

'Critically discuss how ONE of the psychological theories discussed in your class debate can inform our understanding of the development of autism spectrum disorder across the lifespan in comparison to typical development.'

Empathizing-Systemizing Theory of Autism

Autism Spectrum Disorder (ASD) is a complex neuro-developmental condition involving persistent challenges with social communication, restricted interests and repetitive behaviour. (American Psychiatric Association, 2022) Although people with ASD often look similar to 'normal' people, their sense of behaviour and skills can vary greatly. Many people tend to represent ASD as a linear spectrum starting from "less autistic" to "more autistic". However, this method is extremely limiting as each person suffering from ASD is unique from one another. Therefore, the more accurate way to describe ASD is in the form of a wheel, the Autism Wheel, which provides a wider range of autistic traits in various degrees to help identify autism in people based on their own experiences. In addition to that, experts and professionals use the DSM-V to accurately diagnose autism as it provides a clear guideline to follow. The DSM-V states that the symptoms of autism must be present in the early developmental period (but may not become fully manifest until social demands exceed limited capacities, or may be masked by learning strategies in later life). Symptoms cause clinically significant impairment in social, occupational, or other important areas of current functioning. (American Psychiatric Association, 2013)

Although the exact cause of Autism remains vague, researchers have ruled out a few possible reasons for the neuro-developmental condition. Genetics is a major risk factor in causing autism. A study done by (Risch et al., 2014) found that the risk of a child having ASD is greater when they share a similar genome with an affected sibling or parent. However, the exact genetic components that control ASD still remain to be a mystery among the scientists. The

diagnosis of ASD is more common in male children than female children at birth. (Psychiatry.org - What Is Autism Spectrum Disorder?, n.d.) Other factors such as environment and neurology can help explain some aspects of Autism but none are conclusive enough to be proven as a cause of the condition.

There are a few psychological theories that can be used to understand the development of autism spectrum disorder across the lifespan, but one that stood out the most is the empathizing-systemizing theory. This theory was proposed by Simon Baron-Cohen and explains the importance of social and communication difficulties in autism and Asperger syndrome by identifying the empathizing (E) and systemizing (S) skills. Based on the theory of Empathizing and Systemizing, people experiencing autism and Asperger syndrome tend to have below average empathy, but above average systemizing factors. This difference between E and S tends to determine if someone is likely to develop an autism spectrum condition. Empathizing (E) is the ability to understand and respond to the emotions and mental states of everyone else. Notably, people who score higher in the empathizing dimension are commonly better at recognizing and understanding emotions, empathizing with others' experiences and building strong social relationships. For example, empathetic individuals might be better in interpersonal relationships, nurturing and caregiving roles. Systemizing (S) is the ability to analyse, understand and build complex components such as mechanical, technical and abstract systems. Hence, people who score high on the systemizing dimension show a wider interest in exploring and understanding how things work, categorizing information and identifying patterns in systems. People with strong systemizing abilities excel in fields such as mathematics, engineering, computer science or music theory.

Simon Baron-Cohen further extended the E-S theory into the theory of the extreme male brain (EMB) (Baron-Cohen, 2002). It was noted that a clear sex difference is present in the empathizing and systemizing dimensions of autism. Males tend to perform better on tests based on the systemizing dimension as opposed to females who perform much better on the empathizing dimension. Therefore, autism and Asperger's syndrome often be inclined as an extreme of the typical male profile due to high systemizing abilities and low empathizing abilities. (Asperger, 1944) There are a total of five different "brain types" that are present in this theory that correlates to the E-S theory (*Type E*: individuals with stronger empathy than systemizing, *Type S*: individuals with stronger systemizing than empathy, *Type B*: individuals with balanced systemizing and empathy, *Extreme Type E*: individuals with above average empathy but lower than average systemizing and *Extreme Type S*: individuals with above average systemizing but lower than average empathy). The E-S model estimates that more females have *Type E* brains while the males have *Type S*. Individuals with ASD tend to have a brain of *Extreme Type S*. After recent studies in the field of neurology conducted by Baron-Cohen, Knickmeyer, et al, it is found that certain regions of brains on average are smaller in males than in females (such as the anterior cingulate, prefrontal cortex, superior temporal gyrus and thalamus) are even smaller in individuals with autism. Conversely, certain regions of the brain are on average larger in males than in females are cerebellum, amygdala, total brain size/weight and head circumference. These regions are even larger in people with autism than average males. However, it is worth to note that not all studies support a similar pattern to Baron-Cohen's study.

