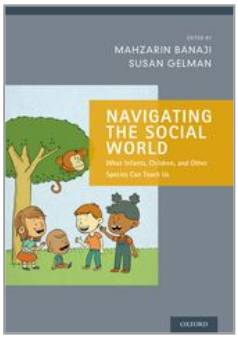


Navigating the Social World: What Infants, Children, and Other Species Can Teach Us
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# Converging Developments in Prosocial Behavior and Self-Other Understanding in the Second Year of Life

The Second Social-Cognitive Revolution

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## Abstract and Keywords

Positive, prosocial behavior emerges early in the second year of life and develops rapidly over the ensuing two years, setting the stage for the extensive and sometimes remarkable prosociality of childhood and adolescence. This chapter considers the mechanisms might underlie the early and foundational developments in prosocial behavior. It focuses on the role of early social understanding, especially conscious self-awareness and the complementary understanding of others in relation to the self. It investigates components of social understanding presumed to be involved in the ability to

respond prosocially. It also examines directly whether individual differences in the development of prosocial action are associated with individual differences in the development of self-other understanding.

*Keywords:* children, prosocial behavior, social cognition, social understanding, self-awareness

Given our everyday view of toddler-aged children as intensely possessive (e.g., “Mine!”), frequently aggressive with playmates over toys and belongings (e.g., “No!”), and singularly self-oriented and autonomy oriented (e.g., “I do it!”), it may come as some surprise that they turn out also to be cooperative, helpful, and caring, at least under some circumstances. Positive, prosocial behavior emerges early in the second year of life and develops rapidly over the ensuing 2 years, setting the stage for the extensive and sometimes remarkable prosociality of childhood and adolescence. The process begins with affiliative behavior at the close of the first year when infants begin to show, point, and give objects to their parents to share their interest or excitement. By age 3 children routinely help, comfort, and cooperate with each other as well as with adults, and they recognize some of the social and moral norms that govern such behavior. Although the earliest forms of prosocial action have not yet been thoroughly investigated and the patterns of change are not fully articulated, a basic picture of its early appearance and growth has nevertheless begun to take shape (Hay & Cook, 2007).

What mechanisms might underlie the early and foundational developments in prosocial behavior during this period of dramatic growth? It seems likely that human infants are uniquely predisposed to prosociality; however, the ability to act for and with others arises from ontogenetic processes grounded in more proximal mechanisms. Among these, we have focused on the role of early social understanding, especially conscious self-awareness and the complementary understanding of others in relation to the self. Understanding others’ goal-directed behavior, which begins to develop in the first year of life, is a necessary component, but it is not sufficient for prosocial responsiveness—knowing what another

is trying to accomplish or what someone feels positively or negatively about is only half the story. To be actively prosocial, children must understand others' desires and needs in relation to their own.

By manipulating the nature or clarity of a potential recipient's need or desire and controlling key factors such as partner characteristics and communications, we have probed components of social understanding presumed to be involved in the ability to respond prosocially. We have also examined directly whether individual differences in the development of prosocial action are associated with individual differences in the development of self-other understanding.

## Prosocial Action in Relation to Partner Communication and Support

One way to examine the role of social understanding in early prosocial action is to ask how much support or scaffolding of the relevant social understanding is needed for the child to produce prosocial behavior. This can be varied to mirror the range of cues and supports that toddlers experience in everyday life. At one extreme, when infants play with age mates, the child's partner possesses approximately the same level of social (p.386) insight as the child herself and provides little or no structure for the child's understanding or performance. At the other end of the continuum, when infants play with actively engaged adults, the partner overtly supports and helps the child understand the situation and how to act appropriately by providing clear, sometimes exaggerated, well-timed communicative cues about the partner's own desires, needs, and feelings and encouraging the child to attend to them; by helping the child understand that she can change them for the better, and how to do so; and by conveying emotional information about the consequences of the child's actions and possibly providing positive feedback or social reinforcement for prosocial behavior. Findings from several studies using this approach, outlined later in this chapter, have shown that 1-year-olds require substantial support from a partner to behave prosocially except in simple behavioral contexts that make the partner's goals or desires transparent. Two-year-olds, in contrast, generate prosocial

responses on their own, across multiple contexts and partners, largely free of external supports for social understanding and appropriate responding.

