Effects of applied behavior analysis on teaching social skills to young children with autism

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Abstract
According to the U.S. Centers for Disease Control and Prevention, 1 in 166 children are born with autism (Falco, 2008). With this continual increase of children being diagnosed there is a lot of pressure put on schools to provide the quality programming for children with autism spectrum disorder (ASD). Children with ASD have delays with their language and communication skills, social skills and theory of mind, and also these children have challenges with sensory processing. Rogers (2000) wrote that social dysfunction is the single most defining characteristic of autism, and it is also one of the most important to overcome. As educators, we need to provide programming that specifically targets the social needs of students with ASD. Applied Behavior Analysis (ABA) has been a program that has brought success in teaching social skills as well as other necessary skills to children with ASD. ABA strategies should be used with students' ASD to teach new skills, however these teaching techniques can't be used only in a one-to-one setting. The ABA programs and strategies need to be utilized in the classroom and taught in an inclusive setting, this will maximize the benefits for the child with ASD.

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EFFECTS OF APPLIED BEHAVIOR ANALYSIS ON TEACHING SOCIAL SKILLS TO YOUNG CHILDREN WITH AUTISM

A Graduate Review
Submitted to the
Division of Instructional Technology
Department of Curriculum and Instruction
In Partial Fulfillment
Of the Requirements for the Degree
Master of Arts
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by
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has been approved as meeting the research requirement for the Degree of Master of Arts in Education.

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ABSTRACT

According to the U.S. Centers for Disease Control and Prevention, 1 in 166 children are born with autism (Falco, 2008). With this continual increase of children being diagnosed, there is a lot of pressure put on schools to provide the quality programming for children with autism spectrum disorder (ASD). Children with ASD have delays with their language and communication skills, social skills, and theory of mind, and also these children have challenges with sensory processing. Rogers (2000) wrote that social dysfunction is the single most defining characteristic of autism, and it is also one of the most important to overcome. As educators, we need to provide programming that specifically targets the social needs of students with ASD.

Applied Behavior Analysis (ABA) has been a program that has brought success in teaching social skills as well as other necessary skills to children with ASD. ABA strategies should be used with students’ ASD to teach new skills, however these teaching techniques can’t be used only in a one-to-one setting. The ABA programs and strategies need to be utilized in the classroom and taught in an inclusive setting, this will maximize the benefits for the child with ASD.
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CHAPTER 1

Introduction

Children with autism comprise a significant number of children who are served in Early Childhood Educational Programs. In past years, children were rarely diagnosed as having autism, but today it is a prevalent diagnosis. Autism is a broad term for a neurological disorder that causes developmental difficulties in the areas of language/communication, social interactions, and repetitive behavior engagement (Falco, 2008).

The essential features of Autistic Disorder are the presence of markedly abnormal or impaired development in social interaction and communication and a markedly restricted repertoire of activity and interests (American Psychiatric Association, 2000, p. 70). To meet diagnostic criteria, there must be impairments in each of the three areas: social interaction, communication, and restricted repetitive and stereotyped patterns of behavior, interests, and activities.

The number of children being diagnosed with autism is astounding, as the numbers keep increasing. According to the U.S. Centers for Disease Control and Prevention, 1 in 166 children are born with autism (Falco, 2008). A recent concern is the large increase in autism. Experts are still debating whether the rising numbers indicate an actual increase in the occurrence of autism, or if the increase is due to an improvement in awareness and diagnosis of autism (Glazer, 2003).

It is difficult to provide a clear definition of autism because it is part of a group of disorders known as Autism Spectrum Disorders (ASD), which is the term that will be
used throughout this paper. Symptoms of ASD can vary from extremely mild to very severe (Autism Speaks, 2009); therefore, this disorder can look very different from one person to the next. Indeed, ASD truly entails a wide-range of abilities and characteristics. Figure 1 shows the five disorders that fall under the ASD umbrella.

![Autism Spectrum Disorders flowchart](Yack, Aquilla, & Sutton, 2002)

**Rationale**

An increasing number of children are being diagnosed with ASD each year, which in turn requires more educational interventions and services. Since there is no cure for autism, the key to shaping behaviors is early intervention. There are many different types of therapies, diets, and treatments for children with ASD, but the most frequently used therapy for this population is Applied Behavior Analysis (ABA). Cooper, Heron, and Heward (2007) said, “ABA is the science in which tactics derived from the principles of behavior are applied systematically to improve socially significant behavior, and experimentation is used to identify the variable responsible for behavior change” (p. 20). Unfortunately, in most cases, a diagnosis is required for children to receive intense
services such as ABA, which may have contributed to the influx in the number of children diagnosed with ASD. Moreover, ABA programs have been effective for decades in the remediation of learning for young children with pervasive development disorders (PDD) and language deficits (Greenberg & Martinez, 2008). ABA has many different components, and it is designed to target certain behaviors. As a result, early educators need to learn more about different components of ABA and work on individualizing programs to meet the needs of each student.

Children with ASD typically demonstrate delayed communication and inappropriate social skills. They lack the ability to effectively relate to other people and develop friendships. These children may have oral language; however rarely do they use language for social purposes, such as gaining attention, making comments, asking questions, or sharing information (Chin & Bernard-Opitz, 2000). As we know, in order to be successful at school, home, in the work place, and life in general, it is essential to be able to socialize and communicate effectively with others. Rogers (2000) wrote that social dysfunction is the single most defining characteristic of autism, and it is also one of the most important to overcome. As educators, we need to provide programming that specifically targets the social needs of students with ASD.

