterward, have participants get into new pairs and pass out materials (paper) needed for them to practice this strategy. Give them 5-8 minutes to practice using this technique by creating a brief plan to shape a specific behavior they see in the classroom. Presenter should be walking around and answering any questions they may have or provide assistance and scaffolding for deeper understanding.
6. Ask participants to discuss with their partner, how you can utilize and integrate this strategy into your classroom
7. Discuss Chaining as evidence-based strategy. Describe what it is including forward and backward chaining and show video attached on PowerPoint for a model.
8. Afterward, have participants get into new pairs and pass out materials (paper) needed for them to practice this strategy. Give them 5-8 minutes to practice this strategy by breaking down a simple task into steps and writing it out. Presenter should be walking around and answering any questions they may have or provide assistance and scaffolding for deeper understanding.
9. Have several groups share out the task they broke down and how they would teach it (forward or backward)
10. Ask participants to discuss with their partner, how you can utilize and integrate this strategy into your classroom
11. Discuss modeling as evidence-based strategy. Describe what it is including when speaking, talking in 1st person and limiting words used. Show video attached on PowerPoint for a model.
12. Afterward, have new pairs them 5-8 minutes to make a 1-minute video on their phones of them modeling an activity or procedure. Have them send it to presenters email when they are done.
13. Share the videos as a group. Ask participants to discuss with their partner, how you can utilize and integrate this strategy into your classroom

Model 3.1

1. Videos throughout PowerPoint slides provided visual representation and model for participants
Application 3.1

1. After each strategy, participants get the opportunity to practice implementing it with their peers. See above for specific details.
2. At the very end, had participants to discuss with their partner, how you can utilize and integrate this strategy into your classroom.

C. Closure

Time Limit/Range: 15 minutes

Note: Check for understandings are consistent throughout entire module. Asking participants to provide own examples or participate in implementation of the information learned all fulfill this check for understanding.

Ask participants to answer the following questions:

1. What is behavior? Describe what they ABCs are.
2. What is differential reinforcement? Name three types of reinforcement. Provides examples of each.
3. Briefly define and describe DTT, Shaping, Chaining, and Modeling. Provide examples of how each can be used in your classroom.
4. State your opinion of the module. What were two things you liked and/or found helpful? What is one thing you would like to see done differently?

PART III: APPLICATIONS, PRACTICE, & FOLLOW-UP FOLLOWING THE MODULE

Application III

1. Assign participants research for different ABC data collection sheets they could use.
2. Have participants choose one strategy to use with a student with ASD and then write a reflection of how they think it went and if it was effective.
3. Reconvene and compare participant’s experiences using these strategies within their classroom.

Practice Activities III

1. Within their classroom, practice taking ABC data.
2. Within their classroom, practice using these strategies especially if they have students with ASD in their classrooms
3. Within their fellow educators, practice including ABA strategies within your lesson planning
4. For more practice, continue conducting strategies on other educators

**Follow-up Experiences III**

1. Visit an ABA classroom for observation
2. Attend similar training modules
3. Interview or listen to a presentation by an ABA Specialist or Behavior Consultant

**PART IV: EVALUATION, RESOURCES, AND REFERENCES**

Note: An evaluation may take the form of a pre/post-test on the module content, as assessment of what the participants learned and will use, and so forth. A component of the assessment must also be devoted to the quality of the delivery of the instruction (e.g., exemplary features of instruction, how instruction/materials could be improved.).

**Evaluation**

The closing of section 3 asks participants to answer three questions. The presenter will collect and evaluate their responses in order to assess what they learned and what needs to be altered or extended upon. One of their questions also asks for their opinion of the entire module. They were asked to provide two things they liked and one thing they would like to be done differently.

**Resources**

For further research, participants are encouraged to utilize the following resources:


**References**


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<td>The</td>
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<td>Why</td>
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<tr>
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Day 1 Agenda

What is Applied Behavioral Analysis?

What is Behavior?

1. Applied Behavioral Analysis and video
2. Why should ABA be used within the education setting
3. Defining Behavior
4. ABCs of Behavior
5. Antecedent
6. Consequence
7. Data Collection

Notes

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Day 2 Agenda

What is Reinforcement?

