BRINGING APPLIED BEHAVIOR ANALYSIS INTO THE CLASSROOM: A WORKSHOP FOR PRESCHOOL AND ELEMENTARY SCHOOL TEACHERS AND PARAPROFESSIONAL AIDES

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Lauren Renee Burner

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A Project

by

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Abstract

of

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Statement of Problem

With the number of children diagnosed with autism increasing, teachers and paraprofessional aides are experiencing high numbers of students diagnosed with autism spectrum disorder in the mainstream classrooms. Although teachers and aides may have some background knowledge in behaviorism, techniques such as applied behavior analysis may not have been included in their educational backgrounds. Applied behavior analysis (ABA) is a system of tools and methods designed to assist teachers in working with children diagnosed with autism. Applied behavior analysis strategies promote higher incidences of appropriate social, behavioral, on task and language functioning for children with autism. Providing teachers and aides with training methods and strategies of ABA to utilize within the classroom for their students diagnosed with autism spectrum disorder was the main goal of this project.

Sources of Data

The researcher developed a three-part workshop series that presented teachers and aides with information on autism spectrum disorder, behaviors associated with the disorder, award systems, and reinforcement and incorporation methods. The researcher also developed a supplemental manual with all information provided in the workshop series to serve as a future resource. Participants were provided with a packet that contained all power point presentations, handouts and activities, as well as a manual.

The researcher also developed an activity in the first and last workshops to assess the participants' present and past knowledge of autism spectrum disorder, behaviors associated and present therapeutic options. At the end of the workshop presentations, participants completed a brief evaluation rating their experience in the workshop.

Conclusions Reached

Analysis of the data from group activity from presentations one and three showed that 33 out of the 35 participants increased their knowledge of terms and phrases related to autism spectrum disorders' 29 out of the 35 participants increased their terms and phrases for behaviors associated with autism and 31 out of 35 participants increased their terms and phrases for therapeutic options.

Results from the evaluation survey indicated that the overall experience of the workshop presentation was valued and enjoyable. Participants indicated that they gained a significant amount of knowledge and would be able to implement this knowledge into their classrooms appropriately. Participants also indicated on the future suggestions and

comments option that they would like to see more professional guest speakers in the presentations. Future recommendations would suggest having follow-up workshop trainings with the teachers and aides to see if the ABA behavior management systems have been incorporated effectively in the classroom.

_____, Committee Chair
Dr. Lynda Stone

_____
Date

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Chapter 1

INTRODUCTION

According to the website, Autism Speaks (2011), the numbers of cases of autism is increasing 10-17% annually. Autism is now more common than childhood cancer, juvenile diabetes and pediatric AIDS combined, with one in every 88 children diagnosed. Roughly 10 years ago, autism was considered a rare disorder and now, 16 million children have been diagnosed with severe attention, behavioral and learning problems consistent with autism spectrum disorder (Melilo, 2010). This state of affairs, unfortunately, has not yet been addressed adequately in the training of practitioners who work daily with children who are diagnosed with this disorder.

Not surprisingly, children with autism spectrum disorder are being placed in mainstream classrooms with greater frequency. The teachers and district aides in these classrooms have limited knowledge of one the more successful strategies for helping children with this disorder: behaviorism. Although many teachers have a basic understanding of behaviorism and its usefulness with typical children, they do not have an understanding of how these methods can be used effectively for children displaying symptoms of the autism spectrum disorder (Leach, 2010). The use of behaviorism with this disorder has been developed into a systematic approach referred to as *Applied Behavior Analysis* (ABA). ABA is a collection of tools and methods shown to be very beneficial for working with children with autism spectrum disorder (Callahan, Shukla-

Mehta, Magee, & Wie, 2010; Cooper, Heron & Heward, 2007; Leach, 2010; Spreckley & Boyd, 2008, Smith & Eikeseth, 2010; Virues-Ortega, 2010). But teachers and their assistants are not generally taught these skills and methods, nor how to implement these methods effectively with autistic students. This state of affairs is troublesome since students exhibiting this spectrum disorder are rapidly growing in numbers and have an exceptionally difficult time attending to and processing information independently as well as difficulties forming social relationships (Melillo, 2009). Providing teachers and district aides with in-depth, systematic training in the use of ABA in the classroom have the potential to help teachers develop pedagogical competencies to help children on the autism spectrum. The training will assist in the development of skills and strategies needed to regulate their behavior and engage in productive learning both independently and collaboratively. Applied behavior analysis training will also help teachers and paraprofessionals develop the skills needed to manage their classroom in order to encourage and foster social-emotional and intellectual growth for all students from diverse backgrounds including those diagnosed with autism.

This project was aimed at providing training to teachers and aides in the use of ABA. The researcher's combination of a manual and training series provided teachers and district aides with the needed knowledge about ABA with the hope of creating a sense of confidence and empowerment to encourage their students on the autism spectrum to engage in productive learning independently with peers.

Purpose of the Project

The purpose of this project was to provide a workshop series and training manual for preschool and elementary school teachers and district aides on ABA methods and techniques. The workshops and manual were designed to provide teachers with background information about ABA, its effectiveness, and its usefulness for fostering active engagement in children diagnosed with autism spectrum disorder. The background information on ABA was combined with information on effective teaching strategies and their use with the particular behaviors characteristic of this disorder. Workshop topics also included methods for decreasing unwanted behaviors in the classroom and for integrating students into everyday activities within the school environment.

The workshops and accompanying manual provided teachers and district aides with an understanding of the tools and techniques associated with the ABA method. The presentation also incorporated group activities, PowerPoint presentations and examples of classroom materials. The workshop series consisted of 9 hours of extensive training in methods and procedures to help teachers support learning and decrease unwanted behaviors often seen in children with autism spectrum disorder. The focus of the content was primarily based on classroom behaviors associated with autism and specific behavioral techniques to help eliminate these problem behaviors. Incorporation methods such as language, socialization with peers and other methodologies were also introduced; these strategies allow the student to develop a sense of collaboration within the classroom

environment. Techniques such as parental communication, relationships with students, and reward systems were incorporated into the presentations to further increase teachers' and paraprofessionals' knowledge of how to encourage their students and provide consistency within the classroom environment.

Statement of the Problem

According to the website, Autism Speaks (2011), the number of cases of autism is increasing 10-17% annually. Autism is now more common than childhood cancer, juvenile diabetes and pediatric AIDS combined, with one in every 110 children diagnosed. Roughly 10 years ago, autism was considered a rare disorder and now, 16 million children are diagnosed with severe attention, behavioral and learning problems (Melilo, 2010). Although there are many different treatment options available, applied behavior analysis (ABA) has been shown to produce improvement in cognition, social skills, language and behavior management for children diagnosed with autism spectrum disorder (Autism Speaks, 2011; Leach, 2010; Smith & Eikeseth, 2011; and Virues-Ortega, 2010). ABA was created by Dr. O. Ivar Lovass to decrease the incidence of severe or challenging behaviors and increase appropriate social behaviors and language in children diagnosed with autism spectrum and other related disorders (Smith & Eikeseth, 2011). ABA is a systematic behavioral method that is based on the study of observable behaviors that defines specific procedures needed to handle children with severe language or behavioral difficulties (Virues-Ortega, 2010). Applied behavior Analysis has been shown through extensive research, to be the most effective

intervention treatment program for children diagnosed with autism or other pervasive developmental disorders (Maurice, Green & Luce, 1996).

The rising number of children diagnosed with autism attending public school means that training of teachers and paraprofessionals is a crucial element in supporting these children's overall development. School districts often provide additional staff in the form of classroom aides. But teachers and aides are not always adequately trained in how to work with children diagnosed with special needs such as autism (Sheldon, 2011). District aides are only required to meet the minimum qualifications of a high school diploma and two years of college (Bureau of Labor Statistics, 2009). In some districts, private companies are contracted to provide classroom aides, but recent budget cuts have led many districts to cut back or eliminate the use of private company aides. This lack of training and proper support staff means that children diagnosed with autism many not be receiving adequate services in their elementary classrooms.

One solution might be to require that teachers and aides be trained in the theories and methodologies of ABA. Such training would give teachers and aides the information and strategies to support learning and development for children with autism. But ABA certification requires extensive training and education in the methodologies associated with this specific technique. Classroom teachers and district aides may not have the time or monetary resources to complete such training on their own.

Significance of the Project

Applied behavior analysis (ABA) is one method that has been shown to be effective with autistic children (Smith & Eikeseth, 2011). ABA methods include tools to increase appropriate behaviors through the use of management systems and providing alterations in the immediate environment to benefit children on the autism spectrum (Spreckley & Boyd, 2008). The ABA approach incorporates methods such as token boards, contracts, and visual schedule icons for reinforcement and award systems (Packiam et al., 2009). Research studies have documented the efficacy of these reward systems in increasing appropriate behaviors and decreasing inappropriate behaviors within the classroom (Packiam et al., 2009; Shneider & Goldstein 2010). Other studies have found that reinforcement techniques such as lists, social stories, and songs also help to promote appropriate behaviors in the classroom (Schneider & Goldstein, 2010, Kern, Wolery & Aldridge, 2007). Not only do these systems promote independence for the students, but they also decrease the amount of disruptive behaviors in children with autism (Packiam et al.). Other methods that have been shown to be effective require the manipulation of environmental stimuli, for example, altering the lighting in the classroom or removing self-stimulatory items to increase appropriate behaviors (Menzinger & Jackson, 2009). These techniques seem simple, but effective implementation in the classroom requires extensive training in order to insure consistency in their use with children diagnosed with autism.

Although teachers, and to a lesser degree instructional aides, receive some formal training in classroom behavior management, this training does not usually focus on

special needs populations. Further, most teachers and aides have little to no professional education or experience in working with children diagnosed with autism spectrum disorder. This state of affairs is exacerbated by the fact that district aides are only required to have a high school diploma and some college experience that does not have to be related to child development or special need disorders. Likewise, teachers are not required to have specific training in the behavior management, incorporation and environmental techniques that reflect ABA methodologies

Despite this lack of skills among teachers and aides, studies indicate that training offers an effective means of providing teachers with these skills. One such study conducted in 2007 by Young and his colleagues researched a program to train paraprofessionals working with children enrolled in inclusion programs. Results showed that teachers who were specifically trained in the techniques and methodologies of ABA had a better relationship with their students and saw fewer problem behaviors within the classroom (Young, Simpson, Myles & Kamps 2007). In a program developed for teachers, Duchaine, Jolivette and Frederick, (2011) incorporated training in behavior specific communication and coaching. Assessment of this program indicated that teachers who were specifically coached on how to discuss issues with their students had fewer problem behaviors within the classroom.

In order for teachers and aides to lower the number of problem behaviors in their classrooms, they must be trained in the methods of ABA approach. The training workshops and materials for teachers and aides developed in this project were based on a review of past literature related to behavior management in the classroom,

award/punishment systems, language and communication incorporation methods, and ABA specific methodologies for working with children on the autism spectrum. Specific literature in teacher and student communication, and including incorporation methods in everyday activities for students in early elementary environments was also examined. The training workshops and accompanying manual provided teachers and district aides the opportunity to develop an understanding of strategies for supporting the development of their special needs students. In particular, the ABA techniques presented were designed to assist teachers and paraprofessionals in working with children on the autism spectrum disorder.

Methods

The purpose of this project was to create and present a series of workshops for preschool and early elementary level (Pre-K to grade 5) teachers and classroom aides to provide them with the knowledge and strategies for working with students diagnosed with autism in mainstream classroom environments. Teachers and aides also received an accompanying resource manual. Development of the workshops was based on a review of the related literature, as well as the researcher's own previous experience working with children with autism. The manual created for the purpose of this workshop presentation focused on appropriate reward and punishment systems. The workshop and manual content also reflected the in-home therapy methods and ABA guidelines in which the researcher has been personally trained.

The participants involved in this project ranged from newly experienced (0-5 years) to high experienced (6 or more years). Thirty-five participants (22 teachers and

13paraprofessional aides) attended the workshop trainings. Participants were recruited from local school districts (El Dorado, Folsom-Cordova and Sacramento Unified) as well as through the connections of the researcher's current employer, a company that provides training for families with special needs children.

The workshop series was comprised of a series of three sessions. The first session provided a basic overview of autism spectrum disorder as well as an activity to assess the participants' current knowledge about autism spectrum disorders, classroom behaviors and strategies. The second session of the workshop focused on methods to promote appropriate behavior management in the classroom. The use of appropriate award and punishment systems was introduced and explained. The last session of the workshop identified incorporation methods to assist students diagnosed with autism in the everyday activities of their classroom environment. At the beginning of the first workshop and the end of the third workshop, an identical activity was presented to assess potential increased knowledge on autism spectrum disorder.

Definition of Terms

Applied Behavior Analysis: a systematic approach to altering behavioral development consisting of three levels; description, prediction, and control; aimed to seek and organize knowledge of observable and social behaviors (Cooper, Heron & Heward, 2007, p. 6).

Autism Spectrum Disorder (ASD): a group of related developmental brain disorders. The term "spectrum" refers to the range of mild to severe communicative, social and developmental delays which can be displayed among children with ASD.

http://www.nimh.nih.gov/health/publications/a-parents-guide-to-autism-spectrum-disorder/what-is-autism-spectrum-disorder-asd.shtml

Early Intervention: services for children (as young as 3 months) with mild to severe disabilities designed to improve developmental and learning outcomes by providing early, appropriate, and intensive intervention programs (Cordella, 2005).

Full Inclusion: a model of public school placement wherein children with autism attend regular classes with typically developing children (Maurice, Green & Luce, 1996, p. 48).

High Functioning Autism: children diagnosed with ASD who display average or above average intelligence level; do not have a serve delay in communicative development but a lower understanding of emotional and social relationships (Kanai, et. al., 2011).

Low Functioning Autism: children diagnosed with ASD who are mentally challenged (low communication skills, low ability to comprehend basic instructions) and display extremely limited receptive and expressive language skills (Maljaars, et al., 2011).

Pragmatic Speech: a speaker's ability to create relatable and organized language as well as to use language in a variety of appropriate ways (Sobel, 2012).

School-or Center-based Behavioral Intervention: educational programs in schools or preschool center-based programs using behavioral methods, including applied behavior analysis with preschool sand school-age children with autism (Maurice, Green & Luce, 1996, p. 37).

Stimming: repetitive stereotypic behaviors commonly found in children diagnosed on the autism spectrum; these behaviors may involve all of the senses in various degrees such as

hand flapping, vocal repetition and walking on tip toes (Maurice, Green & Luce, 1996, p, 85).

Limitations

There were several limitations that may influence the efficacy of this project. First, providing a teacher with specific training in ABA methods through the workshops does not guarantee that they will be successful in implementing these methods in their classrooms. Effective use of applied behavior analysis techniques in the classroom requires that teachers be consistent and willing to follow through with behavior programs and protocol. Since the project did not include any follow up data on teachers' implementation of the methods, the researcher is unable to determine to what extent teachers will be able to effectively use the ABA strategies. For instance, even after the training, some teachers may be hesitant to implement autism specific programs within the classroom and may still rely on trained behaviorists to provide therapy instead.

Another limitation is the time constraints inherent in a workshop-based training model. Because applied behavior analysis is constantly changing and research is being developed to improve the field of autism awareness and education, providing the most recent research techniques and therapy methods would require that teachers take time out of their schedules to continue the training within their school districts. There is already enough pressure for teachers to remain in the classroom, that further training may not be an option for teachers and district aides.

