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Theory of mind in children with developmental language disorder – developmental tendencies

Extended summary

The Theory of Mind (ToM) is a complex socio-cognitive ability that allows us to draw conclusions about our own mental states and the mental states of other people. It enables the interpretation and prediction of others' behaviour based on an understanding of their feelings, intentions, desires, attitudes, beliefs and knowledge, which requires an awareness that beliefs, intentions and desires can differ from person to person (Preckel et al., 2018).

ToM develops gradually over the course of childhood, with development characterised by several important milestones. In the early preschool years, children begin to learn perspective-taking skills that enable them to understand that other people may see things differently from themselves. In the early school years, they begin to grasp the concept of the mind as an active interpreter and develop a basic understanding of mental processes (e.g. Barquero et al., 2003). An important turning point in the development of ToM is the understanding of false beliefs, i.e. the realisation that other people's beliefs may differ from reality and are different for each person. Usually by the age of four, children have mastered first-order ToM and understand beliefs as mental entities separate from reality (Poulin-Dubois, 2020). At around the age of seven, they usually master second-order ToM, which enables them to think about the thought processes of others (Miller, 2009).

The relationship between language and ToM during development indicates a complex interaction between cognitive and language skills. It is hypothesised that in typically develop-

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ing (TD) children, attention to other people's intentions and interpersonal preference, which emerge very early in development, precede and promote language development (de Villiers, 2007). The causal relationship between ToM and language abilities is not fully understood, although research suggests that language development precedes ToM development when it comes to understanding beliefs (e.g., de Villiers & Piers, 2002; Slade & Ruffman, 2005). This relationship becomes particularly important when it comes to children with developmental language disorder (DLD), where difficulties in expressing or understanding language may interfere with ToM development. For children with expressive-type DLD, difficulties expressing themselves may interfere with mastery of the ability to understand the mental states of others. On the other hand, children with mixed-type DLD, which is characterised by difficulties in both expressive and receptive language skills, may have additional problems in understanding social interactions and interpreting the intentions of others. Therefore, understanding the development of ToM is crucial for a comprehensive overview of the developmental problems of children with DLD.

The aim of this study is to compare ToM and its developmental trajectory between children with DLD and TD children, as well as to investigate possible differences between the two main subtypes of DLD (expressive and mixed), which differ mainly in the degree of difficulty in language comprehension. For this purpose, a sample of 119 participants aged between five and ten years was selected and divided into two groups: 69 children with DLD and 50 TD children. The false-belief task "Sally-Anne" (Baron-Cohen et al., 1985) was used to assess ToM.

The results show that children with difficulties in language development achieve a significantly lower score on the task than TD children ($F(1,115) = 32.487, p = .000, \text{partial } \eta^2 = 0.22$). Subsequent analyses revealed that these differences were present at both preschool and primary school ages and that they did not depend on the type of DLD. In addition, children with DLD were found to have a developmental delay of two years or more, considering that these children still have difficulty understanding first-order ToM even at school age. The lack of differences in ToM development between children with different types of DLD suggests that the level of language comprehension is not a determining factor in the understanding of false beliefs.

The results of this study, which indicate insufficiently developed ToM in children with DLD, as well as the fact that language difficulties in these children can persist into school age (e.g. Del Valle et al, 2018; Drljan&Vuković, 2019) and often lead to problems in mastering academic skills (e.g. Harrison et al., 2009; Oliveira et al., 2021), indicate the presence of a double risk in this population – potentially poor academic performance and problems with social inclusion in the school context. This finding implies the need for the application of additional didactic methods in working with these children that would facilitate mastery of the material and promote the establishment of positive relationships with peers and teachers, which is of particular importance considering that further language development during school years occurs mainly through learning and intensive communication at school.

Keywords: theory of mind, developmental language disorder, social skills, school environment

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