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Intervention Strategies for Children with Autism Spectrum Disorder

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Intervention Strategies for Children with Autism Spectrum Disorder

Winona State University

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Winona State University
College of Education
Counselor Education Department

CERTIFICATE OF APPROVAL

CAPSTONE PROJECT

Intervention Strategies for Children with Autism

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Abstract

The increase in prevalence of Autism Spectrum Disorder has lead to the need for clinicians, parents, and educators to be more informed about available treatment options available for children with Autism Spectrum Disorder. Information regarding the effectiveness of several interventions and treatment strategies are discussed. It is recommended that by using collaboration across academic, medical, and home settings treatments be selected based on scientific evidence of effectiveness and individualized considerations of outcomes for the affected child.

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Introduction

The increasing prevalence of Autism Spectrum Disorder (ASD) in the United States has captured the attention of clinicians, educators, and parents. Autism prevalence rates have increased dramatically in the past 20 years and as many as 1 in every 110 children in the United States has an autism spectrum disorder today (McPheeters, Warren, Sathe, Bruzek, Krishnaswami, Jerome, and Veenstra-VanderWeele, 2011). With such widespread prevalence of the disorder, is it more important now than ever for clinicians, educators, and parents to understand more about the many intervention strategies used to treat symptoms of ASD.

Individuals with ASD have unusual social, communicative, and behavioral development and may have abnormalities in cognitive functioning, learning, speech, attention, and sensory processing (Yeargin-Allsopp, Rice, Karapurker, Doember, Boyle, and Murphy, 2003). It is a lifelong neurodevelopmental disorder for which there is no medically based cure. Treatment is a descriptor reflecting interventions and therapies aimed at helping individuals with ASD adjust more effectively to their environment (Francis, 2005). Over the years, there have been many treatments developed for children with ASD and have evolved from different philosophies. These strategies may include behavioral interventions, developmental interventions, and cognitive interventions (Corsello, 2005). While each strategy uses unique intervention tactics, there is considerable overlap in components of many of the interventions. It is important to keep in mind while considering each strategy that success rates for the strategies may vary and should be tailored to the specific needs of each child with ASD. There is no blanket approach to treating all symptoms of all individuals with ASD and discovering what will be effective for any particular individual with ASD is often an ongoing, or even lifelong, process.

As the number of individuals with ASD increases, there is also a growing need for services for children with ASD in the public school system in addition to treatment options that may be administered by clinicians. Hess, Morrier, Hefflin, and Ivey (2007) developed the Autism treatment survey in order to identify strategies used in the education of children with ASD. A sample of 185 teachers in Georgia reported 226 children with ASD in preschool-12th grade in the web-based survey. Results indicated the pressing need for educator training and the need for continued research and evidence based strategies for public school use in order to serve children with ASD in an academic setting. The need for specialized services to best treat individuals with ASD will continue to increase along with the prevalence of the disorder. Many interventions currently being used with individuals with ASD have not been proven to be effective and have a lack of evidence that might demonstrate their effectiveness. It should also be noted that qualitative reviews of intervention strategies and studies examining interventions do not allow for relative comparisons of treatment effectiveness across different intervention strategies. This creates a need for closer examination of services provided to individuals with ASD both in an academic setting and in treatment planning.

Review of Literature

In a recent publication, Simpson and colleagues (2005) evaluated scientific evidence for 37 intervention and treatments for children with ASD. The unique characteristics associated with ASD, and this study in particular, have caused much debate over which treatment options lead to the best outcomes. The misuse of treatments and use of unproven treatment interventions have encouraged unhealthy, unrealistic, and often improbable expectations for children with ASD. A few major shortcomings of reviewing the literature for treatment options are small sample sizes, lack of empirical evidence, conclusions drawn based on case studies, and questionable validity. It is clear that there is a need for evidence based studies in order to draw more valid conclusions about the effectiveness of the intervention strategies and comorbidity with other medical or mental health diagnosis may complicate treatment planning and symptom management of ASD.