The early years are critical for learning social skills, as well as developing an understanding of positive relationships and interactions with others. Children with ASD struggle to learn social skills that come naturally to most typically developing children and they need to be taught these skills in a different way. ASD looks different in each child, but there are also many characteristics that are similar and tend to be present in many cases. For example, many children have repetitive behaviors, such as stereotypical
movements (e.g. flapping hands, rocking, jumping). They also can have compulsive behaviors, (e.g. the need to follow rules, order, lining up objects) and may have a need for sameness (e.g. unlikely to try new things, reluctant to change). As a result of these behaviors, it may be challenging for children with ASD to build relationships with others. This reason leads to the importance of this study. Is ABA an effective program to teach young children with ASD social skills?

Purpose of the Review

The purpose of this review is to learn and document what research says about effective programs used to teach social skills for students with ASD. The rising number of children diagnosed with ASD is affecting schools all over the nation. This situation requires that teachers are educated and equipped to teach children with ASD. Regardless of whether a teacher is a veteran or a novice teacher, training is needed to learn about current programs that research has indicated to be successful for children with ASD. The most prevalent trend in education is supporting full inclusion, which places more students with special needs in general education classrooms. Thus, this trend requires general education teachers to receive support and training in new areas. There is also a need to find the right types of treatments for children with ASD that can be integrated into the classroom. Loiacono and Allen (2008) stated that there is consensus throughout the field of special education identifying ABA as one of the best research-based methodologies to be used in providing instruction to children with autism in inclusive environments. Because autism and inclusion are here to stay, all educators must learn about ASD and what programs are available, as well as learn which ones have a successful record in teaching and improving behaviors.
Importance of Review

There are three important reasons for this study: 1) to find appropriate programming for children with ASD that teaches social skills, 2) to learn about how to implement these programs into the classroom, and 3) to provide a better understanding of ASD and the programs that are effective in teaching children with ASD. This study will provide information that will help teachers and parents make confident educational decisions for children with ASD, which will promote a positive educational experience for everyone.

Researchers (Koegel, L., Koegel, R., Hurley, & Frea, 1992, Ozonoff & Miller, 1995, Pierce & Schreibman, 1997) have been working on finding ways to improve social skills for children with autism. They tend to focus on the need for treatment by targeting key social and communication areas. The areas include the following: teaching initiation, staying on topic, responding to simple questions, generalizing information, and applying what has been learned in new settings. While researchers have various opinions on the way to promote peer initiation and interaction, as well as how the skills should be taught, they do agree the skills listed above are problem areas for children with ASD.

There is a lack of education at the undergraduate and graduate level on how to teach children with ASD. In fact, it has been reported that most graduates in teacher education programs have received minimal or no training in research based practices for students diagnosed with autism (Loiacono & Allen, 2008). Teachers need appropriate education and training to understand ASD, so that they can teach to the students’ unique learning styles.
Also, it is important to keep up with the ever-changing world we live in. Our children are changing, education is changing, and this means teachers need to change as well. For example, children are exposed to an extreme amount of new technologies and are living in a fast-paced world. In turn, this means that teachers need to create and plan activities that will continue to stimulate learners. Furthermore, the learning styles and diversity in classrooms continue to grow. The only way to prepare for these changes is to stay educated about current findings in the field of education, and to learn the best ways to accommodate the learning needs for diverse learners. This review will allow teachers to learn about evidenced-based research on interventions that have been successful for children with ASD. To provide the best educational experience for everyone, teachers need to be educated and competent to teach children with ASD, as these children must have an appropriate education that is designed to meet their needs. Families also need to be a part of the educational process to ensure that growth and success happens in all settings.

Terminology

1. Autism is a bio-neurological developmental disability that impairs the brain in areas of social interaction, communication skills, and cognitive functions. These individuals show delays and have difficulties with verbal and non-verbal skills, social interactions, and play skills (National Autism Association, 2008).

2. Autism Spectrum Disorder (ASD) covers the umbrella of disabilities associated with autism, which includes autistic disorder, Rett’s disorder, Asperger’s Disorder, Childhood Disintegrate Disorder, and PDD/NOS Pervasive Developmental Disorder/Not Otherwise Specified (Yack, Aquilla, & Sutton, 2002).
3. "Applied Behavior Analysis (ABA) is the science in which procedures derived from the principles of behavior are systematically applied to improve socially significant behavior to a meaningful degree to demonstrate experimentally that the procedures employed were responsible for the improvement in behavior." (Cooper, Heron, & Heward, 2007, p. 14)

4. Theory of Mind (ToM) refers to a human’s ability to infer mental states in others (Stephens, 2005).

5. Appropriate social behavior implies positive or at least functional interaction with others (Kemps, Leonard, Vernon, Dugan, & Delquadri, 1992).

6. Pivotal Response Training (PRT) is a treatment that teaches generalization of new skills, while improving the motivation of children to perform these behaviors taught to them. PRT targets components such as child choice, turn-taking, reinforcing attempts, and interspersing maintenance tasks. PRT has also been used to build overall language skills, play skills, and social behaviors in children with autism (Koegel & Schreibman, 2008).

7. Symbolic Play consists of three phases: 1) The child uses a play object as if it were an adult (e.g., block as a phone); 2) The child is attributing properties to an object which it does not have (empty cup is hot tea); and 3) The child is referring to absent objects as if they were present (Stahmer, 1995).

