

Acquiring generic knowledge about kinds and categories is an essential building block in cognitive development, allowing children to make generalizations from small amounts of data and more efficiently construct a conceptual understanding of the world (see Gelman 2003; Keil 1989; Markman 1989). Moreover, in acquiring generic knowledge, children often rely on adults to impart information that might otherwise be difficult or even impossible to learn (Gelman 2009; Harris 2002). But acquiring generic knowledge poses a challenging inductive problem, as one can never observe a kind or category as a whole, but must infer for each newly encountered piece of information whether it is merely relevant or important to an individual or in a particular context, or whether it is truly a piece of generic information about the world. One way that children can solve this problem is by attending to linguistic cues. When children hear novel information conveyed in a way that makes it clear that an adult is referring to a kind rather than an individual, they treat it as more generalizable and more conceptually relevant to a kind than if they hear identical information conveyed otherwise (e.g. Cimpian and Markman 2008, 2009; Gelman and Coley 1990; Gelman and Markman 1986).

However, children must also be able to gauge whether information is generic in situations that don't provide such clear linguistic cues. One possibility is that children might attend to cues that an adult is explicitly sharing information with them for the child's own benefit (Csibra and Gergely 2009). On a rational, Gricean analysis (e.g. Sperber and Wilson 1986), children may infer that when adults communicate information to them, it is likely because it is information that is important and relevant. Children may thus infer that information being explicitly communicated is likely generic information, and will make inductive inferences similar to those they make when information is shared using clear linguistic cues.

In our research, we have found compelling evidence that children as young as four do make use of communicative cues to guide inferences about whether information is generic. In one set of experiments (Butler and Markman, *in press*), we found that in assessing the importance of new information children are highly sensitive as to whether an action is performed with the pedagogical intent of sharing information with the child for their benefit, or is merely performed with the intent to carry out an instrumental action. Children only formed a strong inductive generalization about a novel property when evidence for that property was explicitly demonstrated for their benefit. When children were given identical objects to play with, and discovered that they in fact failed to share the original demonstrated property, these strong inductive generalizations led them to persist in exploring and trying to get the objects to work. In contrast, even when children observed identical evidence that an object had this novel property, but it was produced in an intentional but not explicitly pedagogical manner, children made a weaker, more tentative generalization. This suggests that children are quite conservative about what information supports strong generalizations, and reserve such inferences for information that someone has deliberately manifested for their benefit.

Further, this sensitivity leads children not only to stronger generalizations but to fundamentally different conceptions of a novel object kind (Butler and Markman, *under review*). Only when children were explicitly shown that a novel object possessed a property,

and not when they observed identical evidence produced in an intentional but non-pedagogical manner, they made a radically different inference about the nature of that novel kind of object—as defined by possession of this deeper, functional property rather than by perceptual similarity. Taken together, these experiments suggest that children make judicious use of communicative cues to guide nuanced inductive inferences about whether information is generic.

Our claim is that these studies and those currently under way shed light on the important role that children's ability to reason about the minds of those around them plays in early cognitive development. Children are aware that others, especially adults, know more about the world than they do. Moreover, they know, or at least assume, that those adults act with a cooperative motive to manifest and share important information with them, for their own direct benefit. This type of cooperative exchange of information may form the bedrock of human culture and cultural transmission, enabling children to learn from adults, and allowing each generation to capitalize on the wealth of knowledge accumulated by earlier generations. This capacity begins to emerge early in life (see Tomasello 2008), and we have found that by preschool age children appear to use cues that an adult is communicating with them to help solve the crucial inductive problem of identifying important information about the world.

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THE LEARNING OF MIND: HOW DO YOU FIGURE OUT WHAT A MIND IS? PLAY, CREATIVITY, FICTION AND FANTASY

• DANILYN RUTHERFORD •

I feel both singularly unqualified and singularly qualified to contribute to the fashioning of an anthropological theory of mind. In my research in Biak, an island group in the Indonesian-occupied part of Melanesia, West Papua, I struck out when it came to collecting explicit accounts of how minds and bodies work. I'm not so sure that the term 'theory' captures what is going on when people make inferences about what others are thinking, feeling, or doing. I'm not sure we're going to make the most of what anthropology has to offer to thinking on this topic if we limit our task to the comparison of theories of mind.