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Autism Spectrum Disorders and the Inclusive Classroom: A Review of Joint Attention and Implications for Student Success

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Abstract

The following paper represents the author's initial assessment of the research related to higher-functioning autistic children with the purpose of directing future research into the literature and in guiding future action research endeavours. A goal of the paper was to bridge some of the gap between what neuropsychologists and researchers know about Autism Spectrum Disorders (ASD) and what is commonly understood by teachers. As the question of best practices for teaching ASD students is complicated, and the variables and exceptions are numerous, this research paper has been limited in scope to just one aspect of teaching students with ASD with the intention of finding and reporting points of commonality. This paper examines deficiencies of joint attention experienced by ASD students and how this has the potential to greatly affect success in inclusive classrooms. This paper concludes with some practical suggestions for teachers in establishing and improving joint attention with ASD students.

Introduction

The last two decades have seen a significant increase in the incidence rate of children being diagnosed with Autism Spectrum Disorders (ASD). The term autism spectrum disorder is in itself a blanket term that incorporates a wide range of conditions from high-functioning Asperger Syndrome, Pervasive Developmental Disorders Not Otherwise Specified (PDD-NOS), and high-functioning autism, along a spectrum and range of functionality towards those

individuals with autism who are severely mentally challenged and withdrawn. There is still considerable debate as to whether the increase in incidence rates is due to either better and earlier diagnosis of the disorder or aggravated through yet unknown influences in the environment. Regardless of the reasons behind the increase, recent data suggests that as many as 1 out of every 150 children has an autism spectrum disorder. This range is an increase on estimates taken at the turn of the century, which suggested that only 1 out of every 250 children had the disorder (Centres for Disease Control and Prevention, 2007). Once considered as a rare condition ASD now occurs at incident rates higher than Down syndrome, diabetes, and childhood cancers (Schilling & Schwartz, 2004).

This drastic increase in children diagnosed on the autism spectrum has coincided with an increased emphasis on the provision of education for all children with disabilities in the least restrictive setting. This means more and more children with ASD are being taught in general education programmes. As such teachers today need to come to a better understanding of some of the conditions that underlie the disorder, and make better use of research guided approaches, to help inform classroom decisions and tactics. A goal of this paper is to bridge some of the gap between what is known by researchers about ASD and the incomplete understandings of educators.

Problems With Autism Research

Research into ASD soon reveals that as a spectrum disorder autism is fraught with discord and exceptions. It seems that no two children with ASD have the same symptoms, nor do they exhibit the same behaviours. Children range on a continuum from being socially isolated to actively engaged, from communicatively nonverbal to completely fluent. This diversity found on the autism spectrum makes it extremely difficult to make generalities about the conditions and symptoms, and as such, the best approaches to address them in the

classroom. Therefore, for the purpose of this research paper, only literature relating to children on the high-functioning range of the autism spectrum, with the potential of participating in mainstream education, has been considered. Only journal articles relating specifically to high-functioning autism, Asperger, and PDD-NOS have been reviewed. This has been done with the objective of minimising the conflicting results that come from the body of research and increasing the potential of finding generalizations within a smaller stratum of the spectrum.

However, even when restricting the research to one end of the spectrum, great diversity is still found. As an example of the wide range of behaviours that are apparent in the higher functioning range of the spectrum, Murray, Baker, Murray-Slutsky and Paris (2009) identified three distinctive types of sensory-based learners: sensory seekers, under-responders, and over-responders. Sensory seekers are those on the autism spectrum who seek out high levels of stimulation in the environment. These children are constantly observed in motion, seeking firm physical contact, and generally have problems with self-control and organization. Under-responders are children who are passive and difficult to engage. When on task they mostly engage in parallel behaviours, but more likely are observed fixated on one particular aspect of their environment. Over-responders are very sensitive to their environment and are easily distracted and upset by stimuli like noises and smells. These children have a heightened awareness of sensations and often feel overwhelmed by input from their environment (Murray et al., 2009). While vastly dissimilar, each of these children can be seen as a *'face'* of autism.

Educators too may image and associate the condition autism to any one of these distinct subsets of autistic behaviours. These three types of ASD students each present unique challenges to teachers in

how to cope or adjust teaching practices. If classroom responses were based on displayed behaviours alone it would seem that the actions taken by teachers in each instance would need to be completely different. However, in addition to addressing the problematic behaviours of these students, teachers should also gain a better understanding of the underlying causes.

