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The Concept of Theory of Mind in Individuals with Autism

مفهوم نظرية العقل عند المتوحد

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Abstract:

This article aims to shed light on Theory of Mind in children with autism, as it attempts to provide explanations for the behaviors of autistic children in the context of the social deficits they experience. It also compares the development of this theory in typically developing children and children with autism to understand the nature of this social difficulty, which is characterized by an inability to read others' thoughts, difficulty in predicting their emotions, and challenges in processing social cues.

Keywords: Theory of Mind; Social Deficit; Autism

المخلص:

يهدف هذا المقال الى تسليط الضوء على نظرية العقل عند الطفل المتوحد حيث انها حاولت اعطاء تفسيرات لسلوكات اطفال التوحد في ظل العجز الاجتماعي الذي يعانون منه، ايضا مقارنة نمو هذه النظرية عند الطفل السوي والطفل المتوحد لفهم طبيعة هذه الصعوبة الاجتماعية المتمثلة في عدم القدرة على قراءة افكار الاخرين وصعوبة التكهن بمشاعرهم ومعالجة الاشارات الاجتماعية..

الكلمات المفتاحية : نظرية العقل، العجز الاجتماعي، المتوحد.

1. INTRODUCTION

The human infant is considered a social being even before birth, as they attempt to build a relationship with the outside world while still in the womb, particularly through their attraction to human voices, especially their mother's voice. Therefore, the ability to engage in social interaction is a central trait that reflects a child's healthy development. But what happens when this ability is impaired, as is the case with children with autism, who find it difficult to perceive what goes on in others' minds and struggle to read their thoughts, feelings, and facial cues?

This impairment is attributed by researchers to what is called "mind blindness" or "theory of mind," which refers to the autistic child's inability to analyze social signals, their limited emotional and social exchange with others, and their difficulty in understanding bodily expressions. So, what is the concept of theory of mind? And how does the development of this theory differ between a typically developing child and an atypically developing child (with autism as an example)?

2. Definition of Autism

Autism is considered one of the pervasive developmental disorders, and it is among the most severe in terms of its impact

on the behavior of the affected individual. This is because its effects are not limited to a single aspect of personality but extend to various areas, including cognitive, social, linguistic, and emotional domains, naturally leading to a general delay in overall development.

Leo Kanner was the first to introduce the concept of autism in 1943, when he published his clinical article describing a set of psychological characteristics in a group of children, whom he referred to as "autistic cases" (Khalil, Salameh, & Abu Al-Nil, 2009, p. 33).

Kanner examined groups of children with intellectual disabilities at Harvard University in the United States. He noticed unusual behavioral patterns in eleven children who had been classified as intellectually disabled. Their behavior was characterized by what he later termed early childhood autism.

These cases were distinguished by a set of characteristics, including:

- Difficulty forming relationships with others.
- Delay in language acquisition.
- Failure to communicate effectively using language.
- Echolalia, or the repetition of words and phrases.
- Reversal of personal pronouns, such as

using “you” instead of “I.”

- Repetitive and stereotyped play.

The term “**autism**” is derived from Greek, composed of two parts: *aut* meaning “self” and *-ism* meaning “state,” hence it refers to the “state of the self.” It reflects the intense self-focus of children with this disorder and their reduced interest in others (Khalil, Salameh, & Abu Al-Nil, 2009, p. 37).

Autism is a developmental disability that usually appears within the first three years of a child’s life. It results from neurological disorders that negatively affect brain function, leading to severe difficulties in forming any type of relationship with others in society, even with parents or close family members. Children with autism also fail to develop language naturally and may withdraw into isolation.

Autism appears in varying degrees, ranging from severe to mild, and affects at least one of the following skills: verbal and nonverbal communication, social interaction, and play (Amer, 2008, p. 15).

Lorna Wing also notes that autism can be defined through a set of specific indicators observed in children with the disorder. These include problems in verbal communication and language expression, difficulties in using speech, atypical responses to sensory or bodily experiences, reduced ability to follow events visually, disturbances in daily functioning, and potential delays in physical growth. However, regarding coordination and motor perception, there are no clear indicators of impairment in these areas among children with autism (Amer, 2008, p. 16).

Autism is considered one of the most challenging developmental disabilities both for the child and for their parents and family as a whole. This difficulty arises from the disorder’s ambiguity, the intensity and peculiarity of the resulting behavioral patterns, and the overlap of some of its traits with other disabilities. Additionally, autism is a permanent condition that requires continuous monitoring by family members, particularly parents, which increases the burden on them. The challenge is further

compounded by the limited effectiveness of non-specialized education in improving the child’s abilities and skills.