1. Differential Reinforcement and video
2. Differential Reinforcement of Other Behavior (DRO)
3. Differential Reinforcement of Alternative Behavior (DRA)
4. Positive and Negative Reinforcement and video
5. Positive and Negative Punishment
6. Extinction and video
7. Stimulus Control
8. Schedule of Reinforcement

Notes

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Day 3 Agenda

What does Applied Behavioral Analysis Look Like in the Classroom?

1. Discrete Trial Training video and practice
2. Shaping video and practice
3. Chaining video and practice
4. Modeling video and practice

Notes

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________
Day One

What is Applied Behavioral Analysis?
What is Behavior?

Applied Behavioral Analysis

“ABA is evidence-based method of examining and changing what people (and other living creatures) say and do”

(Mayer, Sulzer-Azaroff & Wallace, 2012, p. 4)

http://www.autismtrainingsolutions.com/resources/videos/what-aba

Why should it be used in the classroom?

A common quote in the ASD community describes this as “If you have met one person with Autism, you have met one person with Autism”

ABA provides:
1. Flexibility
2. Individualization
3. Rapid Mastery of Skills

Currently the likelihood of having a child with ASD continues to increase and is now 1 in 68. Due to this, an educator having one or several students with ASD in their classroom is extremely likely to occur.
Behavior

“behavior is any external or internal observable and measurable act of an organism”
(Mearns, 2007, p. 35)

Function of Behavior
1. Attention Seeking
2. Escape/ Avoidance
3. Sensory

Replacement Behavior are behaviors that "yield functionally equivalent to that which the problem behavior(s) previously provided the client" (Mayer, Sulzer-Azaroff & Wallace, 2012, p. 196)

A-B-Cs of Behavior

Antecedent → Behavior → Consequence

Antecedent is what happens or are already happened before the target behavior occurs that triggers the behavior (Kearney, 2007, p. 31)

Examples: fire drill alarm, transition, flickering lights, nonpreferred subject
**Consequence**

what happens after a behavior occurs and in this case, the targeted or unwanted behavior (Kearney, 2007, p.36)

Examples: Teacher yells at student, student is asked to leave the room

**Data Collection**


**Data Collection Example #1**

<table>
<thead>
<tr>
<th>Time</th>
<th>Setting &amp; Stimuli</th>
<th>Antecedent (verbal, physical, etc.)</th>
<th>Behavior (Describe behavior in detail)</th>
<th>Consequence (What were the results?)</th>
<th>Comments</th>
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### Data Collection Example #2

**ABC Observation Form**

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<td>Activity:</td>
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### Data Collection Example #3

**Behavioral Observation Form**

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**Behavioral Observation Form**

<table>
<thead>
<tr>
<th>Behavior 1</th>
<th>Behavior 2</th>
<th>Behavior 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

### Day Two

**What is Reinforcement?**
**Differential Reinforcement**

“Refers to reinforcing a behavior in some situations, but not in other situations” (Kearney, 2009, p.83)

http://www.autismtrainingsolutions.com/resources/videos/differential-reinforcement

**Differential Reinforcement of Other Behavior (DRO)**

“DRO is an application of interval reinforcement schedule...In DRO any other behavior except of the target behavior is reinforced” (Kearney, 2007, p.84)

**Differential Reinforcement of Alternative Behavior (DRA)**

“With this procedure, an inappropriate or challenging behavior is replaced by a behavior considered (by student, parent, teacher) as more appropriate, positive, or standard. DRA refers to reinforcing an alternative behavior, the performance of which decreases the likelihood that the inappropriate behavior will be performed” (Alberto & Troutman, 2012, p.265)
Positive Reinforcement

is the continuous presentation of a
stimulus, immediately following a
response that increases the rate of
that response happening again in the
future
(Alberto & Troutman, 2012, p.213)

http://
www.autismtrainingsolutions.com/
resources/videos/positive-and-
negative-reinforcement-aba-training-
video

Negative Reinforcement

“Negative reinforcement describes a
relationship among events in which the
rate of a behavior’s occurrence
increases when some (usually aversive or
unpleasant) environmental condition is
removed or reduced in intensity”
(Alberto & Troutman, 2012, p.12)

Positive Punishment

“the weakening (decrease in rate) of a
response as a function of the individual
receiving an aversive stimulus following that
response”
621)
Negative Punishment

“entails removing or reducing positive reinforcers as a consequence of a response, to reduce the rate of that response” (Mayer, Sulzer-Azaroff & Wallace, 2012, p. 596)

