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## BRIEF REPORT

## Getting Help for Others: An Examination of Indirect Helping in Young Children

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When young children recruit others to help a person in need, media reports often treat it as a remarkable event. Yet it is unclear how commonly children perform this type of pro-social behavior and what forms of social understanding, cognitive abilities, and motivational factors promote or discourage it. In this study, 48 three- to four-year-old children could choose between two actors to retrieve an out-of-reach object for a third person; during this event, one actor was physically unable to provide help. Nearly all of children's responses appropriately incorporated the actors' action capacities, indicating that rational prosocial reasoning—the cognitive basis for effective indirect helping—is common at this young age. However, only half of children actually directed an actor to help, suggesting that additional motivational factors constrained their prosocial actions. A behavioral measure of social inhibition and within-task scaffolding that increased children's personal involvement were both strongly associated with children's initiation of indirect helping behavior. These results highlight social inhibition and recognizing one's own potential agency as key motivational challenges that children must overcome to recruit help for others.

*Keywords:* helping, cooperation, social cognition, social inhibition, pro-social behavior

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Ashley Edgson was the dispatcher who took Dane's 911 call. She said she was amazed at the 5-year-old's composure. "He was brave, he was so calm, he knew exactly what his address was. A lot of people get frantic, and he was able to say everything and answer all the questions clearly and accurately." Dane never lost sight of why he called 911 and how serious the situation was. "I was thinking, 'I hope my mom is going to be OK'". (Campbell, 2016)

When a very young child calls an emergency phone number for an ailing parent, the viral spread of media reports suggests that not

only are we excited that a life was saved, but we are surprised that a child was able to help. However, it is unclear what forms of social understanding, cognitive abilities, and motivational factors contribute to children's recruitment of others to help a person in need. It is possible that children rely on fairly simple rules, such as deference to "all-powerful" authorities like parents, or well-practiced routines that do not generalize to novel situations. Yet, young children may also have the capacity to perform a more rational analysis of the scene, assessing the ability of different individuals to provide the most appropriate form of assistance. The present study thus examines early indirect helping or getting help for someone in need. We focus in particular on the factors that underlie this behavior—and that make it challenging—for young children.

Children's interest in seeing others helped is well established. From early in the second year of life, infants directly help others to accomplish simple, goal-directed actions, and as they age, children's prosocial behavior expands to include more complex acts of helping as well as sharing and comforting (e.g., Brownell, Svetlova, & Nichols, 2009; Dunfield, Kuhlmeier, O'Connell, & Kelley, 2011; Dunfield & Kuhlmeier, 2013; Eisenberg, Fabes, & Spinrad, 2006; Warneken & Tomasello, 2006, 2007). These prosocial concerns are reflected in young children's positive evaluations of others who have been helpful in the past (Hamlin & Wynn,

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2011; Hamlin, Wynn, & Bloom, 2007; Kenward & Dahl, 2011; Kuhlmeier, Dunfield, & O'Neill, 2014, for review), as well as physiological changes indicating arousal when they view others in need and relief when help is received (Hepach, Vaish, & Tomasello, 2012; Hepach, Vaish, Grossman, & Tomasello, 2016).

Consistent with these findings, infants and young children also appear to hold expectations that others will provide help. Eight-month-old infants, for example, reach for unattainable objects more often when an adult is present than when they are alone (Ramenzoni & Liszkowski, 2016). By at least 9 months, infants expect others to help individuals who are unable to reach a goal rather than individuals who can attain a goal on their own (Köster, Ohmer, Nguyen, & Kärtner, 2016). Though these studies do not examine children's assessment of the capability of potential helpers to actually be helpful, there is reason to predict that children will consider the relative differences in individuals' ability when forming expectations of prosociality. In Paulus and Moore (2011), for example, 3- and 5-year-old children recognized that a protagonist doll would be more likely to ask for assistance from a friend who was physically capable of providing help than one who could not (e.g., a doll who was tall enough to reach a toy vs. a short doll). When requiring help themselves, 3-year-old children will ask an individual who has demonstrated willingness to provide help over one who was unwilling (Dunfield, Kuhlmeier, & Murphy, 2013), and 2- to 4-year-olds will request assistance from a previously successful individual over one who has been unsuccessful (U.S. sample: Broesch, Itakura, & Rochat, 2017).

