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The Effectiveness of Applied Behavior Analysis

Abstract

There are many different ways to educate students on the Autism Spectrum. Applied Behavior Analysis is one educational tool that has shown to be an effective tool in showing progress with students that are on the Autism Spectrum. ABA allows students to show progress at their own pace using a repetitive educational strategy. Educators that have implemented ABA have voiced their opinion on why it is effective and have given their input on what has worked best for them and some of the struggles that have gone through to make sure that it is an effective tool for their students.

Document Type

Thesis

Degree Name

MS in Special Education

Department

Education

First Supervisor

Susan Schultz

Subject Categories

Education

The Effectiveness of Applied Behavior Analysis

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Submitted in partial fulfillment of the requirements for the degree
M.S. Special Education

Supervised by

Dr. Susan M. Schultz

School of Education
St. John Fisher College

April 2015

Abstract

There are many different ways to educate students on the Autism Spectrum. Applied Behavior Analysis is one educational tool that has shown to be an effective tool in showing progress with students that are on the Autism Spectrum. ABA allows students to show progress at their own pace using a repetitive educational strategy. Educators that have implemented ABA have voiced their opinion on why it is effective and have given their input on what has worked best for them and some of the struggles that have gone through to make sure that it is an effective tool for their students.

Literature Review

The number of people being diagnosed with Autism is continuously growing. Right now one in sixty eight kids are diagnosed with Autism. In those one in sixty eight children at least forty-two of them are boys (Donaldson, 2014). There are many techniques that are used to help educate and treat children on the Autism Spectrum. One technique that is used in schools, home settings, and clinics is a technique called Applied Behavior Analysis also known as ABA.

Autism is a pervasive developmental disorder characterized by severe impairment in social interaction and communication along with high rates of ritualistic and stereotyped behavior (Hayward, Eikeseth, Gale, Morgan, 2009). Children that are on the Autism Spectrum greatly vary with their symptoms. The severity, presence of intellectual disability, and language deficits. There are also significant changes in behavioral features within individuals over times as well (Donaldson 2014). In addition the pervasive nature of the disorder across all areas of development (communication, social, cognitive, play, motor, adaptive skills) means that multiple disciplines are necessarily involved in effective intervention (Donaldson, 2014).

Typically developing students continually learn from their environment throughout their waking hours through play, modeling, conversation, etc. Children on the Autism Spectrum tend to have little to no skill or inclination to learn this way, which will lead to them to fail to understand communicative efforts made by adults attempting to help them learn (Smith, 2001). Since these children do not learn like typically developing children they are more likely to experience frustration in teaching situations and understand what

they are learning. Their frustration ranges anywhere from tantrums to finding other ways to escape so they do not seek failure again.

Being able to diagnose children on the Autism Spectrum is now being done at a very young age. However, many children that have gotten a diagnosis aren't able to receive services until they are at the age of four or older (Ekikseth et. al 2007). Since getting services for your children when being diagnosed is so important, investigators have conducted hundreds of studies on how to accomplish getting services in a wide range of effective approaches. Smith states out of all of the studies they have found the most effective one is an approach called Applied Behavior Analysis also known as ABA (Smith, 2001).

Applied Behavior Analysis, more commonly known as ABA is a scientific approach for discovering environmental variables that reliably influence socially significant behaviors. ABA interventions are also called the operant model. Learning is the result of consequences that follow a behavior, and these consequences determine the likelihood of a behavior to happen again (Donaldson, 2014). The operant model involves three main parts an antecedent, which is an event of experience that happens before a behavior occurs. Then there is the behavior from the individual and lastly there is the consequence, which is what happened after the behavior occurred. This is also known as the three part contingency which is the ABC's of ABA (Donaldson, 2014). Within the intervention context the antecedent is most often the stimulus presented by the clinician with the intent to elicit the target behavior (Donaldson, 2014).

In 1957, a noted behaviorist B.F. Skinner extended the concept of operant conditioning and rewarding positive behaviors to verbal behaviors. This means that

behavior is under the control of consequences mediated by other people (Ryan, Hughes, Antonis, Katsiyannis, McDaniel, Sprinkle, 2014). His research made the way other educators look at behavior. His research is what made ABA used in an educational way (Ryan et al 2014). The principles of this theory have been used to create a behavior modification program sharing the same name designed to help children on the autism spectrum (Ryan et el 2014).

ABA based interventions range from highly structured programs that are conducted in a one to one treatment setting to more naturalistic inclusion programs that include typically developing children as models. ABA brings improvements and change in socially relevant behaviors within the context of the individual's social environment (Dillenburger, Keenan, 2009). ABA also is conducted within the scientific framework and focuses on functional relationships and replicable procedures. Because ABA is very data driven, it is able to achieve measurable changes in relevant target behaviors that last across time and environments (Dillenburger et al. 2009).

There are three different types of ABA that professionals use on a daily basis. One type of the approach that is used is most popular and most commonly used is called Discrete Trial Training. Discrete Trial training is a type of teaching style that uses a series of trials to teach each step of a desired behavior or response. Lessons are broken into their simplest parts and positive reinforcement is used to reward correct answers and behaviors. When a child gives an incorrect answer it is most likely ignored (Zaman, 2011). Each discrete trial has at least five parts. The five parts are a cue, prompt, response, consequence, and inter trial interval. Depending on the treatment program in which the child is enrolled in they may receive a few minutes to several hours of discrete trail training per day (Smith, 2001).

Most children that are receiving ABA treatments get at least an hour of treatment a day to be able to see the progress that is being tracked. Since children on the Autism Spectrum vary in ability, some programs that are implemented are longer or shorter. Children that need more therapy usually spend two to five minutes on a trial and then get a one to two minute break in between. They also usually get a fifteen to twenty minute break at the end of every hour (Smith, 2001).

