

Taking theory of mind research into much needed new terrain – a commentary on Kochanska et al. (2025)

Ross A. Thompson

Department of Psychology, University of California, Davis, Davis, CA, USA

The paper by Kochanska and colleagues builds on a growing literature documenting the relational origins of theory of mind and draws attention to future directions for extending this work.

Their report presents two studies, designed in parallel (but not identical) fashion to test a mediational model of the early origins of theory of mind. Two early relational influences are their focus: parental mind-mindedness (an index of parental mentalization, or the adult's representation of the child's mental and psychological experience) and mutually responsive orientation (MRO; an index of parent–child relational quality). Noting that numerous studies have denoted associations of parental mentalization and relational quality with theory of mind, these researchers argue that these constructs are causally related over time. Specifically, they propose a mediational model from parental mind-mindedness in infancy to child false-belief understanding at age four mediated by parent–child MRO in early childhood.

The two studies were well designed to test this mediational model. Each of the variables was assessed using suitable measures at developmentally appropriate times: 7–8 months for mind-mindedness; age 3 for mutually responsive orientation, and 52 months for theory of mind (specifically, false-belief understanding). The design was thus informatively longitudinal, and the samples for each study were desirably large. Each study had the added benefit of including parallel assessments with both mothers and fathers at each age, creating the opportunity for cross-parent replication of results and cross-study replication.

The studies yielded generally comparable results that were consistent with the proposed mediational model. Specifically, mediational effects were apparent in analyses with fathers in both studies, and with mothers in one of the two studies. Given that mediational models can be vexingly difficult to confirm, it is impressive to find support in three of the four analyses reported in this paper. To summarize, in three of the four analyses, false-belief understanding at 52 months was predicted by parental mind-mindedness in infancy, mediated by

the influence of mutual responsiveness in the parent–child relationship at age 3. In the context of MRO, the direct association of mind-mindedness on false-belief understanding was nonsignificant. There were also sensitivity analyses for each study based on the well-established association of false-belief reasoning with executive functioning. They confirmed that the mediational results held even with standard measures of executive functioning as covariates.

In one sense, these findings are unsurprising. As noted, they are based on prior studies documenting the association of measures of parental mentalizing with children's theory of mind. Multiple measures of early relational quality, including MRO but also the security of attachment, positive emotional mutuality, and other measures have also been associated with theory of mind. The findings are consistent with a broader literature connecting theory of mind (usually false-belief reasoning) with other relational influences, such as having siblings, engaging in pretend play or explanatory conversations, participating in discourse with frequent references to mental states, and even growing up bilingual.

In another sense, however, these findings are a bit disruptive. One way is methodological. These findings offer a model for constructing theoretically guided causal models built on longitudinal research enlisting multiple predictors of developing theory of mind that can be examined in concert. In light of the several studies finding a direct association of parental mentalization with children's theory of mind, for example, the failure of three of the four models of this study to find such a direct association when MRO was included as a mediator suggests that when relational influences are concerned, univariate predictive models must be considered cautiously. There are few longitudinal studies examining the early relational origins of theory of mind in this manner, and more are needed.

These findings are also disruptive conceptually. Specifically, they invite deeper consideration of the processes by which theory of mind emerges in the first 5 years. Rather than tabulating additively the various social influences that have been associated with theory of mind, researchers might instead use

Conflict of interest statement: No conflicts declared.

these results (and others) for a broader reconsideration of what happens in early relational experience to provide young children with growing insight into the mind and its functioning.

Beginning with parental mentalization, as this study does, is a good start because it embeds this inquiry in the parent's capacity for an attuned, receptive attentiveness to the child's mental and emotional experience. A parent who can accurately infer a young child's thoughts and feelings and then convey this understanding in parent-child interaction likely provides rich ground for developing self-awareness and emerging understanding of mental processes. The importance of parental mentalization in early development is reflected in its consistent association with measures of parental sensitivity, positive parental care and (independently of sensitivity) the child's security of attachment as well as theory of mind.

Mentalization is, however, a broad and inclusive variable that has inspired several efforts to operationalize its core qualities (Zeegers, Colonnese, Stams, & Meins, 2017). Parental mind-mindedness emphasizes the parent's appropriate and accurate comments about the child's mental states. Other measures emphasize more the adult's emotionally open and accepting response to the child's motivated behavior, or the coherence of the adult's representations of the child. All measures index an adult's thoughtful attunement to the child's immediate psychological experience, but it remains to better understand the elements of parental mentalization that are central to the development of theory of mind and how they are influential.