However, the expectation that others will provide help and the ability to recognize who can effectively help does not guarantee that children will use this social understanding and ask appropriate individuals to help other people in need, that is, to engage in effective indirect helping. Research thus far suggests that by 2.5 years of age, children will recruit their caregiver to provide help to another person if they cannot provide help themselves (Paulus, Jung, O'Driscoll, & Moore, 2017). Yet, it is possible that this behavior relies on an assumption that parents can do anything or on experience-based representations of parental behavior (e.g., internal working models of secure attachment; Sherman, Rice, & Cassidy, 2015, for review). Thus, a critical question in the examination of children's indirect helping is whether children's determination of who can help informs their decisions about whom to approach to request help on behalf of another person. The present study asks whether children's recruitment of third-party help is rationally constrained by the ability of a potential helper.

Prosocial behaviors like indirect helping, however, may be influenced by motivational factors in addition to the cognitive requirements noted above. The present study explored two ways in which personal and contextual factors may support indirect helping. First, children must recognize that even if they cannot help directly, they have the power to be agents of help. Indeed, for some situations, such as calling an emergency number or getting help for a victim of cyberbullying, parents and educators explicitly teach children about actively intervening (e.g., Media Smarts, 2017; Rosenbaum, Creedon, & Drabman, 1981). Here, to examine the social contexts in which rational indirect helping is likely to emerge, the helping event presented children with a sequence in which their potential role was made increasingly clear through verbal scaffolding. Second, indirect helping typically involves approaching and interacting with another person, often to a greater

extent than providing direct, instrumental help (e.g., retrieving an out-of-reach object or opening a door). This type of pro-social behavior may be particularly challenging for children when they are feeling shy around others (e.g., Beier, Terrizzi, Woodward, & Larson, 2017; see also Hammond & Carpendale, 2015), and thus, the present study explored associations between children's level of social inhibition (measured behaviorally) and their responses during the task.