There are several strengths of the Empathizing and Systemizing theory of autism. The first strength is that this theory is applicable to both high-functioning autism (HFA) and low-

functioning autism (LFA). By convention, HFA refers to an individual with autism who has an IQ within the average range or above. They possess the “average” abilities to speak, read, write and handle basic skills in life such as dressing, eating and travelling. On the other hand, low functioning autism (LFA) refers to individuals with below average IQ who face the more severe symptoms of autism such as difficulty in doing the basic life skills along with language impairments. E-S theory can offer valuable insights into the cognitive profiles of individuals with autism regardless of their level of functioning. The next strength of this theory, mentioned in the debate, is that it allows people to understand why autism is more recognisable or diagnosed in males than females. Mainly due to autistic males corresponding similarities with the characteristics of the extreme male brain theory. Furthermore, the Empathizing and Sympathizing theory of autism is backed with strong empirical support to back the theory’s relevance. For instance, a study was conducted to measure the two postulated neurocognitive adaptations which are the intuitive psychology (inferring social causality) and intuitive physics (inferring physical causality) by administering tests to children with autism. The study found strong systemizing among the children with autism as they performed above the average expected level for their age on a physics test. Children with Asperger syndrome (High Functioning Autism) as young as 8 to 11 years old scored higher than a comparison group who were older (typical teenagers). (Baron-Cohen, Wheelwright, Scahill, et al., 2001) Moreover, the E-S theory is found to be applicable to cases outside of the autism spectrum. For example, a 2016 study conducted by Seaholm-Häkkinen & Lindeman showed that interest in working with people tends to be positively associated with empathizing and negatively with systemizing while focuses on working with things (mathematical and machinery) were positively associated with systemizing and negatively with empathizing. Baron-Cohen’s Empathizing and Sympathizing

theory also offers an idea of how different cognitive styles differ from a developmental point of view. It is argued that there are psychological sex differences present both in males and females as early as age one, suggesting that these differences are present before they are even exposed to any significant social experiences. This helps further emphasise the importance of taking into account the early cognitive development of individuals with autism.

Although the Empathizing and Sympathizing theory has contributed in a great deal to the understanding of Autism Spectrum Disorder (ASD), even this theory has its own sets of drawbacks. One of the most initial flaws discussed in the debate is that this theory does not take account of people with gender dysphoria. The term gender dysphoria refers to individuals who face a sense of mismatch between their biological sex and gender identity. Given how the general idea of gender itself has evolved, people can identify to be a different gender than their biological sex. E-S theory only takes account of people with autism based on their biological sex rather than their preferred sex. This raises questions on the validity of the E-S theory on gender differences itself. For example, a biological male who identifies as a female may not fit the extreme male brain theory despite being a male since birth. The next drawback is that empathizing and systemizing are not mutually exclusive. People can have both attributes of empathizing and systemizing at the same time. For instance, if someone scores high on the Systemizing Quotient test, it is spontaneously deduced that they possess a low score on the Empathizing scale. However, anyone can show both an interest in working with people and systemizing ideas like mathematics, music theory and computer science. Another major critique of the extreme male brain theory is that it does not take into account for the wide spectrum of behaviours with ASD which do not align with usual gender stereotypes. Furthermore, the E-S theory overlooks the possible role of how social and cultural factors shape practices and