Another limitation within this project was the fact that the training workshops and manual occurred in the middle of the school year. Teachers and paraprofessionals

already have an understanding of their student within their classroom and altering their environment so late in the school year may alter their progress within the classroom. Targeting a workshop series at the beginning of the school year may be more valuable in the implementation of behavior systems within the classroom and to see the progress from their individual student.

Organization of the Project

This chapter has presented an overview of a project to provide training for classroom teachers and aides in the methods of applied behavior analysis, in order to facilitate their work with children on the autism spectrum. Chapter 2 entails an extensive review of autism spectrum disorder and how to bring specific techniques and methodologies of applied behavior analysis (ABA) into the classroom for teachers and district aides. Specifically, this chapter focuses on the behaviors associated with autism spectrum disorder and the techniques and methods provided by ABA. This chapter also thoroughly explains reward and punishment systems for children on the autism spectrum. This explanation will clarify how to incorporate these methods for students enrolled in inclusion classrooms. All of the provided information and explanations are based on previous research studies and their findings.

Chapter 3 discusses the details of the project including the project design, setting and participants. The procedures followed to complete the project are also explained. Chapter 4 provides a discussion of the completed project and recommendations for future use. Results from the participant assessments are also presented. Practical utilization of the workshop will also be suggested and advice for future implementation.

Following chapter 4, appendices are provided. These include the full set of materials used in the workshops, such as PowerPoint slides and materials given to participants, and the manual. Also included in the appendix section is the evaluation survey completed by the participants. Figures displaying the results of the evaluation will follow the appendix section.

Chapter 2

LITERATURE REVIEW

Introduction

An extensive body of research has been conducted on the use of applied behavior analysis (ABA) in school and home settings (Callahan, Shukla-Mehta, Magee, & Wie, 2010; Cooper, Heron & Heward, 2007; Leach, 2010, Spreckley & Boyd, 2008; Smith & Eikeseth, 2010; Virues-Ortega, 2010). The purpose of this project was to develop and present a training workshop for teachers and paraprofessionals to support their use of ABA techniques with autistic students in their classrooms. The following review presents an overview of the characteristics and incidence of autism. A broad review of ABA treatment options will be discussed, followed by an examination of systems used in the classroom to benefit children on the autism spectrum. A review of training programs and procedures and their associated benefits is also included.

Autism Spectrum Disorder

According to the Autism Speaks Now website (ASN), autism is a "general term used to describe a group of complex developmental brain disorders as pervasive developmental disorders (PDD)" (ASN, 2011). Some of the pervasive developmental disorders that are associated with autism spectrum disorder include Asperger syndrome, childhood disintegrative disorder and Rett syndrome and other forms of brain disorders.

Parents and medical professionals refer to this group of complex developmental brain disorders as autism spectrum. Autism spectrum disorders are being seen throughout the nation, with 1 in every 88 children diagnosed with autism. It is estimated that 1.5 million individuals in the United States are affected by autism and tens of millions worldwide know someone or have a family member diagnosed with autism (ASP, 2011).

Diagnostic rates for autism differ greatly between the genders. Currently, one out of seventy boys will be diagnosed with autism, whereas only 1 in 135 girls will be diagnosed (Matson, Beighley & Turygin, 2012). Research has not yet determined the causes for this gender difference in rate of incidence for autism. However, it should be noted that children diagnosed on the autism spectrum exhibit different symptoms and characteristics. While some children may express a deficit in language and verbal communication, other children may have more deficits in social development. Characteristics and symptoms of autism are not universal and each individual child will display different strengths and weaknesses in the degree to which the autism spectrum disorder is expressed in behavior (Dawson, Toth, Abbott, Osterling, Munson, Estes & Liaw, 2004).

An extensive body of research has focused on identifying the possible causes of autism spectrum disorder. Recent studies have been focusing on the importance of environmental factors associated with autism. Some of these studies have attempted to identify a connection between exposure to harsh chemicals and pesticides and diagnoses of autism. D'Amelio, Ricci, Sacco, Muscarella, Guamieri, militerni and Bravaccio (2005), explored past literature on whether exposure to organophosphates within

household environments was associated with a diagnosis of autism. Organophosphates are found in popular household pesticide and insecticide products. The researchers concluded that mothers who used pesticides and insecticides while pregnant had an increased chance of their child being diagnosed with autism spectrum disorder. Charboneau and Koger (2008) also reviewed past research articles on regular exposure to harsh environmental plastics, pesticides, and flame retardants. They concluded that such exposure significantly affected the endocrine levels for brain development prenatally. These reviews confirm that use of environmental toxins is significantly associated with an increase in autism, although it is not yet certain whether this is a causal relationship.

Other studies have examined whether vaccines, including exposure to multiple vaccinations in one sitting are related to an increased risk of autism. Price, Thompson, Goodson, Weintraub, Croen, Hinrichsen, Shay and Davis (2010) focused on prenatal and infant exposure to vaccinations containing mercury. These researchers hypothesized that the amount of mercury found in vaccinations would be significantly associated with autism spectrum disorder. They acquired medical charts of 256 children on the autism spectrum disorder and 756 control patients matched by the same year. They measured the patients at 1-month, 7-month and 20-month intervals after vaccinations were delivered. Results did not demonstrate any relationship between mercury preserved vaccinations and autism spectrum disorder. Similarly, Miller and Reynolds (2009) explored whether the use of multiple vaccinations at the same point in time was associated with a diagnosis of autism spectrum disorder. Although there was a correlation between the use of mercury containing vaccinations and diagnosis of autism,

findings remain inconclusive as to whether multiple vaccinations delivered at one time causes autism. At present, the extensive body of research on vaccinations has failed to identify any links between vaccinations such as measles, mumps and rubella and autism spectrum disorder. Nevertheless, parents and other family members affected by autism are encouraging further studies of vaccinations.

Other avenues of research are more focused on preventative factors and therapeutic approaches related to the development and treatment of autism. Curtis and Patel (2008) conducted a meta-analysis of research on options such as nutrition and alterations in the environment. The researchers concluded that there is a significant link between prenatal exposure to mercury, lead, pesticides and maternal smoking and higher levels of autism spectrum and attention deficit hyperactivity disorders. In addition, nutritional deficiencies have been identified in autistic patients according to Curtis and Patel. These researchers noted that supplemental nutrition treatments such as omega 3 fatty acids, zinc, magnesium and avoidance of food chemicals have been found to decrease the incidence of behaviors and characteristics associated with autism (Curtis and Patel).

Although many chemical and allergen factors have been examined as possible causes for autism spectrum disorder, there is no clear identifiable cause that can account for the high number of children being diagnosed and displaying symptoms of this disorder. Researchers are continuing their efforts to identify preventative measures which might be effective in lowering the number of children diagnosed. One challenge in understanding and treating autism, however, is that it cannot be defined as a single,

unitary condition. Rather, characteristics associated with autism differ from child to child.

Because of the individual nature of autism spectrum, each child with this disorder requires individual attention and therapy options. Among the many treatment and therapy options being used today, applied behavior analysis (ABA) may provide a powerful potential therapy option. The strategies and methods used in ABA have been shown to alleviate many of the mal-adaptive behaviors of children with autism spectrum disorder. Although ABA is a beneficial treatment option, it has not been widely introduced at the preschool and elementary school age level. As a consequence, teachers and paraprofessionals have little knowledge about the benefits of ABA as well as limited understanding of how to use this method in academic settings with special needs children (Grey, Honan, McClean & Daly, 2005).

Applied Behavior Analysis

Applied behavior analysis (ABA) is a method used to treat the behaviors of children diagnosed with language deficiencies and behavioral problems (Smith & Eikeseth, 2011). Created by Over I Lovaas, ABA techniques and methods are designed specifically for the treatment of language difficulties and behavior issues in children diagnosed on the autism spectrum. According to a 2009 study of the effectiveness of ABA methods, use of long-term and comprehensive applied behavioral analytic intervention with young children with autism produced a significant improvement in intellectual processing, social functioning, language acquisition and daily living skills (Virues-Ortega). The effectiveness of ABA therapeutic methods has been widely

examined in the home context as individualized instruction and treatment for children with autism (Cooper, 1982; Dojo, 2007; Kuhn, 2010; Ward, 1991). Although ABA methods have been primarily used within home settings, these methods can be implemented within the classroom. Teachers and paraprofessionals may have a better understanding of their students diagnosed on the autism spectrum if they have the basic foundations of ABA techniques and methods to use in their classrooms. However, teachers and paraprofessionals can only instill the principles and methodologies of ABA in the classroom if they have been effectively trained in the tools necessary to implement ABA approaches.

The principles and methodologies of ABA address behaviors that are measurable and observable. Although behaviors that are in response to emotional situations are beginning to be included in the study of autism (Foxx, 2008), ABA methods do not as yet address the affective domain. The reason for this is that the antecedents to affective engagement do not easily assist teachers and paraprofessionals for behavior management systems (Spreckley & Boyd, 2009). It is easier to determine and measure antecedents for observable behaviors, and therefore easier to organize specific behavior management tools to alleviate these behaviors within the classroom or at home. ABA methods are not intended for use with emotional triggers such as happy, sad or angry because it is difficult to design for future prevention strategies for those kinds of triggers. As a consequence, the target observable behaviors for which ABA methods are primarily designed generally have a clear antecedent or cause of the behavior.

Applied behavior analysis methods require caregivers, including parents and teachers, to use clear and concise rewards or punishment systems to shape the desired behaviors for a specific child, and to use these methods consistently over time. For positive behaviors, rewards should be contingent upon the child exhibiting appropriate characteristics such as attending, appropriate sitting, and answering questions correctly. These rewards should be delivered immediately following the appropriate behaviors (Simpson, 2004; Zucker, Perras, Perner & Darlene, 2010). In a similar manner, punishment or consequences for negative behaviors are expected to be delivered immediately following the behavior. Punishment and consequences include such actions as ignoring the immediate behavior, redirecting the behavior and following through with the initial instruction or correction (Leach, 2010). These response actions must immediately follow the undesirable behavior to be effective.

Applied Behavior Analysis in the Classroom

Many teachers and aides make use of simple behaviorism methods such as award and punishment systems to guide and manage students' behaviors in the classroom. Although these methods may be appropriate for many classroom environments and behaviors, they are generally not adequate for addressing the needs of students on the autism spectrum. Implementing ABA techniques within the classroom can promote a consistent environment for the child diagnosed with autism spectrum disorder, since, ABA tools are specifically designed to address the individual needs of autistic individuals Ward, 1991). ABA training is a concomitant part of classroom management for teachers and aides with students with autism. But teachers and paraprofessionals need the training

to implement these systems into regular classrooms in order to understand that these methods can alleviate problematic behaviors for children with autism.

Similar to home environments, successful implementation of ABA techniques and methodologies in classroom settings also requires consistency of use in order to best achieve desired changes in students' behaviors. Another means for promoting consistency is the opening of a line of communication between the classroom and the home. Communication among all of the individuals who interact with children diagnosed with autism creates a supportive community and will contribute to the teacher and aides' implementation of ABA (Nickels, 2011).

Another feature of ABA is the use of peers within the classroom to increase socialization and positive behaviors in students with autism spectrum disorder (Callahan, Shukla-Mehta, Magee & Wie, 2010). Incorporating peers as models within the classroom is a critical piece in the development and influence of social awareness. In a study conducted by Oppenheim-Leif, Leaf, Dozier, Sheldon and Sherman (2012) typically developing children were taught how to promote social play and model social skills with their siblings diagnosed with autism spectrum disorder. As the children diagnosed with autism spectrum disorder improved their social skills, they also increased their positive interactions and decreased negative interactions during free-play periods. Although this study was implemented using siblings as models for teaching social skills, the methods used can be easily transferred to the classroom using classmates as models for social skills.

Strain and Swartz (2001) measured the influence of ABA methods on peer interactions in the classroom environment. The researchers used a peer buddy system where typically developing peers shadowed their peers with autism and served as models. These researchers found that children with autism spectrum had significantly lower levels of social interactions. However, children with a typically developing peer as a buddy increased their social skills with the presence of a teacher. Teachers who encouraged this interaction were found to be the sole providers to encourage the interactions between typically developing peers and children with autism spectrum disorder. Providing consistent support and reinforcement contingent upon demonstration of social behaviors, such as engagement and participation within a group is a primary purpose of ABA techniques. Teachers and paraprofessionals have the opportunity through ABA to encourage and support their autistic students in social interaction within the classroom. ABA methods can also help teachers to specifically identify how to incorporate typical peers in the classroom into social interactions with students on the autism spectrum.

Another study conducted by Haydon, Mancil and Loan (2009) examined the use of ABA approaches in a general education classroom with a 9 year old female autistic student. The researchers used ABA methods to increase opportunities for language opportunities such as response rate, pausing in sentences, requesting fill-ins, and incorporating absurdities into sentence structures. Haydon et al. found that providing autistic students with more frequent opportunities for answering and responding led to less frequent occurrences of disruptive behaviors and more frequent occurrences of on task behaviors.

ABA techniques and methodologies can provide students with autism the behavioral consistency they need in order to function appropriately and engage in productive learning in classroom settings. Appropriate classroom use of behavior specific praise, effective award/punishment systems and appropriate incorporation methods are critical for the effective functioning of the child with autism. With the proper training in ABA tools, teachers and paraprofessionals will be able to implement ABA behavior management strategies into their classroom practices.

Functioning effectively is the most critical piece in any discussion of classroom management for children with autism. Effective functioning can be described as children altering and coordinating their behaviors to meet the conditions and expectations of the environment and the people present. For learning to be effective, children and adults need to regulate and coordinate their behaviors in order to achieve academic, social and person success. Regulation of behaviors for children diagnosed with autism is not an easy task. Teachers and paraprofessionals can benefit greatly by understanding the ABA behavior management strategies and systems available for students with autism. Furthermore, teachers and paraprofessionals who are unwilling to alter their teaching practices can indirectly and unknowingly contribute to the increase of unwanted behaviors in children with autism (Melillo, 2010). One primary focus of ABA strategies is the use of behavior systems.

ABA Award and Punishment Systems

There are multiple reward and punishment systems that are appropriate for children diagnosed with autism spectrum disorder. These award and punishment systems

can be adapted to meet a child's individual needs. Some of these systems include: a) contracts and token boards, b) scripts and task analyses, c) visual schedules and activity schedules, and d) songs and social stories. These systems are widely used in classrooms, but they are not always appropriately and systematically introduced into inclusion classrooms for children with special needs. Although these systems did not originate with ABA, they have been adapted in their presentation and delivery to meet the standards and goals of the ABA method. The following discussion explains each of these systems in detail with an emphasis on the relative ease or difficulty of implementation. Research studies that elucidate the effectiveness of these ABA techniques in promoting academic progress, fostering independence and shaping behaviors of children diagnosed with autism are also discussed.

Contracts and token boards are simple award systems that have been show to help diminish inappropriate behaviors in classrooms. These kinds of reward systems can be easily implemented within the classroom environment. These systems are discreet enough that they minimize the potential for conflict with other peers in the classroom. Contracts can be created for individual children and act as essential guides that children can have in front of them. These guides are used as constant reminders of the rules in the classroom or expectations that the teacher and their educational team have put in place for that specific child. A contract includes approximately 3-4 rules that identify how the child is expected to engage in class. An example of some rules that would be included are "I looked at my teacher", "I sat nicely at circle time", etc.

