

SOCIAL-EMOTIONAL DEFICITS OF HIGH-FUNCTIONING STUDENTS WITH AUTISM: A REVIEW OF THE LITERATURE

Kathleen Riordan

Doctoral Student, Ed.D. Program in Leadership and Learning, Rivier University

Abstract

Undoubtedly, the school setting presents a multitude of intricate social interactions. An inability to read social interactions can result in heightened emotions, particularly anxiety; and responses from teachers and peers can result in a child with autism displaying adverse behavior. To date there are many interventions claiming to make a difference on the negative behaviors of autistic children, yet there is little empirical evidence demonstrating effective implementation. This literature review focuses on studies examining interventions aimed at the social emotional deficits and adverse behaviors of children with high-functioning autism spectrum disorders. Inclusion criteria consisted of peer-reviewed journal articles published between the years 1990 to through 2012 whose participants were school-age (between three and eighteen years). An historical context regarding social language cognition theories, a look at diagnostic studies concerning social deficits, as well as the efficacy of interventions is also presented. This paper also offers implications for future research on the inclusion of high functioning students with autism.

Introduction

Purpose

The purpose of this descriptive literature review is to answer the question, "What are the effects of interventions on the dysfunctional expression of emotional heightening and/or the exhibition of negative behaviors in children with autism spectrum disorder, particularly those who are high functioning or have been diagnosed as having Asperger's Disorder?"

Historical Perspective

The description of autism-like behaviors can be found in research literature since the early half of the 20th century. Leo Kanner's 1943 description of a disorder similar to, but distinct from, schizophrenia, was added to the Diagnostic and Statistical Manual of Mental Disorders, 3rd Edition (DSM-III), and within one year, irrespective of Kanner's work, Hans Asperger published *Autistic Psychopathology in Childhood* (Sanders, 2009). Both Kanner and Asperger described profiles of similar dysfunctional behaviors. The distinction between Kanner's description and that of Asperger was that the subjects studied by Asperger did not appear to demonstrate the same deficit in their ability to communicate, although their speech did present in a rigid manner (Sanders, 2009). Both Kanner and Asperger's descriptions of impairment align with what is now regarded as behaviors on the autism spectrum and are inclusive of three domains: communication, social interaction and rigid stereotypic behavior (Macintosh & Dissanayake, 2006) (see Terms and Definitions).

Current Research

During the last twenty years, three primary schools of thought specific to the deficits faced by the autistic population have emerged: emotional perception idiosyncrasies, a lack of, or inability to use theory of mind, and weaknesses in executive functioning (Solomon, Goodlin-Jones & Anders, 2004). Solomon stated that despite their differences in terms of neurological underpinnings, these views are interrelated in terms of the overall social emotional functioning of the autistic individual. Hobson (1990) presents research on autism that depicts it as an affective disorder. He proposes that the idiosyncratic ways autistic children perceive emotions in themselves and others can result in dysfunctional behavior responses. From a cognitive perspective, Leslie and Frith (1990) describe autism as an impairment of social cognition known as Theory of Mind (ToM); the supposition in this theory is that the child with autism does not develop an understanding, or have recognition of, the percept of others. Theory of Mind is supported by Baron-Cohen (1991), whose research found the existence of levels of ToM, suggesting that autistic children can develop a basic sense of the mindset of others, but that it remains at a very simplistic level. Ozanoff and Jensen (1999) studied children with autism who exhibited deficient executive functioning which effected goal-directed behaviors, and suggested that these deficits are in large part what underlie autistic behavior.

Theoretical Framework

Skinner, Piaget, Bandura and many other theorists have proposed theories on language acquisition, social learning, cognition and behavior (Korn, Davis & Davis, 1991), but it is Lev Vygotsky's, Social Development Theory which laid the foundation for constructivism and integrates social interaction, language (which he refers to as a 'symbol') and cognition (Kouzlin, Gindis, Ageyev & Miller, 2005, Introduction). The idea that social interaction is a precursor in the process of cognitive development (Vygotsky, 1962) may have particular relevance to the miscues experienced by individuals with autism and provides a framework for this review. Vygotsky defines the acquisition of two types of speech, external speech and inner speech. External speech, he purports, is first to develop and consists of the utterances, later to become the words that infants use to identify objects and/or make their needs known. Silent inner speech, according to Vygotsky, develops from external speech or vocalization; and it is from inner speech that cognition develops. This author suggests that Vygotsky's Social Development Theory may be used as a framework for understanding students on the autistic spectrum, as well as providing a basis for future research (to be discussed in the section on future implications).