### Cooperating and Comforting

To study the early development of infants' ability to cooperate outside of the regular routines and structure of parent–child play, nonverbal tasks were designed to enable two children to coordinate behavior with each other to retrieve some desirable toys (Brownell & Carriger, 1990; Brownell, Ramani, & Zerwas, 2006). We found that 12- and 18-month-old peers were unable to consider their partner's behavior relative to their own and to the dyad's common goal. The occasional successful coordinations between the 18-month-old children were largely coincidental, and many children could not cooperate with a peer even once; no 12-month-old dyad ever cooperated. One-year-olds pursued their own individual goals, failing to recognize when the peer's behavior and/or spatial position was relevant for their goals and vice versa, and often interfering with or obstructing their peers' behavior when they could have otherwise cooperated to achieve the end desired by both of them. Even when children were individually trained on the task before being presented with the cooperative version, 1-year-olds were unable to cooperate. By 24–27 months, however, toddlers readily achieved a common goal by coordinating their behavior both spatially and temporally. They monitored, accommodated to, and even anticipated one another's actions, positioning themselves and timing their behavior relative to the peer's. By 30 months of age, they even indicated gesturally or verbally to the peer what he or she should do and when (Brownell & Carriger, 1991). This age-related change in children's ability to cooperate is quite dramatic, progressing from no apparent ability to cooperate with peers at 12 months of age, to primitive, serendipitous cooperation by 18 months, culminating in clearly collaborative behavior based on actively considering the partner's action and location in relation to one's own and to the commonly desired goal by 24–30 months.

In such nonroutine interactions without the structure and scaffolding of knowledgeable, supportive, and predictable adult partners, children must rely on their own still immature

social understanding. To be able to behave in a coordinated and accommodating manner together with the peer, and to do so in light of their common goal, toddlers must be able to make sense of their peers' behavior in terms of the other's desires, intentions, and goals. Because 1-year-olds' behavior is often unpredictable and their goals, intentions, and desires are difficult to read, even for attentive parents, very young children may find it especially difficult to detect them, much less to join, accommodate to, or influence them. Peer cooperation thus puts infants' nascent social understanding to particularly stringent test. Peers may be a bit of a mystery, their intentions inscrutable, their behavior often uninterpretable.

This possibility led us to examine toddlers' understanding of their peers' emotional behavior more systematically. By 12 months of age, if not before, infants can read and use adults' emotion expressions to regulate their own behavior toward ambiguous objects and events in a phenomenon known as *social referencing*: They tend to approach objects and people toward which adults are emotionally positive and avoid those toward which adults display negative affect (Campos & Stenberg, 1981). And by 18 months of age, infants respond to adults' emotional expressions of distress appropriately with concern and sometimes even comforting (Zahn-Waxler, Radke-Yarrow, Wagner, & Chapman, 1992). However, when we tested infants with peers using parallel tasks, we found that 12- and 18-month-olds did neither of these things. Instead, they responded unpredictably to a peer's positive and negative emotions toward ambiguous toys and did not alter their play with the toys (p.387) (Nichols, Svetlova, & Brownell, 2010). In a second study, when 18-month-olds encountered an emotionally distressed peer, they rarely expressed any concern, although they were likely to become distressed themselves (Nichols, Svetlova, & Brownell, 2009). By age 2, in contrast, a peer's emotion expressions toward novel toys activated the children's play with the toys, and they exhibited empathic concern for the upset peer. Thus, 1-year-olds are somewhat stymied by peers' behavioral expressions and communications about their internal emotional states,

whereas 2-year-olds are more able to interpret them and to respond appropriately.

Together, the findings from these studies suggest that infants' early social understanding as constructed in adult–child relationships remains too immature to serve peer interaction, and in particular that the challenges of prosocial responding may require that others' internal states be communicated explicitly. Adult social and communicative support for prosocial behavior may enhance children's attention to, interest in, and inferences about others' internal states and the characteristics of the objects or events toward which others behave. If so, prosocial behavior should be more likely when adults make another's needs, desires, and emotions more apparent, reducing the demand on the child for complex inferences about the other's internal states and how to alleviate them.