Extinction

“reduces behavior by withholding or terminating the positive reinforcer that maintains an inappropriate target behavior” (Alberto & Troutman, 2012, p. 269)

Note: Behaviors typically get stronger and more intense before going down


Stimulus Control

when a behavior is clearly influenced so that it consistently occurs when its reinforcement is there but does not occur without the reinforcement (Kearney, 2007 p.33)
### Schedule of Reinforcement

<table>
<thead>
<tr>
<th>Continuous</th>
<th>Fixed Ratio</th>
<th>Fixed Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;delivery of reinforcement on a continuous basis&quot; (Alberto &amp; Troutman, 2012, p.243)</td>
<td>&quot;Under a fixed-ratio schedule, the student is reinforced on completion of a specified number of correct responses&quot; (Alberto &amp; Troutman, 2012, p.294)</td>
<td>&quot;the student is reinforced the first time he or she performs the target response following the elapsed of a specific number of minutes or seconds&quot; (Alberto &amp; Troutman, 2012, p.295)</td>
</tr>
</tbody>
</table>

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**Day Three**

What does Applied Behavioral Analysis Look Like in the Classroom?

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**Discrete Trial Training (DTT)**

"refers to certain structured intense teaching strategies that are sometimes used to teach very specific behaviors. These approaches can be highly scripted and repetitive involving a serious of repetitive trials employing the same antecedent, behavior and consequences" (Kearney, 2007, p.88)
Discrete Trial Training (DTT) Video

https://www.youtube.com/watch?v=JPFerTUYNkY

4:53-7:50

Your Turn!

Shaping

“consists of teaching new behavioral properties by differentially reinforcing successive approximations toward the behavioral objective”
(Mayer, Sulzer-Azaroff & Wallace, 2012, p. 246)
Shaping Video

http://www.autismtrainingsolutions.com/resources/videos/shaping

Your Turn!

Chaining

“Chaining involves taking two or more relatively simple behaviors and combining them like links into a more complex chain of behaviors”
(Kearney, 2007, p.37)

1. Forward Chaining
2. Backward Chaining
Chaining Video


Your Turn!

Modeling

The strategy entails first modeling or showing the student what you expect the student to do, then providing an opportunity for the student to imitate the model, with immediate support and feedback provided to the student” (Leach, 2010, p.59)

Video Modeling: recording a desired activity and playing it for students to learn what it looks/ sounds like to appropriate participate in that specific activity
Modeling Video


Your Turn!

Thank you for coming!
If you have any further questions please feel free to email me at abeauchane@cox.net
References:


References:


Chapter Five: Project Recommendations

Individualism is a key concept in our education system as is differentiation. All students have the right to receive an education that is customized and supports their learning. This should not exclude students with Autism Spectrum Disorder (ASD). In fact it is part of the law that all students, especially those with disabilities receive a free and appropriate education. Applied Behavioral Analysis (ABA) provides the strategies educators need in order to customize and support students with ASD learning. ABA is as individualized as the students are. This project addresses the question of what ABA strategies are beneficial and can be implemented within the educational setting. It provides educators with a three-day development that hits upon the most essential components needed in order to understand and implement the ABA strategies in their own classrooms. This project not only helps comply educators with the law but also equips them with the right tools to provide successful learning opportunities for students with ASD. As with all projects, this one includes some limitations and lessons that were learned throughout the entire creation process. Future research and recommendations for people who want to implement this project are also discussed and provided. One thing I have learned as an educator is what it means to be a life-long learner. This means that you are always looking for ways to grow, new information to learn and feedback on everything you do. You will never reach perfection but will feel growth. There will always be changes to make including with this project. ABA can be individualized to meet the needs of the students and so should this project as discussed below.

Lessons Learned

The most important lesson learned through this process of creating a three-day development was the need to keep an open mind with the strategies because there is so much that
can be done through them! In my mind, one of the best parts of the module is when it asks the participants to think about how they could incorporate each strategy in their lessons. I would predict that there would be a lot of interesting ideas that the presenter would not have even thought to think about!

The second lesson learned was how much educators have push back on implementing ABA within their classrooms. A lot of articles touch upon this stereotype and the attitudes of educators when in reality they are already conducting some of these strategies without even knowing the name! I do understand however, the time it takes to prepare for some of these strategies. It would also be a change of thought process to include them within lessons but as an educator, it is our job to keep up with new strategies and to create a supportive learning environment for all of our students including those with disabilities.

