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UNDERSTANDING HOW CHILDREN THINK: A THEORY OF MIND PERSPECTIVE

by Carolyn S.L. Tan-Niam

INTRODUCTION

Recent research on children's theories of mind (ToM) has transformed our understanding of children's mental life. Current research acknowledges the conceptual shift in ToM status that occurs around 3-4 years of age and offers explanations on the nature and origins of ToM understanding. However, there has been relatively little consideration of the significance of ToM development for children's daily lives. This paper provides a review of recent studies which have focused on bridging the links between ToM development and social interaction.

What is a theory of mind?

In current work, theory of mind refers to an individual's ability to impute mental states to others. Researchers view this ability as a theory because mental states, which are not directly observable, can form a framework of inferences, which in turn can be used to make predictions about others' behaviour. For example, if Joshua goes to the kitchen cabinet and opens a drawer, we reason that he does so because he desires a snack and believes that there are snacks in that drawer. This reasoning draws on an understanding of other minds as a database of possible explanations and interpretations of everyday behaviour. Astington, Harris and Olson (1988) report that some time around their fourth birthday, children acquire such a theory. The transition is so marked that it is conceptualised as a cognitive shift and constitutes a new level of development.

One of the important questions which has been asked about mental development is, how does the individual mind connect with the minds of others? Human beings are social animals, hence the individual thinker's understanding of other minds is an important aspect of mental life. The developmental account has long been dominated by Piaget's claim that children younger than seven years of age are unable to make the distinction between the mental and physical world. Many post-Piagetian investigators have challenged this claim. One such study on children's talk about mental states (Bretherton and Beeghly, 1982) found that not only were young children's thoughts not egocentric, but more importantly they involved understanding other's mental states such as the intentions, beliefs and desires of others i.e. the ability to recognise themselves and others as thinking beings. It is in this sense that children are said to have an implicit and rudimentary theory of mind.

The false belief paradigm

The main procedure for assessing children's ToM understanding was devised by Wimmer and Perner (1983) using the false belief task. In this task, the child subject observes a story enacted with a pair of dolls. One of these is called Maxi, who leaves chocolate in a cupboard (location A), and then departs from the scene. In Maxi's absence, the other doll (his mother) enters and transfers the

chocolate to another cupboard (location B). Maxi does not witness this transfer, and therefore is ignorant of the fact that the chocolate has been moved. The observing child is then informed by the experimenter that Maxi is returning to the kitchen to get his chocolate, and is invited to judge where Maxi will look. The primary finding has been that children below four years of age are unable to ascribe false belief i.e. that Maxi will look for the chocolate at its new and current location. Replication of this finding in subsequent studies (see Butterworth, Harris, Leslie and Wellman,1991) suggest that the false belief task is a strong index of children's conceptual understanding. Possible methodological problems with the paradigm have been examined with variations of the task (using film, photographs, puppets, dolls and even real actors), and employing different linguistic formats for the questions (Butterworth et al.,1991). However, even taking these considerations into account, three-year-olds' difficulty with the false belief task still remains significantly distinct. Replication studies have shown that four-year-olds' understanding of false belief is now a highly robust finding, so much so that false belief understanding has been accepted as a hallmark of the acquisition of a ToM.

REVIEW OF RESEARCH

ToM and social interaction

The understanding of other minds (ToM) is a powerful social tool. Social interaction is grounded in a theory of mind and affects the way the child responds to the world around him. No one has direct access to the inner thoughts of others. Like adults, children must rely on interaction and communication in order to understand, explain and predict what others think, know and believe. For a child, ToM ability is required in conversations with siblings and peers, participation in shared pretend play, and reasoning about others' behaviour. Having an understanding of other's minds will therefore transform the way children view others' behaviour and, by implication, deeply affect their own as they use this ability to explain and predict others' thoughts and actions.

Dunn, Brown, Slomkowski, Tesla and Youngblade, (1991) have reported that children's ToM development is related to aspects of family interaction and discourse. Their findings showed that the frequency of mother-child dialogues about feeling states and causality

predicted the child's success on ToM tasks. In addition, co-operative interaction with siblings was also a significant predictor of false belief understanding. These results were independent of the child's general verbal ability and amount of family talk. Based on these findings, Dunn et al. (1991) suggest that false belief understanding may have its roots in family interaction. In other words, greater exposure to siblings' conflicting or alternative perspectives are reasoned to have an effect on the development of children's ToM abilities.