### Sharing and Helping

To test this possibility directly, we experimentally manipulated the amount and explicitness of adult communication about others' goals and desires to determine its effect on helping and sharing in 1- and 2-year-olds. In a food-sharing task adapted from work with chimpanzees and designed to reduce the motivational cost of sharing by removing the personal sacrifice (Silk et al., 2005), 18- and 25-month-old children could choose to deliver a small snack only to themselves or to themselves and another person simultaneously. We varied whether the recipient was silent about wanting some snack or made her desire explicit (e.g., "I like crackers; I want some crackers"). When the recipient was silent, children at both ages chose randomly across multiple trials. But when the recipient communicated her desire explicitly, 25-month-olds systematically shared, whereas 18-month-olds did not, continuing to respond randomly (Brownell, Svetlova, & Nichols, 2009). Two-year-olds were thus able to infer and act on an adult's desire for a snack from the adult's explicit verbal expressions of desire, but they could not do so when the adult was silent.

In a more naturalistic version of this task, using a variety of attractive toys instead of food, the child had an abundance of

something (e.g., large set of cars) while a friendly, familiar adult playmate had none (Brownell, Iesue, Nichols, & Svetlova, in press). We again systematically varied the adult's communication, this time in a series of four progressive cues indicating her desire for some toys: (1) sighing and gazing at the toys; (2) verbalizing need, "I don't have any, I need some so I can play"; (3) reaching toward the toys with gaze alternation; and (4) making an overt request, "Can I have some?" Children were scored for when in the sequence of communicative cues they shared. Older children shared more often and did so with substantially fewer cues than did younger children. As in the previous study, 24-month-olds needed to hear the recipient's need made explicit before they shared (second cue). However, 18-month-olds shared only after the recipient made an unambiguous request for some toys (fourth cue), suggesting that they may actually have been complying rather than behaving prosocially.

Thus, children's earliest cooperation, comforting, and sharing behavior depends on adults' communications to help them understand what a potential recipient wants, needs, or feels and how to assist another. Helping behavior may be an exception to this general conclusion, however. Prior research has shown that even young 1-year-olds will spontaneously do things like open a cabinet door for an adult whose hands are full or return a pen that an adult has accidentally dropped (Warneken & Tomasello, 2007). Perhaps inferring another's goals from clearly goal-directed behavior, necessary for such helping, is easier for the young child than inferring another's emotions or desires from more subtle or ambiguous cues or actions, necessary for other forms of prosocial behavior. We examined this possibility by contrasting young children's ability to help an adult instrumentally to complete an interrupted action with their ability to help empathically by alleviating an adult's emotional distress (Svetlova, Nichols, & Brownell, 2010). In both types of task, instrumental helping and emotional helping, the child could help by giving the adult something she needed that was out of her reach. For instrumental helping the object was needed to complete a goal-directed action, for example, a clothespin to finish clipping things to a line. For emotional helping the object was

needed to alleviate a negative emotion or internal state, for example, a blanket to make the adult warm when she was visibly shivering and cold. (p.388)

As we had done previously, we varied the adult's communications about her internal state and what was needed to alter or alleviate it, using a fixed sequence of specific gestural, vocal, and verbal cues. The eight cues varied from nonverbal indications of need (looking about for the needed object in the instrumental tasks; facial, vocal, and postural emotion cues in the emotion tasks, e.g., "Brrrr!" with shivering and shaking) to more direct indications of need by reaching toward the object combined with gaze alternation, to an overt request as the final cue if the child had not yet helped (e.g., "Can you bring me that clothespin/blanket?").