In this study, MRO was the variable mediating the influence of mind-mindedness. Stated differently, MRO could be seen as a behavioral manifestation of parent mentalization. The enlistment of MRO in this study is unsurprising because it has proven to be a powerful construct in this laboratory for elucidating the developmental dynamics of early parent-child relationships (see Kochanska, Boldt, & Goffin, 2019). In the two studies, MRO was measured in a series of parent-child interaction episodes varying in emotional demands for each partner. MRO was composited from ratings in each episode of (a) parental responsiveness to the child, (b) child responsiveness to the parent (in one study, this included responses to an elicited imitation task), and (c) a dyadic rating of shared positive affect consisting of tallies of 30-s. episodes when both showed positive affect. The conceptual overlap of these three ratings meant that they were significantly correlated, so they were standardized and averaged into a single MRO score.

As this description of its composition suggests, MRO is an inclusive measure, combining into a single index evaluations of parent and child behavior in relaxed and mildly stressful conditions and including ratings of sensitivity, cooperativeness, acceptance, and positive and negative affect by each

person. As a mediator of the influence of parental mind-mindedness, MRO informs researchers that, in general, good parent-child relationships are good for developing theory of mind. But to develop more precise models of the early relational origins of theory of mind, MRO must be unpacked to examine its constituent influences on early social cognition.

What are the core features of MRO that lead from the parent's mental state attunement to the child's theory of mind? For guidance, we might look to a related area of research – the security of attachment – because, like MRO, the security of attachment is associated with children's theory of mind (Szpak & Bialecka-Pikul, 2019) and with parental mentalization (Zeegers et al., 2017). When unpacking the characteristics of secure relationships, researchers have found (among other things) that mothers in these relationships interact differently with their infants and young children compared to mothers in insecure attachments. In addition to exhibiting greater sensitivity, they also talk with their children in a narratively richer, more elaborative manner, especially when reminiscing with the child about recent experiences. They use open-ended questions while also providing greater information (and sometimes correction), make more frequent references to emotions and their causes, and provide supportive acceptance and validation of the child's perspectives (Thompson, 2021). Stated differently, they create a "psychological secure base" in which young children can explore their experiences, including their thoughts and feelings, with the support of the parent. Perhaps as a consequence, securely attached children exhibit greater emotional understanding and empathy, in addition to theory of mind, compared with insecurely attached children.

These are the characteristics of parent-child interaction we might expect to derive from the attunement inspired by parental mentalization in infancy. The parent who is commenting appropriately and sensitively on the baby's behavior in the first year is likely to become a parent who engages the child in simple, responsive conversations, based on the child's direct experience, that enlist references to emotion and other mental states. Moreover, because these conversations sometimes highlight the different perspectives of mother and child about experiences they have shared, young children are confronted with alternative and sometimes false beliefs (Fivush, Haden, & Reese, 2006). These features of early parent-child discourse are consistent with substantial research (including experimental interventions) indicating that theory of mind is predicted by the frequency and quality of the child's exposure to mental state talk (Tompkins, Benigno, Lee, & Wright, 2017). When mental state talk occurs in the context of parent-child discourse in the early years, young children acquire a vocabulary of mental state terms and their meaning with reference to the child's direct experience, unfolded by conversational

give-and-take, while also encountering the different mental states that conversation with a parent can elicit. These experiences, in secure and mutually responsive attachment relationships, can provide a foundation for false-belief understanding and also provide the developmental enrichment enabling the transition from implicit to explicit theory of mind.

The attachment research in concert with studies of developing theory of mind suggest that an important element of the mutually responsive orientation in early relational experience may be the quality of parent–child discourse related to mental states and their meaning. Parent–child discourse is important not just as a lexical assist for identifying mental states or experience in the pragmatic give-and-take of conversation, but also for the relational context that connects mental state references to the child's personal experience. In unpacking MRO, this is one avenue meriting further exploration.

