

According to the American Psychiatric Association (2013), strong deficiencies in social interaction and communication are a hallmark of autism spectrum disorder (ASD), which include a loss of nonverbal and verbal communication along with repetitive and stereotypical recurring behaviors and interests. ASD is classified as a spectrum condition that can vary from severe autism to high-functioning individuals with normal IQs, known as Asperger's syndrome (Adams, 2011). ASD refers to a category of developmental delays in early social communication and repetitive sensory-motor disorders that have a major genetic component along with various possible causes (Lord et al., 2018). With time, our understanding of ASD has grown, and many psychological theories have been put forth to explain how autism manifests itself in a person's lifetime. One of the theories discussed in the class debate is the Theory of Mind (ToM), which provides a framework for understanding how people with ASD perceive and interact with the environment. This essay examines how, in contrast to typical development, the Theory of Mind framework helps us understand how ASD develops over the course of a person's lifetime. This essay explores the ToM as a means of understanding ASD, drawing on empirical research as well as the insights gathered from the class debate.

ToM, as outlined in the debate, is described as the capacity to understand what another person is thinking. It is stressed that this ability is essential for social interaction since it enables people to understand the viewpoints and intentions of others. One of the fundamental traits that define humanity is the existence of a theory of mind (Whiten, 1993, as cited in Baron-Cohen, 2001). The theory of mind is the ability to deduce the entire spectrum of mental states that lead to behavior. In a nutshell, the ability to reflect on what occurs in one's own mind and the thoughts of others is known as a theory of mind. Premack and Woodruff's (1978) experiment on primates yielded the ToM's initial proposal. Their observations included chimpanzee behaviors that would necessitate understanding of the

mental processes of other individuals. Mitchell and Lewis (1994) state that deceit can be used to fabricate a false belief, which is one strategy used by people who wish to control the behavior of others. The most common assessment tool for figuring out if young children have a theory of mind is the false belief task. Children with ASD fail to develop a ToM because, as mentioned in the debate, they struggle to comprehend what a false belief is. In a groundbreaking study, the researchers showed that children with ASD performed worse on false belief tasks as opposed to typical developing children and Down syndrome controls (Schwartz Offek, Segal, 2022).

A false belief task (FBT) is the methodology used to determine whether a theory of mind (ToM) has developed in early childhood. The foundation of the false-belief task, according to Ward et al. (2013), is false-belief understanding, or the knowledge that a person's belief or representation of the world may differ from reality. It is seen as an indicator for ToM because, in these situations, it becomes feasible to clearly discriminate between a child's knowledge of someone else's distinct (false) belief and their own (true) belief (Dennett, 1978, as cited in Ward et al., 2013). First-order false-belief tasks entail attributing other people's false beliefs to actual occurrences, while second-order false-belief tasks deal with people's perceptions of the thoughts of others. In tasks featuring second-order false beliefs, kids are tasked to attribute someone's false belief to the ideas of others (Perner & Wimmer, 1985, as referenced in Ward et al., 2013). The "Smarties" task, which requires a child to guess another child's view of what is in a box of candy, is an example of a false-belief task (Gopnik & Astington, 1988, as quoted in Ward et al., 2013). Since there are pencils inside the box when it is opened rather than smarties, this is also known as the deception box. The unexpected transfer task, which involves having a character (like Maxi) leave an object in one place, like the drawer, and then move it to a new location while they are outside the room, is another traditional task for assessing false belief understanding

(Wimmer and Perner, 1983, as cited in Sommer et al., 2018). Maxi's following efforts to find the chocolate in the drawer will thus be fruitless (Sommer et al., 2018).

Those with ASD experience a distinct trajectory in their ToM development when compared to typical development. While ToM abilities are normally acquired by four-year-olds, people with ASD may experience delays or deficiencies in ToM development for the duration of their lives. For children with ASD, the early years pose significant problems because they have difficulty with joint attention, pretend play, and recognizing the mental states of others (Happé, 1995). For typically developing preschool-age children, Wellman and Liu (2004) developed an orderly structure of ToM phases of development, like various desires, different beliefs, perceptual access to knowledge, false beliefs, and hidden emotions. ASD and high-functioning ASD (HF-ASD) children developed the initial three phases in a manner akin to that of typically developing and deaf children, albeit delayed; however, the last two phases were altered in sequence, according to two subsequent studies using clinical data. This was regarded as evidence that the ASD/HF-ASD group finds it more difficult to understand false beliefs than hidden emotions (Peterson, Wellman, & Slaughter, 2012). Studies that examined the explicit ToM abilities of preschoolers with ASD or HF-ASD found that their performance on false-belief tests was significantly poorer than that of preschoolers with normal development.