Reinforcement for contracts should be chosen prior to reviewing the contract. Reinforcement can include tangible reinforcers such as social praise and toys, or edibles. After a specified amount of time, the child and the teacher or aide review the contract to determine if the child is awarded access to a previously chosen reinforcer. Marking on the contract whether or not the child engaged in the appropriate behaviors in each category would be contingent based on the teacher or aide observing the child's engaging in the target behavior. Studies of such contract systems indicate they are effective in achieving a significant decrease in unwanted behaviors in an increase in classroom participation (Mruzek, Cohen & Smith, 2007). For example Mruzek et al. looked at the effectiveness of contracts within the classroom and if they decreased unwanted behaviors for children on the autism spectrum. It was found that children who incorporated contracts into their daily routine had fewer problematic behaviors and an increased levels of class participation.

Another system to decrease unwanted behaviors in the classroom is the use of token board economy systems. Token board economy provides reinforcement to students contingent upon their exhibiting appropriate behaviors such as attending, answering questions correctly and independently or maintaining appropriate body posture. The goal of token board economy is to encourage students to engage in complex learning with other peers in the classroom. The token board also provides another visual aid that children diagnosed with autism can refer to in the classroom. Teachers and district aides are in charge of placing tokens on the board contingent on a child's correct responses, appropriate engagement with peers, eye contact, or other targets specific to that

individual child. Previous to the tokens being awarded, the child will have the opportunity to choose something that he or she would like to access once they have earned their tokens.

Studies have confirmed that token boards are an effective method for promoting appropriate behaviors in children with autism. For example, Tarbox, Ghezzi and Wilson (2006) measured the use of a token board economy with children diagnosed with autism. In this study, there was a significant increase in appropriate behaviors and attending from the child. Similarly, Reese, Sherman and Sheldon (1998) found that use of a token economy produced a reduction in agitated and disruptive behaviors and an increase in appropriate engagement. Although these behavioral systems are easy to implement, they can be time consuming to create and must be changed frequently to adapt to changes in the behaviors seen in the child diagnosed with autism.

Other award systems, such as scripts, can be incorporated within the classroom to provide students with another form of visual cues that encourage them to complete a task or maintain a daily schedule. Scripts are designed for students with little to no verbal communication. The script includes a picture for every step in a task completion activity. Although they are typically used for nonverbal students, students with more verbal communication can benefit from the scripts as well (McClannahan & Krantz, 2005). Wichnick, Vener, Pyrtek ad Poulson introduced scripts into the classroom to encourage initiation of conversation between children with autism and their peers (2010). The study showed that typical preschoolers were able to use scripts to encourage their classmates with autistic characteristics to engage in communication and socio-dramatic play. Peers

played a pivotal role in the implementation of the scripts because they worked as the facilitator for their peer. The use of scripts can also decrease unwanted behaviors because the child has a constant visual reminder of on-task behaviors they are expected to engage in (Goldstein & Cisar, 1992). Students who rely on scripts have an opportunity to increase their independence with on-task behaviors because they will be provided with visual cues embedded in the script rather than the teacher or aide having to give verbal directions as reminders.

Task analysis is another method that can be used to promote desired behaviors. In this method, the teacher creates an outline of each step needed to complete a given task. This simplification of a task into steps appears to decrease the frequency of unwanted behaviors and increased independence (Wilczynski, Fusilier, Dubard & Elliott, 2005). Task analyses can be written primarily for the teacher or paraprofessional to provide guidance for their prompting to the student to complete the task. But task analyses can be an intrusive system because it requires more adult involvement. Teachers and paraprofessionals need to provide immediate prompting during the beginning stages of the task and then gradually fade their proximity once the child has completed the specific step in the task analysis. The main goal is to have the child be completely independent with all steps in order to achieve independence with task completion or academic tasks. Although use task analysis can be time consuming, in some cases, the time it takes to implement a task analysis with an individual child can be productive in the long run (Bryan & Gast, 2006).

Task analyses and scripts are both methods that promote a child's independence in the classroom. Task analyses and scripts use visual reminders and specified steps to remind the child how to complete a task effectively and appropriately. The use of task analyses and scripts can be considered a form of social stimulus because children can rely more heavily on their peers as models and therefore become less dependent on their teachers or aides to give verbal reminders of how to complete the entire task. Although adult presence is necessary in the first few stages of the task analyses and scripts insure that students are able to read and respond to them, students will be able to eventually gain independence with these systems.

Visual schedules and activity schedules are additional types of behavior management systems that help to increase proper behaviors. Visual schedules and activity schedules provide visual cues embedded within children's daily routines that remind them where they need to go, materials they need to obtain and how to complete a task. These kinds of behavior management systems utilize basic visual representations of on task steps so the child does not have to rely heavily on the adult in the classroom. Visual schedules outline the task or the day's schedule entirely through the use of pictures and words that are age appropriate for the child diagnosed with autism spectrum. The visual cues assist the child because they allow for constant reminders for the child to complete the tasks for the day. A recent study by Goldsten and Schneider (2009) confirmed that the use of visual schedules for children diagnosed with autism increased occurrences of appropriate and on-task behavior in the classroom.

Similar to visual aids, activity schedules identify in order the steps needed to complete daily tasks. Children are presented with a binder or booklet that shows each step through the use of a visual image that is age appropriate. Children have the opportunity to follow the schedule and know what to expect next and what their day is specifically designed around. Activity schedules were examined in a recent study with seven children diagnosed with autism. Results showed an increase in task performance and a decrease in unwanted behaviors (Dugan, 2007). The activity schedule is a concept easily implemented in the classroom and provides a participation method for the student.

Another method that can be easily implemented within the classroom at low cost for teachers and paraprofessionals is the use of songs and social stories. Songs can be used in the early elementary and preschool classrooms on a daily basis to promote social skills and group participation. Songs to encourage proper and on-task behaviors are readily available or can be created by teachers and aide. According to a recent study (Kern, Wolery & Aldridge, 2007), composed songs to increase the incidence of independent behaviors for children diagnosed with autism spectrum disorder. In this study, teachers composed songs that were designed to increase children's appropriate behaviors when entering the classroom, greeting their peers and engaging in play activities. The use of songs can increase independent behaviors in children, because the songs become part of their daily routine. Furthermore, teachers and paraprofessionals can implement songs in the classroom with other typically developing peers.

Social stories can also be a low cost and effective strategy, especially during circle time or other down time activities. Social stories are used for students on the

autism spectrum to provide a visual representation of a task or expectations within a classroom. Social stories can range from appropriate sitting at circle time to healthy hygiene behaviors. Teachers and aides who notice the child is struggling in a certain area, can create a social story to read to the student that outlines the information and expectations clearly and concisely. A recent study measured the use of social stories with children diagnosed with autism. Results indicated that social stories decreased the amount of disruptive behaviors in children diagnosed with autism because it was a familiar way for children to learn and it incorporated the entire classroom (Ozdemir, 2008). Likewise, another study also showed positive results from the use of social stories. In this classroom, 8 out of the 10 students diagnosed with autism increased their positive behaviors after reading the social stories with their classmates during circle time and other downtime situations within the classroom (Simpson & Lynch, 2008).

Ultimately, there are many different behavior systems that can be implemented in classrooms with children diagnosed with autism spectrum. All of the above described systems are cheap, effective and easy to implement. These behavior management methods and techniques described in this chapter all mirror the methods put forth by ABA. Simply stated, behavior management systems have been shown to increase independence, appropriate behaviors and task completion behaviors. Students whose teachers use appropriate behavior management systems are more likely to exhibit appropriate behaviors in the classroom. These systems also provide consistency in interactions and classroom management for the teacher. Although there has been a great deal of research on the effectiveness of ABA behavior systems, teachers and

paraprofessionals are not always aware of the proper incorporation methods; methods specifically altered to meet the needs of ABA methodologies; to implement these systems effectively within their classrooms.

Incorporation Methods

Award and behavior management systems can be effective in promoting appropriate behaviors in children diagnosed with autism. However, teachers must be able to strategically implement other incorporation methods that promote the integration and involvement of autistic children in the left of the classroom. Incorporating children with autism into the classroom is a difficult but highly manageable if teachers are using appropriate methods. Such incorporation methods would include strategies to increase language, utilization of peers, classroom activities and leadership roles.

Incorporating a variety of language acquisition techniques in the classroom is very important for children with autism. The developmental delay in language acquisition and the limited use of language typically seen in children with autism often inhibit their participation in the classroom. Spontaneous language methods can be used to help incorporate autistic students in the classroom. Such methods include by are not limited to, pausing, fill-ins (leaving portions blank or omitting part of the sentence) or giving false answer. These techniques can help an autistic child develop language skills that are crucial for social interaction with peers as well as interactional competencies for classroom engagement (Wolfberg and Schuler, 1999).

Expanding language and communication skills in children with autism also depends on developing curriculums that are based around language communication.

This is critical for children diagnosed with autism in order to increase their language concepts and formation of language in general (Watson & Lord, 1982). Studies show that children diagnosed with autism can increase their language abilities when incorporation methods are introduced into the curriculum at an early point in the child's development (Harris, et al., 1991). A curriculum that is organized around increasing language for children diagnosed with autism spectrum disorders will encourage students to use their language more frequently in many different aspects. Spontaneous language is important to foster in children with autism, because it will enhance relationships with teachers as well as peers. Early intervention methods introduced in the preschool and early elementary years will help to increase language skills and ultimately increase social relationships with peers.

Incorporating peer relationships and interactions into the academic environment is critical in the overall social, emotional and linguistic development of children diagnosed with autism spectrum disorders. Typical and atypical children rely on their peers for multiple aspects of their development. Peer relationships in the classroom can help to increase language in children diagnosed with autism spectrum disorders. Healthy social relationships are critical for children with autism spectrum disorder, because children with autism have a difficult time forming and keeping relationships with others. A relationship with a peer influences language because it fosters emotional and social development and interaction (Duran, 2001). These social and emotional interactions encourage students to find the language to explain their feelings and engage in problem solving techniques. Theimann and Goldstein (2001) examined the use of visual stimuli

and peer interaction as a means of promoting communication. This study found that typical developing peers who used visual stimuli for their atypical peers increased their social communication skills and on task behaviors.

Older peers can also be used to help promote language and encourage the student with autism into classroom interaction. Older peers act as role models for appropriate behaviors and used within the classroom to be facilitators for language development and appropriate behaviors in the classroom. A recent study measured the influence of older peers in the classroom with autistic students. The results indicated that the presence of older peers was positively associated with an increase in overall development of language as well as in use of language in the classroom (Gong, Minett & Wang, 2008). Autistic students have a difficult time creating and maintain their peer relationships, but having an older peer as an influence can help support the students' development of other social relationships in the classroom.

Increasing the frequency and quality of social interactions is the simplest way to incorporate students with autism into the classroom. Same age and older peers can utilize behavior management systems in the classroom to help encourage their fellow classmates diagnosed with autism. In one recent study, teachers had untrained and typically developing peers use these behavior systems with their fellow classmates with autism and deliver rewards to the child (Jung, Sainato & Davis, 2008). Participants in this study were asked to act as peer "buddies" or models for their atypical peers. Participants modeled appropriate comments, sitting and on-task behaviors during specified tasks such as circle time, table work time and outside play. The results demonstrated that the peer

involvement helped children with autism to form social skills more easily and interact more frequently with peers without being probed to do so.

Along with strategies for language integration and social interaction, classroom activities such as circle time, group work and free play are essential methods to use in the classroom environment. These classroom activities promote the integration of the student with autism into the larger classroom and also provide more opportunities through the use of activity schedules. Classroom activity schedules help to involve the entire classroom by assigning specific roles to each child. O'Reilly, Sigafoos, Lancioni, Edrisinha and Andrews (2005) conducted a study on the affects of verbal instruction from teachers for students diagnosed with autism. The researchers based this study on the frequent occurrences of self-inflicted behaviors by the children diagnosed with autism spectrum as a result to direct verbal instructions from the teachers in the classroom. In this study, the implementation of classroom activity schedules increased the frequency of appropriate responses to instruction. It appears that the activity schedule allows the autistic student to independently follow tasks and seek the assistance of peers to perform a task. Classroom activity schedules can also be used to assign leadership roles to children diagnosed with autism, which is another way to involved autistic children in classroom engagement.

These incorporation methods are easy to utilize in the classroom after incorporating the award systems mentioned previously. Incorporating peers into engagement with children with autism is important because peer engagement can help promote social relationships and social skills. Instilling peers as models in the classroom can increase language acquisition as well. Once award management systems are

established, incorporation methods become the next important step in integrating the student with autism into the classroom. But teachers must be specifically trained in how to use the award systems, implement them, involve their students and work with children diagnosed with autism spectrum disorder.

Training Teachers

Training teachers to implement these methods into the classroom is necessary in order to see change and effectiveness in the classroom. Training teachers to work with autistic children is necessary in order to promote and foster students' educational success. Teachers and paraprofessionals must also be knowledgeable of the characteristics associated with autism spectrum disorder. In particular, new teachers who are responsible for students with autism in their classrooms can feel overwhelmed at times. Beyond training, teachers and paraprofessionals should have a support system that will encourage them in the understanding and use of materials and tools to work with children with autism spectrum disorder. Teachers who have access to trained and supportive facilitators learned new techniques more swiftly and applied their new knowledge more quickly (Boyer & Lee, 2001). Properly trained facilitators can help encourage teachers and increase their confidence to implement new knowledge and materials within their individual classrooms.

Training Paraprofessionals

With rising numbers of special needs children in classrooms, the need for paraprofessional aides is increasing every year. Paraprofessionals are often involved more frequently than teachers in one-on-one interactions with children.

Paraprofessionals are not required to have specific education about or training in child development or special education in order to work in learning settings with children with special needs. Effective training, therefore, is crucial for paraprofessionals to provide appropriate academic support for a child with autism spectrum. Research confirms that paraprofessionals can increase appropriate behaviors, attitude, on-task behaviors and independence within the classroom through the use of behavior management procedures (Young, Simpson, Myles & Kamps, 1997). In one recent study of three students with autism, both teacher and aide used proximity as a method to increase independence, which is a method commonly used in ABA. Results indicated that fading proximity in a given task increased independence in specific tasks and decreased unwanted behaviors during independent tasks. Teachers and aides must also work together to remain consistent in their use of behavior management systems, since consistency of use is associated with a higher incidence of appropriate behaviors (Young, et al.).

Providing paraprofessional aides with training will not only benefit the child with autism but also their peers. The reason for this benefit is related to greater consistency in classroom management for all students. Educators, both teachers and paraprofessionals, who have a competent understanding of ABA as a management technique can create productive learning environments for all students. Such benefits were documents in a study of inclusion classrooms conducted by Rispoli, Neely, Lang and Ganz (2011). In this study, the researchers trained 112 educators, including 39 paraprofessionals, in the use of ABA methods including social stories and activity schedules. After providing in-depth training sessions, they found that 92% of the participants, both teachers and aides,

were able to use a range of ABA strategies such as award and punishment systems effectively. Students' whose teachers and aides used these methods performed more on-task behaviors and engaged in less problematic behaviors in the classroom.