Terms and Definitions

Both Kanner and Asperger's early descriptions of impairment align with what are regarded as behaviors on an autism spectrum and are inclusive of three domains: communication, social interaction and behavioral inflexibility (Sanders, 2009). The Diagnostic and Statistical Manual of Mental Disorders, the DSM IV TR¹ (2000), identifies an umbrella classification, pervasive developmental disorders (PDDs) of which there are five subtypes: (1) Autism Spectrum Disorder (ASD), (2) Asperger's Disorder, more commonly referred to as Asperger's Syndrome (AS), (3) Childhood Disintegrative Disorder, (4) Rett's Disorder, and (5) Pervasive Development Disorder, Not Otherwise Specified (PDD-NOS). Research for purposes of this literature review focuses on ASD, AS and PDD-NOS. Research by Klin, Pauls, Schultz & Volkmar (2005) noted specific differences in social and language impairments between children with high functioning autism (HFA) and Asperger's Disorder. Though HFA is not recognized as a distinct

¹ Although it is noted that the DSM-5 has been released since this review was conducted, the criteria for DSM-IV diagnosis is described herein as the articles included for review were written under the DSM-IV guidelines.

disorder in the DSM IV, based on the diagnostic criteria in Klin (2005), this author chose to include the review of studies with this named population.

Other terms warranting functional definition for this review are adverse behavior and interventions. For purposes of review this author uses the phrase ‘adverse behaviors’ as those behaviors that are considered to be outside the norm of typically developing peers either in frequency, peculiarity, or are contextually inappropriate. In the studies that follow, numerous adverse behaviors were identified and targeted for intervention. Table 1 lists ten of the most frequently targeted behaviors studied. Note that some of the behaviors are themselves are not necessarily dysfunctional, but within certain contexts they become so.

Table 1. Most Common Targets for Studies Examined

Categorical List of Behaviors Examined			
Behavior	Non-verbal	Verbal	Physical
Eye Gaze Avoidance	X		
Lack of Personal Space	X		
Conversational Inflexibility		X	
Growling (in a hostile manner)		X	
Inappropriate Language		X	
Aggression (biting, hitting, etc.)			X
Flight			X
Tantrum (yelling, banging, etc.)		X	X
Lack of Social Interaction (initiative & reciprocal)	X	X	X
Inappropriate Social Seeking	X	X	X

Interventions referred to in this paper are those that have been research-based and are presented in peer-reviewed journals. It is important to note that many of these interventions have for various reasons, weakened validity and warrant further replication (to be explored in the discussion section).

Method

Precedent to the writing of this literature review, multiple online searches were conducted to determine the most relevant research on autism behavioral and social-emotional interventions for students on the autistic spectrum. Using the databases ERIC and PsychINFO, the studies selected were obtained with the boolean words/phrases ‘autis*’ and ‘behavior problems’. The initial search offered a total of 797 articles. Adding the limiters ‘English only’, ‘peer reviewed’, and ‘academic journals’, as well as the subjects ‘autism’ and ‘children’, a total of 115 articles were chosen for initial review with twenty-three discussed as follows.

In conducting the search it was evident that there is a current lack of empirical information regarding interventions for children with autism. The initial intent was to uncover literature related to a specific segment of the autistic population, namely high-functioning autism (HFA) and Asperger’s syndrome (AS), and to determine the behavioral interventions used in research studies. To determine differences amongst individuals with autism, it is important to consider all of the various behavioral and emotional characteristics as well as the adaptive levels of functioning of these children. Further, as Asperger’s syndrome was not recognized in the DSM –IV TR until 1994 (First and Pincus, 2002), much of the current research has focused on what characteristics constitute an AS identification. Given that

autism is a spectrum disorder, there has been much debate regarding distinctions between the various types of autism. A small sample of diagnostic criteria is therefore, also examined as a part of this review. Studies conducted from 1990 to date, were chosen as this allows for the inclusion of more recent diagnostic work as well as those studies specifically referencing Asperger's Disorder. First-level ancestral searches are also included to support the studies in this review.