8. Discrete Trial Training (DTT) is a systematic ABA strategy that works on specific skills in the one-to-one setting. The basic pattern of DTT is as follows: an instructor gives a cue for a student to perform, provides reinforcement for the desired behavior, and conducts ongoing evaluations of student performance (Heflin & Simpson, 1998).
9. **TEACCH** is an evidence-based service, training, and research program for individuals of all ages and skill levels with autism spectrum disorders. Established in the early 1970s by *Eric Schopler* and colleagues, the TEACCH program has worked with thousands of individuals with autism spectrum disorders and their families (The University of North Carolina at Chapel Hill Division TEACCH, 2006).

**Research Questions**

1) Does Applied Behavior Analysis (ABA) help children with autism develop social skills?

2) Are there negative effects of ABA therapy?

3) What are the necessary components and guidelines for using ABA with children on the autism spectrum?
CHAPTER 2
Review of the Literature

Early educators continue to be challenged by trying to find a way for children with ASD to learn social skills necessary for life. As a result, there is a need for programs that are evidence-based in promoting social development for children with ASD. Throughout this review of literature, the following research questions will be addressed: 1) Does Applied Behavior Analysis (ABA) help children with autism develop social skills? 2) Are there negative effects of ABA therapy for children with autism? Strain and Schwartz (2001) described how poor social relations early in life tend to start a downward spiral of events, which culminate in poor adult outcomes. These outcomes included a decrease in the likelihood of employment, independent living, and long-life expectancy, which then increases of the possibility of severe mental health problems. These outcomes are extremely frightening and show the importance of ensuring that meaningful social relations are prevalent in early childhood programs for children with autism.

Applied Behavior Analysis

In the 1960s, Dr. Ivar Lovaas, a psychologist at the University of California, Los Angeles, first developed ABA therapy. Lovaas believed in B. F. Skinner's idea that behavior could be changed. Using the foundational strategies of B.F Skinner, Lovaas developed Applied Behavior Analysis (ABA), which is based on the understanding that when a person with autism is rewarded for a specific behavior, they are likely to repeat this behavior. ABA is not a one size fits all program. It should be different from one child with ASD to the next, and it must be individualized in order to meet the needs of each child. Therefore, ABA services can be delivered in a variety of ways, such as Discrete
Trial Training (DTT) and Pivotal Response Training (PRT), which are specific procedures typically used during ABA treatments.

Through ABA, a trained adult or therapist systematically applies interventions to shape or change one targeted behavior. To engage children’s attention and help them respond to the requested task, a highly motivating item or reward is needed. If the child responds correctly, they receive immediate feedback or encouragement, such as praise or an incentive (e.g., a toy or food). If the child response is incorrect, the response is ignored. Currently, ABA therapy is one of the leading treatments used for children with autism.

Social Skills and ABA

Social skills are vital to acquire because they are needed across many aspects of life. Without them, all components of life become a challenge. Children with ASD do not naturally learn how to be socially appropriate with others. On the other hand, typically developing children gain these essential skills without extra effort. Most people take for granted the ability to socially interact with others, however social skills need to be taught directly to children with ASD. Because ABA therapy is a program that targets specific behaviors, it can help increase social skills by targeting fundamentals or basic behaviors. For instance, ABA programs can focus on skills such as eye contact, asking and answering questions, initiating play, and greeting others.

Loiacono and Allen (2008) stated that the current trend in special education is to support integrated education. With that being said, what programs are available to support students with ASD in the classroom? Loiacono and Allen recognized ABA to be a very effective instructional methodology in teaching children with ASD and it can be
adapted to be used in the general education classroom. Bondy and Frost (2002, p. 2) identified ABA as the most effective techniques for teaching communication and other skills to children with autism.” Additionally, there are several other researchers that speak of Lovass’ ABA methods as a successful teaching program for children with ASD.

Sallows and Graupner (2005) conducted a study looking at the four-year outcome of the effects of intensive behavior treatment for children with autism. To summarize, they focused on treating 23 children with ASD between the ages of 24-42 months. Sallows and Graupner used Lovass’ methods that included cognitive, language, adaptive, and social skills training. Positive interactions were built by engaging children in their favorite activities and responding to the gestures used by children to express their desires. Powerful reinforcements were used such as edible treats and positive praise. Furthermore, to work on social development, the following key areas were targeted: staying on topic, asking appropriate questions by using direct teaching with ABA, and role-playing with social stories. The children within the mild to moderate range gained new skills faster than the children who started with less skills coming into treatment. Most children showed significant growth in all areas over the four years. Eight out of 11 higher functioning learners showed an increase in social skills to the adequate range on the chart.