Highlighting important trends in training sessions will be critical in order to provide paraprofessionals with the most recent information to be successful in their classrooms. It is especially important for paraprofessionals to be able to implement the instruction effectively and consistently because they are more likely to be providing one-on-one instruction with students. There are several methods that have proven effective in training paraprofessionals. Robinson (2011) provided training to paraprofessionals through the use of feedback and video modeling. Paraprofessionals were provided with constant feedback through video modeling. The video modeling showed different and alternative ways to engage with students and how to perform deliverance of reward or punishment systems. In the video modeling, participants saw behavior interventionists performing behavior specific praise and delivering rewards and punishments contingent on specific behaviors. The feedback and modeling were designed to support implementation of target methods into their one-on-one teaching. The participants' level of involvement with students was seen to increase; this was accompanied by an increase in social communication target behaviors in their students with autism (Robinson).

Providing training for teachers and paraprofessionals is critical in order for the autistic child to maintain academic and social success within the classroom. Training is necessary for teachers and aides to acquire an adequate understanding of ABA methods for use in the classroom. Teacher support programs and ongoing facilitation are also

important in order to insure that training methods are implemented. Acquiring a thorough knowledge of concepts such as behavior management and incorporation methods for children diagnosed with autism spectrum disorders is a complex process that requires patience, willingness and desire to learn the material. Teachers' acquisition of this complex knowledge is best supported through the proper and appropriate dissemination of these concepts from a competent trainer within a well-organized training program. Because of cost and time constraints, the most effective method providing training to paraprofessionals and teachers is through workshops.

Workshop Training Effectiveness

Workshop training is an effective and convenient way to teach present new ideas and strategies to busy teachers. High quality workshop experiences may encourage teachers and other paraprofessionals to continue education, learn new information and ultimately, incorporate new knowledge into their work practices. Studies confirm that workshop participation can increase teachers' knowledge base (White, Sukhodolsky, Rains, Foster, McGuire & Scahill, 2011).

Research also indicated that teachers who participate in workshops have a better understanding of how to implement new subject material into their classroom practices (Howlin, Gordon, Pasco, Wade & Charman, 2007). This may be because workshops often use a form where participants are provided with visual aids and specific examples of how to effectively incorporate new methods and concepts into the classroom. A recent study examined implementation and dissemination of new information after workshop training. Results indicated that participants who engaged in the workshops implemented

new information more effectively and had a stronger sense of individual self-efficacy about using new methods (Murad, Montori, Kunz, Letelier, Keitz, Dans, Silva & Guyatt, 2009). Proper implementation is important when learning new concepts, especially concepts related to education and positive behavior management in the classroom. High quality workshops can provide the materials, tools, methodologies and information necessary to encourage and promote dissemination outside the workshop experience.

Other studies have confirmed that quality training experiences not only provide teachers with new information, but they also increase teachers' confidence and send of efficacy. In a study of teachers participating in training related to communication skills in the classroom, researchers found that 75% of the participants increased their confidence in their ability to promote communication skills outside the workshop series (Bylund, Brown, Di Ciccone, Levin, Gueguen, Hill & Kissane, 2008). Self efficacy and confidence are extremely important for any professional learning a new concept and attempting to implement that concept in the classroom. Workshop presentations provide a useful means of providing teachers with the necessary tools and materials needs to work effectively with children diagnosed with autism. In addition, workshops are cost efficient and generally accessible to most teachers and aides (Hill & Kissane, 2008).

Conclusions

Autism spectrum is a widespread and diverse disorder that requires individual treatment options and attention. Training in the appropriate use of applied behavior analysis methods can provide teachers and paraprofessionals with the tools and techniques needed to increase appropriate behaviors in the special needs children in their

classrooms. Award and punishment systems used in appropriate ways can foster increasing independence and appropriate behavior in children with autism.

This project aims to provide teachers and aides with training in the specifics of autism spectrum as well as with ABA techniques to utilize within their classrooms. The classroom is one of the most influential environments for children with autism to develop socially, emotionally and academically. The methods and systems of ABA can provide teachers and paraprofessionals with tools and information to foster this development in the classroom.

Chapter 3

METHODS

Project Design

In order to assist classroom teachers and aides in working with children on the autism spectrum disorder, the researcher created a workshop series and supporting manual to train teachers in the methods of applied behavior analysis. The researcher recruited a group of teachers and aides in classrooms with children ages preschool to grade 5 to participate in the workshops. Participants attended a series of three workshop sessions and received a supplemental manual at the end of the training. A final workshop evaluation was completed by each participant.

The content of the workshops as well as the manual was derived from a review of current manuals and textbooks on the efficacy and strategies of applied behavior analysis. Information was also gathered from many applied behavior analysis textbooks as well as from the body of research related to autism spectrum disorder and classroom environments for mainstreamed students with autism.

The use of multiple presentations was designed to provide participants a clear and organized understanding of the autism spectrum disorder and all of the elements to be

considered in providing care and education to students diagnosed with the disorder. The presentations also included information that reflected the questions and needs of both teachers and paraprofessional aides within the classroom. An outline (see appendix A) was created for the researcher to follow and implement in the series of presentations. Spreading the content of the presentations over the three workshop sessions allowed for an in depth coverage of all aspects of autism spectrum disorder in a manner that was neither overwhelming nor too intense for comprehension by the participants.

Setting and Participants

The researcher invited teachers and aides working with preschool and elementary schools in several local districts to participate in the workshops through flyers posted at their school campuses and through social media networks. Teachers and aides were also recruited through the researcher's connections with her current employer and recruited the help of coworkers who knew teachers and aides that may be interested in attending the workshop.

From the pool of invited teachers, a total of 35 teachers and aides chose to participate in the workshop series. This group included 22 teachers from the Buckeye and Sacramento Unified School districts, with 15 of the 22 being experienced teaching professionals (5+ years) and 7 having limited teaching experience (5 years or less). The remaining 13 participants were paraprofessional aides in the same school districts, with 10 being full time and 3 being part-time or substitute aides. The teachers were all working in classrooms serving children from preschool through grade 5.

Although other demographics such as teachers' gender, socioeconomic status and educational background were neither required nor measured in this project, participants were asked to describe their background and experience working with children diagnosed with autism spectrum disorder. All participants, except two of the part-time aides, reported having had autistic students in their classroom, or having had some experience with the disorder.

The workshop presentations took place at a local community district (community center serving the city of El Dorado Hills) in El Dorado Hills, CA in a meeting room large enough to hold 50 people. The room was set up with a table in the front for the researcher's materials, and three corresponding tables that were capable of seating 10 participants each. Chairs we set up in groups of five behind the long tables for group activities and more intimate discussions. A projector for the PowerPoint presentations was also set up towards the front of the room. Side tables were also provided for refreshments such as coffee, snacks and other materials provided in the workshop presentation.

All 35 participants were expected to attend each of the three workshop sessions that lasted from 2-3 hours, and to participate within each workshop. Participants were asked for feedback and approval for the timeframes, dates and location of the workshop prior to beginning the sessions. Participants were provided with refreshments for all three workshop presentations as well as a small incentive of a five dollar gift card to starbucks upon completion of the workshop series and accompanying workshop evaluation. Each table in the workshop presentation has jars with pencils, highlighters

and other writing materials, packets of the power point slides and folders enclosing the group activities and other information about the workshop series. At the end of the workshop series, participants were provided with a manual (see appendix B) that contained all of the information discussed throughout the three presentations for future reference.

Role of Researcher

Prior to development and implementation of this project, the researcher had no personal or professional relationship with any of the workshop participants. However, the research has three years of experience working as a professional in the field of autism spectrum disorder. The researcher has spent a great deal of time in the home setting providing one on one instruction and conducting behavior management techniques to increase independent working and appropriate behaviors. The researcher has also spent some time within the classroom context and provided one to one instruction in the form of an aide for students diagnosed with autism. The researcher showed teachers, peers and other members in the school setting how to properly incorporate students on the spectrum in the classroom and how to maintain appropriate behavior management. This experience and training provided the researcher with a base of knowledge helpful for the participating teachers and paraprofessional aides. The researcher's role in this presentation was to provide a detailed description of autism spectrum disorder and the use of applied behavior analysis in the classroom environment. The researcher developed an in depth presentation that explored autism spectrum disorder and all of its characteristics such as behavior, award systems, incorporation methods, and classroom

dynamics. The researcher provided in depth information on the background of autism spectrum disorder, current therapeutic pathways such as applied behavior analysis and extensive methodologies and techniques to assist children on the spectrum within mainstreamed classrooms. The researcher then developed the presentation to explore all aspects in an organized manner to meet the needs of teacher and paraprofessional aides equally. The researcher also designed a manual that incorporated all information previously discussed for future resources.

Workshop Procedures

The workshop series was presented over three sessions. The first session was designed to be an introductory session where the researcher described autism spectrum disorder and the behaviors associated with the disorder. To begin the first session, the researcher and the participants briefly described their current teaching experiences and their experience working with students with autism, as well as describe why they were interested in participating in the workshop presentations. To gain a better understanding of participants' prior knowledge about autism spectrum disorder, the researcher developed a group exercise (see appendix C). Participants were asked to work in groups of five to formulate a list of words and phrases associated with autism spectrum disorder. This was followed by a large group sharing discussion. Following the discussion, the researcher began to discuss the background of autism spectrum disorder in terms of symptoms, causes, signs and tests of the disorder and ended with a group discussion on their personal experiences with autism in the classroom.

Following the group discussion, participants were then introduced to the behaviors associated with the disorder. Behaviors and reasoning for exhibition of these behaviors was introduced first, followed by identification of the behaviors before they occur. Participants were presented with specific techniques to identify the behaviors before they occur and how to identify the specific antecedents to help decrease the frequency in the future. Lastly, participants were introduced to the present therapy options and how to properly use applied behavior analysis techniques with their group instructions. Teachers and aides were presented with the information on how to effectively acquire a child's attending, how to use clear and concise language, and how to monitor their proximity to the child effectively. Participants were then asked to complete a review worksheet with their group that was in their training packet. At the end of the session, participants reviewed the purpose of training workshop one as well as what to expect for the next training workshop.

In the second session, participants and the researcher reviewed previous information presented in the first workshop and reviewed their homework assignment. To begin the information for the second workshop, participants were asked to engage in a group activity where they needed to alter scenarios to meet the standards of applied behavior analysis training procedures. Following the group activity, the difference between applied behavior analysis (ABA) and treatment and education of autistic and relation communication of handicapped children (TEACCH) was introduced. Participants were asked to complete a group activity where they discussed which method they would use more effectively in their classroom and why. The researcher then

described why ABA methods are used and why it is the most effective treatment option for children with autism. Characteristics of ABA were also introduced.

The importance of rapport building and teachers' roles were introduced next. Participants talked in a large group format on the importance of rapport building and some techniques that they use in their current classrooms. Immediately following the group discussion, the researcher began the segment on behavior management. First, behavior management was described and the goals were also discussed. Seven behavior management systems 1) token boards, 2) contract systems, 3) visual schedules, 4) point systems, 5) monetary systems, 6) parental communication and 7) DRO systems were discussed. Teachers and aides were provided with graphics depicting what each system looked like and how to properly implement them within the classroom. Following the behavior management systems, punishment systems were discussed. Teachers and aides learned the difference between verbal and non-verbal punishment and how to effectively deliver it within the classroom context. Reinforcement was another concept that was introduced in this workshop presentation. Participants were provided with positive and negative reinforcement examples and how to incorporate them within the classroom. Lastly, participants were provided with an explanation on how to effectively utilize these systems within their classrooms.

At the end of workshop presentation 2, participants broke into small groups and came up with behavior management techniques they would use for two separate cases. were then asked to answer a series of questions and then the participants and the researcher discussed as a group. Review of the techniques and methodologies

discussed in this presentation was discussed and an expectation of the next series was also reviewed.

In the last session, participants and the researcher reviewed the information from the first and second workshop. Following the informational review, participants then engaged in a small activity where they came up with ways to incorporate their students within the classroom. A larger group discussion of their ideas was discussed, followed by information about incorporation methods and how to apply the systems effectively within the classroom. How to handle problematic behaviors and implementing award systems effectively was targeted first, followed by the importance of increasing spontaneous language as an incorporation method within the classroom. Important notes about how to remain consistent, clear and how to deliver behavior specific praise was introduced followed by a discussion on how to work with students in the classroom with autism spectrum disorder. Results seen with ABA treatments were also discussed. A group activity in the form of a jeopardy game was played to conclude workshop training 3. ABA, autism, award systems, punishment systems and "name that term!" were among the headings for the game. Participants worked in three separate teams and had the chance to answer questions to receive points for their team. The winning team received a prize package containing small treats.

Following the jeopardy game, participants completed the activity that was presented in the first workshop series presentation. They received the same copy that was initially presented, and they were asked to write down the terms and phrases associated with the following headings: autism, behaviors and therapy options.

Participants were asked if they increased their terms and phrases in the headings as result of completing the workshop series. The goal of this activity was to see if participants had increased their knowledge about autism spectrum disorder. Following this exercise, participants were presented with online resources and upcoming conference information for their own information. An evaluation (see appendix D) was presented next where participants were asked to rank their experience using a 5 point scale on the following categories: 1) workshop content, 2) workshop design, 3) workshop facilitator, 4) workshop results and 5) workshop format. Participants were also asked to write down any suggestions for change and any other comments. The researcher analyzed this information and incorporated the feedback to improve the workshop materials and information. To conclude workshop session 3, participants received a manual with all information from the workshops and a packet with the handouts and activities, power point slides and contact information of the facilitator.

Throughout the workshops, the researcher used a variety of strategies to encourage discussed amongst the participants. Many of the activities required the participants to work in small groups, and then come back into large group format to discuss their findings and analysis of the questions of group activities.

Assessment and Evaluation

In order to assess whether the participants had increased their understanding of autism spectrum disorder as a result of the workshops, the researcher conducted a simple assessment activity in both the first and last workshops. During the first workshop presentation, a group discussion activity was used to identify participants' previous or

present knowledge about autism spectrum disorder. Participants were asked to complete a worksheet where they were to write down as many key terms and phrases associated with the topics of autism spectrum disorder, behaviors associated with the disorder, and therapy options for autism. Participants worked in collaborative groups of five and then discussed their findings in a large group format. At the last workshop presentation, participants were asked to complete this activity again, and compare this worksheet from the one from the first session.

At the end of the workshop series, the researcher collected and compared both sets of worksheets. According to this analysis, 33 out of the 35 participants (94%), increased their terms and phrases in the topic area of *autism spectrum disorder,* 29 out of the 35 (83%) increased their terms and phrases in the topic of *behaviors associated with autism spectrum disorder,* and 31 out of 35 increased their terms and phrases in the topic of *present therapy options* (see appendix E for figures).

Participants were asked to complete a brief survey eliciting their feedback about the workshop content, design, facilitator, results and format. Participants were given a series of items and asked to rate each item on a five point Likert-type scale (1= strongly disagree, 2=disagree, 3= strongly agree, 4= agree, 5= not applicable). Results of the statistical analysis are located in appendix F. Overall, participants agreed that the content and design of the workshop was efficient and easy to follow. They also agreed or strongly agreed that the workshops had provided them with knowledge about autism spectrum disorder as well as techniques and methods for the classroom. The one suggestion for change mentioned in the evaluation was the participants would have liked

to see more involvement of guest speakers or professionals such as medical doctors, psychologists, speech-language pathologists and occupational therapist to broaden their knowledge of the disorder (see appendix F for figures).

