

Perceptual Access Reasoning (PAR) in Developing a Representational Theory of Mind

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Perceptual Access Reasoning (PAR) in Developing a Representational Theory of Mind

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Perceptual Access Reasoning (PAR) in Developing a Representational Theory of Mind

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Perceptual Access Reasoning (PAR) in Developing a Representational Theory of Mind

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Abstract An important part of children’s social and cognitive development is their understanding that people are psychological beings with internal, mental states including desire, intention, perception, and belief. A full understanding of people as psychological beings requires a *representational theory of mind* (ToM), which is an understanding that mental states can faithfully represent reality, or misrepresent reality. For the last 35 years, researchers have relied on false-belief tasks as the gold standard to test children’s understanding that beliefs can misrepresent reality. In false-belief tasks, children are asked to reason about the behavior of agents who have false beliefs about situations. Although a large body of evidence indicates that most children pass false-belief tasks by the end of the preschool years, the evidence we present in this monograph suggests that most children do not understand false beliefs or, surprisingly, even true beliefs until middle childhood. We argue that young children pass false-belief tasks without understanding false beliefs by using *perceptual access reasoning* (PAR). With PAR, children understand that seeing leads to knowing in the moment, but not that knowing also arises from thinking or persists as memory and belief after the situation changes. By the same token, PAR leads children to fail true-belief tasks.

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PAR theory can account for performance on other traditional tests of representational ToM and related tasks, and can account for the factors that have been found to correlate with or affect both true- and false-belief performance. The theory provides a new laboratory measure which we label the *belief understanding scale* (BUS). This scale can distinguish between a child who is operating with PAR versus a child who is understanding beliefs. This scale provides a method needed to allow the study of the development of representational ToM.

In this monograph, we report the outcome of the tests that we have conducted of predictions generated by PAR theory. The findings demonstrated signature PAR limitations in reasoning about the mind during the ages when children are hypothesized to be using PAR. In Chapter II, secondary analyses of the published true-belief literature revealed that children failed several types of true-belief tasks.

Chapters III through IX describe new empirical data collected across multiple studies between 2003 and 2014 from 580 children aged 4–7 years, as well as from a small sample of 14 adults. Participants were recruited from the Phoenix, Arizona metropolitan area. All participants were native English-speakers. Children were recruited from university-sponsored and community preschools and daycare centers, and from hospital maternity wards. Adults were university students who participated to partially fulfill course requirements for research participation. Sociometric data were collected only in Chapter IX, and are fully reported there.

In Chapter III, minor alterations in task procedures produced wide variations in children's performance in 3-option false-belief tasks. In Chapter IV, we report findings which show that the developmental lag between children's understanding ignorance and understanding false belief is longer than the lag reported in previous studies. In Chapter V, children did not distinguish between agents who have false beliefs versus agents who have no beliefs. In Chapter VI, findings showed that children found it no easier to reason about true beliefs than to reason about false beliefs. In Chapter VII, when children were asked to justify their correct answers in false-belief tasks, they did not reference agents' false beliefs. Similarly, in Chapter VIII, when children were asked to explain agents' actions in false-belief tasks, they did not reference agents' false beliefs. In Chapter IX, children who were identified as using PAR differed from children who understood beliefs along three dimensions—in levels of social development, inhibitory control, and kindergarten adjustment.

Although the findings need replication and additional studies of alternative interpretations, the collection of results reported in this monograph challenges the prevailing view that representational ToM is in place by the end of the preschool years. Furthermore, the pattern of findings is consistent with the proposal that PAR is the developmental precursor of representational ToM. The current findings also raise questions about claims that infants and toddlers demonstrate ToM-related abilities, and that representational ToM is innate.

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Perceptual Access Reasoning (PAR) in Developing a Representational Theory of Mind

It is widely believed that by the end of the preschool years, children acquire an understanding of false beliefs, a cornerstone of a commonsense theory of mind. In this *Monograph*, Fabricius and colleagues argue that children do not understand false beliefs or true beliefs until middle childhood. Their theory of *Perceptual Access Reasoning* (PAR) points to a new understanding of how theory of mind develops. When using PAR, young children can understand what others see and know in the present, but they have yet to become aware that the mind represents things. Predictions of PAR theory are tested by drawing on data from earlier studies published between 1983 and 2017 and from 13 previously unpublished studies conducted between 2003 and 2014. The latter involved 580 4- to 7-year-old children, recruited from university and nearby communities in the Phoenix, Arizona metropolitan area. All participants were native-English speakers; additional demographic data, when available, are reported in the monograph. The authors note that PAR theory offers new methods to assess implicit and explicit theory of mind. They conclude that their findings provide support for PAR theory which has important implications for understanding theory of mind not only during the preschool and middle-school years, but also during infancy and adolescence.