There are three aspects of Discrete Trial Training that may increase children's learning and motivation to learn. The first one is that each discrete trial is short. Children have many learning opportunities. The second advantage to Discrete Trial Training is teachers work one on one with the child, so this allows the teacher to tailor instruction to meet his or her needs. The third reason is it has a very precise format. Discrete Trial Training clarifies the teaching situation for the child. It specifically has a definite starting and stopping point and its components are kept simple (Smith, 2001). Discrete Trial Training is very useful to children on the Autism Spectrum because it allows the teacher to add new forms of behavior to their repertoires and make new discriminations between events (Smith, 2001).

Since ABA is almost always implemented one on one, you can almost always gear the lessons to the children you are working with in many unique ways. Since all children learn in different ways you can teach different skills different ways such as imitation, receptive language, expressive language, conversation, and grammar (Smith, 2002). Most children at a young age learn from modeling or imitation. Imitation in ABA form is defined as giving a response that is identical to a cue. For example, you say to the child "do this" as you are clapping, the child will then have to follow (Smith, 2002). Most children with

Autism struggle with this aspect. ABA allows this child to learn imitation through intensive therapy. ABA has also been the only teaching method that has been clearly shown to enable children with Autism to imitate actions such as clapping, playing activities such as rolling a car, or even imitating speech sounds (Smith, 2002).

Another skill that ABA uses to help teach is a program called Receptive Language. Receptive Language involves performing an action in response to a verbal cue. For example, picking up a doll when a teacher says “doll” or picking up a car with the teacher says “car.” Almost every child with autism lacks receptive language or is delayed in their development of receptive language. Along with receptive language there is expressive language, which is another, tool, used in ABA to teach (Smith, 2002). Expressive language consists of giving a verbal response to a visual cue. For example, when a teacher holds up an object the child would respond with the correct object. Since most children with autism do not have the ability to talk, expressive language is a very important lesson to try and teach children with autism (Smith, 2002). These are all forms of Discrete Trial Teaching.

Another popular teaching technique in ABA is called Pivotal Response Training. Pivotal response training is a variety of naturalistic behavioral interventions grounded in the principles of ABA. Specific elements of pivotal response training include gaining the child’s attention, presenting clear and appropriate instructions, interspersing easier tasks with more difficult tasks, sharing control, requiring the child to respond to multiple aspects of the learning environment, providing contingent consequences, ensuring a direct relationship between the child’s response and the reinforcer, and reinforcing attempts at correct responding. To teach pivotal response training you teach it in context of something. For example, if you are teaching a child the word cat you may play with a set of cat animals

while teaching the word at the same time (Donaldson, 2014). You are bringing the word into the natural environment. Just like Discrete Trial Training after a correct response from the child, they would get a positive reinforcer such as food, or a preferred activity or toy (Donaldson 2014).

There has been a lot of research completed by many people to find out what is the best educational tool to teach children on the Autism Spectrum. Even though there are a lot of other successful resources to teach children with Autism, ABA has the best-documented outcome data supporting this approach compared to other methods (Rosenwasser, Axelrod, 2002). Since ABA emphasizes the teaching of children with disabilities in different environments, you are able to see the data more clearly how effective ABA is (Resenwasser et el. 2002) .

There are a lot of case studies that have been done to show the statistics of how effective ABA is in the Autism field. A lot of the case studies that have been done have been conducted between two different children using two different techniques. There is one case study that has been done between twin boys. One of the twin boys did extensive ABA therapy while the other twin did another autism technique called DIR. DIR is geared towards play and social interaction (Hilton, Seal 2007). The boys were two years old and both exhibited severe speech-language delays and were diagnosed with autism. Both of the boys were assigned a speech language pathologist and underwent supervision for two hours a day for 18 sessions. The first session and the last session were devoted to testing to get a baseline data. Once the testing was completed the twins began their intervention programs.

During the ABA session the activities were presented as a discrete trial. This consisted of one simple step while signing a noun. For example, the therapists would say,

“point to cow” while signing the noun cow (Hilton, 2007). During each session primary reinforcers were offered and then later replaced with a token reinforcement schedule that included preferred activities such as blowing bubbles or playing with toys (Hilton et. el 2007).

During the DIR sessions the material was presented the same but the child was allowed to choose activities. For example, if the child chooses to play with the cow the therapist will say “Lets play with the cow!” while signing the word cow (Hilton et. el 2007). With this type of intervention rewards include high fives, clapping, and praise. Each activity includes 15-20 circles of communication (Hilton et el. 2007).

After the weeks of therapy were done results showed that the child that received ABA went from a standard score of 7 to 8, and the child that received DIR dropped from a score of 12 to 10. The twin that received ABA showed three areas of improvement. He improved in gestural and vocal communicative means and social affect signaling (Hilton et. el 2007). The twin that received DIR only showed improvement in one area that was symbolic behaviors. Overall, the twin that participated in ABA therapy showed a higher increase in behaviors and educational purposes than the twin that received DIR interventions.

There are many other case studies that show that starting intervention at a younger age will help the recovery rate of children with autism. There was a case study completed with a boy who was 28 months and at a high risk of having autism. The child started ABA therapy for two hours a week and then transitioned into four hours a week (Aslan 2011). After therapy was conducted it showed that the child showed improvement in targeted skills he needed more help with. He showed improvement in non verbal expression skills.

When the child continued with the therapy his IEP showed that he was showing positive amounts of improvement (Aslan 2011). By the end of the year of his therapy his scores in matching, imitation, receptive language, and expressive language went up tremendously. The child was scoring a 100 percent in all areas by the end (Aslan 2011).