## Method

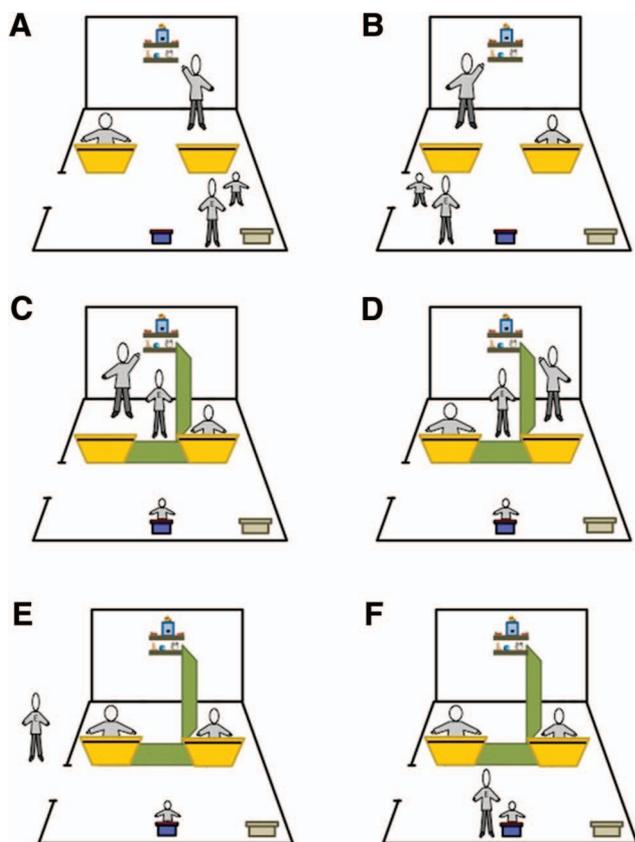
### Participants

Participants were 48 preschool children (23 male), with an average age of 41.5 months (range = 38.5–48 months). Seventeen additional participants were tested but not included in the final analyses due to experimenter error (8), equipment failure (1), and participant factors (8); details are provided in Supplemental Table S1 and Supplemental Figure S1 in the online supplemental material. A power analysis conducted in G\*Power 3.1.9.2 (Faul, Erdfelder, Lang, & Buchner, 2007) for a binomial test assessing children's ability to select an appropriate helper from two options, which set alpha at 0.05, power at 0.8, and the expected proportion of correct helper selections at 0.75 based on prior research (e.g., Dunfield et al., 2013; Paulus & Moore, 2011) calculated a sufficient sample size for our task to be 30. Because not all participants were actually expected to help, and to properly counterbalance the actors' identities and left-right positioning across participant gender, a sample size of 48 was chosen. Families were recruited at community events in a small city in Canada and were tested in a laboratory setting. The study was conducted with approval from the Queen's University General Research Ethics Board (Protocol #6016814, project titled "The Role of Prediction in Young Children's Selective Helping"). The data and statistical analysis for the study have been made available on the Open Science Framework at <https://osf.io/6ue5v/> (Karasewich, Kuhlmeier, Beier, & Dunfield, 2018).

### Procedure

The general procedure and test room set-up are depicted in Figure 1. The study began with a warm-up period in which the experimenter and participant played together with toys in the testing room for approximately 6 min (range: 5 to 11 min). At the end of this period, the experimenter and child put away their toys as two actors came in and sat behind yellow desks.

**Familiarization.** The actors waved to the child while the experimenter introduced them as her friends. The experimenter then led the child to the desk of the actor on the right, saying, "Can you ask her to get the toys off the shelf for us?" If the child did not make this request verbally or with gestures after a few seconds, the experimenter made the request herself. The actor drew the child's attention and then stood, took one of the toys from the top shelf, and offered it to him or her. The child was given a few seconds to play with the toy before the actor got another. After four toys had been offered from that side of the shelf, the experimenter guided the child to the desk of the actor on the left and the same procedure was repeated. Whether or not participants spoke to the actors at this stage was used as a measure of their social inhibition in the



**Figure 1.** Materials and general procedure. A small stool and a toy box were positioned at the front of the room. Two yellow (light gray) desks stood in the middle of the room, spaced equally from the child's stool. At the back of the room, two shelves were hung at a height that could be reached by the actors, but not the participants. A video camera was hidden in a box with a rubber duck (the experimenter's out-of-reach object) on top. During the Familiarization, each actor retrieved toys for the child: (A) and (B). After the experimenter (labeled "E") decorated the room by placing the green (dark gray) panels, each actor approached the shelves, with order counterbalanced: (C) and (D). During the test, the experimenter left the room and expressed a need and then made a request for the toy on the top shelf: (E). Children who did not engage in indirect helping were asked the interview question: (F). See the online article for the color version of this figure.

testing situation: "very shy" participants spoke to neither actor, "moderately shy" participants spoke to one, and "not shy" participants spoke to both.

The experimenter then announced that she was going to decorate the room; this served as a way to establish a constraint on one actor's ability to reach the shelves. She took a tall panel and placed it between one actor and the shelves, after first trying it on the other side. The identity and left-right positioning of the blocked actor was counterbalanced. Next, the experimenter placed a short panel horizontally between the actors' desks to deter the child from moving out of the camera's view. While she occupied herself putting toys on the lower shelf, the actors each, in turn, announced that they were going to get another toy from the top shelf. The blocked actor attempted to reach one on her side and failed, while

the unblocked actor picked hers up easily ("I can't/can reach the toy on the shelf. Oh, I think I'll play with that later").