The last lesson learned was realizing the entire complexity of ABA. There were so many components and strategies under ABA that it was difficult to narrow down to ones that made the most sense given the education setting. On top of all the strategies, educators needed to have the knowledge about behaviors and reinforcements. There are still so many more aspects just as learning about prompting, that educators should also be trained in. Again, there are so many components to gaining a comprehensive understanding of ABA that a three day training

**Educational Implications**

This project provides educators with the tools needed in order to begin implementing ABA strategies into their classrooms. The presenter of this project needs to be attuned and consistently providing checks for understanding. This topic is intense and complex. Participants can easily misunderstand concepts and so the presenter needs to pick up on whether or not they need to clarify! Lastly, constantly referring back to the needs of the students and connecting the
information to realistic education situations will further engage the participants and support building a deeper connection to the material.

ABA is a complex and is composed of many different types of components that link together. I would highly encourage taking each section of this project and breaking it further down into its own three-day development. There is a lot of ground to be covered here including the different types of prompts. These are all a part of ABA and are currently in high demand. More projects similar to this one in my opinion are highly encouraged to be created.

As an educator, best practice would doing everything they can in order to support all of their students. This would include keeping up with the latest strategies and having an open mind. I would recommend educators to continue practicing the strategies learned and to customize them in order to fit their teaching style and learning environment. That is the beauty of ABA, that it can be individualized to fit the needs of the students and educators.

**Project Implementation Plans**

The project I have created has been extremely thought out. I myself would love to run this three-day development when I have the opportunity to. I do encourage others to implement this training and the recommendations described below should be considered and utilized.

This project should be implemented within three days. It would be ideal if these days were back to back so the information would stay fresh from previous days. Each day should be carried out as planned however, if there are any misunderstandings or confusion, clarification needs to be provided. The time allotted is specifically in a range due to this reason in case topics need to be covered more in depth. Lastly, passion for this topic needs to be felt from the participants. If educators feel and see the benefits of ABA they are more incline to go back to their classrooms and actually use the information they are provided. This would mean providing
engagement through the activities created and constantly relating back to what they know so well, their own classrooms.

Limitations of Project

This project was designed to equip educators with the tools needed to best support students with ASD. The intention of the project is limited by the complexity of the subject and the time it would take for participants to become familiar and comfortable with the strategies. ABA has so many components to it as stated above and there just is not enough time to put it all into a single training. Educators have very little time already to attend trainings so producing a three-day training will already be difficult for them. Due to this, some components that are important to understanding ABA as a whole were excluded, hence where the limitation lies. Also, in order for the strategies to reach their full potential, educators need to have a solid understanding that cannot be learned in one day. Educators need time to be able to play around with the strategies and customize them to fit their own teaching styles. This is again hard to do with the limited free time educators have. Since this is the case, educators need to leave this development feeling the importance of applying their time and energy into using and preparing lessons to implement these strategies into their own classrooms. If I were to do this project again, I would narrow down the focus to just one of the sections (or days) and break that down even more. I would then create even more trainings to cover all the rest of the information needed if provided the support, time and resources needed to do so.

Project Suggestions

In order to further train educators on ABA strategies they can use in their classrooms to support students with ASD, further research needs to be implementing. This research should
focus on creating curriculums and unit plans that incorporate these strategies that can be given one-to-one, small group or even whole group instruction. For an educator to implement these strategies into their lessons, they need to have more examples to guide and show them how it is done correctly. Additionally, it is recommended that educators are provided time to do this research, prepare, and create these lesson plans that not only would help those students with ASD but would benefit all students learning as well.

Summary/Conclusion

The goal of this project was to provide educators with the knowledge of the different ABA strategies they can utilize in order to best support students with ASD. The project focused on supporting students with ASD due to the continued increase prevalence of ASD and educators having a student with ASD in their classrooms. Incorporating these strategies into lessons will be difficult but the need and benefit of these strategies out ways any difficulties that should arise. As an educator it is our job to advocate, support and provide the most successful learning opportunity to every one of our students. We are the most extensive adult figure typically in most children’s lives. If we are not the ones supporting these students, then who will? How will they be integrated into our society and communities, if they are not being integrated and supported in our classrooms? It is up to educators to set up and provide these current and future victorious opportunities for all children including children with ASD.
References


to the education of people with autism. Behavior Modification, 26(1), 3-8