Another study that shows that ABA is effective at a young age is a study that was conducted by children around the age of 4 and then once the study was finished the children were around the age of 7. The study was conducted over 3 years to make sure that the results were accurate and consistent. The study took place in public elementary schools for typically developing children (Eikeseth et al 2014). Each child that was participating in this study received a minimum of two therapists. During the time of the treatments, the child worked alone with the therapist in a private room. Once the first year was up the therapists were asked to report the number of hours a week that the child was receiving ABA therapy and also had to report the treatment goals they had for each child (Eikeseth et al, 2014). Results showed that after getting ABA treatments social behaviors and aggressive behaviors decreased. It also showed that the children's IQ score went up 34 points. Since these children started at a younger age and were able to continue with extensive ABA therapy, it allowed them to improve on all skills, including adaptive, social, maladaptive, and behavioral skills. The study also shows that children who range from 4-7 and have autism may benefit considerably from intensive ABA therapy (Eikeseth et al 2014).

There are many people that are skeptical of ABA and are not sure if it is effective for their kids. Fifteen families volunteered to participate in a study where their children were involved in ABA therapy (Mcphilemy, Dillenburger, 2013). Half of the families used

one agency while the other families used another agency. All of the families were given a questionnaire, which they had to provide information about themselves, what they were expecting to get out of ABA and why they decided to go the ABA route.

Once intervention had started all of the parents stated that ABA interventions had a positive impact on their child. They all emphasized that it reduced frustration and problem behaviors due to improved communication between the parents and the child (Mcphilemy, 2013). For example, one parent stated that since starting ABA services their son has improved eye contact and is now able to communicate through picture exchange communication systems. Another parent stated that their son could now ask questions where before they started intervention he was non-verbal (Mcphilemy et al 2014).

Communication is not the only area that improved. Parents stated that they are now seeing changes in behaviors as well. One parent said that their child has a longer attention span where another parent said their child is now more aware of consequences of their actions. Other parents stated that their children are becoming more independent. They are saying that their children can now ride a bike, or went from special education to mainstream after receiving ABA services. Other are stating simple goals geared to independence such as being able to cope with daily life skills and being able to interact with siblings.

Most importantly families are now seeing improvement with their family life after receiving ABA services. One parent stated “we can now do things outside the home such as going to shopping centers, restaurants, or on vacation, whereas before uncontrollable behaviors made these outings very stressful” (Mcphilemy, 2013). Overall, stress levels have been lowered and their families reported a better quality of life. Families also stated that ABA services have brought their family closer together. Families also have a different

perspective on autism after receiving services. They learned that behaviors they thought that couldn't be change can be changed and good behaviors are able to get strengthened.

The parents that were involved in the study considered ABA based interventions as very effective or effective. They said that their child has improved in fine motor skills and gross motor skills. One family also said that since finishing ABA services their child has a increase in social skills (McPhilemy, 2013). Overall, parents stated that ABA therapy had a significant positive impact on not only the lives of the child but also the family as a whole. They are now able to communicate and deal with challenging behaviors more efficiently (McPhilemy, 2013).

In order to promote success in ABA programs there needs to be consistent, intense, and sometimes constant feedback and correction of a child's behavior. This requires intense one on one instruction at the beginning of the intervention, which also means that parent participation, is crucial. As new behaviors replace old behaviors it will become more automatic for the child (Ryan et el 2014). According to studies done by Lovaas nearly half of the children in the ABA program achieved higher functioning in comparison to only 2% of the control group not receiving treatment. Children that received ABA services had an increased level of cognitive skills, language skills, adaptive skills, and even compliance skills. Some children who received ABA therapy were eventually able to attend classes with their non-disabled peers (Ryan et el 2014). This suggests that ABA interventions implemented early on in a child's life can result in long-term positive goals (Ryan et el 2014).

Researchers demonstrated that early and intensive language focused behavioral education led to a profound difference in IQ and degree with children that are just being

mainstreamed into educational settings (Rosenwasser et al 2002). ABA has the best-documented outcome data supporting their approach as compared to other research methods. ABA emphasizes the placement and teaching of children with disabilities in integrated environments. The field of ABA has begun to systematize training and certification of people giving out therapy. In order to implement ABA you need to go through extensive training and are now required to get a board certification in order to supervise cases.

Since ABA is a scientific tool to teach specific skills and then reinforce them, it can be used in many different settings. ABA is an individual approach that focuses on increasing and teaching appropriate behaviors or responses while decreasing the inappropriate behaviors (Smith, 2010). ABA also creates an environment of growth and learning that can be applied to all areas of teaching. Behaviors are modified by consequences that follow it and is strengthened and maintained by reinforcement. This can be done at home but as well as in a school setting. For example, if you do a chore at home you get allowance but if you raise your hand in class you get attention by the teacher (Smith, 2011). Since there are so many people involved in a child's daily life it is important to strive to use behavioral teaching to bring out the best in each child. Behavioral teaching follows a curriculum that is designed to meet the individual's needs. In environments that are successful, each skill is broken down into the smallest part and introduced one at a time. Then slowly the next sub skill will be introduced (Smith, 2011).

In order to have effective ABA teaching strategies in the classroom you should follow a set of recommended strategies. They include minimizing self stimulatory behaviors and gain attention, use routines but do not allow obsession, use visual schedules,

use lots of visual supports, use repetition, use warnings and countdowns, minimize overuse of language during instruction, use many prompts, get a response, and lastly use effective reinforcers. Some examples of reinforcers used in the classroom are stickers, bubbles, snacks, and use of technology (Smith, 2011).