It is not the only one. Tomasello (2018) has argued that the unique contribution of early relational experience to theory of mind is the coordination of mental states with another person, which he calls shared intentionality. Substantial research indicates that young children are motivated to align their subjective experiences with those of others, beginning with efforts to establish joint attention (e.g., pointing) in the first year, later using language to establish shared reference in the second year, and subsequently seeking the coordination of intentions and understanding in pretend play and helping behavior. These experiences of shared intentionality contribute to growing understanding of emotions, desires, and intention through cooperative activity, and through them young children also frequently encounter conflict between their mental states and those of another person. Thus with the progressive growth of social understanding that contributes to developing theory of mind, there are also frequent experiences of conflicting perspectives, goals, and (false) beliefs. Tomasello's proposal is thought-provoking and is also a candidate for considering what is happening in early relational experience, in the context of MRO, that contributes to theory of mind.

And this leads to fathers. Although the results of these studies indicate that paternal mind-mindedness is associated with theory of mind in

the predicted mediated manner, and generally parallel to the results for mothers, Kochanska's research group cites other studies from their laboratory (and the work of others) that also reveals very different correlates of maternal and paternal mind-mindedness. Research on fathers' mentalizing has progressed significantly in recent years, but the findings of a recent meta-analysis offer a perplexing portrayal of complex determinants and diverse outcomes of individual differences in paternal mentalization (Mora et al., 2023). Although the state of the science is unpromising at present for creating generalizable hypotheses about the developmental consequences of paternal mentalization – perhaps because the social status of fatherhood, especially in relation to very young children, remains in transition – it is apparent that fathers' influence is not simply a duplication of mothers'. Maybe this is good news for research on theory of mind because when fathers become involved in early care, young children's experience with diverse mental states and their consequences expands.

Theory of mind is essentially social. In the context of an expansive literature focusing on its cognitive (e.g., executive function; language syntax and semantics) and neurobiological foundations, this study of early relational origins is a welcomed reminder of the social context in which early social cognition takes shape. More importantly, the findings suggest new ways that research on these relational origins can be conceptualized and designed to more significantly advance future work in this area.

Acknowledgements

The author has declared that he has no competing or potential conflicts of interest.

Data availability statement

Data sharing is not applicable – no new data generated, and the article describes entirely theoretical research.

Correspondence

Ross A. Thompson, 532 Isla Pl., Davis, CA 95616, USA; Email: rathompson@ucdavis.edu

Key points

- The paper by Kochanska et al. offers a model for constructing theoretically guided causal models built on longitudinal research enlisting multiple predictors of theory of mind that can be examined in concert.
- The findings invite deeper consideration of the processes by which theory of mind emerges by unpacking the relational predictors highlighted in this and other studies.

- In particular, exploration of the characteristics of early conversation focused on the child's experiences and mental states is warranted. So also is studying the coordination of subjective states in parent–child interaction.
- Enlisting fathers and mothers into this inquiry broadens the range of partners contributing to young children's developing theory of mind.

References

- Fivush, R., Haden, C.A., & Reese, E. (2006). Elaborating on elaborations: Role of maternal reminiscing style in cognitive and socioemotional development. *Child Development*, 77, 1568–1588.
- Kochanska, G., Boldt, L.J., & Goffin, K.C. (2019). Early relational experience: A foundation for the unfolding dynamics of parent-child socialization. *Child Development Perspectives*, 13, 41–47.
- Mora, S.C., Bastianoni, C., Pederzoli, M., Rospo, F., Cavanna, D., & Bizzi, F. (2023). Which space for fathers' mentalizing? A systematic review on paternal reflective functioning, mind-mindedness and insightfulness. *Journal of Child and Family Studies*, 23, 1261–1279.
- Szpak, M., & Bialecka-Pikul, M. (2019). Links between attachment and theory of mind in childhood: Meta-analytic review. *Social Development*, 29, 653–673.
- Thompson, R.A. (2021). Internal working models as developing representations. In R.A. Thompson, J.A. Simpson, & L.J. Berlin (Eds.), *Attachment: The fundamental questions* (pp. 128–135). New York: Guilford.
- Tomasello, M. (2018). How children come to understand false beliefs: A shared intentionality account. *Proceedings of the National Academy of Sciences of the United States of America*, 115, 8491–8498.
- Tompkins, V., Benigno, J.P., Lee, B.K., & Wright, B.M. (2017). The relation between parents' mental state talk and children's social understanding: A meta-analysis. *Social Development*, 27, 223–246.
- Zeegers, M.A.J., Colonnaesi, C., Stams, G.J.M., & Meins, E. (2017). Mind matters: A meta-analysis on parental mentalization and sensitivity as predictors of infant-parent attachment. *Psychological Bulletin*, 143, 1245–1272.

Accepted for publication: 2 October 2024