Children with ASD/HF-ASD perform worse on ToM tasks overall, including the simplest explicit tasks meant to assess false beliefs regarding location (Lind & Bowler, 2009), which corresponds to the fourth stage described by Wellman and Liu (2004). This contrasts with elementary school-aged children with typical development or intellectual impairments matched for age and verbal ability. The average age at which children with ASD succeed in the Sally and Anne false-belief test is around five years older than that of

neurotypical children, based on Frith's (2012) meta-analysis. Additionally, it has been brought up in the debate that people do find it difficult to perform activities like the eye test, which requires them to interpret emotions from facial expressions. Children with ASD in elementary school exhibit problems on advanced, second-order, explicit ToM tasks that test their knowledge of their own states of mind, such as the Strange Stories task by Happé (1994) and facial expressions of emotion like the Eyes Test by Baron-Cohen et. al. (2001). Although some research has shown deficits, subsequent studies have produced contradictory findings. The research (Scheeren, de Rosnay, Koot, & Begee, 2012) looked at sarcasm, double bluffing, faux pas, emotional display rule understanding, and second-order false beliefs in a large sample of adolescents and children with HF-ASD. Even after adjusting for age, the results showed that both age groups' advanced ToM abilities remained intact. The writers claimed that improved high-ToM understanding in HF-ASD was facilitated by both verbal skills and general reasoning skills.

The social functioning of those with ASD continues to be impacted by ToM deficiencies as they enter adolescence and adulthood. It is mentioned in the debate that those with autism may find it tough to "fit into the social world" because they have difficulty reading social cues and predicting the behaviors of others. Social isolation and trouble establishing meaningful relationships are caused by challenges with perspective-taking, sarcasm recognition, and social norm awareness (Mazurek, 2013). In explicit conceptual ToM tasks of varied complexity, people with ASD, especially those with HF-ASD, frequently do well during adolescence and adulthood. But their results from these kinds of activities rarely translate into social behavior that is suitable for their age in everyday life (Begeer et al., 2010). Research on people with HF-ASD's spontaneous use of ToM has revealed that, despite their ease on explicit false-belief tasks, these individuals do not inherently predict the behavior of others (Senju, 2011). However, some older people with

HF-ASD display ToM abilities like those of adults and adolescents with typical development (Roeyers & Demurie, 2010). Mixed results have been found in the research on higher-order ToM skills in adults and adolescents with HF-ASD. Whereas some tasks are implicit, multimodal, and dynamic and are intended to replicate real-life circumstances, others are explicit, static, and unimodal (Mathersul et al., 2013). These variances in task nature may account for distinctions in findings. In the case of people with HF-ASD and controls, Schneider et al. (2013) discovered persistent group differences in implicit ToM processing, indicating deficiencies in spontaneous anticipation. Begeer et al. (2010) proved that during structured social interactions, people with HF-ASD were comparable to individuals with typical development in terms of their capacity to consider the knowledge of others.

ToM stands as a theoretical framework with its strengths when applied to understanding ASD. Through the interpretation of the thoughts and presumptions of people around us, ToM allows us to engage in everyday social interactions. Knowing that other people have distinct opinions and goals that are different from our own also aids in this process (Premack & Woodruff, 1978). Furthermore, early evidence of ToM deficiencies in ASD patients was revealed by Baron-Cohen's landmark research, and this data has been confirmed by later studies using sophisticated neuroimaging techniques (Castelli et al., 2002). The convergence of data supports the validity of ToM as a theoretical framework and emphasizes its value in defining the complexities of social cognition in ASD. Furthermore, ToM theory contributes to a more nuanced understanding of the developmental trajectory of social cognition in ASD by outlining typical milestones of ToM development and aberrations identified in individuals with ASD (Happé, 1995). The significance of early intervention is emphasized by this developmental lens, which also identifies certain periods when focused interventions are required to promote ToM development.

Despite ToM being well known within the field of psychology, there are many critiques against ToM as skepticism started surfacing and its value as an explanatory model for ASD started to be questioned. Richard Gipps criticizes the dominant cognitive paradigm in mainstream psychology in a special issue of *Philosophy, Psychiatry, and Psychology*, arguing that a focus on pre-reflective participation, feelings, expression, and embodiment is essential to grasping the connection between humans. The ToM perspective, which he perceives as objectifying the mind and overemphasizing cognitive processes, is opposed by him because it creates an ontology that alienates people from their unique experiences and raises epistemological issues in the field of developmental psychology (Gipps, 2004, as cited in Plastow, 2012). This criticism of the ToM also includes contributions from Shaun Gallagher. He pinpoints two basic presumptions that underpin this viewpoint: the first is the conviction that understanding the thoughts of others is the key to solving the intersubjectivity dilemma, and the second is the claim that there is a common folk-psychological understanding of various individuals. According to Gallagher, these presumptions are incorrect and fall short of providing a sufficient explanation for non-autistic intersubjective experiences. He challenges the idea that knowing someone else's mental state involves explicit conceptual knowledge, pointing out that young children may recognize other people as agents without having to engage in explicit theorizing (Gallagher, 2004, as cited in Plastow, 2012). Gallagher goes on to say that although metacognitive reasoning is possible in adults, it is not common in daily encounters. He critiques the shortcomings of experimental tasks in capturing the intricacy of intersubjective understanding, such as false-belief tests. Gallagher's approach casts doubt on the idea that ToM functions only at an explicit level and highlights the significance of appreciating the non-theoretical, intuitive parts of human interaction (Gallagher, 2004, as cited in Plastow, 2012).