A lot of the time ABA is used outside of the classroom in a one on one setting in a private room in a house or in a center based program. This is not to say that this is the only place that ABA can be implemented. ABA is an effective strategy that can be used in the classroom as well for a teaching tool. The most commonly used ABA instructions used in a classroom are direct instruction, positive behavioral support, curriculum based measurement, and curriculum matching (Bloh, Axelrod 2008). Recent federal legislation now requires that schools use behavioral methods. Some of the guidelines that need to be completed in school before implementing ABA services are making sure that the child has an FBA, and making sure that there is behavioral support and rules in the classroom.

Most recently there has been a new DSM-V to come out and help the process of diagnosing children with autism. It recommends that children that are diagnosed with autism start treatment as soon as possible. The treatment should consist of an intensive instructional program that last year round and last for about 25 hours a week Since ABA is implemented in some schools it is important to plan teaching opportunities for brief periods of time with either a small group of individualizing it one to one (Borden, 2011). It is also important to make sure that there is a low student to teacher ratio in the classroom. There should be no more then two children per adult (Borden, 2011).

Since ABA is mostly done at homes and not in schools it is important to make sure you are individualizing the programs to the child while implementing ABA at school. The

programs would be made by observations done by family and teachers, which would measure the child's behaviors. It will also include age appropriate educational tools based on their age and culture (Borden, 2011). Doing ABA at home is a little easier since there is a lot of data that is taken. The data is put into a book and reviewed by supervisors while at home.

At school it may be a little more challenging because you do not only have one child to take data on, you may have to take data on three or four children with different programs. Since it is more difficult to do ABA treatment in schools there has been an instructional curriculum for ABA programs. In those programs it has a good number of organized materials. But it is to be noted that ABA is not a one size fits all program. You need to make sure the curriculum you follow in your classroom is one that is suited for all kids not just the one child you are focusing on at the time (Borden, 2011). Since curriculum development is an individualized process for ABA it will vary on each child depending on what the family wants to focus on as well. It is also noted that since ABA is mostly data driven that if you are not seeing improvements in the child's work you need to think about changing the child's curriculum (Borden, 2011).

Even though there are studies to show that ABA is truly effective it is also important to understand some of the struggles and disadvantages families may see when first starting ABA services. Many service providers that use ABA are subjected to DTT, Discrete Trial Training. If discrete trial training is implemented correctly, it is one of the most powerful tools out there to help teaching children on the autism spectrum (Steege, Mace, Perry, Longenecker, 2007). Discrete trial training is very effective in teaching situations like color recognition, verbal requests, or social situations. It is non-effective when teaching

sequential behaviors. Some examples of those behaviors are making your bed, brushing your teeth, doing laundry, etc. (Steege et al 2007).

There are more advantages to ABA than there are disadvantages. These advantages include, allowing for numerous training trials, easy access for more than one staff member to use, good way to develop specific language skills, ease of use in classroom settings, all of the instructional stimuli and detailed curriculum is provided to the staff. It also allows students to know the targeted response and they are easily identified. Another big advantage to ABA is that data collection is relatively straightforward. It is easy to read and you are able to know when the child is mastering a target or is not able to grasp the idea of the target. You are able to see the progressive steps in the curriculum clearly and detailed. Going along with reading the data, you are able to see the progress or the lack of progress that is being measured (Steege et al 2007). It may also help ready to learn behaviors. For example, attending to the teacher, expectation of reinforcement for a correct response, the ability to make discriminations, and learning to sit (Steege et al 2007).

Even though there have been many studies done to prove that ABA is effective there are still some disadvantages to everything. Some of the disadvantages in discrete trial training are it requires additional procedures to promote generalization (Steege et al 2007). Children on the autism spectrum have a hard time with change. Therefore, if they learn something in one setting they have a hard time generalizing it to another environment. For example, if a child learns a positive behavior at school he might have a hard time generalizing that behavior into his family life.

Other disadvantages to discrete trial training include, prompts to respond often not present in the natural setting, and it is also primarily a teacher directed activity. There is

also immediate and powerful reinforcers that are not always available outside of the classroom or training session (Steege et al, 2007). For example, during a session you might get to play with your train once you have done a positive behavior but at home you might not get that same reinforcer. Also the drill nature of the training may generate rote responding. For example, if you ask a student to name five animals they will most likely name those five animals every time since they got a reinforcer at the end of the trial. Another disadvantage is that the nonfunctional nature of the training may generate some escape and avoidance behaviors (Steege et al 2007). For example, if the child sees that he is going to have to learn body parts and he doesn't like that program he may find behaviors to get out of doing the task that is presented to him. Even though there are some disadvantages to ABA services, there are more advantages that lead to positive outcomes of the child (Steege et al. 2007).

Over the past couple of years the diagnosis of autism is becoming more and more prevalent each day. Since this is occurring it is important to make sure that we have services that help treat the child at hand. ABA is one of those services that are guided to help the recovery rate of children diagnosed with autism. Since ABA is very intense and follows a strict procedure, research has shown numerous times the improvement it can make on not only the child's life but also the families life as well.

The Effectiveness of ABA on children with Autism

The rate of children diagnosed with Autism has significantly increased over the past years. Now every 1 and 60 children are diagnosed with Autism. It is important to

find different techniques that will help families and teachers educate children on the Autism Spectrum. Applied Behavior Analysis also known as ABA has been around for many years. It is being used in both classroom and in a home setting on and one to one setting. In this research study, you will be able to see how effective ABA is and what setting has shown the most progress while implementing ABA. The purpose of this study is to help parents and educators find another source to help educate and deal with difficult behaviors.

In this research study a survey was sent out to educators who are either currently implementing ABA or have implemented ABA during their years of educating children with Autism. The survey was sent out and they were able to fill out the questions anonymous. This allowed them to answer the questions freely and openly without having to worry about who will read their answers.