Sallows and Graupner’s intensive treatment using ABA practices provided long lasting effects, and many of the rapid learners continued to develop and go on to regular first and second grade classes. There these children demonstrated generally average academics, spoke fluently, and had peers with whom they played with regularly (Sallows & Graupner, 2005, p. 433).
Many times ABA is used with ASD children at a table in a one-on-one setting, and an environment with minimal objects, in an effort to avoid over stimulating the child. Steege, Mace, Perry, and Longenecker (2007) suggest the benefits of mixing up ABA therapies, providing a variety of programs in a variety of settings. According to these researchers, the best practices included a program that is multifaceted, with a wide range of ABA methods being used, and which provided more of an opportunity for a real change in behavior. In other words, it is time to step back from so much of the table chair therapy and bring ABA into the classroom. For example, DTT is one of the ways ABA is delivered and typically incorporates the table chair therapy. DTT uses repetitive steps until the students can independently acquire and perform them. In the discrete trial format, professionals are trained so students can generalize these skills in the natural setting. For example, if the child has been practicing how to respond to questions with the ABA therapist in the ABA room, then the next step would be for the children to be able to respond to those same kinds of questions in the classroom, at home, or any other setting. Granted, when DTT is implemented correctly, it is known to be one of the most influential tools available for teaching children with ASD. DTT is good for teaching a single skill (e.g., letter recognition, how to greet others) because it focuses on one skill and allows many trials, where repetition helps children with ASD to master a task. However, it is not highly effective in teaching all skills using the rigid DTT format and not suitable in teaching sequential behaviors (e.g., washing hands or getting dressed) or promoting generalization. Consequently, the most effective formula is using DTT with other ABA programs in a more natural learning environment, which enhances the opportunities for children to generalize the new skills and use them in diverse settings.
Steege, Mace, Perry, and Longenecker (2007) discussed a study of a child who was not independent in initiating social interactions with teachers or peers. To teach social initiation, the ABA instructor used the child’s interest in photo books to motivate the child to do the desired task. The instructor approached the child, but did not give any attention until the child initiated a social interaction. Once the child displayed the targeted social skill, the child was rewarded with positive praise and an edible treat. The instructor embedded the teaching into the regular classroom and focused on getting the child to initiate a greeting. The classroom teacher modeled a greeting and prompted the child to imitate the model. Using the same method, the sessions were repeated 10 times, lasting about 5 minutes each. By the last three trials of the session, the child demonstrated the targeted social behavior independently without prompts. The child then had an opportunity to initiate social interaction in the cafeteria and a few places in the school. The child successfully showed the ability to independently initiate, but more importantly, was able to generalize the skill in other places with different staff. Within 2 weeks, this skill was mastered and the edible reinforcement was phased out.

Negative Outcomes of ABA

After reading a multitude of research and looking for the opposing sides of ABA, it was difficult to find information regarding negative effects. However, of the few articles found, each common concern is discussed in detail below.

One negative effect that teachers and parents have noted is that children are not carrying over skills from one setting to the next. In other words, skills taught in the ABA room are not transferring into the classroom setting for some students. For instance, students with autism may be working on a specific communication skill, such as,
targeting answering questions. In the ABA room, children are able to answer questions independently, with 80% accuracy, but in the regular classroom children are not able to answer questions independently. This creates a problem, considering that the reason children are receiving ABA is to improve their ability to independently function in the general education environment.

The carryover of ABA skills into the classroom is an issue that is getting attention from therapists and teaching staffs, and in fact, Heflin and Simpson (1998) acknowledged ABA’s Discrete Trial Training as a great way to get students with ASD to start learning new skills. The forward movement is for therapists to start fading students out of one-to-one ABA settings, as skill are learned, and gradually phase them into the classroom setting.

DTT is a systematic ABA strategy that works on specific skills in the one-to-one setting. The basic pattern of DTT is as follows: an instructor gives a cue for a student to perform, provides reinforcement for the desired behavior, and conducts ongoing evaluations of student performance (Heflin & Simpson, 1998). Often, this reinforcement is food and can be considered a negative strategy for some families. For example, if professionals do a lot of repetitive drills when teaching a new skill and food is the motivator, then the children are getting a lot of sweets during an ABA session, potentially becoming a health concern in the long run. Even more, using food as a reward could lead children with autism into a routine of thinking they should always get a treat after completing a task. As a result, they are doing things for the exterior prize instead of the interior reward, and this can be a hard habit to break. The solution seems simple by trying not to use food as reinforcement or using it in moderation, but it does have its own
challenges. Because ABA is considered a special service, parents at schools can request that their children be allowed to have food during ABA sessions, but this is something that should be written in the child’s Individual Education Plan (IEP).

Lastly, one more negative effect of ABA therapy is parents fearing their children may sound like robots. After training through ABA, some parents felt their children’s speech started to sound robotic and would talk and answer questions in a rote manner.

Keep in mind, autism is a disorder that impacts a person’s ability to speak and communicate with others, so people with autism have social and communication delays and do not pick them up naturally in the environment. Thus, these skills have to be taught directly, and when learning something new, it typically sounds rigid at first. Rothstein (2008) used the example of learning a foreign language. When people are first learning to speak a new language, they often sound rote or forced, and they strain to come up with appropriate conversation. Over time and with practice, however, they become more fluent and sound more natural. Likewise, this process emulates what young learners with autism go through, as they strive to become more fluid and comfortable with their speech.

As one can see, teachers, ABA therapists, and others working with the autistic population must find out what works best for each student and design instruction and programs around that child’s individual needs. ABA can be a very effective strategy and an appropriate treatment for some children with autism, but it is obviously not the only way to help children with autism learn best. Hopefully, ABA and DTT will be acknowledged as being most effective when used in conjunction with other individually determined best practices (Heflin & Simpson, 1998). All in all, it takes a balance of peer-initiated social interactions in the natural setting, as well as other individualized
treatments, to help meet the needs of these children.

*Developing an Appropriate Educational Program for Children with ASD*

When children with ASD begin school as three year olds, it is critical to design a program that is going to maximize learning. Early intervention is the key to giving the children the best start, so it is vital to get to know the children and their families.