Results

Fifteen of the twenty-three studies included in this review implemented some form of intervention (see Table 2). The studies in this review present a variety of methods as well as varied programs, interventions or curriculum, intending to facilitate the individual who demonstrates autistic dysfunctional behaviors. Upon close examination, it is evident that each intervention study was based primarily on either a behavioral or cognitive orientation. Of the remaining eight studies, six highlighted some of the unique characteristics of autism (particularly for the HFA and AS populations) and two were evaluations of current diagnostic tools. The six studies focusing on characteristics demonstrated the many ways autism manifests itself, and the importance of looking at the profile of the individual child with autism and not simply the diagnosis (Macintosh et al., 2006). The two articles regarding diagnostic tools are included to offer insight into some of the complex and often interpretive criteria used to make a diagnosis (Cohen, Schmidt-Lackner, Romanczyk & Sudhalter 2003; and Volker, Lopata, Smerbeck, Knoll, Thomeer, Toomey & Rodgers 2010). These articles are also presented to stress the importance of the diagnosis on the choice of intervention (Klin et al., 2005).

Table 2. Non-intervention Studies – Functional Characteristic Comparisons

Study	Participants	Focus	Findings
Bumette (2005)	HFA children	Examine the relationship of WCC, ToM and SEF	Slight correlation between verbal WCC and ToM,
Geurts (2009)	HFA children	Emotional impairment effects on arousal and response to visual stimuli	No significance
Macintosh (2006)	HFA & AS children	Social skills of HFA and AS compared to neurotypical peers	Significant weakness in cooperation, assertion and self-control
Matson (2010)	ASD 3 age groups (3-6, 7-10 & 11-14)	Compare challenging behaviors among age groups	No significance
Raymaekers (2006)	HFA children	HFA response and error rates compared to neurotypical peers	No significance
Schwartz (2009)	HFA adolescents	Temperament as a predictor of response to psychotropic or therapeutic interventions	No significance

Note: HFA = High Functioning Autism; WWC = Weak Central Coherence; ToM = Theory of Mind; SEF = Social Emotional Functioning; AS = Asperger's Syndrome; ASD = Autism Spectrum Disorder

Discussion

Diagnostic Criteria and Tools

The study by Cohen et al. (2003) was designed to test the validity of a PDD behavior index scale (PDDBI) for both adaptive behaviors as well as maladaptive behaviors. Results of the study indicated it is a reliable and valid tool for assessing PDD. This author's interest in this study was the additional intent by Cohen et al. (2003) to investigate the use of a tool that could be used to assess interventions for the PDD population. The results indicated a connection between social approach behaviors, learning, memory, and receptive language, and suggest the importance of focusing on competence of receptive language in early intervention stages. The study conducted by Volker et al. (2010) was chosen for review as its purpose was to determine the validity of the Behavior Assessment System for Children, 2nd Edition, Parent Rating Scales Report (BASC-2 PRS) specifically on high functioning autistic students, and further in doing so, identified unique characteristics of this population, specifically psychosocial withdrawal and a tendency towards depression. Results of the study found the BASC-2 PRS to be a highly effective tool for use with this population. The findings, suggesting distinct affective, cognitive and behavioral differences between the levels of functioning within autism, open numerous opportunities for continued research within this population.

Autism Profile Studies

The five studies included for review, which did not implement intervention nor test the validity of a diagnostic tool, instead provided a lens into the complexity of an autistic profile. In order to fully comprehend the implications of an intervention's results, it is necessary to understand the population. A list of studies considered relevant to this population is listed in Table 2.

Intervention Studies - Social Skills versus Social Thinking

An examination of the research confirms the claim that the use of social stories is a common intervention targeting adverse behaviors of children with an ASD (Hanley-Hochdorfer, Bray, Kehle & Elinoff, 2010). The methods for implementing social stories is more in keeping with a behaviorist model in that discrete behaviors are targeted and reinforced. Discrete behaviors are those with a clearly definable beginning and end. Yet similar to metacognitive approaches, social stories also have a component in which cognition is addressed. Social stories contain descriptive, perspective, affirmative, and directive sentence types with the goal being two-fold, to increase understanding of social situations and to change behavior (Hanley-Hochdorfer et al., 2010).