ABA has been the topic of many debates as to if it really is effective and why. During this study I wanted to be able to show readers that ABA is an effective tool to use with children that are on the Autism Spectrum. It has many benefits that allow children to show progression in their academic and daily life skills. In order to show readers that it is effective I wanted to make sure that I was able to get input from many educators that have been exposed to ABA in the Special Education field.

Researchers Stance:

My role in this research study was to interview educators through an anonymous survey who have implemented ABA during their time as an educator. I interviewed educators who have been implementing ABA for 10 years or more to educators who have just been implementing ABA for a year. I had a variety of different people that were able

to answer my questions. I wanted to know how educators felt about ABA as I have worked with the Autism population and have found it difficult to find ways to help educate them.

Since children with Autism vary, their behaviors may be worse than their peers and it is hard to see if they have shown any growth in their education. This can vary day to day. I wanted to see if students receiving ABA were able to show any growth and if all of the work going into ABA was actually effective. When I was able to get access to my surveys I reviewed the different answers and was able to see the variety of answers that I received about ABA.

I am currently certified in Early Childhood Education (Birth-grade 2) and Childhood Education (grade 1-6). I am working towards my Masters degree in Childhood Special Education (grades 1-6). While working on my Masters I had the opportunity to work at an Autism Agency. While working at the Autism Agency I was exposed to ABA and implemented ABA during my time working there, which gave me the idea to research about ABA and to see if ABA was really helping the children I was working with.

Methodology:

Context:

This study took place over the course of 4 to 6 weeks. I sent out a survey to a variety of different educators who have had the chance to implement ABA during their time as an educator. Out of all of the surveys that I had sent out, only eight individuals responded to the survey.

All eight of these individuals have worked in New York State in the education system. I let them know that this was a study to see if ABA was an effective teaching tool. I also let them know that this survey was anonymous and that they should answer the questions honestly.

Participants:

All eight participants have had different experiences with ABA. Some have worked only in a home setting working one on one with the same students everyday, while the other participants have worked in a school setting working with many students every day using ABA.

Out of the eight participants they all have different educational backgrounds, three out of the eight participants are Speech Pathologists who use ABA as a technique to help children with their speech. Four out of the eight participants are Special Education Teachers and are either implementing ABA now during their teaching or have implemented ABA during their time working with the Autism population. One out of the eight participants that took this survey is a Teaching Assistant in a classroom and helps the teacher implement ABA during the day. All eight of these participants also have had a variety of different years working with ABA. Some of these participants have only worked with ABA for about a year while others have worked with ABA for over ten years. All of the participants in this study are all females in the education field.

Method:

This study was designed to determine how effective ABA (Applied Behavior Analysis) is as teaching technique to use with children that are on the Autism Spectrum. This study, based on a pool of educators who have implemented ABA focused on the

effectiveness of ABA and where they thought it was most effective (school or home setting).

Data was found in only the means of an anonymous electronic survey that was sent out via email. The participants were asked to complete a survey of about ten questions. All ten of the questions were focused on ABA and whether or not it was an effective teaching tool to use in either the classroom setting or home environment.

Data Analysis and Discussion:

Data collection was completed by using the survey website Qualtrics. Once the survey was closed I was able to log into Qualtrics and look at the answers that were given to the questions that were asked. All ten of the questions that were asked had to with ABA. Nine out of the ten questions were questions that they had to fill in a response for. Only one out of the ten questions was a multiple-choice question. All the questions required the participants to go into detail about their thoughts on ABA.

The first question that was asked was “What is ABA?” All eight participants answered the question but I had received a variety of different answers. All eight responded that it was a teaching skill but their answered varied when they went into detail. One participant stated that it was a teaching skill to promote socially acceptable changes, ABA is supposed to help with behaviors but the focus is not geared towards being socially acceptable. Three out of the eight participants stated that it is a teaching method that is broken down into small increments. These three participants are correct. ABA is done in a step-by-step process. For example, if you are trying to teach a three year old who has Autism colors you would start with one color at a time until that child is able to identify many colors. Two out of the eight participants agreed that it is a teaching

tool broken down into small increments but went into a little more detail. One out of those four participants stated that ABA uses learning things in isolation and then systematically building onto what is being taught. Another one stated that it is to identify a function of behavior and then intervention is applied to increase or decrease a behavior. For example if you wanted to decrease a function of behavior you might use ABA to teach a child who is aggressive towards a peer a replacement behavior. You might teach that child to ask for a break when they become agitated or have them squeeze a ball instead of pinching or hitting a peer.

The next question that was asked was about how long they have been working with children on the Autism Spectrum. For this question they were given three choices to pick from in a multiple-choice setting. The three choices were 1-2 years, 3-5 years or 5 years or more. 12.5% of the participants stated that they have only worked with the Autism population for 1-2 years. 25% of the participants stated that they have only worked with the Autism population for 3-5 years and 62.5% stated that they have worked with the Autism population for 5 or more years. This shows that the majority of the participants have a strong understanding of the Autism population and have had the opportunity to work with a variety of children on the Autism Spectrum. This data also shows me that the 62.5% have a strong understanding of ABA and have used ABA more than once and have probably used ABA in both the classroom setting and the home environment.

The next question that was asked was asking about an advantage of using ABA. This question was asking to see what the participants liked about ABA and it was able to give me an insight about why they thought it was effective.

Three out of the eight participants stated that one advantage of ABA was the frequent repetition of instruction that was used. One of the three stated that ABA breaks down each step with frequent chances using the repetition of skills. Most ABA trials are done at most ten times. This allows the student to practice the skill ten times being able to use the skill being learned a variety of times. Another one of the three stated that it allows you to see the growth of your student by using the repetition of skills. ABA is very data driven; you take data on everything that you do with that child so you are able to see the growth of the student during each trial.