Together, the school staff and the families must look at the children’s needs and plan programming accordingly. As mentioned previously, ASD affects each child differently, and the needs can vary from mild to moderate to severe. The child study team, which is usually made up anyone who directly works with each child, usually consists of the teacher, principal, parents, speech and language pathologist, occupational therapist, ABA therapist, and maybe even a social worker or physical therapist. A positive relationship needs to be established between home and school to ensure that communication is ongoing and to keep up on the child’s growth and progress.

The best practices suggested using ABA programs for young children with ASD in conjunction with other strategies (PECS, TEACCH, and social stories). The combination of evidence-based programs also needs to be implemented correctly, or they will not be effective in changing behavior. Furthermore, teachers should utilize the natural environment because children with ASD must be able to transfer skills they are learning. Being able to generalize, or transfer, refers to the ability to extend what has been learned in one context to new and different contexts. As it is known, the transfer of skills, and acquiring and generalizing new skills, can be very difficult for children with ASD (Wong, Kasari, Freeman, & Paparella, 2007). Therefore, intervention programs need to focus on the ability to improve generalization skills for children with autism.
Services should be delivered in the natural environment, like the classroom, with a balance between one-on-one direct instruction (DTT) and appropriate exposure and opportunities to be with peers. If the goal is to improve social skills then the child needs be put in an environment with typically developing same aged peers.

Traditional ABA is not a realistic approach to be used in the classroom, as changes must be made to adapt the program for the inclusion setting. Strain and Schwartz (2001) recommend that ABA intervention be done in context. For ABA to come into the classroom, teachers need training and also need to know where to find basic resources.

Loiacono and Allen (2008) talk about the increasing amount of parents requesting that special education teachers and general education teachers incorporate ABA into the classroom instruction. As of 2001, The National Research Council reported that several teachers graduated from college with minimal to no training in research-based practices for children diagnosed with autism. Obviously, this is something that our universities and colleges need to start addressing. New teachers need proper training in teaching children on the autism spectrum, as the numbers continue to rise and children with ASD are included more into the general education environment. Teachers need to feel confident and equipped with a strong background and education on the current practices and strategies being used to improve programming for children. Most importantly, educators and other professionals need to know each student’s strengths and needs, as well as what resources are available and how to use them for students with ASD.
CHAPTER 3
Guidelines for Using Applied Behavior Analysis
With Children on the Autism Spectrum

In this chapter, I will provide guidelines on the implementation of ABA for parents, teachers, and other individuals working with young children having ASD. There are some important factors to consider when developing a program for a child with ASD. After reviewing literature, it is easy to see the reason or need to develop because when implementing ABA, there is a need for consistency across environments or young children receiving ABA services. There many diverse programs that are part ABA, which can lead to discrepancy and variation in programs. Guidelines set the standard for people who are working with children with ASD. These guidelines are divided into the following three sections: a) schools and programs, b) teachers, and c) the role of the family.

Before discussing the specific guidelines for schools, programs, teachers, and families, it is important to become familiar with the national recommendations for serving young children with ASD. The National Research Council, which was commissioned by the New Mexico Public Education Department, created a report titled *Educating Children with Autism* that was published in 2001. This research council recommended the following:

1. All professionals working with young children should have the necessary information about the early signs and behavior patterns of children with ASD, so they can get these children the help they need. Professionals need to be informed and have an understanding of the importance of early detection, diagnosis, and intervention. (National Research Council, 2001; Osbourn & Scott, 2004)
2. If a child is showing signs of ASD or has delays with communication and other areas, they need to have a multidisciplinary evaluation across all areas of development. A formal evaluation is when systematic data is gathered on the child, which can be very beneficial in planning a well-designed education plan. Then, the teacher and child study team can use this information to help develop the child's Individual Education Plan (IEP), which is made up of goals the child will work on in the upcoming year and specify the type and amount of educational services that will be provided during the school day. After a young child is initially diagnosed, it is necessary to get a follow-up evaluation 1-2 years after the initial evaluation to be sure the early diagnosis was accurate and to formally document any changes in development. (Osbourn & Scott, 2004)

3. All children with ASD, regardless of the severity, should be eligible for special education services. The diagnosis can help the family and the child study team better understand the uniqueness of the disability and intensive services that are necessary for children with ASD. Also, the diagnosis is sometimes required to obtain appropriate educational services. For example, in my school district, a child has to have an autistic or PDD diagnosis to receive ABA services. After gaining an understanding of the overall expectations and recommendations from the national level it is important to target the specific populations that work with children with ASD. The next section provides guidelines and recommendation for the following populations: a) schools and programs, b) teachers, and c) the role of the family.
School and Programs

1. Powers (1992) examined practices used for children with ASD in various early childhood programs. He concluded that although many programs could be successful for children with ASD, there were specific practices that should be present in programs teaching children with ASD, including the following: a) structured treatment using ABA principles, b) total parent involvement, and c) specifically designed curriculum, putting emphasis on social and communication skills with opportunities for integration with typical peers.

2. There needs to be adequate time on a daily basis for ABA interventions to be effective for students with ASD. National Research Council (2001) and Osbourn and Scott (2004) stressed the need for programs to be instructionally intensive, which means full day instruction, 5 days a week or at least 25 hours a week, as a good guideline on the amount of time that children should be receiving intervention. As mentioned in chapter I, early intervention is the key to shaping behaviors, and giving children with ASD the best start to life. If possible, it is also recommended for young children with ASD to be in programming for the full year because they learn best in a consistent, structured environment, and breaks in schooling can cause regression.