Autism also causes major challenges in understanding mental states. It has been criticized that ToM ignores the way typically developing children acquire social and communicative skills at a young age. According to Helen Tager-Flusberg, social and communication skills are based on emotional and perceptual processing and appear before TOM skills. She proposed that ToM deficits in autism may be caused by early affective impairments (Hobson, 1993, as cited in Tager-Flusberg, 2007). Studies have broadened to examine the innate processing of mental-state information derived from diverse social inputs, including faces, voices, and body language, within naturalistic environments (Klin, Jones, Schultz, & Volkmar, 2003, as cited in Tager-Flusberg, 2007). Even if they pass TOM tasks, individuals with autism frequently struggle with these fundamental components of social and affective information. To shed light on early signs of autism, including challenges orienting toward social stimuli and problems in joint attention throughout the first year of life, Tager-Flusberg suggests an enhanced ToM framework that incorporates online social-perceptual elements in addition to conventional social-cognitive elements (Tager-Flusberg, 2001, as cited in Tager-Flusberg, 2007). Furthermore, because symptoms of autism are usually identified in infancy prior to the establishment of a complete ToM, it is insufficient to explain the early developmental abnormalities reported in this condition. According to Tager-Flusberg (2001), ToM deficiencies alone cannot fully explain the social behavior deficits that infants with autism exhibit, such as play, imitation, social responsiveness, empathy, and joint attention. Moreover, other issues like executive function deficiencies or linguistic limits may also play a role in failure on ToM tasks. Classic ToM tests, such as false belief tasks, may depend on executive functions; inadequacies in executive function capacities rather than deficiencies in mental state representation may be the cause of failure on these tasks (Tager-Flusberg, 2001). According to Tager-Flusberg (2001), there is further challenge to the sole interpretation of ToM deficiencies as the unique deficiency in autism because limitations in

language proficiency may also contribute to difficulty in understanding and performing ToM tasks.

ToM has been challenged by the emergence of two competing cognitive theories as alternate explanations for the social deficits seen in autism. According to the notion of impaired executive function, social dysfunction in autistic individuals can be attributed to issues with mental flexibility, suppression of prepotent responses, and self-monitoring (Rajendran & Mitchell, 2007). According to Rajendran and Mitchell (2007), this approach explains both the social and non-social features of autism and sets it apart from other neurodevelopmental conditions. Compared to ToM, it is seen as a more comprehensive explanation. The hypothesis of weak central coherence (WCC), which claims that those with autism process data by focusing on details compared to deriving the main idea or meaning, is another opposing theory (Rajendran & Mitchell, 2007). This detail-focused processing accounts for social interaction challenges, a capacity to detect deception and emotions that are concealed, along with the presence of intensely fixated interests that are a sign of autism (Rajendran & Mitchell, 2007). Comparing the WCC theory to the theory of impaired executive function, it serves as a better explanation for the social deficiencies in autism than ToM, as it offers a wider perspective of autistic traits, both social and nonsocial.

In conclusion, the ToM framework has shed light on the challenges faced by people with ASD in attempting to understand and navigate the social world and has significantly advanced our understanding of the developmental course of ASD. Based on the ability to attribute mental states to oneself and others, ToM has shed light on the delays and deficits in ToM skill development that individuals with ASD experience when compared to typical development. Although ToM was vaguely explained in the debate, there were still ideas that were brought up that contributed to the understanding of the theory itself. However, upon

further research, this theory proved to be insufficient and was heavily criticized. These criticisms highlight the necessity for a more thorough method of figuring out the social impairments associated with ASD that considers emotional processing, non-theoretical elements of human interaction, and early development (Tager-Flusberg, 2001). To provide a more detailed understanding of the complexity involved with ASD, future research should investigate integrated models that consider the interaction of multiple cognitive processes, social-perceptual components, and contextual factors (Tager-Flusberg, 2001). Moreover, it is recommended that future research revisit their focus by focusing on normative instead of aberrant social behaviors and real-life social circumstances rather than ones that have been created through experimentation (Klin, Volkmar, Sparrow, 1992). By doing this, it is possible to have a better understanding of the ecological validity of the ToM approach in relation to autism.

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