The efficacy of using social stories for children with autism is somewhat conflicting and limited. Results of the research by Sansosti & Smith (2006) showed improvement in targeted social skills in only two out of three participants, with no indication that these skills were maintained over time. Similarly, in attempting to demonstrate the reduction of disruptive behaviors for students with ASD, Hanley-Hochdorfer et al. (2010) was unable to confirm social stories as an effective means. In contrast, Bernard-Ripoll (2007) was able to demonstrate a significant reduction in adverse behavior as well as emotion recognition when combining social stories with guided self-video reflection for one child with AS. Using a different behavioral approach, a peer-mediated social skills training group incorporating video feedback and token reinforcement, Chung, Reavis, Mosconi, Drewry, Matthews & Tasse (2007) demonstrated a higher success rate in improving targeted social skills in a small sample population, three out of four students with HFA.

Several studies (Bauminger, 2002; Croke, Hendrix & Rachman, 2008; Solomon, Goodlin-Jones & Anders, 2004) support the understanding that traditionally, the most common approach for addressing

social-emotional and behavioral difficulties in autism was behavioral, focusing on discrete skills, (e.g., addressing eye contact, Crooke, 2008). With more recent focus on higher functioning children within the spectrum, these same researchers (Bauminger, 2002; Crooke, et al. 2008; Solomon, et al., 2004), as well as others included in this review (Sofronoff, Atwood & Hinton 2005; Wood, Drahota, Sze, Van Dyke, Decker, Fujii, Bahng, Renno, Hwang, & Spiker 2009) brought a different perspective, a focus on social thinking, to address the improved functioning of autistic children. The study by Crook et al. (2008), examined the effectiveness of intervention on social thinking, which teaches the child the ‘whys’ of desired behavior. In this study, Crook stated that the important aspect of maintaining and transferring behaviors was provided by having an understanding of why these behaviors are helpful to the individual (e.g., use eye contact to help understand another’s thinking).

Social thinking (Crooke, 2008), also referred to as social metacognitive skill awareness (Cooper, Griffith & Filer, 1999), demonstrated success, particularly with the HFA, AS and PDD NOS populations (Solomon et al., 2004). In the study conducted by Solomon et al. (2004), participants demonstrated significant improvements in emotion recognition and executive functioning over baseline, but caution should be taken in interpreting these results as only eighteen children participated in the study, of which nine were in the control group. Research by Cooper et al. (1999) also employed a focus on social thinking using a *Caring Disposition Model* and indicated improvements in participant communication within an inclusionary setting model.

Similar studies, using cognitive behavior therapy (CBT), intervened by focusing first on the participants’ thought processes (Bauminger (2002); Sofronoff, et al. 2005 & 2007; Wood, et al. 2009). An example is the research conducted by Bauminger (2002), which taught prerequisite concepts that the author identified as lacking (e.g., definition of a friend), followed by affective education and social-interpersonal problem solving. The findings of this study suggested that each of the participants demonstrated substantial improvements in these targeted areas. Given the complexity of the subject matter, it is important to note that whether a study’s orientation is primarily to target thinking or behavior, there is often within one study, components of both orientations. An example of this was found in the research conducted by Wood, et al. (2009) wherein a reward system for the demonstration of learned skills was built into the intervention plan.

Limitations and Future Implications

It is important to acknowledge that establishing credible empirical research within the topic autism is difficult for many reasons. There has been much debate over the diagnostic validity of Asperger’s Disorder as being distinct from autism spectrum disorder (Macintosh et al., 2006). Overlapping criteria for diagnosis makes the process somewhat interpretive. The result is that there may be inconsistencies in criteria used for diagnosis amongst the participants within a study, and as such, interpretations of the data may be flawed.

This review explores studies that examined interventions to support the social emotional behavior of students on the high end of the autistic spectrum. Most of the current research has pertained to the broad range of autism spectrum disorder and few studies have been specific to the efficacy of interventions for the HFA and AS populations. Further, much of research has focused on the characteristics and functioning of, as well as the distinctions between, the varied diagnoses. The release of the DSM 5 coincided with the writing of this review. However, as stated previously, each of the studies included herein were conducted prior to its publication. The primary distinction for this population is that under the DSM 5, there will no longer be a separate diagnosis for Asperger’s Disorder. This does not however change the fact that there is a growing population of high functioning children with autism who have significant social-emotional needs (Sansosti & Sansosti, 2012).

Another concern was evident in the small sample populations of many of these studies (Bernard-Ripoli, 2007), and the accessibility of participants for future research. The ethics of having a control group when working with children who have been identified as disabled, makes the process of enlisting these children and designing a study that much more complex. Educators are expected to use best practice for all students and the majority of studies examined used single-subject methodology with few participants. Numerous studies replicating results are thus required to add a greater level on authenticity, and to date their numbers remain few.