3. Programs need to equip schools with enough staff to assist teachers serving children with ASD. Osbourn and Scott (2004) make it clear that children with ASD require intensive engagement with adults in activities that encourage their learning. It is noted that children with ASD spend very minimal amounts of time engaged in purposeful and appropriate activities, mainly because they tend to be
very disconnected from their surroundings and the people in their environment.

(Osborn & Scott, 2004)

4. Teachers need to have training in ABA and other programs that are helpful in teaching children with ASD. Schools need to try to accommodate their teachers by helping with fees and providing substitute so they can go to these necessary trainings. Continual professional development for teachers is one of the key components to having a successful program. Training should use visual supports and treatments that are evidence-based to help attain achievement in children with ASD development. A few examples would be training on ABA, TEACCH strategies, and PECS, if any of these strategies were going to be used with the child. (Odem, Brown, Frey, Karasu, Smith-Canter, & Strain, 2003)

Administrators are responsible to be sure teachers are competent in teaching children with ASD and teaching ABA. Since ABA is not intended to be a one-size-fits-all program, it is critical for teachers to understand all aspects of the programs and be knowledgeable about various strategies to incorporate with a child. In fact, for the most effective learning, rarely would an ABA program for one child be similar to another child’s program.

5. ABA curriculum needs to be well planned with clear goals and objectives. Research suggested (Iovannone, Dunlap, Huber, & Kincaid, 2003; Odem, Brown, Frey, Karasu, Smith-Canter, & Strain, 2003) that programs should use systematic and clearly planned instruction and curriculum. Furthermore, it recommends (National Research Council, 2001) programs to provide a low student-to-teacher ratio (e.g. no more than 2 children with ASD per adult in the classroom). Schools
and programs need to be accountable for these standards and offer the best educational opportunities, such as ABA programs, for children with ASD. Along with this, it is critical to recognize the needs of the children served and make accommodations to meet these needs. Every child with ASD is unique and has different needs so schools must be able to adequately serve children with ASD in all areas of the spectrum, including the high functioning, mild, moderate, and severe. Lastly, schools and programs need to involve parents in the educational process as much as possible. Consequently, this will provide them with some helpful tools and motivation to follow through at home, and most importantly, it is best for the child when everyone is on the same page. With the recommendations providing a framework for implementation of ABA in schools and programs, next the focus will be directed toward the specific guidelines for teachers.

Teachers

1. Teachers must really know and understand the student or students with ASD. For instance, they need to explore and determine each student’s main interests, strengths, weaknesses, and triggers. In addition, it is essential to spend time with the child’s family to learn more about the home life and have an opportunity to relate to the family, making them feel more comfortable with the teacher. This will also help decide the intensity of services and the types of ABA programs needed to help teach new skills. As mentioned previously, there are many programs within ABA (e.g., Discrete Trial Teaching, Pivotal Response Training, peer mediated learning, functional routines, environmental structure), so it is
critical to know the skill level of each child. Typically, young children start with DTT because it is massed trials (which means a lot of repetition), and there is little skill needed. DTT can be used with non-verbal children. However, teachers must remember that ABA treatment is dynamic, and programs should be changing as the child masters a skill. Steege, Mace, Perry, and Longenecker (2007) say, “It is the integrated combination of approaches that make genuine ABA programs for children with autism and related disorders highly effective” (p. 98). Furthermore, teachers need to keep current on training and new interventions. Autism is a disability on the cutting edge; there are new ideas and strategies frequently being created and introduced. Most researchers (National Research Council, 2001; Stahmer, Collings, & Palinkas, 2005) agree the methods talked about by the participants most often—ABA, DTT, PECS, and PRT—have a relatively strong evidence base.

2. Individualized instruction and ongoing assessment. Teachers must individualize instruction and continually assess a child with ASD to find out what is or is not working. Curriculum should target the areas of play, motor skills, communication, speech, behavior, academics, and social interaction. (Lindblad, 2006) Teachers can use ABA to target teaching specific goals, measure learning, and use ABA data to drive their instruction and direct the next steps of learning. The child’s preferences, interests, strengths, and weaknesses should be considered and incorporated into the instructional program. Also, when developing the child’s individual plan, teachers must be sure to consider the families preferences are embedded in the goals for their child. (Iovannone, Dunlap, Huber, & Kincaid,
Along with instruction, ongoing assessment of the child’s progress is critical in developing the best-individualized ABA program. Indeed, teachers implementing an Individual Education Plan require this documentation. As one can see, teachers use a variety of important data and assessments to make sound educational decisions in programming for children.

3. Teachers have to provide inclusion opportunities with same aged typically developing peers. Integrated playgroups should be organized and planned by teachers. When using ABA-peer mediation techniques, according to Iovannone, Dunlap, Huber, and Kincaid (2003), teachers need to do the following: a) utilize the natural environment, b) promote the inclusive setting, such as setting up the learning areas so it is inviting for the child (e.g., favorite toys or materials that will enhance learning and engage the child in learning to improve a new skill), c) organize play groups according to the child’s ability, perhaps three typical peers that are developing slightly above the child with ASD, and d) model play and prompt to encourage the child’s participation (e.g., guided participation to full participation in play is the goal). National Research Council (2001) children should be with typically developing peers when receiving instruction because this leads to specific educational outcomes that benefit children with ASD in ways that cannot be reached otherwise.

