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PSYCHOLOGICAL ACCOUNTS FOR THE DIFFICULTIES EXPERIENCED BY INDIVIDUALS WITH AUTISM SPECTRUM DISORDER

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ABSTRACT

Professionals in the field of special education have indicated that individuals with Autism Spectrum Disorder (ASD) learn very differently from individuals who do not have ASD. Past studies have attempted to identify a specific psychological cause for ASD that could explain the learning processes that are associated with ASD. These research studies have concentrated on three theories: theory of mind, weak central coherence and executive function that target the learning processes of ASD. These theories have been written in research papers and attempt to account for the fact that individuals with ASD organise their thought processes differently from typically developing individuals on certain measures.

INTRODUCTION

Many experts that have been researching and studying autism spectrum disorder (ASD) in the field of special education have implied and suggested that individuals with ASD study and acquire many of their skills in a very different manner from individuals who do not have ASD (Best, Moffat, Power, Owens, & Johnston, 2008). Some research studies in the past have tried to pinpoint and classify identifiable psychological reasons with regard to the challenges and difficulties experienced by individuals with ASD. They tried to understand what could be some reasons for the learning processes for ASD that could explain the learning processes that are associated with ASD (Best et al., 2008).

THEORY OF MIND

The term theory of mind (TOM) refers to the ability to think, rationalise and make inferences about the perceptions of other people. TOM and mentalising abilities are used interchangeably. Several studies (Loth et al, 2008; O'Hare & Bremner, 2009; Peterson, Wellman, & Slaughter, 2012; Yang, Zhou, Yao, Su, & McWinnie, 2009; Zhang et al., 2016) have stated that many typically developing children, as young as four years old, can make assumptions about other people's perspectives. However, in the case of individuals with ASD, the development of this skill is often delayed (Hutchins, 2016; Murray, 2017).

STUDIES ON TOM AFFECTING INDIVIDUALS WITH ASD

Baron-Cohen, Leslie and Frith (1985) conducted a theory of mind study across three groups, including children with ASD, children with Down syndrome and typically developing children. The children with ASD performed more poorly than the group with Down Syndrome, even though the children with ASD had a higher mental age (MA) in terms of non-verbal and verbal skills. The children with ASD were also of a higher ability with a mean IQ of 82 (Baron-Cohen, Leslie, & Frith, 1985). The weak theory of mind hypothesis implies that characteristics displayed by individuals with ASD, (e.g. poor communication and poor social skills) are due to the absence of mentalising abilities (Hutchins, 2016; Murray, 2017).

Baron-Cohen, Leslie and Frith, 1985 concluded that individuals with ASD have a weak theory of mind. They described this phenomenon as an inability to represent mental states or to predict the behaviour of other people, placing individuals with ASD at a disadvantage compared to typically developing individuals (Baron-Cohen et al., 1985; Imuta, Henry, Slaughter, Selcuk, & Ruffman, 2016; Moran et al., 2011; White, Coniston, Rogers, & Frith, 2011; Zhang et al., 2016).

The study by Baron-Cohen et al. (1985) has been criticised by subsequent researchers for various reasons. Firstly, the theory of mind deficit does not adequately explain all the symptoms of ASD. Unexplained symptoms include rigidity, which is characterised by insistence on sameness or a certain routine, sensory hypersensitivity and repetitive self-stimulatory behaviour. Secondly, the study included a small group of children who have a theory of mind. These findings suggest that deficits in mentalising abilities (theory of mind) can occur on a continuum. Therefore, one can conclude that there will be a range in the severity of deficits in the theory of mind among children with ASD (Aljunied, 2005; Zhang et al., 2016).

The theory of mind hypothesis was tested using Wimmer and Perner's puppet play paradigm. The control groups for this study were typically developing children and children with Down syndrome. The study results indicated that even though the children with ASD had a higher mental age than the group with Down Syndrome, individuals with ASD were unable to

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input beliefs to others (Imuta et al., 2016; Zhang et al., 2016). It was concluded that the failure to predict the behaviour of other people shows a deficit in social skills. Lack of mentalising abilities cannot be attributed to intellectual impairments given that the children with Down's syndrome who were in the control group were able to perform the task correctly. Therefore, the researchers believed that there is a learning style deficit in the group of individuals with ASD that includes impairment in pretend play, theory of mind and social skills (Aljunied, 2005; Imuta et al., 2016; Zhang et al., 2016).

The theory of mind has been further confirmed by Ponnet, Buysse, Roeyers and De Clercq (2008) who compared the performance of a group of young adults with ASD to that of their typically developing peers on mind-reading (inferring thoughts and feelings of others). The researchers concluded that there was a difference between individuals with ASD and the typically developing control subjects when it came to mind-reading, especially in a less structured or noisy environment.