One out of the eight participants stated that the advantage to them was it allows a child to get into a routine and it provides a sense of structure for that child. This is very true. A child with that has Autism has a strong need for a routine. Since ABA is done in ten trials this child would know what to expect next.

Another one out of the eight participants stated that directions are written down clearly, so anyone that has a basic knowledge of ABA could execute that drill. They also stated that it is fun to see the progress in each child that they have worked with. This statement is also very true. Each drill has a direction on how to execute it. For example the drill might say “ T says touch yellow” and then the child would have to touch yellow.

Another participant stated that it helps students learn a new concept quickly. Lastly two out of the eight stated that it helps children learn new concepts at their own pace. These two statements are very accurate. ABA allows a child to learn a concept very quickly but if they do not understanding a new concept or skill it also allows them to go about it at their own pace. Since ABA is done one on one, it doesn't pressure the student

to have to worry about other classmates or peers understanding a certain concept where they are still struggling to understand it.

The next question that was asked to the participants taking the survey was to give one example of a disadvantage they have experienced while implementing ABA. By asking this question I wanted to see if there were any flaws or big obstacles that occurred while implementing ABA. This would allow me to see if there were any real big reasons why ABA would not be an effective teaching tool. All eight of the participants answered the question and I received all different answers to the question.

One participant stated that it was very labor intensive, which ABA can be very intense. You are sitting with a student asking them the same question about ten times while tracking every answer they give you. It can be very intense but it still does not give a good enough reason as to why it would be not be an effective teaching tool for children on the Autism Spectrum.

Another participant stated that it lacks the social component and some teachers cannot make the transition to make it more flexible to meet the growth in their students. There is a lack of social component while implementing ABA. You are only working with one student at a time instead of a variety of students like you would in a classroom setting that does not exhibit ABA. As for teachers not being flexible to meet the growth of their students I can agree to that. ABA is a very structured program and you have to follow many guidelines in order to implement it correctly. Usually professionals that are implementing ABA have to go under many hours of training and practice before they can implement it themselves. I can see how it would be hard for the teacher mindset that is usually thinking about creative ways to teach their children to only being able to follow

certain guidelines on how to teach a student. Even though some teachers may struggle with the idea of only following a certain guideline it still does not prove to me that ABA is not an effective teaching tool for students with Autism.

The next response that was given to me during this survey was that students on the spectrum might learn a rote response to certain verbal responses unless various responses and generalization are taught as well. Two out of the eight participants stated that it could lead to rote responses. I worked with a student that I experienced this problem with. You would ask him to name holidays and he would give you the same holidays in order every time that you would ask him that question. It is important to make sure while teaching ABA that you can generalize it into different programs and also different answers. It is definitely that one of that many struggles that I have experienced during my time with ABA but it does not mean that it is not effective. Even though that student gave me the same holidays in the same order every time I asked him it does not mean that I did not see growth in that students academic abilities and saw a decrease in his anxious behaviors. This student would get very anxious if he got an answer wrong and being able to answer the question correctly, even though he was extremely rote boosted his confidence. The teacher or professional working with that student just needs to find ways to break him of a rote response. For example, as he is naming different holidays, you could throw a holiday in there to throw him off, this would allow him to think about all the other different holidays that were taught to him.

One participant stated that the disadvantaged they experienced were there are a lot of materials to get ready before you can start a trial. I agree there are a lot of materials that are used while implementing ABA but there are also a lot of materials that are used

while teaching in a classroom. Part of being an educator is making sure that you are prepared for any lesson that you may teach whether you are teaching in a classroom that does not use ABA or if you are using ABA, you are always going to need to prepare materials.

The next participant stated that they did not think it was a natural way of teaching, and that to an observer it may seem very robotic. I agree that it can appear to be very robotic but you need to explain to your observer why it is that way. There are reasons why many people believe that ABA is an effective tool for teaching and if you explain that to your observer they should understand. It is not a natural way of teaching but teaching students that have special ways is not always going to be in a natural setting. You need to make adaptations to every child who has a special need whether it be as simple as moving them closer to the teacher so they pay attention or as complex as implementing ABA because that is what works for that child. Not every child is going to be able to fit into that natural way of teaching.

The next participant stated that the repetition of the program could become frustrating to the child that is on the Autism Spectrum. Even though it is recommended to do ten trials when implementing ABA you do not have to. Therefore, the repetition would not be as frustrating to the student. I worked with a student who would get frustrated after 5 trials and we would stop there because after ten trials he would get agitated and start lashing out on the professional working with him. It is okay to not implement ten trials each time you begin a program. Your job is to be there for the child and if you have to make adaptations to a child's program to make their educational progress better then that's what you need to do. Just like in any other classroom setting where you would

make changes to help that student, you can do the same for that child who is receiving ABA services.

The last participant stated that other professionals in the education field do not support or properly implement ABA. There has been a big debate for many years whether or not ABA is a good teaching tool. There is a lot of data out there that supports that ABA is an effective teaching tool for children on the Autism Spectrum. Out of all of the disadvantages that I have received in my study none of them show significant data that ABA cannot work as an educational tool to teach children with Autism. A lot of the disadvantages that were listed were little things that can be changed or that can be worked through for the sake of the child at need.

The next question that was asked during my survey was if these educators thought ABA was effective. All eight of the participants answered the question and all eight of the participants agreed that it was a very effective teaching tool. I received a variety of different answers as to why they thought it was effective.

One participant stated that they saw 95% effectiveness in at least prompting some type of behavioral change or learning some type of new skill. I agree with this statement. When I was working with students and had the opportunity to implement ABA I had to first give the child a prompt to let them know the correct answer. By giving that student a prompt to show them the answer you are allowing that student to gain confidence in their ability to respond to the answer. For example, if I was teaching a student the letters of the alphabet I might say, "Touch B." and as I am saying that I am pointing to the letter B. This allows the student to know what I am looking for and where to find it. Once that

student has had the chance to get the answer correct I would fade my prompt away and ask the same question again without pointing to the letter.