Many of the studies combine interventions with the same population, as is the case in Chung (2007), and would benefit from further studies in which the interventions are applied distinct from one another.

In a literature review on receptive language weaknesses in children with autism, Pelios and Sucharzewski (2003) stressed that most treatments showed some level of efficacy in small sample studies and therefore identifying an individual’s specific language deficit is sometimes more important than the treatment itself. This review on receptive language within the autistic population suggests another area wide open to future research. Future examinations of the literature may want to explore the integration of language, cognition, and social development by applying Vygotsky’s Social Development Theory (Vygotsky, 1962) as a framework for understanding students with autism.

Table 3. Intervention Studies

Primary Author	Year	N	A	Intervention
1. Bauminger	2002	15	8-17	Ecological Social Skills Training
2. Bernad-Ripoll	2007	1	9-17	Video Recordings and Social Stories
3. Bock	2007	4	9&10	Social-Behavioral Learning Strategy (SODA)
4. Chung	2007	7	6-7	Modified Social Skills in Small Group
5. Cooper	1999	2	Gr 3 & 5	Caring Disposition Model
6. Croke	2008	6	9-11	Social Thinking Approach
7. Hanley-Hochdorfer	2010	4	6, 9, 11 & 12	Social Stories
8. Laushey	2009	4	Gr 1, 2 & 4	Concept Mastery Routine
9. Owens	2008	31	6-11	LEGO™ Therapy and Social Use of Language Programme
10. Sansosti	2006	3	9-11	Social Stories
11. Sofronoff	2009	71	10-12	Cognitive Behavior Therapy (CB T) & Parent Involvement
12. Sofronoff	2005	45	10-14	Cognitive Behavior Therapy
13. Solomon	2004	18	8-12	Social Adjustment Enhancement
14. Wilkinson	2005	1	9	Conjoint Behavioral Consultation & Self Management
15. Wood	2009	19	7-11	Cognitive Behavior Therapy

Conclusion

It is widely acknowledged that inclusion can be an excellent model for children with learning disabilities, but children with autism do not easily learn by example. As stated by Laushey (2009), simply placing an autistic child with typical peers is less than insufficient for promoting desired gains in social skills. Typically developing peers have been found to be useful in modeling social skills, but only when there is structured intent and purpose for teaching these skills (Ochs, Kremer-Sadlik, Solomon & Gainer Sirota, 2001). In this literature review, the author sought to find empirical research offering validated interventions for the improved social emotional and behavioral functioning of autistic children.

Each of the fifteen studies examined (see Table 3), described an intervention shown to have a level of effectiveness for its given population. The existence of few such studies makes it evident that much work is yet to be done with regard to research on autism, particularly for use by practitioners in the field. What was uncovered was the debate concerning what to target, the thinking or the behavior. In both cases, be it cognitive or behavioral in orientation, the importance of uncovering causal factors, as well as the function of behavior should be noted.

In the meantime however, there are high functioning children with autism across the globe in need of supports that have been proven effective. Educators cannot be content to use strategies that do induce change. According to the CDC’s Autism and Developmental Disabilities Monitoring Network (2012), 1 in 86 children will receive an autism diagnosis. With the prevalence of students with autism, researchers are challenged by the task of finding and testing effective interventions for practitioners that meet the needs of these children, here and now. The social relevance is profound, and with the Reauthorization of the Individuals with Disabilities Act requiring the least restrictive environment (IDEA, 1997), intervention research for this population is sure to continue.

Appendix

Literature Review Screening Criteria

Practical Screen	Inclusion Criteria
Publication Language	English
Journal	Peer Reviewed
Setting	School/Home-Based
Participants/Subjects	Children (ages 3-18)
Date of Publication	1985 – 2012

Methodological Screen - Inclusion Criteria

- Research Question(s) and Study Objectives Clearly Identified
- Valid Diagnostic Measures used to Identify Study Participants
- Clear criteria for participant inclusion/exclusion and number
- Participant characteristics/performance levels clearly defined at initiation of study
- Duration of Data Collection Defined and Rationalized
- Explanation of Randomization and/or Assignment of Program/Intervention
- Clear Program/Intervention Information Including Content and Effectiveness
- Independent and Dependent Variables Clearly Defined and Match Study Purpose
- Analysis Matches Statistical Methodology and Collected Data
- Information Provided Regarding Limitations and Prospects for Future Studies

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