While as stated the manifest behaviours of ASD students vary greatly, there is a point of commonality between each of these distinct types of learners. The sensory seeker, under-responder and over-responder all in their own ways misinterpret sensory information. This misinterpretation is a condition known as sensory processing disorder (SPD). According to Murray et al., (2009) SPD is prevalent in almost every single child diagnosed with ASD. As such, SPD can be seen as a rare point of commonality in ASD that can be researched in the hopes of finding benefits for all on the spectrum. The remainder of this review looks at some of the research conducted on the limitations of attention to sensory information that is common with ASD students and attempts to make some suggestions for improving classroom approaches.

Research Questions

This literature review was initiated with the goal of gaining more insights into the best practices for smoothly integrating autistic students into the classroom. With the desire to limit conflicting evidence a narrow scope of just two specific research questions were addressed.

1. Why do ASD children have trouble following lesson and task instructions?
2. Are there core approaches that teachers can use to increase the attention of ASD children in inclusive classrooms?

Findings

Joint Attention

Descriptive anecdotes of autism often recount affected students as being fixated on certain topics or objects to the exclusion of others, and an inability to adjust naturally to new topics introduced in the classroom. Several authors have suggested that autism involves a basic impairment of attentional functioning and for most joint attention (Chung-Hsin, Wei-Tsuen, Tzu-Ling, & Rogers 2008; Conroy, Asmus, Boyd, & Sellers 2007; Dawson, Toth, Abbott, Osterling, Munson, Estes & Liaw 2004; Lovas, Koegel, and Schreilbman, 1979; Murray et al. 2009; Taylor & Hoch 2008). Joint attention refers the ability to coordinate attention between communicative partners and another object or event with the purpose of discussing or sharing experiences about the object or event. Joint attention behaviours include following the attention of another or directing the attention of another through the use of communicative signals such as gestures or eye movements. Joint attention is a necessity for functional speech and is readily apparent in most forms of traditional classroom instruction. Deficits with joint attention seem to be prevalent with children on the autism spectrum. Studies on joint attention have continually found that students on the autism spectrum made fewer attempts to initiate joint attention and were less responsive to others attempts to engage them in joint attention (Chung-Hsin et al. 2008; Dawson et al. 2004; Lovas et al. 1979; Taylor et al. 2008).

The problem that lies at the root of the failure of joint attention is the fact that autistic children show stimulus overselectivity, which means that they respond to only a limited number of cues in their environment and not necessarily the appropriate ones. For example, during a lesson if a teacher points to an item the student may look at the teacher's pointing finger instead of the item that the finger is pointing at.

In early studies of overselectivity children with autism were tested alongside neural typical children, and children with Down syndrome, to gauge the effects of multiple stimuli across various modes of input (aural, visual, and tactile). Students were tested to assess their reaction to secondary or tertiary stimuli with each originating from a different source. For example students were subjected to a visual stimuli while already listening to an aural stimuli, or visa versa. In a review of these various studies Lovaas et al. (1979) found that unlike the other two test groups, autistic children only responded to one of the input cues. Responses individually varied between either aural or visual cues, with none of the autistic children responding to physical cues. Lovaas et al. (1979) stated that stimulus overselectivity was less pronounced in tests involving fewer stimulus cues across fewer sources, and was most clearly observed with relatively larger quantities of stimulus inputs. The more stimuli present in the environment the greater the difficulty for ASD children to distinguish and register subsequent input becomes. These findings were supported in more recent studies conducted by Landry and Bryson (2004) and Chung-Hsin et al. (2008) who tested students with autism to gauge their ability to shift from one source of visual stimuli to a peripheral source. These studies also found that compared to neural typical students and students with Down syndrome, ASD students showed marked difficulty in disengaging attention. Generally ASD students remain fixated on the first of two competing or successive stimuli. Landry et al. (2004) also suggest that even within the same modality ASD children have trouble with multiple input cues.