Target Behaviors and Medical Intervention

Behaviors that are being addressed in the following interventions strategies are often referred to as target behaviors. The target behavior is typically any behavior that is inappropriate or undesirable which the clinician or educator is attempting to change through the use of an intervention strategy. Examples of target behaviors present in individuals with ASD may include, but are not limited to, hyperactivity, inattention, obsessive-compulsive symptoms, inappropriate social behavior, sleep disturbances, aggression, and self-injury. In many cases, drug treatments can be used for behavior management. It should be noted that drug alternatives are not used for symptom treatment. They are not a replacement for treatment and intervention strategies. Antipsychotics have been widely researched and have been found to be effective in reducing stereotype behaviors, hyperactivity, aggression, self-injurious behaviors, and other

disruptive symptoms (Francis, 2005). Other medications commonly prescribed to individuals with ASD include selective serotonin re-uptake inhibitors, beta-blockers, naltrexone, stimulants, mood stabilizers, and secretin. Less traditional or complimentary approaches include mega vitamin therapy and gluten and casein free diets. However, evidence based recommendations cannot be made for these treatments due to a lack of research on their effectiveness.

Medical intervention strategies are utilized with some individuals with ASD particularly to address challenging or repetitive behaviors. Only a few medications have shown such benefits and the clearest evidence favors risperidone and aripiprazole, however, although these medications may be effective, they have significant adverse effect profiles (McPheeters, Warren, Sathe, Bruzek, Krishnaswami, Jerome, and Veenstra-VanderWeele, 2011). Insufficient evidence is available to adequately judge the potential benefit or adverse effects of all other medical interventions currently used to treat ASD (McPheeters, Warren, Sathe, Bruzek, Krishnaswami, Jerome, and Veenstra-VanderWeele, 2011).

Evidence-Based Models

Identification and use of evidence-based treatments would be ideal, however there tends to be a lack of consensus as to how to best identify and evaluate the validity and effectiveness of practices (Simpson, 2005). Reviews were based on the evaluation of 33 commonly used interventions and treatment options for children with ASD. Methods were organized into five categories: interpersonal relationship, skill based, cognitive, physiological, biological, neurological, and other. Treatments that met the standards of scientifically based practices and are recommended for use included applied behavior analysis, discrete trial training, pivotal response training, and Learning Experiences: An Alternative Program for Preschoolers and

Parents (LEAP). Holding therapy and facilitated communication met the criteria for the classification of not recommended and were judged to be potentially harmful to individuals with Autism Spectrum Disorder. Promising practices included play oriented strategies, picture exchange communication system, incidental teaching, structured teaching, augmentative alternative communication, assistive technology, joint action routines, cognitive behavioral modification, cognitive learning strategies, social stories, social decision making strategies, and sensory integration. Strategies that had limited supporting information for practice included gentle teaching, option method, floor time, pet or animal therapy, relationship development intervention, Van Dijk curricular approach, Fast ForWord, Cognitive scripts, cartooning, power cards, scotopic sensitivity syndrome: Irlen lenses, Auditory integration training, megavitamin therapy, Feingold diet, music therapy, art therapy, and herb, mineral, and other supplements.

Applied Behavior Analysis

Empirical evidence has shown that applied behavior analysis (ABA) has created positive outcomes for children with Autism Spectrum Disorder. It has been recognized by the surgeon general of the United States as the treatment of choice for Autism Spectrum disorder in his mental health report for children (Rosenwasser, 2001). ABA treatment for children with Autism Spectrum Disorder often reduces symptoms of Autism and in many cases, allows the client to achieve “normalcy” (Swallows, 2005). ABA approaches focus on the use of reward to reinforce desired behaviors and eliminate undesirable behaviors (Francis, 2005). Publication of clear outcome data supporting ABA intervention, increased coverage of ABA by the media, and rise of behavior analyst certification has increased the prevalence and use of this intervention in individuals with Autism Spectrum Disorder. This intervention began in the 1960’s. Outcomes in experimental data showed 47% of the experimental group receiving 40 hours of ABA therapy