In another study, Perner, Ruffman and Leekam (1994) specifically tested the hypothesis that children with siblings would encounter those social interactions that could promote an awareness of others' mental states and therefore fare better on ToM tasks than only children. Working with three to five year-olds, Perner et al. (1994) found that a child's ToM understanding was enhanced by the number of siblings the child has. Moreover, this *sibling effect* was not dependent on the age of the sibling, as both children with older and younger siblings performed equally well on the ToM measure. This finding is consistent with Dunn et al.'s (1991) results. Based on the known effects of birth order on IQ from previous work (Zajonc and Marjus, 1975, cited in Perner et al., 1994), Perner et al. further argue that the child's general intelligence and cognitive maturity are not confounding factors in the positive correlations between false belief understanding and number of siblings. Consistent with Perner et al.'s results, Astington and Jenkins (1995) also found that family size remained correlated with false belief understanding.

Lewis, Freeman, Kyriakidou, Maridaki-Kassotaki and Berridge, (1996) subjected the sibling effect to closer scrutiny in an attempt to broaden the domain by relating children's ToM development to their daily interactions with more knowledgeable members of their culture i.e. siblings as well as extended kin. Using Greek subjects, their findings suggest that children's social interactions with family members (*close kin and siblings*) play a significant role in ToM development in that children who perform better on ToM tasks are also engaged in more social interaction with their siblings and close kin. In other words, it is the social context in which the child is exposed to alternative viewpoints that may be beneficial to the development of an understanding of other minds.

CONCLUSION

Although exploratory in nature, the converging line of evidence reviewed in this paper represents a first step in exploring the interplay between children's understanding of other minds and social interaction. Taken together with prior research in the field, the indication is that the study of interaction patterns should definitely be added to the research agenda to further our understanding of children's mental life.

IMPLICATIONS

The findings of the above studies suggest that the social context plays an important role in the cognitive development of children's understanding of other minds. Parents and teachers could use the strategies outlined below to develop children's understanding of other minds:

1. ***Plan cooperative activities to provide a range of interactions***
   Specifically, children can be alerted to a variety of alternative perspectives through a range of social interactions. Whether in the school or home environment, interactive exchanges can aid the achievement of shared understanding between peers and further encourage children towards more collaborative and reciprocal interactions. In the classroom situation, cooperative activities should be emphasised as a technique which warrants more planning and contact time in order to provide a range of interactions.

2. ***Use pair and group work to reinforce scaffolding***
   The above literature suggests an *apprenticeship* effect in the development of ToM ability. In a dyad or group, the expert partner i.e. sibling or peer with more advanced ToM, can provide the scaffold for children's understanding of others' mental states via shared interaction. Thus, from the teacher's perspective, even group formation in the early years classroom requires special regard for the expert-novice difference in terms of ToM ability. Group or pair formation based on seating arrangements is ineffective and should be discouraged.

3. ***Observe children's interactions with others***
   Teachers can learn to assess ToM ability informally by observing children's interactions and noting those aspects of social competence, which require children's understanding of others' mental thoughts such as intentions and desires (see also Tan-Niam, Wood & O'Malley, in press). Such detailed but naturalistic observations of children's ToM ability in everyday activities can better inform the teacher regarding children's developmental needs.

SOURCES

Astington, J.W., & Jenkins, J.M. (1995). Theory of mind development and social understanding. *Cognition and Emotion, 9,* 151-165.

Astington, J.W., Harris, P.L., & Olson, D.R. (1988). *Developing theories of mind.* Cambridge: Cambridge University Press.

Bretherton, I., & Beeghly, M. (1982). Talking about internal states: The acquisition of an explicit theory of mind. *Developmental Psychology, 18(6),* 906-921.

Butterworth, G.E., Harris, P.L., & Leslie, A.M., & Wellman, H.M. (Eds.). (1991). *Perspectives on the child's theory of mind.* Oxford: Oxford University Press.

Dunn, J., Brown, J., Slomkowski, C., Tesla, C., & Youngblade, L. (1991). Young children's understanding of other people's feelings and beliefs: Individual differences and their antecedents. *Child Development, 62,* 1352-1366.

Lewis, C., Freeman, N.H., Kyriakidou, C., Maridaki-Kassotaki, K., & Berridge, D. (1996). Social influences on false belief access: Specific sibling influences or general apprenticeship? *Child Development, 67,* 2930-2947.

Perner, J., Leekam, S.R., & Wimmer, H. (1987). Three-year-olds' difficulty with false belief. *British Journal of Developmental Psychology, 5,* 125-137.

Perner, J., Ruffman, T., & Leekam, S. R. (1994). Theory of mind is contagious: You catch it from your sibs. *Child Development, 65,* 1228 - 1238.

Tan-Niam, C.S.L., Wood, D.J., & O'Malley, C. (in press). A cross-cultural perspective on children's theories of mind and social interaction. *Early Child Development and Care.*

Wimmer, H., & Perner, J. (1983). Beliefs about beliefs: Representation and constraining function of wrong beliefs in young children's understanding of deception. *Cognition, 13,* 103-128.