In a research paper by Bigham (2010), she examined the theory of mind, pretend play, and response inhibition. This study aimed to empirically test each of these theories. Children with ASD were impaired relative to the control group when interpreting pretense, thereby supporting the competence deficit hypothesis. Participants included 60 children with ASD, 28 children with intellectual disabilities without ASD diagnosis, and 37 typically developing children. She concluded that individuals must have a strong theory of mind for them to have good pretense skills.

IMPLICATIONS FOR INDIVIDUALS WITH ASD

In non-technical language, individuals with ASD are not able to infer what the other person is thinking or wants. As a result, they lack the skills needed to perceive and interpret human behaviour in terms of intentional mental states or mentalising ability. When individuals are not able to engage in pretend play, their development in language and social skills may be affected (Bigham, 2009). Thus, according to Hamilton (2009), if an individual is unable to represent abstract mental states, this inability would also affect the way these individuals with ASD think, learn and organise their thoughts. Other cognitive theories are briefly reviewed in the following sections.

WEAK CENTRAL COHERENCE

The phrase 'weak central coherence', a specific perceptual-cognitive style, described as a limited ability to understand context, was first used by Frith (1989). In a later review paper by Happe and Frith (2006), they refer to weak central coherence as the detailed focused processing style that is supposed to characterise ASD. Harris et al. (2008) explained that the theory of weak central coherence assumes that individuals with ASD process information and learn in small discrete units as opposed to perceiving information as a larger whole.

Happe and Frith (2006) have also noted that there are individuals with ASD who do well in visual segmentation, the ability to dismantle a big picture. Happe and Firth (2006) gave an example where individuals with ASD did well in certain tasks in the intelligence test item, such as the block design subtest and the Embedded Figures Test. Happe and Frith (2006) also suggested that individuals with ASD find it challenging to transfer their learning to other contexts.

STUDIES ON WEAK CENTRAL COHERENCE AFFECTING INDIVIDUALS WITH ASD

Happe and Frith (2006) described some individuals with ASD who can imitate the pitch of a 'pop' of the cork as it comes out of a wine bottle or identify dozens of brands of vacuum cleaners just by the sound they emit. Others can replicate foreign languages and intonations that are not noticeable to non-native speakers of that language. Therefore, it is believed that for individuals with ASD, their weak central coherence helps them to focus on their savant skills (Riches, Loucas, & Baird, 2016; Skorich, Gash, Stalker, Zheng, & Haslam, 2017).

Frith (1989) wrote about the complexity of information processing by individuals with ASD. She found that ASD is marked by a reduced capacity to integrate information at different stages. She described this unusual way of thinking as dealing with information on a piecemeal basis that is joined with an inability to situate and interpret information within a wider and more relevant context.
Shah and Frith (1993) demonstrated that individuals with ASD performed extremely well whilst attempting the Wechsler Block Design, an intelligence test that measures spatial visualization ability and motor skill. They believed this was because individuals with ASD have an innate method of processing information in which they are able to segment a whole design into different components.

A study by O'Riordan and Plaisted (2001) supported earlier findings about the lack of categorisation in individuals with ASD. The study showed that individuals with ASD demonstrated an increased awareness of single features in the test but not of shared features, which would stem from deficient categorisation. Other tests that reveal deficient categorisation were the block design test and the digit span test. Individuals with ASD often performed well on these tests (Bolte & Poutska, 2004; Hermelin, 2001). The studies cited in this section showed evidence that individuals with ASD have weak central coherence as they find it challenging to grasp concepts wholistically (Aljunied, 2011; Hermelin, 2001; Riches et al., 2016; Skorich, Adrienne, Talipski, & Louisa, 2016). Therefore, having a weak central coherence helps individuals with ASD to enhance their savant skill(s).

IMPLICATIONS FOR INDIVIDUALS WITH ASD

Weak central coherence changes the reconstructive thinking process of individuals with ASD. The obsessive interest due to the challenges associated with ASD results in individuals with ASD acquiring an abundance of information. (i.e., music pitches, exact dates, calendar calculations, etc.). Weak central coherence causes individuals to focus more intensely on the

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fragments (Aljunied, 2011; Hermelin, 2001; Riches et al., 2016; Skorich et al., 2017).

Detail-focused processing bias (weak central coherence, enhanced perceptual functioning) appears to be a precursor to talent development (Happé, 2013; Plaisted, 2015). Happe and Vital (2009) suggested that having a detailed-focused type of cognitive style predisposes or affects talents in individuals with ASD (Happe & Vital, 2009).

CONCLUSION

Many research studies on the subject of learning and ASD have concentrated on three theories; theory of mind, weak central coherence and executive function that target the learning practices and developments of individuals with ASD (Best et al., 2008). These beliefs and assumptions have been described in numerous research papers and endeavours to elucidate the reason behind why individuals with ASD organize their thought processes differently from typically developing individuals on specific measures (Best et al, 2008; Murry et al., 2017; Zhang, Shao, & Zhang, 2016).

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