per week over the course of 2 years achieved IQ scores over 100 compared to the 2% in the control group (Rosenwasser, 2001). Many children who receive ABA treatment are able to successfully transition into mainstream classrooms. Other benefits include progress in language, social functioning, academics, emotional skills, self-management strategies, and other specified areas of functioning specific to the individual. ABA has been supported by several hundred single case experiments and an increasing number of between-group studies. Comprehensive ABA treatment programs are comprised of multiple intervention procedures, such as discrete trial instruction and natural environment training, and are founded on basic principles of learning and motivation. Positive reinforcement, extinction, stimulus control, and generalization are used throughout the ABA therapy process. ABA treatment programs for individuals with autism are supported by a significant amount of scientific evidence and substantial research and are therefore recommended for use (Granpeesesh, Tarbox, and Dixon, 2009).

TEACCH Instructional Strategy

Treatment and Education of Autistic and related Communication handicapped Children, or TEACCH, is a statewide community based instructional strategy that utilizes visual supports and aims to maximize independent functioning. A visual work system communicates the tasks the student is supposed to do, how much work there is to be completed, how the student knows he or she is finished or noting progress toward a goal, and what to do when he or she is finished (Hume, Loftin, and Lantz, 2009). By visually sequencing activities, the affected individual's ability to predict upcoming activities improves. The setting in which TEACCH is implemented varies, depending on the needs and abilities of the child. It is taught in the natural environment with context and emphasizes skills that are important for future independence (Corsello, 2005).

The TEACCH strategy involves the close collaboration of parents and educators and has been shown to be particularly effective in reducing self-injury behaviors.

Discrete Trial Training

Discrete trial training (DTT) is a method for simplifying and individualizing instruction to enhance learning. This method is particularly useful when teaching new speech and motor skills. DTT is used to help children make discriminations. Cues, prompting, and shaping are used to help children master responses. This teaching method may also improve imitation, receptive language, expressive language, conversation, sentence, grammar, and syntax, alternative communication systems, and expanding skills (Smith, 2001). Behavior reduction and teaching of replacement behaviors can be taught with this method across environments. A major limitation of this strategy is that children may become dependent on cues and prompting.

Communication Tools

Impairments in verbal and nonverbal communication are often considered defining features of Autism. Alternative and augmentative communication (AAC) focuses on enhancing communication rather than enhancing speech. Communication systems that use visual symbols allow the individual to rely on recognition rather than recall memory to comprehend language (Nunes, 2008). These methods are often used alongside other interventions such as ABA and TEACCH. Children with ASD often have difficulty understanding the functions of social communication. The range of language and communication skills present in children with ASD can vary significantly. In some cases these children have increased challenging behaviors due to the lack of suitable means of communication (Francis, 2005). As the majority of individuals with Autism are visual thinkers, the Picture Exchange Communication system (PECS) was

developed as an augmentative alternative for teaching communication. PECS teaches the individual to give a picture what is desired to the clinician who honors the request. Ultimately, the individual is taught to discriminate between symbols, answer questions, and create simple sentences. In some cases, children who received PECS training later spontaneously developed normal speech. It is best suited for nonverbal children. However, empirical support for this strategy is limited. Speech generating devices such as a dynovox or ipad or sign language teaching may also be used with nonverbal individuals with Autism (Nunes, 2008).