Dodd views autism as a developmental disorder resulting from dysfunction in the central nervous system, particularly in the part responsible for processing verbal and nonverbal information in the brain. It is a disorder that affects the individual’s understanding of the world and surrounding events and is considered incurable (Khalil, Salameh, & Abu Al-Nil, 2009, p. 40).

We can define autism as “a developmental disorder characterized by deficits in sensory perception and language, which consequently lead to impaired social interaction and communication with others, cognitive limitations, self-focused behavior, and a restriction to a limited number of atypical and repetitive behaviors and interests. This disorder typically appears before the age of three.”

3. Definition of Theory of Mind

The work of Baron-Cohen, Leslie, and Frith contributed significantly to developing a cognitive model to explain self-focused behavior in autism, suggesting that the core cognitive deficit in autistic individuals lies in their impaired mental representation.

Theory of Mind is a conceptual framework for understanding and explaining the difficulties that children with autism face in social interaction, cognitive functions, and communication processes across developmental stages.

Baron-Cohen defines Theory of Mind as “the ability to understand the content of others’ mental processes, including their thoughts, beliefs, desires, and intentions, and thus to comprehend their behavior and actions” (Khalil, Salameh, & Abu Al-Nil, 2009, p. 23).

Dodd also describes Theory of Mind as the ability to infer that others have thoughts, beliefs, desires, and wishes that differ from one’s own.

3. Tasks of Theory of Mind

Task 1: Recognizing Emotions

This task measures a child’s ability to distinguish emotional states in various social

situations, such as identifying whether a person is happy, sad, fearful, or angry.

Task 2: Appearance-Reality Distinction

This task measures the child's ability to understand that people may perceive the same object differently depending on its appearance or context.

Task 3: Desire-Based Emotion Inference

This task evaluates the child's ability to identify a person's emotions (happy or sad) based on their desires or wishes.

Task 4: Belief-Based Understanding

This task measures the child's ability to understand that perception leads to action, where individuals believe objects exist in the locations where they last saw them (Mohamed, 2022, p. 50).

Task 5: Action Inference Based on Understanding

This task evaluates the child's ability to predict actions based on prior knowledge of an object's location.

Task 6: First-Order False Belief

This task measures the child's ability to infer another person's belief in situations where an unexpected change occurs in an object's location.

Task 7: Emotions Based on Reality, Belief, and Second-Order Emotions

This task assesses the child's ability to understand that beliefs and events that contradict prior beliefs can affect emotions. For example, a person may be happy because they got what they wanted, or because they believed they got it; emotions can depend on beliefs, which may align or conflict with reality (Al-Mulhim, 2021, p. 437).

Task 8: Conflict Between Message and Desire

This task evaluates the child's ability to infer others' beliefs based on interpreting statements expressing their desires.

Task 9: Second-Order False Belief

This task measures the child's understanding that others can hold false or different beliefs about the same object or situation.

Task 10: Distinguishing Physical Events and Objects from Mental Representations

This task evaluates the child's ability to distinguish between real experiences (physical reality) and mental experiences (imagination or perception), such as differentiating between a real animal and an imaginary one (Yahyaoui, 2021, p. 804).

5. Development of Theory of Mind in Typically Developing Individuals

Berezkei and Paál argue that the primary precursors or indicators of Theory of Mind (ToM) development emerge during the early stages of human growth:

- **From birth to 18 months:** Children may show this ability through gaze-following and engagement in joint attention.
- **From 1 to 3 years:** Children begin to distinguish between physical events and mental events, for example, differentiating between a real rabbit and an imaginary rabbit.
- **At 3 years:** Children can differentiate thinking processes from mental processes and understand that a person can think about something without directly seeing it.
- **At 4 years:** Children recognize that others may hold false beliefs and that their thoughts and perceptions can differ from reality.
- **At 5 years:** Children acquire the concept of retention, enabling them to distinguish between information that is quickly forgotten and information that must be retained for a long time.
- **From 6 to 7 years:** Children understand that others can have a different mental state.
- **At 8 years:** Children begin to comprehend ambiguity.
- **From 9 to 11 years:** Children develop the ability to understand and recognize slips of the tongue, occurring when someone says something they should not have.
- **During adolescence:** Individuals can reach higher levels of understanding, such as grasping false beliefs, interpreting ambiguous situations, understanding different perspectives on the same topic, and recognizing personal

biases.

(Yahyaoui, 2021, p. 806)

6. Theory of Mind in Children with Autism

As mentioned earlier, Theory of Mind refers to a child's ability to infer the mental states of others, including their thoughts, beliefs, and desires. However, children with autism, or those with autistic traits, face difficulties in imagining or understanding the feelings of others or what is going on in their minds. They often assume that others know exactly what they are thinking or feeling.