The experimenter then declared that she wanted the rubber duck from the top shelf. She reached for it, but it remained out of her grasp. After a few seconds of reaching, she gave up; this display served as an initial presentation of the problem the child would be able to help solve in the test period. To gauge understanding of the physical constraints of the room, the experimenter then returned to the child and asked a comprehension question: "Who can reach the shelf right now?" The experimenter corrected participants who identified the blocked actor, named another person, or made no response after being asked three times, and she agreed with those who identified the unblocked actor. Responses other than an actor (e.g., a parent) were recorded (detailed in the online supplemental material) but treated as nonresponses.

**Test.** At the start of the test period, the actors took on neutral expressions and presented a mildly distracted appearance, subtly directing their gaze away from the child and experimenter. The experimenter asked the child to wait while she went into the adjoining room. Once there, she expressed her need by calling out, "Oh, I need the duck now!" If 10 seconds passed without a response, she continued with, "[Child's name], can you ask her to get the duck?" She repeated this request if no response was made after 15 s. The child could respond either by asking for help from the unblocked actor (who would bring the duck to the experimenter) or the blocked actor (who would attempt to reach it, but clarify that "[she couldn't] reach the shelf"). The experimenter returned to the room after the child requested help or after 30 s had passed. The test period ended with a short interview for children who had not engaged in indirect helping. The experimenter asked these children, "Who should we ask to get the duck?"

The child's eye gaze behavior was coded while the experimenter was calling for help from the adjoining room with the aim of examining whether children directed gaze to the actor who was capable of helping. However, a side bias was observed such that children looked more often to the left side of the room, in the direction of the experimenter in the next room. These data are detailed in the online supplemental materials.

### Interrater Reliability

Video recordings of the sessions were coded by two independent raters who had been trained in an iterative process on pilot data until they had reached strong consistency. Each rater then coded videos from 30 participants, overlapping on 25% of the sample with which interrater reliability was calculated. Good agreement was found for all measures: Cohen's Kappa was strong for two-category ( $\kappa = .89$ ) and three-category ( $\kappa = 1.00$ ) variables and interitem correlation for ordinal variables was perfect ( $ICC = 1$ ).<sup>1</sup> Disagreements were resolved by a third trained coder.

<sup>1</sup> Two-category measures included whether the child engaged in indirect helping, and whether the child or the experimenter asked an actor to retrieve a toy during the Familiarization period. Three-category measures included responses to the comprehension question and the choices made in the Test period during the indirect helping task or the interview (i.e., actor on left, actor on right, or neither). Ordinal variables included codes for when the child engaged in indirect helping (e.g., after the experimenter's need was expressed or after the request was made).

## Results

### Comprehension Question

When asked by the experimenter, most children (36 of 48 children) correctly identified the unblocked actor as able to reach the shelf. Of the 12 children who did not, three chose the blocked actor and nine did not choose either actor. A binomial test, excluding those who did not make a choice, found that the participants chose the unblocked actor above what would be expected by a chance level of 50% ( $p < .001$ ;  $RR = 1.5$ ).<sup>2</sup> Whether or not they answered correctly, all participants in the sample were included in later analyses. Separate analyses in relation to indirect helping and the interview question for the 36 participants who answered correctly and the 12 who answered incorrectly revealed the same pattern of results as for the entire sample (details of the analyses can be found in the online supplemental material).

### Indirect Helping

No children intervened on behalf of the experimenter after she first indicated that help was needed (i.e., “I need the duck now!”). However, 25 children directly asked one of the actors to help the experimenter after her request (i.e., “[*Child's name*], can you ask her to get the duck?”). These children were more likely to ask the adult who could provide help than the one who could not; a binomial test found that the number of children who chose the unblocked actor (23 of 25 children) was greater than would be expected by chance ( $p < .001$ ;  $RR = 1.84$ ). Common interventions from children were to ask, “Can you get the duck?” or “Can you get it?”, and two children requested help nonverbally: one approached an actor and pointed to the shelf, whereas the other, staying seated, pointed to the actor and then to the shelf.