Summary

This chapter has described the methods used to create and implement a workshop series for teachers and aides on the use of applied behavior analysis for working with children with autism spectrum disorder. The following chapter provides a discussion of the project including conclusions and recommendations for future use. Further information on the results of the evaluation and embedded activity will be discussed, as well as limitations seen within this project.

Chapter 4

DISCUSSION, RECOMMENDATIONS AND CONCLUSIONS

Discussion

The purpose of this project was to provide preschool and elementary school teachers and aides with training in the methods of applied behavior analysis, and to develop a training manual to be used as a resource for the teachers and aides. The workshops provided participants with ABA tools and methodologies to help increase appropriate prosocial behaviors in their students with autism spectrum disorder. Teachers and aides were provided with extensive background information on autism, the disorder's associated behaviors and systems used in learning settings to benefit students with autism spectrum. The use of reinforcement including both reward and punishment incentives was also discussed. This information was elaborated with contextual examples that specified how to implement reinforcement systems within the classroom. Teachers and paraprofessionals learned how to alter their classroom environments in order to implement these systems effectively for their students on the spectrum. Although the training content and accompanying manual incorporated the most current systems available in ABA training, the participants came to understand that they were not limited to using the provided examples. Rather, teachers and paraprofessionals learned in the training that systems should be altered to meet the needs of their individual students.

Suggestions for Improvement and Implementation

Information from the participant evaluation provided the researcher with a number of suggested ways for improving the project for future use. In this evaluation, participants were asked to rate their experience on workshop content, workshop design, workshop facilitator, workshop results and workshop format on a five point scale. In terms of workshop content, participants reported that the workshop provided them with useful information about behavior management and information on incorporation methods to integrate with their students. Participants also stated that they felt better informed about ABA methodologies and that the information presented stimulated their knowledge. Participants also stated that the workshop goals and objectives were clear and concise, the difficulty level was low and the materials and activities were presented appropriately. The facilitator was rated as being prepared, knowledgeable about the subject material and helpful. Participants also stated that they felt they could educate their colleagues based on the information learned in the series. They also expressed confidence in their ability to implement the concepts appropriately within the classroom.

A space was provided in the evaluation survey for participants to share their suggestions for improving the workshop presentations or manual. Several participants indicated that they would like to receive more information on the current research being done at the UC Davis MIND institute and other facilities. Also, participants stated that they would like more guest speakers and professionals in the field of autism to present in

the training workshops. The information provided in the participant evaluations will be incorporated into the workshops and manual for use in future presentations.

Overall, participants in this workshop series responded well to both the information provided and the format and design of the presentations. This positive response suggests that the project could be used to train many other diverse groups of teachers and aides. However, any future uses of the workshop training series or the manual should incorporate the comments and suggestions made by the participants as noted above. Beyond the participants' suggestions, there were several other areas for improvement noted by the researcher. For example, workshop content could integrate more information about ways to measure a child's individual development. Further, future trainings would be most helpful for teachers and aides if scheduled at the beginning of the school year rather than later in the year. This would allow the facilitator to share specific systems that teachers and paraprofessional aides can use within the classroom from the start of the academic year.

Changes in the facilitation of this workshop series would also include more video examples into the PowerPoint presentations. Providing a visual for participants on how to specifically implement the systems for their students and the results seen with these systems is important for proper implementation in the classroom. Also, video presentations would be helpful to show the amount of prompting and assistance needed for the child to learn the behavior systems and how to handle potential problematic behaviors.

Limitations

Although the training presented in this project was designed to provide teachers and aides with methods for working effectively with children diagnosed on the autism spectrum, there were several limitations that could affect the impact and use of the project. First, the constraints inherent in most educational environments, such as lack of time and student-teacher ratio, may make it difficult for teachers and aides to implement the methods they learned in the training. Second, although both teachers and aides participated in the training, paraprofessional aides may be more likely to implement the methods since they have more opportunities to work with students on a one to one basis. Although teachers can greatly benefit from the methods and tools reflected by ABA training, it may be more difficult for them to implement because of the need to provide for the entire classroom and not just an individual child.

A major limitation of this project is the lack of follow up beyond the end of the workshops. This follow up would be useful for several reasons. First, a full understanding of the methods of ABA requires more training than could be provided in these few workshops. Teachers and paraprofessionals should be encouraged to continue their education in autism awareness and the most current therapeutic availabilities. Second, follow up sessions would help to insure that participants are successful at implementing the methods learned in the project. Although these teachers and paraprofessionals appear to be open to change in their methods, many educators are set in

their ways and only reflect their educational training and past experiences. Learning new concepts and methods may intimidate educators and deter them from actually implementing the new methods learned or participating in future training series of ABA methodologies.

Although the facilitator cannot measure whether or not the trainings presented in this project were implemented effectively within the participants' classrooms, the evaluation surveys indicated that the teachers and paraprofessionals who participated in this training were confident they has acquired the tools and needed resources to implement these procedures effectively within their classrooms. Ongoing education and training in this approach will always be required, but teachers and paraprofessionals can use these tools temporarily with the intent to further their education on ABA and autism spectrum disorder. Staying up to date on recent literature, research studies and methods can encourage teachers and paraprofessionals to learn more about the benefits of ABA training.

Conclusions and Recommendations

Participating in this workshops series provided teachers and paraprofessional aides with an understanding of a variety of tools and methodologies to further the learning and interaction of their students on the autism spectrum. With proper use of these tools and methods in the classroom, students on the spectrum can be encouraged to decrease their unwanted behaviors and increase appropriate behaviors. Students on the autism spectrum may also gain a sense of consistency within the classroom with

materials and tools that they are familiar with from other past therapeutic interventions. Seeing that their teachers and paraprofessional aides are giving them the attention and encouragement they deserve will motivate them to participate in the classroom more frequently.

Providing teachers with simple tools and techniques for use in the classroom is beneficial, but another tool necessary for successful implementation is consistency. Teachers and paraprofessionals need to remember to be consistent with their training methodologies in order to maintain classroom management. Teachers and paraprofessionals also need to be prepared for the hardships and problems that may be associated with the implementation of their training materials. Progress in therapeutic approaches does not occur quickly in most cases and consistency and dedication is necessary in order for the child to benefit from the methodologies and techniques. Although the consistent use of the methods presented in the trainings can increase positive behaviors for students diagnosed with autism, the process can be difficult and problematic. Teachers and paraprofessionals need to work through the process and look forward to the end result. Maintaining consistency and professionalism throughout the process is the key to implementing these procedures within the classroom environment.

It is also important for teachers and paraprofessional aides to recognize that the tools can be altered to fit the needs of the individual student and the classroom as w hole. The manual was designed to provide teachers and aides with training on the tools and methods of ABA that will help increase prosocial behaviors and decreased unwanted

behaviors in children on the autism spectrum. Teachers and district aides can use the tools and techniques highlighted in the training series and accompanying manual within their classroom but should make necessary adjustments for their own students and classroom.

Progress in implementing therapeutic approaches and improvement in children's behavior takes time. Assessing this progress might be accomplished through a longitudinal study to measure impacts on students as well as to provide follow up trainings for the participants. Results from this kind of study are important to the future development of the trainings and manuals for teachers and paraprofessionals.

Although this manual and training series were designed for preschool and elementary school teachers, these techniques and tools can also be used in the higher level grades as well. Even though early intervention is strongly encouraged for children on the autism spectrum, it is not out of the question to incorporate these methods at any grade. This project was specifically designed to further educate teachers and paraprofessionals in many grades and classrooms on advancements in behaviorism and methodologies associated with ABA. The workshop trainings provided the most recent research on ABA techniques to be used in the classroom environment. The training tools created in this project can help schools to better prepare teachers and aides for working with many children diagnosed with autism spectrum disorder in our classroom today.

APPENDIX A
Outline of PowerPoint Presentation

1. Workshop session 1
    - Introductions
        - Personal introductions
        - Group introductions
        - Activity-
            1. What is autism spectrum disorder?
            2. What are the behavioral characteristics associated?
            3. What are current therapeutic approaches?
        - Discuss activity
        - Purpose of this workshop series
    - Overview of autism
        - What is autism?
            1. Characteristics
            2. Symptoms
            3. Causes
        - Specifics about students with autism in mainstream classrooms
        - Resources available now
            1. District aide professionals
            2. Private company aides
            3. Teacher assistants
            4. Student teachers

- Behaviors associated with autism
    - Group activity
        1. Name three behaviors that you have seen in the classroom
        2. How would you handle behaviors in the classroom without disregarding your classroom environment and stability?
        3. Discuss group activity- what were your findings?
    - What is behavior?
    - Autistic behaviors
- End of workshop activity
    - Diagram of an autistic student activity- working in groups of 3-4
    - Discuss group activity
- Review behaviors and autism traits
- Homework assignment

2. Workshop session 2
    - Overview
        - Review behaviors and autism traits
        - Discuss homework assignments
        - Purpose of this workshop
        - Any questions?
    - Behavior management
        - Group activity

1. Discuss 3 tools that you have used to alleviate behaviors seen in your classroom.

- What is behavior management?
- Discussion
    1. How is behavior handled in your classroom?
    2. How do you handle behaviors of autistic students without affecting the rest of your students?
    3. Discuss in large group format
- ABA techniques for behavior management methods

- Award/punishment systems
    - What is a reinforcer?
    - What is token board system economy?
    - What is a contract?
    - What are visual scripts and visual boards?
    - What are parental communication forms?
- Utilization of award systems
    - How do you apply the award systems effectively?
    - Rewards children with autism can work for
        1. Identifying rewards
        2. Appropriate rewards
- Punishment systems
    - Methods to decrease unwanted behaviors within the classroom

        - Changing classroom environment
    - Utilization of punishment systems
    - Parent-teacher relationship
        - Providing necessary materials for parents
        - Parents providing necessary materials for teachers
        - Relationship
    - Discussion activity- large group format
        - Would you incorporate these activities into your classroom to meet the needs of all your students or just the individual child?
        - How would you implement these systems into your classroom environment to meet all students?
        - How could you use specific students in the classroom to encourage autistic students?
    - Review of daily topics
        - Review systems
        - Homework assignment

3. Workshop session 3
    - Comprehensive overview of workshop series
        - Autism traits and behaviors
        - Behavior management systems
        - Award/punishment techniques
        - ABA training guidelines

- Group activity
    - Individual scenarios and results
    - Jeopardy inspired game with terms and definitions
- Activity from workshop series 1
    - What is autism?
    - How have your views and knowledge on autism spectrum disorder changed?
    - What new ideas did you learn or take into account from this workshop series?
- Resource presentation
    - Presentation with resources available to teachers
    - Conferences
    - Evaluation survey of workshop presentation
- Presentation of handouts/manuals
    - Discuss importance of consistency
    - Discuss the manual
    - Contact information

APPENDIX B
Bringing ABA into the Classroom: Manual

Bringing ABA into the classroom: A workshop for preschool and elementary school teachers and paraprofessional aides

Author: Lauren R. Burner, B.S.

Teacher and paraprofessional aide manual

Table of contents

Introduction

Thank you for participating in the workshop presentations. This manual is designed with all information presented in the workshop series and designed to be a source for future implementation in your classroom environments. This manual serves as a resource for teachers and paraprofessional aides within classrooms with children diagnosed on the autism spectrum. This manual will provide more extensive information from the workshop presentations and information on how to utilize the tools that were discussed.

With the methodologies and tools represented by applied behavior analysis (ABA) teachers and paraprofessional aides can implement simple award and punishment systems within the classroom to increase prosocial behaviors and decrease unwanted maladaptive behaviors within the classroom. Understanding the benefits and effectiveness of ABA, teachers and paraprofessional aides can implement these systems confidently and consistently within their classroom environments. Students on the autism spectrum need consistent behavior systems in their classrooms and now with this manual and training, teachers and paraprofessional aides can implement these systems in their classroom with ease.

Please utilize the training procedures learned from the workshops and this manual to further implement these systems in your classroom for your student(s) on the spectrum or your typically developing child as well. Incorporating these systems with the consistency and confidence learned from the workshop series, will significantly influence your student(s) behaviors and actions within the classroom.

What is Autism Spectrum disorders?

What is it?

- Pervasive developmental disorder
- 1 in 110 children are diagnosed annually
    - 1 in 70 boys
- Appears in the first three years of life
- Affects brain's normal development of social and communicative skills
    - Also affects: attending/eye contact, repetitive behaviors

Symptoms

- Sensitivity to light, hearing sensitivity, touch (sensory issues), smell and taste of specific items/objects
- Distress at change of routine
- Unusual attachments to objects
- Repetitive body movements
- Range: moderate to severe

Communicative symptoms:

- Difficulty to start and maintain conversation
- Use of gestures instead of words
- Slow to develop sentences and words
- Do not adjust gaze during conversation
- Do not point to objects desired
- Repetitive words and phrases
    - Echolalia: from commercials, movies, etc
- Nonsense rhyming

Social Symptoms:

- Typically withdrawn from social interaction/peers
- Does not engage in interactive play
- Pretend play difficulties
- Does not respond with smiles, eye contact or gestures

- Treat people as objects
- Lack of empathy
- Solitary and ritualistic play

Language deficits:

- Little or no speech
- Delays in speech development
- Inability to initiate/sustain conversation
- Repetitive speech/echolalia
- Grammatical development in speech is delayed
- Monotone
- High intonation

Development of the child

Typical Developing Child	Atypical Developing child
Social Development	**Social Development**
Gazing	Lack in all areas
Social smiling	Lack if fine motor abilities
Locating items	Lack of shared interests
Responding to name	Inability to sustain attention

It is always important to recognize each individual child's lack in social development. Not every child diagnosed with autism spectrum disorder will have the same symptoms and deficiencies for social development. When the child is first assessed within the classroom, it is important to highlight their weaker areas to eventually strengthen within the classroom environment.

Setting up seating in the classroom should also be taken into deep consideration. Sitting the child with weaker social developmental skills with a typical developing child can increase their social abilities and they can work as a model for the atypical child.

Signs and Tests

Signs	Tests
Not babbling by 12 months	Autism Diagnostic Observation Schedule (ADOS)
Not gesturing (pointing, waving) by 14 months	Autism Diagnostic Interview-Revised (ADI-R)
Saying single words by 16 months	Childhood Autism Rating Scale (CARS)
Saying spontaneous two word phrases by two years	Gilliam Autism Rating Scale
Losing language or social interactions at any age	Pervasive Developmental Disorders Screening Test-Stage 3

Noticing the signs of autism spectrum disorder early is the most beneficial for children with autism spectrum disorder. Especially in the preschool setting, preschool educators can make sure they are aware of the signs and tests available for children who may potentially display some signs of autism spectrum disorder.

Causes of Autism Spectrum Disorder

Suspected Causes:

- Diet
- Digestive tract changes
- Vaccine sensitivity
- Inability to use vitamins/minerals
- Mercury poisoning
- Environmental factors
    - Chemicals
    - Pesticides

Although there are many causes suspected, there is no known cause for autism spectrum disorder. Many studies have been documented examining the information of suspected causes of autism spectrum disorder. Although many strides have been taken in the research of autism spectrum disorder, there is no cause and no cure for the disorder. Early intervention and therapeutic options such as ABA training is the only known system to reduce negative symptoms and increase communicative and social development of the individual child.