These difficulties manifest in their inability to process social cues such as facial expressions, tone of voice, and hints, and in their failure to use these cues to predict what others will do or say in different social situations (Mohamed, 2022, p. 48).

Autistic children suffer from severe deficits in understanding the content of mental processes, such as beliefs and thoughts of others. They are unable to "read minds" and experience what is called **mind blindness**, believing that others think and feel exactly as they do. This results in impairments in social interaction, communication, and imagination (Khalil, Salama, & Abu Al-Neel, 2009, p. 33).

Matthew (2011) also found a link between deficits in Theory of Mind and social skills in children with autism (Adel, 2022, p. 59).

Sinclair argues that the problem for autistic individuals lies in their poor use of emotion-related words, making it difficult for them to recognize assumptions and communicate the discrepancy between what is assumed and what occurs in reality. Blackburn adds that autistic individuals use qualitatively different cognitive mechanisms, making them unable to read minds effectively due to rapidly changing daily situations, which they struggle to analyze in real time (Al-Imam & Jawalkeh, 2010, p. 180).

Baron-Cohen notes that Theory of Mind serves two primary functions: social interaction and communication. Therefore,

deficits in this ability among autistic individuals necessarily lead to impairments in these functions.

Although Theory of Mind and mind-blindness explain many problems and symptoms associated with autism, they are no longer considered sufficient on their own to fully explain the disorder. Furthermore, deficits in mental representation are not exclusive to autism. This has led to the emergence of other cognitive models, such as executive function deficits and central coherence theory, which contribute to a deeper understanding of autism.

7. Executive Function

Dodd states that executive function refers to the ability to control responses to current or future stimuli and events through the capacity to anticipate, plan, and organize actions.

Prior and Ozonoff note that the cognitive difficulties related to executive function in individuals with autism are associated with damage or atypical development in the frontal lobe of the cerebral cortex. This leads to impairments in planning, inhibition, flexibility, organization, and self-directed behavior. Baron-Cohen also emphasizes that the performance of individuals with autism on executive function tasks resembles that of individuals with frontal lobe damage.

8. Central Coherence

Since Theory of Mind alone cannot fully explain the cognitive deficits in autism, Frith proposed the concept of central coherence to account for certain aspects of these cognitive limitations. Central coherence refers to "the ability to use general context to connect separate or conflicting pieces of information."

Gilberg and Coleman describe central coherence as "the ability to integrate partial details to achieve an overall understanding of a subject" (Khalil, Salameh, & Abu Al-Nil, 2009, p. 59).

Typically developing individuals demonstrate central coherence by tending to focus on the overall meaning of a scene rather than on its individual details.

Dodd notes that central coherence involves understanding the meaning of things in their overall form. Most individuals with autism struggle with this, as they tend to focus on fine details while failing to grasp the overall picture or main purpose of an event or activity.

Happé also observes that individuals with autism display a cognitive style characterized by a focus on local details rather than global or holistic perception.

It has been confirmed that individuals with autism have a strong ability to notice details, especially visual ones, but they lack the ability to perceive the overall picture. For example, an autistic child may focus on a piece of thread on the floor, listen intently to the sound of a ceiling fan, or pay attention to the page numbers of a book without engaging with the content of the pages.

- The concept of central coherence also explains the attention difficulties observed in autistic children, as they tend to focus. The majority of autistic children have a developmental disability, with this percentage ranging from 70% to 80%.
- About 10% of autistic children possess special skills in certain areas, including rote memory and arithmetic ability.
- Cognitive weaknesses in autistic children often appear in tasks related to concrete thinking, visuospatial skills, and manual processing.
- Most autistic children experience difficulties with attention in its various forms.
- Many autistic children show deficits in perception, particularly auditory perception.

Based on the above, we can summarize the cognitive characteristics of children with autism as follows:

- with abstract thinking, concept processing, and reasoning.
- Some autistic children have good memory, while others have deficits, especially in short-term memory.

Explanations for these cognitive

deficits vary: some researchers attribute them to deficits in Theory of Mind, others to impairments in executive function, and still others to weak central coherence (Khalil, Salameh, & Abu Al-Nil, 2009, p. 61).

9. Conclusion

The concept of Theory of Mind is an important and fundamental framework that has contributed to explaining cognitive development in both typically developing and atypical children. Given the variation in cognitive and social characteristics of children with autism, this theory has attempted to explain the social difficulties faced by these children. Researchers in this field have observed a delay in the development of Theory of Mind in autistic children, which reflects the deficits they experience—particularly in perceiving and understanding the thoughts and feelings of others, as well as in predicting their behaviors.

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