Social Skills Interventions

Impairment in social functioning is a primary feature of autism spectrum disorder and has been well documented in literature (Bellini, Peters, Benner, and Hopf, 2007). Social skills teaching is an area of intervention suited for higher functioning individuals with Autism. Social Stories were developed by Carol Gray as an intervention aimed to improve social understanding. Stories are produced to explain the how and why of a troubling social situation and praising the achievements of the individual (Francis, 2005). They include factual information of social situations and possible reactions of others. Directive, descriptive, perspective, and control sentences can be taught with the use of visual cues within the stories. Individuals with autism spectrum disorder have difficulty communicating with others, processing information, integrating information, sustaining or establishing social relationships, sharing enjoyment, taking another person's perspective, and inferring interests of others (Bellini, Peters, Benner, and Hopf, 2007). Learning to use social stories effectively does not require extensive training. Many educators and professionals can integrate social stories into a behavior support plan or individualized education program (Crozier and Slieo, 2005). Although problems in social functioning are a primary feature of autism spectrum disorder, many children with ASD do not

receive adequate social skills programming (Bellini, Peters, Benner, and Hopf, 2007). Deficits in social functioning can impede an individual's ability to establish meaningful social relationships and social skills are often considered critical to successful development (Bellini, Peters, Benner, and Hopf, 2007). Based on a literature review of 55 studies examining social skills interventions for children with autism spectrum disorder, McConnell divided social skills interventions into five categories. Environmental modifications, child specific interventions, collateral skills interventions, peer mediated interventions, and comprehensive interventions (Bellini, Peters, Benner, and Hopf, 2007). According to McConnell (2002), *environmental modifications* involve modifications to the physical and social environment that promote social interactions between children with ASD and their peers. *Child-specific interventions* involve the direct instruction of social behaviors, such as initiating and responding. *Collateral skills interventions* involve strategies that promote social interactions by delivering training in related skills, such as play behavior and language, rather than training specific social behaviors. *Peer-mediated interventions* involve training nondisabled peers to direct and respond to the social behaviors of children with ASD. Finally, *comprehensive interventions* involve social skills interventions that combine two or more of the aforementioned intervention categories. McConnell's taxonomy provides a helpful framework for synthesizing studies examining social skills interventions for children with ASD (Bellini, Peters, Benner, and Hopf, 2007).

Music Interventions

A study conducted by Finnegan and Star in 2010 found that music intervention was more effective than non-music intervention in increasing social responsive behaviors. Several models of music therapy exist. The creative music therapy model has been found to be best suited for young children with autism, involves an active approach emphasizes the importance of making

music rather than just listening to it. This approach is thought to engage the attention of children and lead them into active involvement (Finnigan and Star, 2010).

Using music therapy as an evidence-based intervention has been increasing in the last decade. A review of the literature found that only six studies have specifically examined the effect of music therapy on developing social skills in children with Autism. Many other studies are generalized to children with disabilities, which may include children with Autism or qualitative studies in which music therapy was used purely for fun with children with autism (Finnigan and Star, 2010). Although the research suggests that music can be a positive therapeutic intervention, the limitations demonstrate a need for well-designed research in a Meta analysis of music therapy research with children with autism.

Video Modeling

Video modeling imitation as a method of teaching behavior is utilized in a variety of treatment methods. Both ABA and video modeling rely heavily on this learning strategy. Video modeling is defined as the demonstration of behavior that is not live, but is presented via video in an effort to change existing behaviors or teach new ones (Sancho, Sidener, Reeve, and Sidener, 2010). It is generally used to decrease problem behaviors and increase appropriate ones such as social behaviors, speaking skills, daily living skills, and play skills. There are several variations in terms of how video modeling strategies are executed. The most commonly studied method reviewed in the literature is video priming. Video priming is used in which the learner watches a video model and then later has the opportunity to engage in the response with similar materials, people, or settings (Sancho, Sidener, Reeve, and Sidener, 2010). Incorporation of opportunities to demonstrate the skill while the learner is watching the video is also included in some forms of

video modeling. Other visual teaching strategies may include PECS schedules, social stories, or ABA imitation.