Another participant stated that they have seen great success with children on the spectrum using ABA, especially when it is started early. I totally agree with that statement. I think it is very important to start your child in ABA treatment right when they get diagnosed. It allows them to get into the routine of ABA and once they have started early it shows more independence in their skills, which is one of the main goals of working with children who have special needs.

Three out of the eight participants stated that they think ABA is effective because of the repetition that is used. If you are taught something over and over again you are more likely to learn that skill faster than if you are taught it one time and then never go back to it. When implementing ABA you always are asking the same skill more than once and review it once a week to make sure they have maintained that skill.

Two out of the eight participants stated that it is very structured and it helps with their, academic, behavior, language, and self help skills. While implementing ABA you can also teach them a variety of skills to help them become independent. For example, I used ABA to help a child learn how to tie their shoes. You just need to break down the task into smaller pieces.

The last participant stated that they thought it was very effective but said it requires a lot of training, which most teachers are not used to. I agree with that but it requires a lot of training to make sure that you are doing it correctly. If you are not implementing ABA correctly then the outcome will not be the same.

The next question that was asked was seeing if any of the participants have seen progress in their student's academic and social behaviors. All eight of the participants answered the question but only seven answered the question with what I was looking for. All seven of the participants who answered said they have seen progress in their students work. One participant stated that before starting ABA she had a child that would not sit down and complete their work, now this child is able to sit down and complete work for more than an hour at a time. Another participant gave the example that their child is now able to interact with the instructor after using ABA. Another example was this individual has worked with children who have had violent and no in seat behavior to now using relaxation techniques to control their outburst. This participant also stated that she had a child who was unable to sit down for one second and is now integrated into an inclusive classroom. Three participants gave the example that now the child is able to communicate their wants and needs and no longer uses behaviors to get what they want. Lastly, a participant stated that their student wanted to be left alone anytime this participant tried to work with them but now is willing and wanting to work for a reinforcer. I have had some of the same experiences that these participants have had as well. While working at the Autism Agency I was assigned a very aggressive student. When I first started out with him he would not sit for more than one second and when he did sit he was trying every possible way to get out of doing work. I was able to come up with techniques and strategies to allow him to sit down for more than one second. He also was very attached to his iPad and would not allow anyone else to touch it. About after a month of working with this individual he was able to sit for thirty minutes without wanting or asking for a break. He was also able to do a whole hour and a half session without having access to

the iPad. I believe that ABA is very successful and also very effective. You really just have to be determined and want to work hard to show progress in your student.

The next question that was asked to the participants was seeing where they thought the best environment was to implement ABA. ABA is usually done in a home environment working one on one with a professional who is trained in ABA, but it can also be done in a school setting. One out of the eight participants stated that they think the best environment for a child to do ABA is one on one in a home setting. Seven out of the eight participants stated that they think it can be done in either setting as long as it is implemented in a quiet and structured environment. I agree that as long as it is done in a quiet environment and the child is focused it does not matter where you can implement it.

I then next asked the participants if they thought it would be effective in a classroom. All of the reports that I have read about ABA stated that is most effective when done in a home environment. Since I knew that all of the participants have worked in a classroom where they have implemented ABA I wanted to see if they thought it was effective in a classroom. They all stated that they think it would be extremely successful in a classroom setting as long as everyone in the room is implementing ABA at the same time. They also said that it would very effective if all of the staff in classroom was trained in ABA so they are implementing it correctly. Three out of the eight also stated that it would only be effective if it was done in a self-contained classroom, they did not think that it would be as effective if done in a general education classroom. I agree with that statement. I think that if you are going to use ABA in you classroom it needs to be done with a population that would benefit from it. I would not use it in a general education classroom where none of the children are on the spectrum. I also think that it is important

for you to implement ABA at the same time as everyone else in the room, or you need to take that individual out of the classroom to a quiet area. If ABA is implemented while other students in the classroom are doing something else than that he could become very distracted and not be able to complete the task that was given to him.

The next question that was asked in the survey was asking the participants if they thought ABA was a tool that could be used for every child on the Autism Spectrum. This was a way for me to see if ABA could be effective on every child with Autism. All eight participants answered the question. Some answered it with more details than others but everyone gave an answer to the question.

Two out of the eight participants stated that they did not think it would work on every child that is on the Autism Spectrum. One of them stated that they think the reinforcer at the end of every trial works for every student but the method of ABA may not work on every child. The other one stated that they think that a child can also learn with the naturalistic approach and that if that is the case then they should be taught that way. They also said that it could be boring to students that are higher up on the spectrum and need more of a challenge. I agree with that but there are ways that you can change ABA to meet every child's needs. It is recommended that you follow the ten trial rule when you first start ABA with a child but once you get to know that child and are able to know his academic and behavior goals you can change it so it is adapted for his learning style. Another one of the participants stated that they were not sure if it would work for everything because they have only been working with ABA for about a year.

Five out of the eight participants stated that they do think ABA is a useful teaching tool for children on the Autism Spectrum. One of them stated that during their

time working with ABA they have not seen a child not make any type of progress. That shows me that ABA is effective and it can be done with everyone that is on the Autism Spectrum. Another participant stated that they think it can be used on everyone and that when we are teaching infant's different colors or letters that we are implementing ABA without even realizing it. I agree with that statement. It is also like when you train a dog to do a trick. The dog does the trick and then you give them a treat. When implementing ABA you are doing the exact same thing, every time a child does or says a correct answer they receive some sort of positive reinforcement whether it be a verbal reinforcement or allowing them to play with a toy.