4. It is important that teachers create a safe and welcoming classroom environment for children with ASD. Make sure the environment is conducive to learning, taking into consideration children with ASD. The last guideline for teachers mentioned to utilize the natural environment, which means the classroom
setting. One tip is to section off the room, which helps provide the children with boundaries, using items in the classroom. Moreover, all learning centers should have one way in and one way out. Open spaces may be too over stimulating for children with ASD, as it invites them to run and does not encourage focused learning. It is suggested more and more that ABA should be implemented in the natural environment. (Lindblad, 2006; Iovannone, Dunlap, Huber, & Kincaid, 2003) Thus, teachers need to plan a balanced program for children with ASD, including one-on-one direct instruction, appropriate exposure, and opportunities to be with typically developing peers.

5. Have a behavior plan in place. ASD students need to have a step-by-step action plan for dealing with behaviors. Teachers cannot effectively help children learn until their behavior is under control and they feel comfortable with their teacher and surroundings. Because of this, ABA/DDT is often done in an empty room with one-to-one instruction, where there are no objects to distract the child from learning. Additionally, using Positive Behavior Support (PBS) is recommended to help manage a child's behavior. (Odem, Brown, Frey, Karasu, Smith-Canter, & Strain, 2003)

6. Last but certainly not least, teachers need to involve parents. Naturally, parents know their children best and have unique perspectives that others do not have. Consequently, when teachers share information with families about their children, it is crucial for teachers to also listen and learn from these families. This leads into the final section of guidelines, the family's role.
The role of the Family

After gaining an understanding of the teacher’s role the next phase is the family’s role. It is important to involve the families in the child’s educational process. Many of times parents rely on the teachers to make the best decision for the their child because they feel the teachers are the experts in this area, however it is necessary to have parents input and involvement because they know the child best. Parents are the child’s first teacher and they are there for all of the child’s developmental stages, teachers miss out on a lot of early information. It is the teachers job to be sure that parents understand their parental rights.

1. Be an advocate for your child. Parents and families must be an advocate for their children, because if they do not, there is no guarantee anyone else will. Families need to share their perspectives and concerns with teachers and each child’s study team. Parent input matters, and it should be considered during the educational planning process. Families must work with teachers to develop goals that will have a beneficial outcome for the child with ASD. Osbourn and Scott (2004) suggested the goals should include the generalization of skills from one setting to another setting (e.g., home to school). Once a positive relationship is established between the school, teachers, and families, it is helpful for the families to open up and share some of their traditions, values, and cultural differences. Open communication between home and school is a key component in ensuring children with ASD have a successful school experience. Parents play a big part in shaping their children’s program, as they know their child best, and with family
support and a good teaching staff, together they can make the best possible plan for these children.

2. Families need to get informed about ASD. Autism resources are constantly evolving. Parent and/or families need to educate themselves and stay on top of the current changes. For instance, they must find out what the best practices are for teaching children with ASD, so they can be an advocate for their children and do what is best on their behalf. If their children qualify for special education, they also need to know their parent rights. Furthermore, as parents of children with special needs, they must know their children have a right to a free and appropriate education. Parents should be sure their children get just that, an appropriate education that is individualized to meet their children's learning needs.

3. Parents need to go to trainings to become aware of the resources available for children with ASD. It is encouraged that parents attend trainings offered for families who have children with autism. Parents should be provided with opportunities to learn specific techniques for teaching their child and reducing challenging behaviors. (National Research Council, 2001; Osbourn & Scott, 2004) Many teaching sessions are even free for parents of children with ASD. Families need to know about the disorder and understand the characteristics and behaviors that come along with it. After all, parents cannot significantly help their children if they do not understand ASD. Parents should look for training sessions that include, teaching about the disability, offer consultation for problem solving, and even in-home observations. (National Research Council, 2001) Moreover, parents need to learn about the programs their children are using at school
because they can be very helpful in shaping behaviors and minimizing stress in the home. For example, ABA strategies can carryover and be implemented in the home, as well as TEACCH and other programs. A TEACCH schedule may come in handy when parents are battling to get their children with ASD ready in the morning. However, if not implemented correctly it can backfire, so special training should be required before parents try using these techniques. Teachers have worked really hard to implement these programs at school, and they have been through specialized training to do it correctly. Thus, parents must be aware that using these techniques without training can ultimately hurt the children in the long run, and any program or strategy that is implemented incorrectly is not going to work.

4. The last guideline for families is to get plugged in or involved with people who can help. This could mean joining a support group, talking with professionals in the area of ASD, finding other parents who are going through similar challenges, and utilizing the resources the school has to offer. Schools may not have every program parents would like their children to be involved in, but educators usually know where parents can get it and can give them information. Families need to know they are not alone and help is out there, so they just need to ask for it.

After looking at all of the necessary guidelines and components to consider when working with children with ASD and when implementing in programs such as ABA, it is clear that people need to be educated about the disability. School, programs, teachers, and families cannot even begin to help a child with ASD if they do not take the time to fully understand it. ABA strategies will not even make sense to parents or people who have no
background knowledge on the disorder or any understanding on how the mind of a child with ASD works. Therefore, it is important for ALL to get onboard to create the best educational plan, ABA program, and home environment as possible. Indeed, the earlier these positive interventions take place the better chances children with ASD have for a successful and happy future.
CHAPTER 4

Summary, Conclusions & Recommendations

Summary
After researching and bringing the findings together, it is evident ABA-based teaching techniques are effective in teaching skills to a child with ASD. ABA is a program that can target a specific area a child is struggling with, and through mass trials and repetitive practice, ABA can shape and change a child’s performance in this area. ABA has reduced extreme behaviors, as well as improved academic and social skills. Therefore, the answer is clear to the first research question; does Applied Behavior Analysis (ABA) help children with autism develop social skills? Yes, it certainly can. The key is working as a team (teachers, parents, ABA therapist, and the IEP team) to develop a program or plan that will benefit the child with ASD. It is also important to note the amount of ABA therapy for one child may look completely different for another child with ASD. Not every child with autism needs to have ABA interventions, and some may need just an hour of ABA a day. It all depends on the child, so remember that ABA is not a one-size fits all program.