Intervention Structure

Many interventions are taught with the use of prompts. Prompts should be given in the least intrusive way not only to increase independence of the affected individual, but also to decrease the likelihood of prompt dependence. Prompt dependence can negatively impact the learning of a particular skill or behavior by impeding success of independently being able to demonstrate the behavior or skill without a prompt or expected reinforcement (Hume, Loftin, and Lantz, 2009). Examples of prompting include verbal cues, physical queues, point prompts, hand over hand, video modeling, and visual cues.

Response generalization is often one of the primary goals of therapeutic interventions with children with autism. Generalization is the ability to practice a learned skill or behavior in a novel environment. Generalization is assessed by conducting probes in novel settings, with novel instructors, and with situations that are similar but not identical (Sancho, Sidener, Reeve, and Sidener, 2010).

Conclusion or Discussion

It is highly recommended that professionals use peer reviewed or research based information when choosing treatment options for individuals with ASD. Parents and providers should consider personal testimonials and non-peer reviewed materials with caution.

Additionally, the assessment process should include considerations of the extent to which each treatment option may benefit the affected individual. The level and variation of impairment with individuals with Autism Spectrum Disorder can vary greatly and treatment options should be highly individualized to meet the specific needs and treatment goals specific to the individual. Even if a treatment option has been proven to be effective, that does not mean that it will be effective or appropriate for every individual with ASD.

It should be noted that a school setting may provide a positive setting for effective programming and intervention strategies. Perspectives and opinions of parents, educators, and clinicians should be taken into consideration when developing treatment objectives and strong communication between these parties should occur throughout implementation. Potential risks that may be associated with interventions should also be considered. How the intervention may negatively impact health, behavior, and quality of life may drastically effect which treatment options may be selected.

In some cases, adoption of one treatment method may mean that an alternative method cannot be used. Parents, clinicians, and educators are encouraged to be pragmatic and realistic when considering which treatment options to utilize. Careful comparison is needed to consider the consequences of favoring one treatment option to another. Evaluation is recommended to be done using judgment based on scientific merits or empirical data. Ongoing data collection

should occur in order to measure the effectiveness of treatment and collaborative efforts to ensure that the treatment option is being administered correctly are also imperative. Effective and positive outcomes can only be expected if strategies and treatment are implemented correctly and consistently.

It is evident that there is no singular universal best treatment for ASD. The best programs appear to be those that incorporate a variety of objectively verified practices and are designed to address and support the needs of the individual and the professionals and families with whom they are linked (Simpson, 2005). Effective programming needs to be incorporated into intervention and treatment in order for children with ASD to reach their fullest potential.

Author's Note

Intervention strategies for individuals with autism spectrum disorder is a subject that is very close to me both on a personal and a professional level. I have been working professionally doing direct care with children with ASD in a variety of settings for the entire duration of my professional life. The intervention strategies described in this paper are ones that I have either utilized myself, seen as effective when performed by other professionals, and are evidence based. The lack of empirical evidence for the effectiveness of many intervention strategies has prompted me to include experiential evidence when selecting which strategies out of dozens to include in this capstone paper.

In addition to my professional experiences with autism spectrum disorder, I have my cousin Kyle to thank for prompting my interest not only in working with children with disabilities, but for entering this field entirely. My experiences growing up with Kyle helped to shape me as a person and showed me what a significant difference effective interventions in early childhood can have on a person. Kyle and I are the same age. At just under one year of age, he was diagnosed with ASD. His early diagnosis and intervention was most likely key in helping him get to where he is now. As a young child, his communication skills were limited to stereotypical hand flapping, yelling, and a vocabulary of roughly 100 words. Although I was not aware of it at the time, my play dates with Kyle were facilitated by a therapist utilizing a variety of strategies to improve his communication and play skills. These strategies were followed through on by our family members and a great deal of prompting, dedication, and care. With the support of his therapists, teachers, and family, Kyle would be seen as a perfectly normal, if not somewhat introverted person. He graduated from Winona State University last semester and is

going on to get his masters degree. He has had girlfriends and maintained friendships. He is able to live independently, although, he still refuses to eat anything that is the color green.

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