Two of the participants stated that if ABA were implemented correctly then every child on the Autism Spectrum would benefit from ABA. The last participant stated that they have seen progress with every student that they have worked with unless they had a severe medical condition where it caused them to struggle. These statements have shown to be correct in all my experience with ABA. I agree that every child can benefit from ABA. I think that ABA should be started out early right after the child has been diagnosed. Data has shown that the earlier you start ABA the more progress you will be able to see. I have had a child that has had a medical condition dealing with his brain, and the parents still wanted to try ABA to deal with behaviors. This child has shown a tremendous amount of progress and the mom wants to pull him out of school and just do ABA services. Even though that child does have a serious medical condition he was still able to show progress.

The next question asked in the survey was asking if there was any flexibility in ABA since it is very structured. I know that in any teaching style in order for something

to be effective you need to be able to be creative and that is what I was looking for while asking this question. All eight of the participants responded to the question, some went into more detail than the others did but still answered the question. All eight of the participants stated that there is flexibility in ABA just like in any other teaching style. The answers varied in why they thought it was flexible.

Two out of the eight participants stated that ABA is flexible by being able to manipulate the stimuli, and the presentation of the task, as well as the responses. Another participant stated that once the child is ready the instructor could add more steps to the program. Two out of the eight participants stated that there is a ton of flexibility in ABA once you can start generalizing it into everyday skills. Three out of the eight participants stated that there is flexibility when it comes to the needs of your student and how you want to implement it. In my experience with ABA I have had the chance to be very flexible with students. Especially when it comes to materials and stimuli, you are able to use as many materials as you would like or as little as you would like depending on your child. I have also had the experience of flexibility when generalizing a task into every day life. For example, teaching a child to ask for a break was easily generalized into every day life. When this child's mom asked him to do something and he was very agitated he was able to tell her he needed a break and this was his way of telling his mom he did not want to do what she was asking. I had a child that was learning their colors and when we were out in the community there was a picture of a yellow sign and I asked him to touch yellow and he was able to. Once a skill is known there is a lot of ways that you can be flexible to make sure that child has maintained that skill.

The next question asked was asking the participants to talk about one of their biggest obstacles while implementing ABA. I wanted to see if there was any big obstacle that would make ABA not an effective teaching tool. All eight of the participants answered the question but not all of them answered in great detail about why it was such an obstacle. Individuals gave me a different answer as to what their obstacle was.

One participant stated that their biggest obstacle was getting the parents to support the instruction. While another participant stated that when first starting out she struggled with how to implement ABA. One participant stated that the biggest obstacle was working with younger children and having them be able to sit down for a period of time was very difficult. Two participants stated that getting all the materials and their ABA binder ready was their biggest struggle. Another participant stated that the biggest struggle was keeping up a rhythm and learning the child's routine, while another participant stated hers was trying to implement new behaviors. Lastly, the last participant stated that the biggest struggle was making sure the child knew the expectations.

All of these are struggles that we would be able to see in any teaching style, especially when working with kids at such a young age. Having a three year old sit during morning meeting time is hard in the beginning but once they learn routine they are able to do so. Just like when implementing ABA. It is going to be a struggle at first to make sure you are building a relationship with that student but also implementing instruction at the same time. My biggest struggle was making sure that the child knew my expectations. Once they knew what to expect from me all behaviors and trying to get out of work came to an end. I have had the experience of being able to sub in different classrooms and just like when implementing ABA I had the struggle of making sure the

students knew my expectations. Just like in any learning style there are going to be obstacles but all of these obstacles that these individuals faced were obstacles that they were able to work through for the outcome of the child.

The last question that was asked in the survey was asking the participants if they had any other comments they wanted to share about ABA. Out of the eight participants only five of them answered. They were all positive responses explaining how ABA was effective.

One participant stated that they have been doing ABA for over 23 years and have found it to be very effective. Two participants stated that they liked how it taught students in repetition and made it easier for them to learn. The last two participants said they have really enjoyed ABA and have had nothing but positive experiences with it. They also said that they think it is a great way to teach children on the Autism Spectrum. I agree with all of these comments. I myself have had many positive experiences with ABA and think the repetition of teaching is a very effective way of teaching children on the Autism Spectrum. Since these children like the structure and like to know what comes next the repetition of skills allows them to have that sense of routine and know what to expect next.

Conclusion:

This research project was completed to see if ABA is an effective teaching tool for children on the Autism Spectrum. After analyzing my data I have found many reasons as to why it is effective. It allows you to see progression and regression easily, it is geared towards the child's needs, and almost every child that has done ABA has shown some amount of progression in their abilities.

Since I did complete this research project using surveys I might go on next and do a case study. I would really want to observe a child that is getting ABA implemented with them on a daily basis. I would observe the child and the instructor for about three to four weeks and write down all the progress and regression that I have seen in the child. The surveys just allowed me to get an interpretation of what ABA is all about and why it works. Being able to sit down and actually observe and do a case study focusing on one child would give me more data to work with.

Even though I have worked with children on the Autism Spectrum and have had the chance to implement ABA, there is still a lot that you can learn from doing a study on it. I was able to see what worked for other educators who have worked with ABA before. I was also able to see what was frustrating them and understanding that I had some of the same frustrations when I first started implementing ABA. I was never able to get a chance to really analyze ABA when I was implementing it at the Autism Agency that I worked at. Now that I have had the opportunity to study it I can see why educators use it as a tool to teach children on the Autism Spectrum. It shows a lot of promise that it works and that there is data that shows that mostly every child will show progress.

ABA is a teaching tool that can be used in the classroom or outside of the classroom to help educate children on the Autism Spectrum. It is used as a tool to help minimize negative behaviors and help reinforce the positive behaviors. ABA is effective because it allows a child to learn based on their needs in a repetitive manner.

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