The conclusion to the second questions, are there negative effects of ABA therapy? The best answer is there are rarely any negative effects from ABA therapy. However, ABA interventions may not have the same effectiveness on each child with ASD, but ABA does not harm the child. Since children with ASD have a need for sameness, it is important for the ABA therapist to change things up when the child needs it. For example, if parents or teachers see the child becoming rote in his/her speaking, then it may be necessary to adjust the ABA program. Therefore, the child learns to speak using influx in their voice and is able to carryover the social skills learned into other settings.
Conclusions

One of the most important insights to remember is early identification. Doctors are beginning to see signs of autism earlier now, which helps the child receive services at home before entering school. ABA can be done in the home as long as a trained person is implementing the program. The earlier the interventions, the better the outcomes for the child with ASD.

Steege, Mace, Perry, and Longenecker (2007) suggested benefits to mixing up ABA therapies by providing more variety of programs in different settings. This statement reiterates what was said above in answering question two. It is important to change things up in the ABA programs so the child does not get too comfortable in the ABA setting. The goal is for the child to be able to carryover the skills learned in ABA to other environments (e.g., the classroom, home, and in public situations).

Another important insight to remember is the classroom teacher needs to work with the ABA therapist or teacher, so together they can help the child carryover the skills into the classroom. Often times, professionals get busy doing their own thing and forget about teaming and communicating with others who have necessary and important information. For instance, the ABA teacher should share with the classroom teacher what social skill is being worked on in ABA, so when the opportunity comes up in the classroom, the teacher can monitor and prompt the child to use the new skill.
Chapter III pointed out many important recommendations. To review and answer the third questions, what are the necessary components and guidelines for using ABA with children on the autism spectrum, I will highlight a few of the key recommendations. Educational institutions, schools, and early childhood programs need to stay current by asking these questions, what is new with ASD and what does the latest research say about ABA practices? Schools and administrators are responsible for finding this information out and educating the staff, especially the people working directly with children with ASD. Professionals need to be informed and have an understanding of the importance of early detection, diagnosis, and intervention. (National Research Council, 2001; Osbourn & Scott, 2004)

Powers (1992) reminded us there are specific practices that should be present in programs teaching children with ASD, including the following: a) structured treatment using ABA principles, b) total parent involvement, and c) specifically designed curriculum, putting emphasis on social and communication skills with opportunities for integration with typical peers. Early childhood programs should also include the other necessary support components, such as occupational therapy, for any sensory needs and/or fine motor concerns the child might have. A speech and language pathologist (SLP) is almost always onboard to help develop the children speech, communication, and language. Also, SLP’s are a very helpful resource for the classroom teacher. Physical therapy may also very beneficial, if needed for large motor development.

Teachers must be educated and have the proper training to teach children with ASD. Without a basic understanding of the needs and characteristics of children with ASD, it is
challenging to be able to give these children the type of education they need to be successful. Teachers have to provide inclusion opportunities with same aged typically developing peers. The National Research Council (2001) emphasized that children should be with typically developing peers when receiving instruction because this leads to specific educational outcomes that benefit children with ASD in ways that cannot be reached otherwise. Parents and families need to be advocates for the child with ASD, they need to be informed and stay educated on ASD and the best practices for children with the disorder. Most importantly, parents need to communicate and team together with the teachers and the school, because together they make a difference.

What I have learned is there is not just one answer or one fix to helping children with ASD. It takes a variety of strategies and programs to successfully educate a child with ASD. In our school district we use ABA, TEACCH, Positive Behavior Supports (PBS), and have opportunities for inclusion. There are two things I have found to be helpful, first when you are getting ready to teach a student with ASD be prepared to give them as much support as possible. Have all of your visuals in place, for example, put up a TEACCH schedule. Then when the child arrives on the first day you are ready. I have found it is easier to take away support than to add it in. If the child transitions find with verbal commands then you can phase out the schedule, but if they have a lot of trouble in this area (which they usually do) then you are ready and I promise you that they child will have a been first experience and you will as well. It is important to remember that the mind of a child with ASD is different for most, something can happen one time and the child with assume it is a rule and it will always happen. More support is better than no support.
The second thing that I have found to be helpful is if you have a student that is receiving ABA learn as much as you can about the ABA program and communicate with the therapist. You all are working together to do what is best for the child so it is important to share what happen in each setting. The teacher can help guide which programs the ABA therapist should be teaching and the ABA therapist can tell the teacher what to work on in the classroom setting. This is the best way to see improvement from all of the work that is being done with the child with ASD.

In closing, educators need to continue to learn as much as possible about ASD. New interventions and finds are always coming out and it is important that administrator, teachers, and families stay educated. There are many positive outcomes that come from ABA as long as the people implementing the program are educated and do it correctly. Lastly, here is a misconception to remember, ABA will not cure autism. There is no cure for autism at this time; however, ABA intervention can help with achievement in the many areas of life. ABA is a good program to try with young children with ASD, because the increase in skills and the knowledge that can be attained is shocking. Children with ASD can learn they just need the correct programs to allow learning to happen.
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