Behaviors
Autism Spectrum Disorder

Behaviors	Reasoning
Aggression (hitting, kicking, spitting, punching, etc)	Attention seeking
Anxiety	Impulsiveness
Hyperactivity	Irritability
Vocal outbursts (yelling, screaming, high pitch noises)	Sleep problems
Tantrums (falling to floor, shutting down, etc)	Physiological reasons
Non-vocal outbursts (grunting, facial tightness)	Associations with diet/medications

Why do these children engage in these behaviors?

- Results of denied access
- Attention
- Escape/elope
- Avoidance
- Physiological reasons (tired, hungry, etc)
- Rigidity
- Frustration
- Stereotypy

- Identifying these behaviors BEFORE they happen is the best option to reduce the behaviors
- Implementing behavior rehearsals/modeling behaviors is a beneficial way to increase positive behaviors with children on the autism spectrum
- Understand that all children exhibit different maladaptive/problem behaviors

Identifying behaviors before they occur:

ABC's of applied behavior analysis

A- antecedent	The action (words, non-verbal actions) before the behavior occurs
B- behavior	Any behavior that occurs a result of the antecedent
C- consequence	Actions taken by person who delivered the antecedent

- All consequences should be behavior specific
  - Should occur immediately following the behaviors exhibited
  - Should be only delivered once
  - Debrief with students with higher communication about why they engaged in those behaviors and how to do it differently next time
- Delivery of instructions: (antecedent)
  - Should only be delivered once
  - Require child's attention (eye contact/attending) PRIOR to delivering the instruction
  - Monitor proximity to child
    - Although the child may not exhibit harmful or dangerous behaviors, does not mean that they will not engage in them
    - Expect the best, but anticipate the worse
    - Once child is responding to instructions independently- fade proximity from child
  - Use clear language
    - Language that is concise and age appropriate
    - Avoid questioning
  - Use behavior specific praise
    - Turn "good job" into "I like the way you are sitting."

        - The praise should be behavior specific and you should highlight the EXACT reason for the praise and avoid generic praise
    - Over annunciate KEY words/phrases

Present Therapy Options

- Applied behavior analysis (ABA)
- Medications
- Physical Therapy
- Speech language therapy
- Occupational therapy
- Vision therapy
- Sensory integration

Teachers and paraprofessionals should remember that students on the autism spectrum have extremely long days. Working together with parents to understand their therapy options outside of the classroom, is important to incorporate the students within the classroom. Parents should incorporate their students' teachers and aides with their schedules outside the classroom. Understanding these schedules will help to understand why the child could be potentially engaging in specific behaviors.

What is ABA?

- Applied Behavior analysis
- One on one teaching style
- Reinforce practice of various skills
- GOAL: get the child close to normal functioning
- Not commonly used in the school systems; used primarily at home

Why use it in the classroom?

ABA can be easily incorporated within the classroom for students with paraprofessional aides present. Aides have more availability to represent the one-to-one training. Although it is represented as one-to-one training, the award systems and punishment systems should be incorporated within the classroom to help provide consistency for the child.

Why is ABA a preferred method?

- Goal: to shape behaviors and bring autistic children back to a normal functioning developmental norm

How is this achieved?

- Through the use of one-to-one therapeutic training
- Use of reinforcement systems
- Use of behavior specific praise
- Instructional control
- Understanding the child's problem behaviors prior to delivering therapy options

Characteristics of ABA

- Scientific approach to changing behaviors
    - Influence by the theoretical assumptions of behaviorism
- Most popular/advanced programming method/treatment option for individuals with developmental disabilities
- Aimed to control and change social behaviors by studying and evaluating OBSERVABLE behaviors before and after the behavior
- Measurable, observable and behavioral foundations

Teaching procedures

Rapport

- Builds comfort in the classroom
- Opens communication between child and teacher
- Builds trust and honesty
- Allows the child to form a stronger relationship

Role of the teacher

- To promote management within the classroom
- Delivery of instructions:
    - Correct response
    - No response
    - Incorrect response

- Promote teacher-child relationships
- Facilitate all learning experiences
- Assist with behavior management related issues
- Assist with basic needs
- Encourage award systems/punishment systems
- Use reinforcement appropriately
- Use behavior specific praise appropriately
- Incorporate individual systems

Behavior Management

- Systems set in place for individual children
- Incorporate the entire classroom
- Use of visual systems
- Goal 1: sustain management in the classroom
- Goal 2: decrease unwanted behaviors before they occur
- Important to understand the behaviors before implementing a behavior system

AWARD SYSTEMS

Characteristics:

- Presented as a reinforcement tool for children on the ASD
- Easily incorporated within the classroom
- Cost effective and easy to create
- Can be incorporated individually or with the entire classroom

Types:

- Token board economy
- Contract systems
- Visual schedules
- Point systems/group systems
- Monetary systems
- Communication to parents
- DRO

TOKEN BOARD ECONOMY

- Tokens delivered contingent upon desired behaviors
    - Younger children typically have a token paired with another reinforcer
- Tokens delivered rapidly in beginning
    - Slowly decrease as token economy is learned
- Once the child has earned all his/her tokens:
    - Trade for the item they are working for
    - Immediate access to that item for a desired amount of time

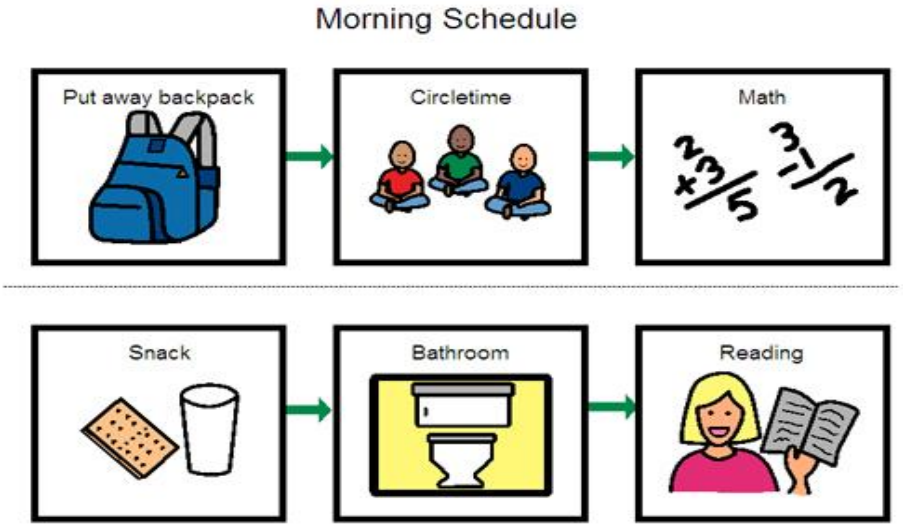
	Warning	Broken Rule	Max	Ms. Lauren
I listened to my teacher the first time				
I looked at my teacher				
I put away my materials				
I talked to my friends				

CONTRACT SYSTEMS

Important to decide reinforcer prior to beginning activity
After desired amount of time (usually until activity is complete)

- Check into contract with child
- If child received the amount of icons needed, that child receives access to desired item IMMEDIATELY

VISUAL SCHEDULES



- Used typically for children with lower communication
- Used as a visual cue/reminder
- Presented immediately when child enters classroom or before the desired activity starts
- Child is able to hold onto visual schedule to remind them

POINT SYSTEMS

- Great tool for the classroom management
- All children in group settings can use this system
- Sets up opportunities for spontaneous points

MONETARY SYSTEMS

- Depends on the child's individual likes/dislikes
- Can use money as a reinforcement systems
- Child can collect the money and then use it at end of day to buy special prize/reward

COMMUNICATION TO PARENTS

- Delivering notes to parents
    - Child can assist in filling out "peaks" and "pits" of day
- Used for older students/high communication
    - Child can fill out communication form

DRO SYSTEMS

- Differential reinforcement systems
    - Used for differentially reinforcing child's behaviors

- Basic function of data collection systems
- Used to measure effect of behavior

PUNISHMENT SYSTEMS

VERBAL	NON-VERBAL
Delivering statement/command	Gesturing
Avoid questioning	Expectant looks
Quick phrases	Modeling the behavior

WHAT IS REINFORCEMENT?

POSITIVE REINFORCEMENT	NEGATIVE REINFORCEMENT
Occurs when behavior is followed by the presentation of a stimulus, and as a result the behavior happens more in the future	Occurs when behavior is followed by the removal of a stimulus or highly preferred item, and as a result the behavior happens more in the future

Different types of reinforcers

- Tangible: toys, things you can play with
- Edible: snack foods, drinks, things you can eat
- Social: tickles, high fives, lifts, hugs, etc
- Verbal: phrases, “Good job!”, “Awesome!”, etc
- Non-verbal: thumbs up, high fives, overly expressive gestures

UTILIZATION IN THE CLASSROOM

- Make sure all reinforcement is consistent and contingent
- Incorporate peers as much as possible
- Post schedules in place capable for child to access
- Review all behavior expectations prior to activity or class
- Model all appropriate behaviors when necessary

PARENT TEACHER RELATIONSHIPS

Why are they so important?

- Opens communication between the parent and the teacher
- Allows for therapeutic intervention
    - Parents can highlight behaviors seen at home and notify teachers
- Provides consistency for the school environment and the home environment
    - Important for teachers and parents to have the same expectations
- Highlights positive and negative interactions at school
    - For children with less verbal communication- completing a highlight of their day will allow the parents to feel incorporated within the classroom and knowledgeable

INCORPORATION METHODS

- Understand the child's behaviors prior to creating a system for them
    - Make sure the system is consistent and clear
    - A system that the child is easily able to understand
    - Incorporate peers as much as possible

AWARD SYSTEMS- *incorporation*

- Review prior
- Immediately deliver reinforcement
- Check-in occasionally
- Create systems that best meet the needs of the child's verbal communication

HOW TO HANDLE PROBLEM BEHAVORS

- Behavior rehearsals
- Model behaviors

- Incorporate peers
- Introduce the use of powerchoice visuals
    - Big breaths
    - Counting to a number
    - Moving on
    - Taking a break
    - Go for a walk

INCREASING SPONTANEOUS LANGAUGE

- Withdrawing items
    - Removing items from the environment
- Pauses in sentences
    - Begin sentence and leave out key word
        - E.g., "Peanut butter and _____."
- Placing items out of reach/wrong locations
    - Child is forced to recall/respond
- Blocking access to items
- Absurdities
    - E.g., "I brushed my hair with a fork this morning."
    - E.g., While playing a game and you have a blue card, "Look! I have the color purple."
- Reciprocal commenting
    - Can be used during individual work, circle time, table work, etc
        - Always make comment and then give an expectant look for the child to reciprocate/respond question

IMPORTANT NOTES ABOUT INCOPORATION IN THE CLASSROOM

- BE CONSISTENT!!!
    - Don't deliver promises you cannot keep
    - Deliver reinforcement immediately following the completion of the reward systems
- BE CLEAR!!!

    - Do not use over extraneous language
        - Be clear and concise
- DELIVER BEHAVIOR SPECIFIC PRAISE!!!
    - Be clear when delivering praise
        - Avoid questions or generic praise
            - E.g., "Good job." → "Good job answering me the first time."

RESULTS SEEN WITH ABA TREATMENT

- Depending on the level of treatment
    - Increase in attending skills (eye contact, gestures, etc)
    - Increase in social ability
    - Increase in language development
    - Increase in independence (toileting, daily routine, etc)
    - Increase in attention span
    - Increase in cognitive abilities
        - Associations, etc
    - Increase in theory of mind development
    - Decrease in unwanted behaviors
        - Screaming, yelling, maladaptive behaviors
    - Decrease in repetitive behaviors
        - Increase in willingness to alter daily routines

APPENDIX C
Activity

Activity

Directions: in groups of 5-6, talk about any terms, phrases or key words that come to mind when you see the following words: autism spectrum disorder, behaviors, and current therapy options

Workshop Presentation 1

Autism Spectrum Disorder	Behaviors	Current Therapy Options

Workshop Presentation 3

Autism Spectrum Disorder	Behaviors	Current Therapy Options

APPENDIX D
Evaluation

WORKSHOP EVALUATION SURVEY

For the following questions, please circle the response that best reflects your experience using the provided scale:

1= **strongly disagree**, 2= **disagree**, 3=**agree**, 4=**strongly agree**, N/A= **not applicable**

Workshop Content

1. The workshops provided me with useful information about behavior management
   1 2 3 4 NA

2. The workshops provided me with useful information on incorporation methods to integrate autistic students in the classroom
   1 2 3 4 NA

3. I was well informed on ABA techniques and methodologies to incorporate in the classroom
   1 2 3 4 NA

4. The information presented in this workshop stimulated my knowledge on autism spectrum disorder
   1 2 3 4 NA

5. The workshop provided information to effectively practice ABA techniques and methodologies
   1 2 3 4 NA

Workshop Design

6. The objectives and goals for the workshop series were clear and concise
   1 2 3 4 NA

7. The difficulty level of this workshop was low.
   1 2 3 4 NA

8. I understood the purpose of the activities and materials presented in this workshop
   1 2 3 4 NA

9. The manual and information provided in the workshop series was helpful
   1 2 3 4 NA

Workshop Facilitator:

10. The facilitator was well prepared for the workshop series
    1 2 3 4 NA

11. The facilitator was knowledgeable about the subject material
    1 2 3 4 NA

12. The facilitator was helpful during the workshop experience (answered all questions effectively, provided materials throughout the workshop)
    1 2 3 4 NA

Workshop Results:

13. I am confident that I can further educate my colleagues on the information provided in the workshop
    1 2 3 4 NA

14. I am confident I can implement concepts and strategies from the workshops in my classroom
    1 2 3 4 NA

15. I increased my knowledge about Autism Spectrum Disorder
    1 2 3 4 NA

Workshop Format:

16. The powerpoint presentation was easy to follow and understand
    1 2 3 4 NA

17. The materials provided in the workshop series were easy to complete and understand
    1 2 3 4 NA

18. The discussion questions and activities were stimulating and interesting
    1 2 3 4 NA

19. The pace of the workshop series was comfortable
    1 2 3 4 NA

20. The amount of information covered in the workshop series was manageable in the three sessions
    1 2 3 4 NA

21. The material covered in the workshops was too difficult
    1 2 3 4 NA

22. My overall experience of the workshop series was very positive
    1 2 3 4 NA

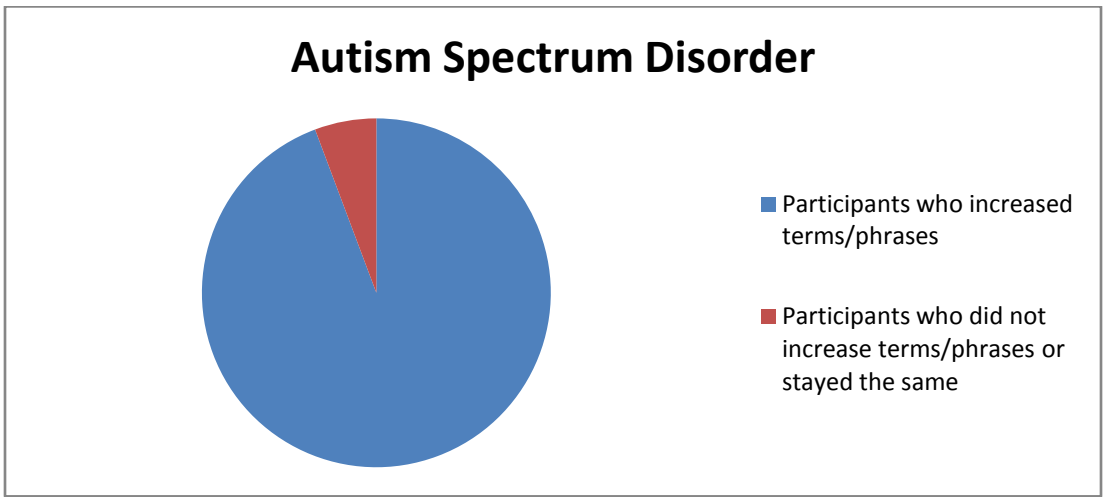
Any suggestions for change:

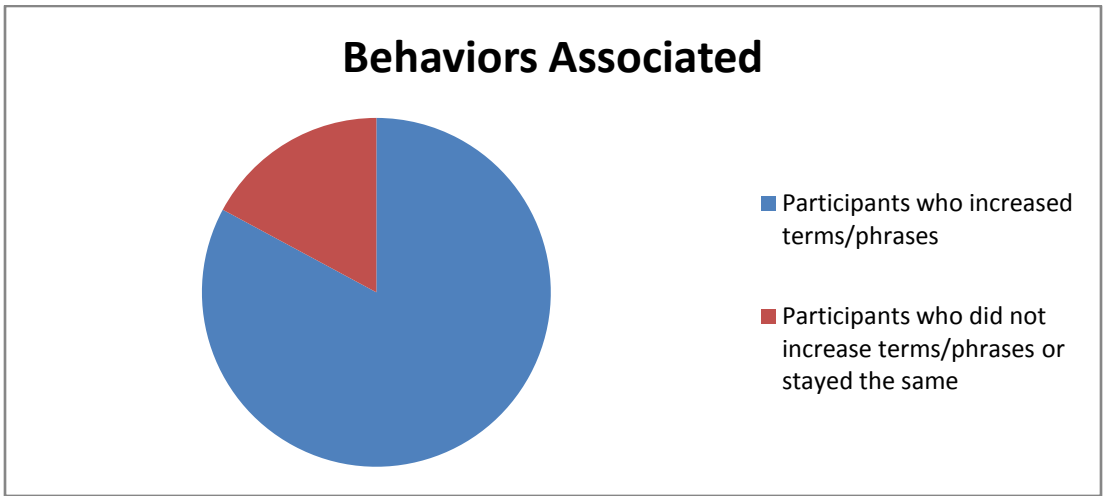
_____
_____
_____
_____
_____
_____

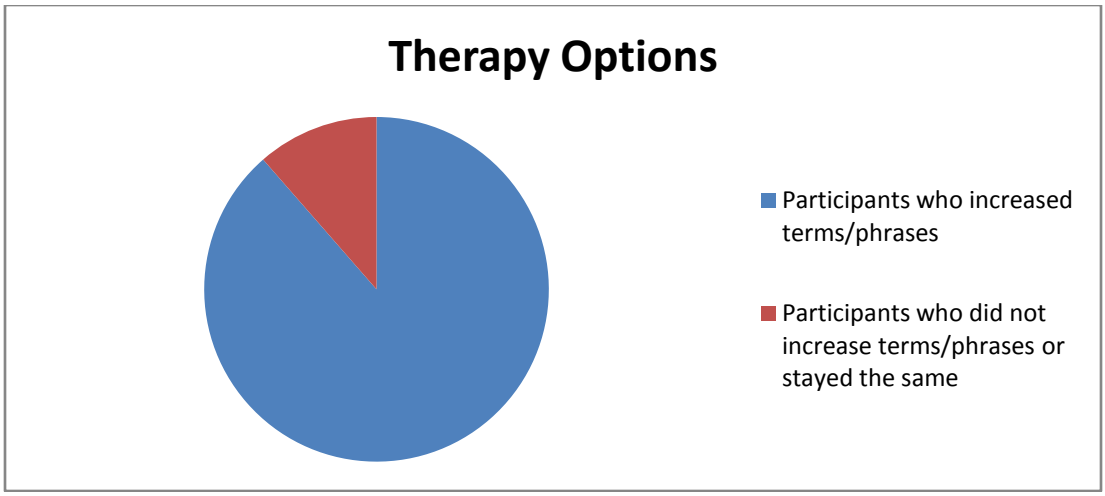
Comments (optional):

_____
_____
_____
_____
_____
_____

APPENDIX E
Results of Activity

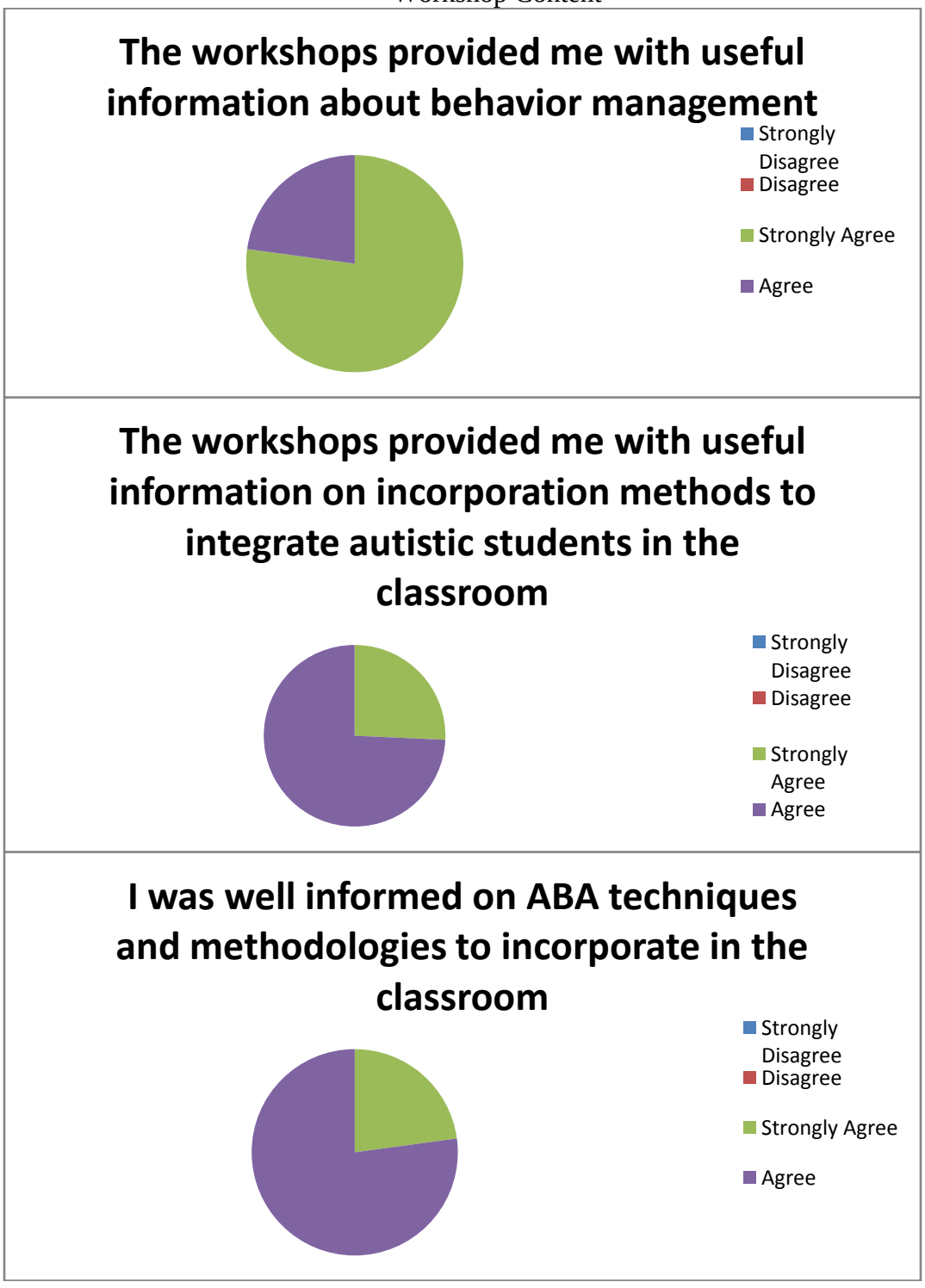

Autism Spectrum Disorder
Participants who increased terms/phrases
Participants who did not increase terms/phrases or stayed the same

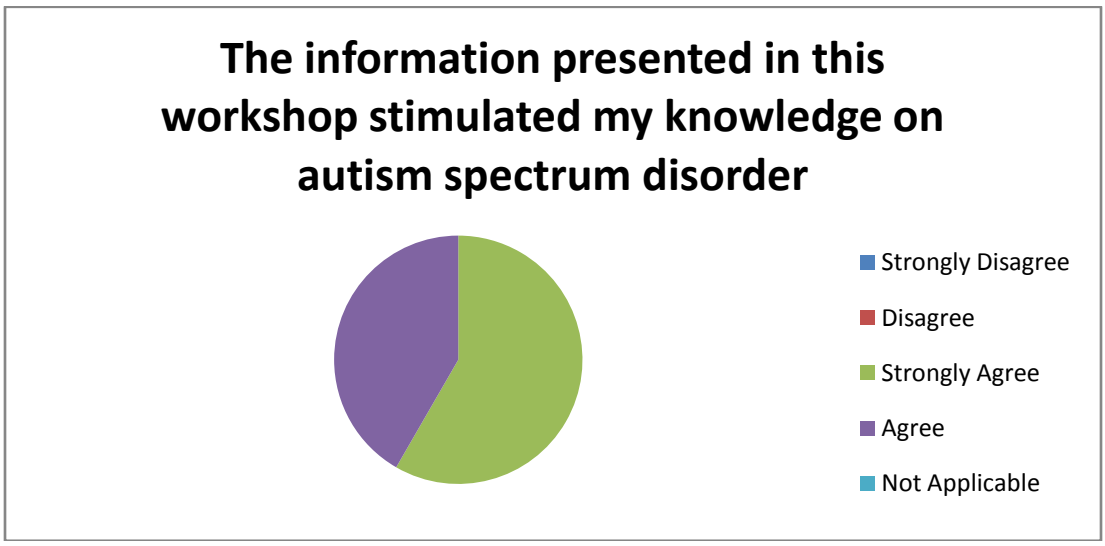

Behaviors Associated
Participants who increased terms/phrases
Participants who did not increase terms/phrases or stayed the same

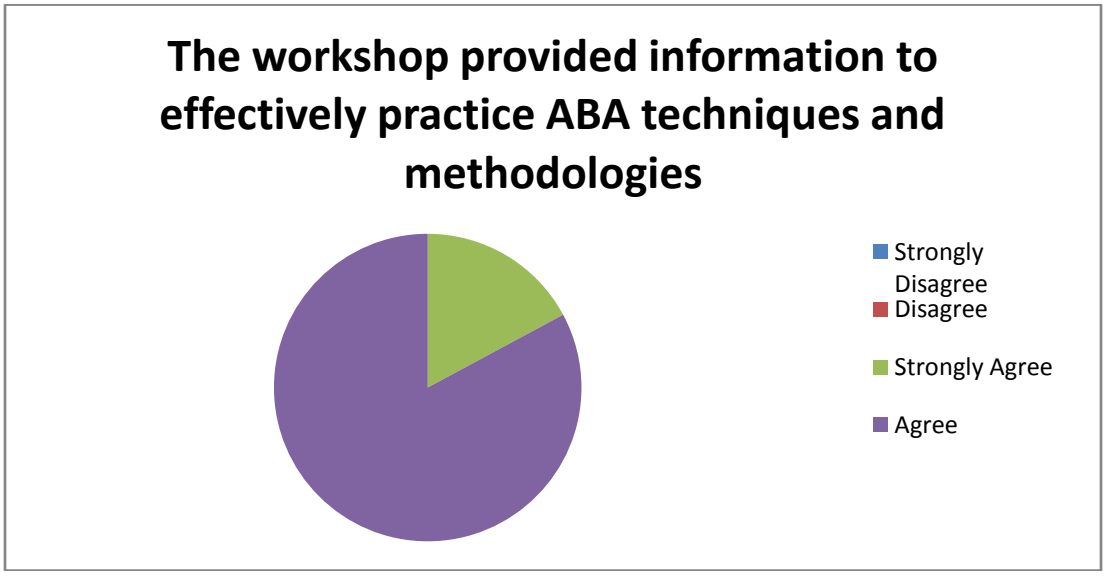

Therapy Options
Participants who increased terms/phrases
Participants who did not increase terms/phrases or stayed the same

APPENDIX F
Results of Evaluation

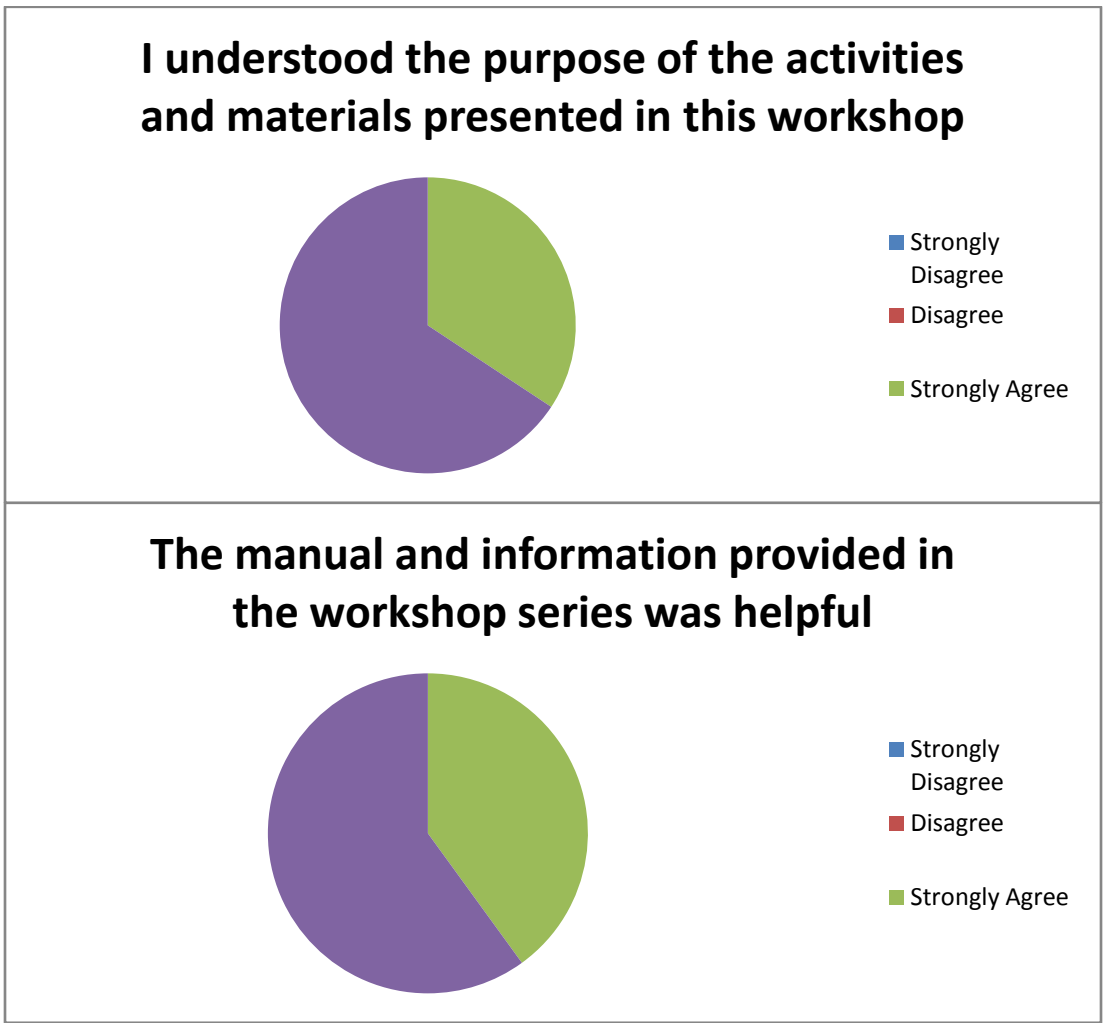
Workshop Content




The information presented in this workshop stimulated my knowledge on autism spectrum disorder
Strongly Disagree
Disagree
Strongly Agree
Agree
Not Applicable