perceptions of autism in different genders. An example from the debate is how autism is more commonly diagnosed in boys than girls because girls tend to show traits that were commonly attributed to their gender. Thus, the society may overlook these attributes in girls and exclude the possibility of autism. In addition to that, people with autism tend to socially mask themselves in public. Although an individual may have the condition of autism, they may learn to hide the symptoms stated in the extreme male brain theory, rather than mimic the social cues and behaviours of an average individual in order to fit in. Hence, this makes the E-S theory of autism less applicable in such situations. All of these biases in the theory can result in delays and missed diagnoses among the females while causing them to lose access to early intervention and necessary support services. Lower diagnostics of autism in females can also result in limitations of autism research in general. Another flaw in the E-S theory of autism is that it lacks a study of the effect of religion and culture. As mentioned in the debate, there was not much research that studied the implications of ethnicities and races in relevance to the theory. For example, there are little to no studies that involve how Autism Spectrum Disorder (ASD) affects black children as opposed to white children. Even though some research compared different races but none failed to identify the causes of the ASD symptoms. The debate mentions that in most Eastern cultures, people are more collectivistic as opposed to the individualistic nature of people in the West. Collectivistic people will try to suppress their autism in order to fit in while individualistic people will try to find ways to deal with their autism. Empathizing and Sympathizing theory fails to accommodate for people with low functioning autism (LFA). As stated previously, people with low functioning autism (LFA) do not have well-developed social and communication skills, and so, E-S theory's empathizing factor cannot be used to identify this group of people as the factor requires interacting with people. The theory of Empathizing and Systemizing in the autism also

neglects other cognitive factors. This theory relies heavily on the two factors of empathizing and systemizing. However, there are other important factors that can contribute to and play roles in autism. For example, factors such as executive functioning, attentional control, sensory processing differences and cognitive flexibility are not addressed by the Empathizing and Sympathizing theory.

To sum up, the Empathizing-Systemizing (E-S) theory has played a significant role in forming our knowledge of individual variations in cognitive styles as well as Autism Spectrum Conditions (ASC). The theory provides a framework for conceptualising the cognitive profiles of both neurotypical and autistic individuals by putting forth a dual-dimension model that accounts for empathising and systemizing abilities. The E-S theory has shed important light on the cognitive and behavioural traits linked to ASC and emphasises the significance of taking into account each person's unique strengths and peculiarities when providing help to those who are autistic. The theory has shown the value of empathising and systemizing skills in predicting preferences, behaviours, and career choices across a variety of populations through empirical research and clinical applications. However, it is crucial to acknowledge the limitations and criticisms of the E-S theory. Critics contend that by reducing autism to a binary cognitive model, ignoring additional cognitive elements, and falling short of capturing the entire spectrum of cognitive capacities and behaviours associated with autism, the theory oversimplifies the complex nature of the disorder. Furthermore, criticism has been levelled at the theory's gender bias and insufficient attention to environmental and developmental aspects. As we move forward, comprehending autism and its cognitive traits will require integrating many theoretical vantage points and taking the larger developmental context into account. Future studies should investigate the relationship between genetic, environmental, and social factors as well as clarify

the developmental mechanisms underpinning cognitive disparities in autism. The E-S theory can continue to add to our understanding of autism and guide interventions and support strategies to improve individual functioning and quality of life for people on the autism spectrum by addressing these limitations and incorporating a more nuanced and comprehensive approach. A number of alternative theories, which highlight distinct features of autism spectrum disorder (ASD) and its underlying mechanisms, are available in opposition to the Empathizing-Systemizing (E-S) paradigm. The Social Motivation hypothesis is one such hypothesis that highlights the part that social motivation deficiencies play in Autism Spectrum Disorder (ASD). This idea states that people with Autism Spectrum Disorder (ASD) have lower intrinsic motivation to interact socially, which makes it harder for them to form and maintain social relationships. This hypothesis emphasises the motivational components of social behaviour more and contends that therapies aimed at enhancing social motivation may be successful in enhancing social functioning in people with ASD. The Weak Central Coherence (WCC) theory is an additional alternative theory that suggests people with ASD have a processing bias towards local information at the expense of global integration. This theory states that people with ASD have trouble combining information from several sources to produce a coherent whole, which leads to a propensity for concentrating on local aspects or particular parts of a stimulus. Understanding the cognitive styles and information processing preferences of people with ASD and their strengths and limitations in activities involving gestalt perception or global processing is made easier by this approach. These alternate hypotheses highlight distinct features of ASD, such as executive dysfunction, information processing biases, and difficulties in social motivation, and they provide a complement to the E-S theory. Researchers and clinicians can design targeted interventions that address the different requirements of persons on the autism spectrum and

obtain a more thorough knowledge of the cognitive, social, and behavioural features of ASD by taking into account a variety of theoretical frameworks.

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