Implications

While researchers do not know the neurological reasons why autistic children suffer from these problems, it nonetheless has been demonstrated that they have a genuine difficulty in responding to separate components of multiple or complex input. Listening to

speech is an excellent example of complex input in that meaning or intention is conveyed through a variety of cues. Meaning is expressed not only in the words themselves but also in the tone, pace of delivery, and in the body language and expression of the speaker. If a child responds to only one of these aspects he or she will not understand what has been said. This fixation on only one input cue can easily lead to misunderstandings in many situations, for example when a speaker intends to be sarcastic rather than sincere.

This deficiency of joint attention poses great problems for ASD children in the classroom as most learning situations necessitate responding to multiple cues across a slew of sources, not including the myriad of background environmental stimuli also present. It could in fact be argued that joint attention, the shared attention that teachers and students maintain, lies at the very core of teaching. Consider for example a teacher using a visual presentation to reinforce a discussion or lecture on a given topic; a teacher talking about cultures or people while pointing to a map; or directing the students' attention to anything written on the blackboard. Given the evidence of the research into overselectivity it is likely that an ASD student will concentrate attention on either the aural or visual cue but not both. In addition, if there are other distracting cues in the environment, such as music played down the hall or the smell of lunch cooking in the cafeteria, it is possible that the student will not be able to attend to any of the visual or aural input presented in the lesson. Overselectivity may be accountable for several of the behavioural deficits in autism and contributes to a failure to learn from traditional teaching techniques that are based upon using prompts to associate to items of instruction. If one considers how often teachers attempt to draw students attention to something written on the blackboard, something in a textbook, or any other object in the classroom, then the size of the problem facing students with ASD starts to become apparent.

Suggestions

A natural reaction for many teachers would be to use prompts to draw student attention to the lesson material in question. However if one considers that prompts are yet another stimuli added to the learning situation there is cause for concern as to their effectiveness. The use of prompts may make it more difficult for autistic children to learn. Using the previous example, if a teacher were to point to, or tap a visual cue as a prompt for attention to the aid while speaking, the ASD student would in effect have an increase in total number of stimuli but no change in their attentional limitations. In a summary of their research on teaching prompts, Taylor et al, (2008) noted that prompts for joint attention were very challenging to teach and responses by ASD students were inconsistent. However prompting does seem like the only option available to teachers. It is up to teachers to assess on an individual basis what form prompting should take and to what degree. Teachers must be patient with students and remain consistent once they have found a prompt that comes to some success.

The findings of this review suggest that problems related to overselectivity are lessened when the combined total of input cues are likewise reduced. As such when presenting lessons to ASD students using multiple modes, student success would be markedly increased if the input were not presented concurrently. This is to say that if the initial source of input were removed the likelihood of a student's attention being drawn to subsequent input would be facilitated. For example, a teacher may have more success if they were to introduce a visual cue to students with little or no direct explanation, and subsequently remove it altogether before continuing to speak about the topic. If there is a need to return to the visual, the teacher should give a slight pause before doing so in order to give the students more time to refocus attention. Thus, in reducing the total number of competing stimuli, autistic students may have a greater capacity to

orient attention.

In inclusive classrooms a supportive environment is critical for the success of improving joint attention in autistic children. Increasing the occurrences of social interactions may lead to an improvement in joint attention by increasing the opportunities for autistic students to engage in joint attention situations.

Conclusion

To date there is conflicting evidence in the research into overselectivity as to whether it can be mediated. However the implications of this possibility are extremely important. If the problem of overselectivity could be controlled or eliminated ASD children could better benefit from in-school instruction and respond to their environment in a more typical manner. Therefore areas for future study should concentrate on the issue of how best to mediate overselectivity.

In summary the best classroom management approaches for teaching students with autism involve a complicated mix of factors and, as yet, does not have a single correct answer. There does seem to be logic behind moving away from the umbrella term of ASD, and the general holistic approach to research, towards analysis of smaller strata within the spectrum. Limiting research to smaller more uniform samples, such as high-functioning under-responders, or high-functioning sensory seekers, would seem to greatly improve the possibilities of making generalizations and giving educators practical advice on classroom actions. In doing so, instead of being faced with the prevailing contradictions, teachers could benefit from more focused practical advice. The importance of this can not be overstressed as ultimately one of the most important factors contributing to the success of students with autism is the knowledge, skill, and understanding of their teachers.

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