Once more, 2-year-old children helped more often and with substantially less communicative support from the adult than did 1-year-olds. This was especially true for emotion-based helping when the adult was experiencing and communicating a negative emotional or physiological state. On the emotion-based tasks, 1-year-olds generally helped only after the adult had delivered six or more cues, including naming the specific object needed plus a direct request for help (e.g., "Can you help me?"). Older children, on the other hand, helped on average at the second cue (naming the internal state, "I'm cold") or at the third cue (verbally expressing a general need, "I need something to make me feel warm"), that is, at earlier cues with more indirect and subtle communications. Children of both ages helped more quickly on the instrumental helping tasks when the adult needed help completing an action, although there were still age differences. Younger children typically helped after the third cue (verbal expression of general need) or the fourth cue (naming the needed object, "a clothespin!") on instrumental tasks, whereas older children helped after the first (nonverbal) or second cue (name internal state).

Thus, 1-year-olds can behave prosocially in situationally obvious, goal-oriented helping situations when an adult makes it very clear what the other person needs and what can be done to mitigate the need. Two-year-olds' greater ability to

infer others' needs and desires permits them to recognize another's need for help from more general information and more subtle cues and to rely less on the adult for this information and support in generating prosocial responses.

## Associations With Self-Other Understanding

As noted previously, attending to and representing others' desires and goals is necessary but not sufficient for prosocial responding. The child must also represent and consider the other's behavior, desires, and goals in relation to his or her own, which in turn requires the ability to reflect consciously and deliberately on oneself, including one's behavior and internal states. Thus, a fundamental prerequisite for the development of prosocial responsiveness is objective self-awareness, in which the child distinguishes his or her own psychological point of view on the world from that of others, understanding that others have unique perspectives on the world, including on the child herself (Hoffman, 2007; Moore, 2007; Zahn-Waxler et al., 1992). To respond helpfully to someone else's emotional distress, for example, the child must know that another's distress is unique to that person, even if the child herself is also distressed; to intervene, the child must also know that the other person may need something different from what the child herself needs when she is upset. To share with another requires that the child be able to recognize the other's need or desires in relation to his own, and that he understands that he possesses or controls something that can mitigate the other's need; if he attends only to his own desires, prosocial motivational processes will not be activated. To cooperate, children must be able to take their partner's intentions, desires, and goal-directed activity into account in concert with their own, and to adjust their own behavior accordingly by monitoring, timing, and sequencing their behavior together with the partner to attain a common goal. Based on this line of reasoning, we have directly assessed children's self-other understanding and tested for its association with prosocial behavior in several of the aforementioned studies.

Consistently across studies, children with more advanced self-other understanding also exhibited more advanced prosocial

responding, even with age controlled. For example, toddlers who were more skillful in cooperating with peers could represent their own and others' actions together in symbolic play at more advanced levels (Brownell & Carriger, 1990) and were better at sharing an adult's perspective, talking about their own and others' actions and internal states, and using personal pronouns (Brownell et al., 2006). Children who produced more internal state words were more likely to share (Brownell et al., 2009) as were children with more advanced possession and ownership understanding, and they did so with lower levels of adult communicative support (p.389) (Brownell et al., in press).

We believe that these convergences point to a second "social-cognitive revolution" which drives the dramatic growth in prosocial action at the end of the second year of life. Whereas the first social-cognitive revolution occurs at the end of the first year of life when infants become able to participate in joint attention and thereby achieve new competencies in communication and interaction (Carpenter, Nagell, & Tomasello, 1998; Moore & Dunham, 1995), this one occurs at the end of the second year of life when toddlers begin to generate objective, consciously accessible representations of self and others in relation to one another and to the world (Barresi & Moore, 1996; Kagan, 1981; Perner, 1991; Zelazo, 2004), an ability that underlies and makes possible the emergence of flexible, autonomous prosocial behavior outside of the envelope of adult–child interaction and across multiple partners and contexts.

We further suggest that being able to comfort, help, share, and collaborate with others based on inferred wants, needs, and goals may also represent the first instances of intentionally altering another's emotional and mental state independent of one's own. Although younger infants share objects and events with an adult to bring the adult's attention into alignment with the infant's own, prosocial behavior is meant to alter the recipient's internal state in and of itself, independent of and possibly different from the child's own. Notably, this facility is also critical for the ability to teach or instruct another. Hence, this second social-cognitive

revolution at the end of the second year may also make possible the uniquely human transition from “collaborator” to “teacher” in addition to the transition from “recipient” to “donor” in prosocial exchanges.

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