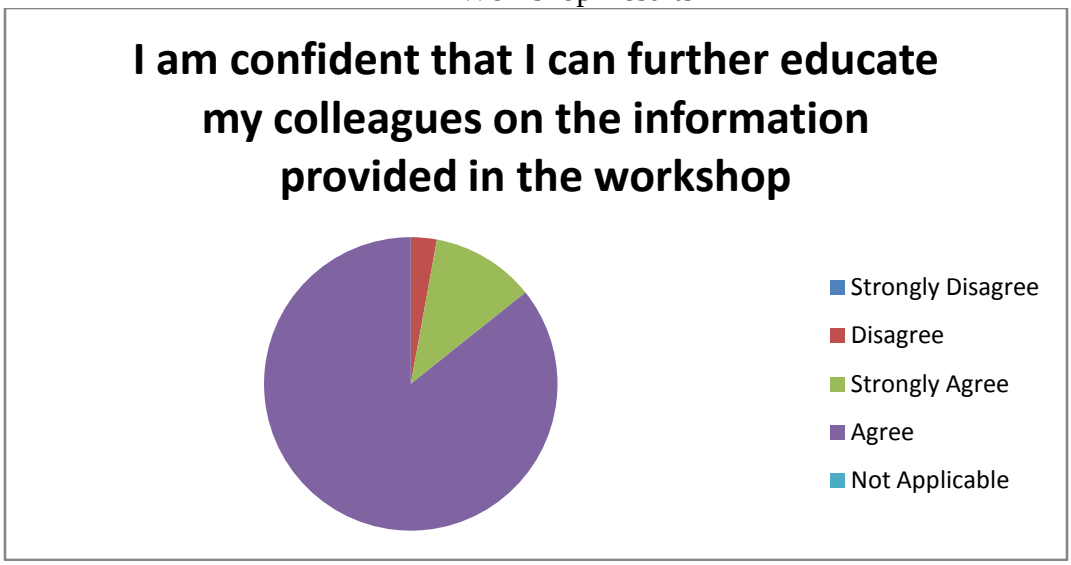

The workshop provided information to effectively practice ABA techniques and methodologies
Strongly Disagree
Disagree
Strongly Agree
Agree

Workshop Design

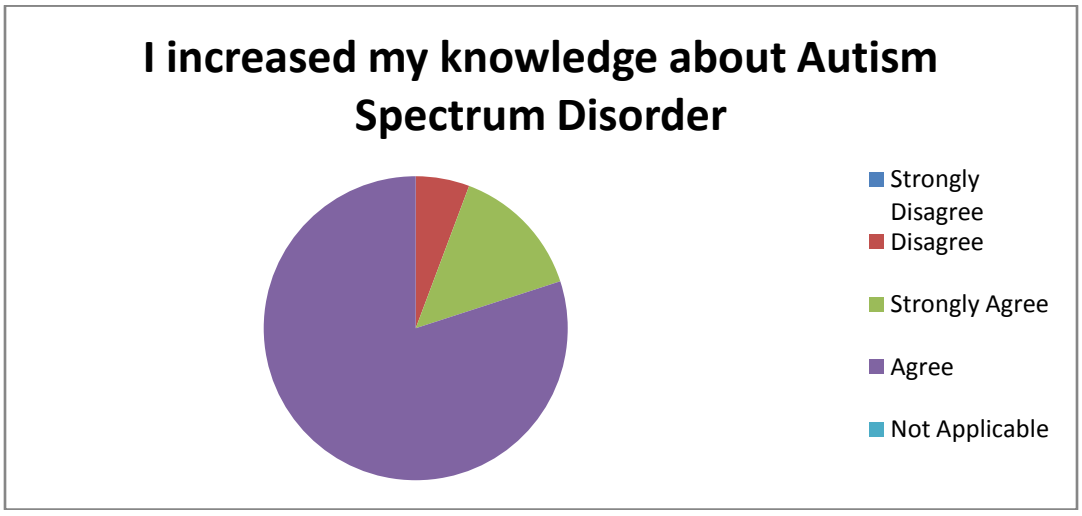

I understood the purpose of the activities and materials presented in this workshop
Strongly Disagree
Disagree
Strongly Agree
The manual and information provided in the workshop series was helpful
Strongly Disagree
Disagree
Strongly Agree

Workshop Facilitator

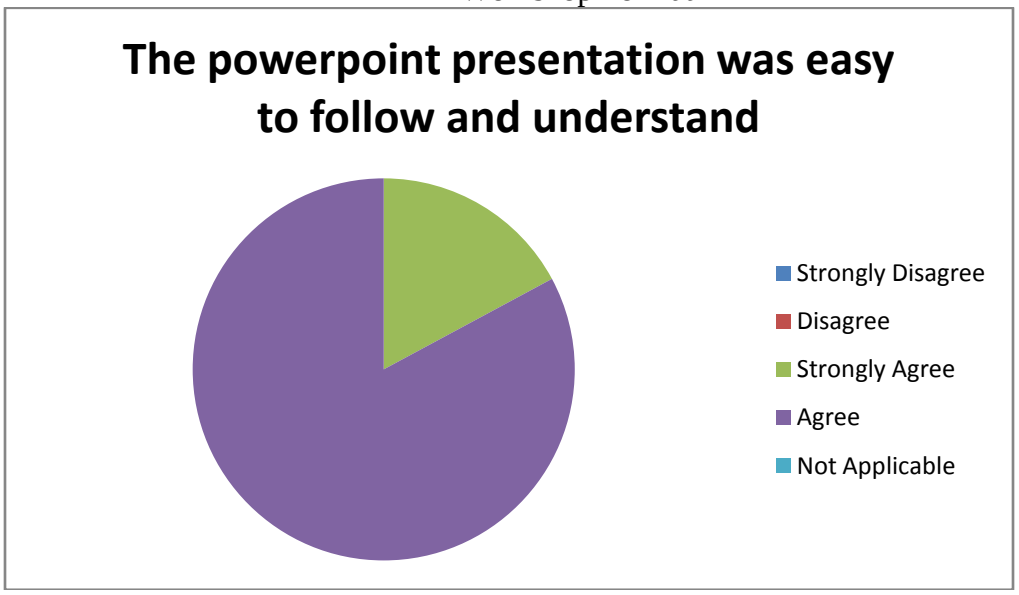
Workshop Results

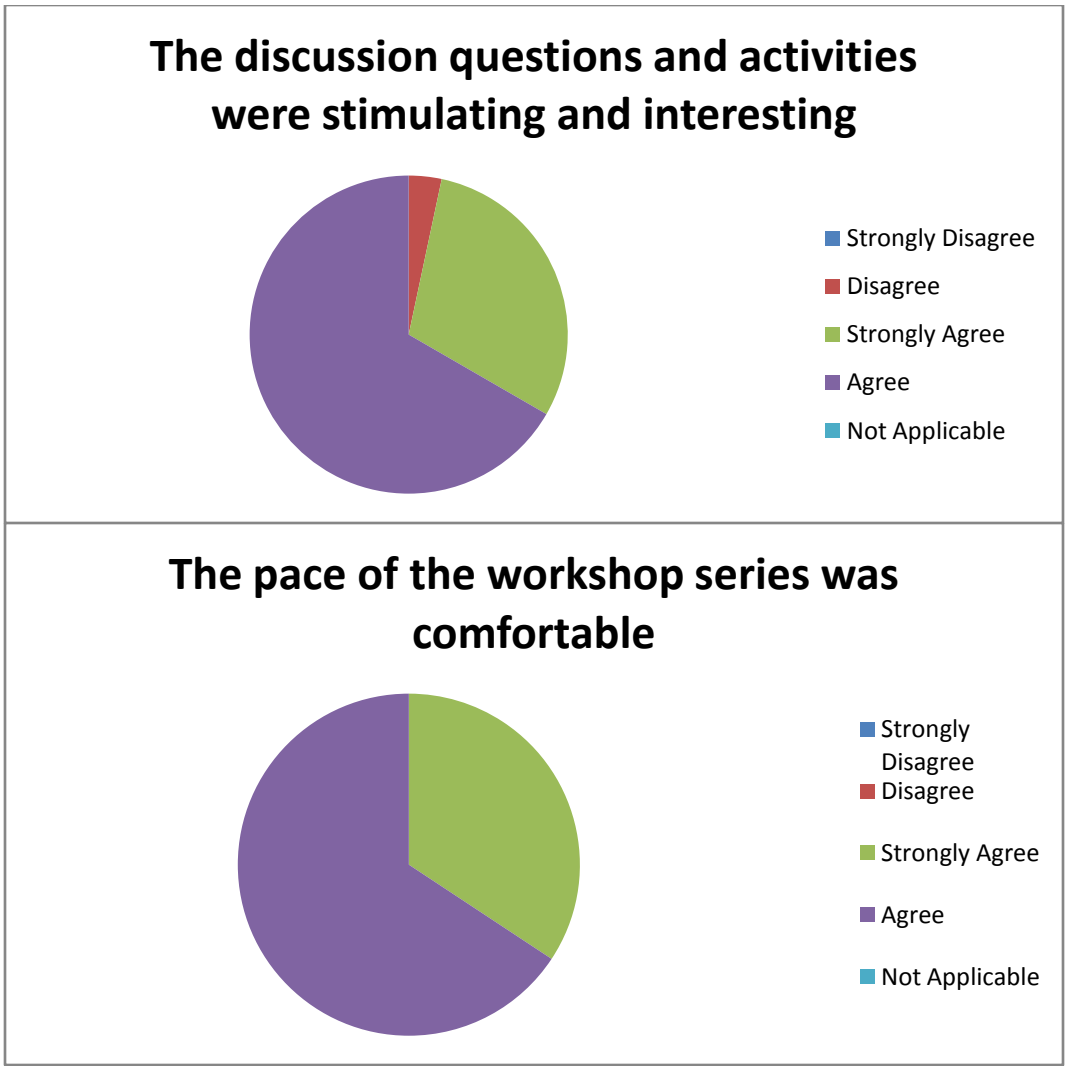



I am confident I can implement concepts and strategies from the workshops in my classroom
Strongly Disagree
Disagree
Strongly Agree
Agree
Not Applicable

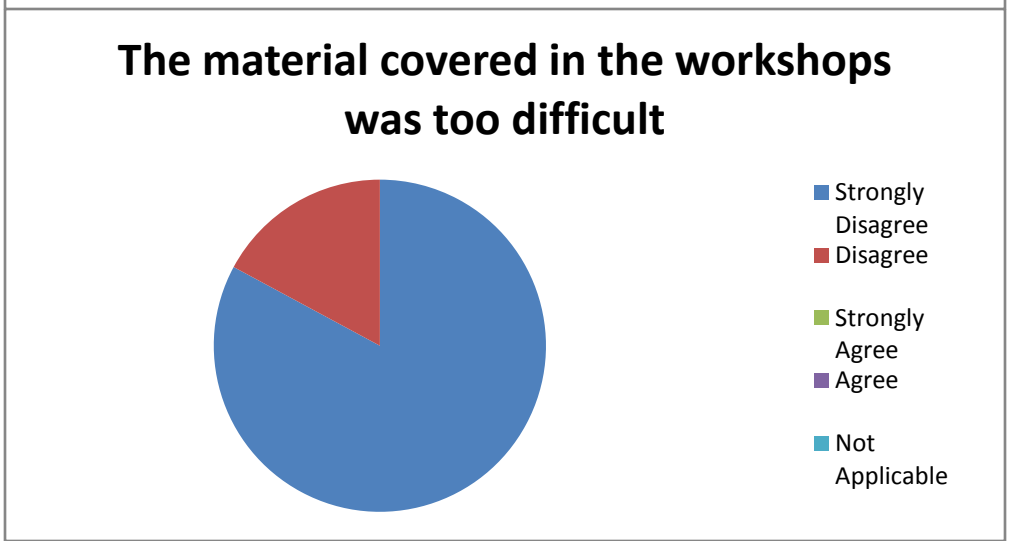

I increased my knowledge about Autism Spectrum Disorder
Strongly Disagree
Disagree
Strongly Agree
Agree
Not Applicable

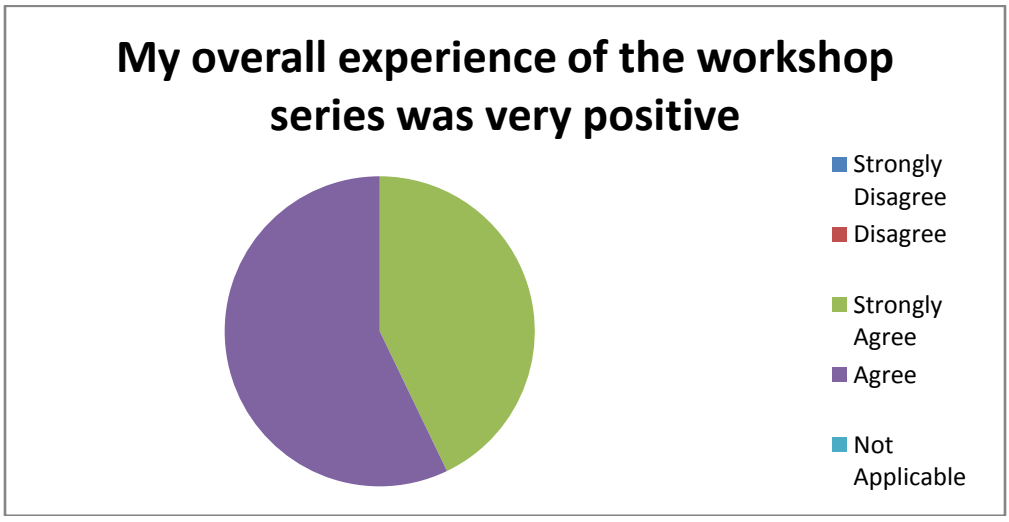
Workshop Format




The discussion questions and activities were stimulating and interesting
Strongly Disagree
Disagree
Strongly Agree
Agree
Not Applicable
The pace of the workshop series was comfortable
Strongly Disagree
Disagree
Strongly Agree
Agree
Not Applicable


The amount of information covered in the workshop series was manageable in the three sessions
Strongly Disagree
Disagree
Strongly Agree
Agree
Not Applicable


The material covered in the workshops was too difficult
Strongly Disagree
Disagree
Strongly Agree
Agree
Not Applicable


My overall experience of the workshop series was very positive
Strongly Disagree
Disagree
Strongly Agree
Agree
Not Applicable

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