### Interview

After the experimenter returned to the room, the 23 children who had not provided indirect help were asked which actor should be asked to get the duck. Seventeen of these children made a choice, and most did so by identifying the adult who could in fact provide help; a binomial test found the number that chose the unblocked actor (14 of 17 children) to be greater than would be expected by chance ( $p = .013$ ;  $RR = 1.65$ ). Of the remaining six children who did not choose one of the actors, one child suggested getting a parent to help, and the others remained quiet.

### Social Inhibition

All but three of the 17 children who responded during the interview knew to ask the unblocked actor to help, yet they had not intervened on behalf of the experimenter in the indirect helping task. One possible explanation for why they did not provide indirect help is that they were more socially inhibited in the situation than the 25 participants who did. Social inhibition was assessed on a three-point system, similar to a measure used by Hammond and Carpendale (2015), based on participants' willingness to speak to the two actors at the beginning of the familiarization period. Twenty-five participants were found to be “very shy” in the testing situation, three were “moderately shy,” and 19

were “not shy.” Most of the children who engaged in indirect help were not shy (17 out of 24 children; social inhibition in one participant could not be measured due to experimenter error). In contrast, most children who did not provide indirect help were very shy (20 out of 23 children). A chi-square test of independence, in which moderately shy children (two who intervened and one who did not) were excluded, found this relation to be significant; Yates'  $\chi^2(1, N = 44) = 18.16, p < .001$ . All 6 of the participants who neither intervened nor responded in the Interview were classified as very shy.

## Discussion

Though human engagement in direct helping has analogues in the behavior of nonhuman animals (e.g., Bartal, Decety, & Mason, 2011; Olmstead & Kuhlmeier, 2015; Warneken & Tomasello, 2006), indirect helping may prove to be a human-unique form of pro-social behavior, as it typically requires a communicative act relaying the needs of one person to another. There is, however, both folk inclination and empirical support that indirect helping is a challenging activity within our suite of human prosocial behaviors, at least for children (e.g., alerting an adult on behalf of a victim of bullying or an otherwise distressed peer: Hawkins, Pepler, & Craig, 2001; Hawley & Williford, 2015; Novick & Isaacs, 2010; Staub, 1970). In the present study, we examined whether providing indirect help is typical by 3 years of age in a low-stakes context like meeting others' instrumental needs, a context in which direct helping is so commonly seen (e.g., Dunfield & Kuhlmeier, 2013; Warneken & Tomasello, 2007). The broader aim of this work was to examine the early developing building blocks, as well as the challenges, that underlie indirect helping.

We propose that there are at least two sets of challenges that children face in providing indirect help. One set of challenges is cognitive in nature, as children must integrate constituent abilities that support their engagement in indirect helping: they are interested in seeing others helped (e.g., Hepach et al., 2012, 2016), they hold expectations that others will help (e.g., Köster et al., 2016), and they distinguish among those who can and cannot provide help (e.g., Paulus & Moore, 2011). That many children in the present study engaged in indirect helping by selectively interacting with the unblocked actor—and that most of the children who did not help still knew to ask this actor—demonstrates that by 3 years, these abilities can together promote rational, prosocial reasoning. Importantly, to be helpful, this reasoning must, in turn, guide overt behavior. This latter process is not always straightforward for children at this age; many studies examining both physical and social cognition suggest dissociations between understanding and doing (e.g., Clements & Perner, 1994; Lee & Kuhlmeier, 2013; Southgate, Senju, & Csibra, 2007). The finding that only half of the 3-year-olds in our sample showed evidence of connecting their prosocial reasoning with prosocial action is consistent with these previous studies.

A second set of challenges underlying indirect helping—challenges that may specifically impact the process of moving from reasoning to action—can be characterized as motivational. Inter-

<sup>2</sup> When reporting binomial test results, we have included relative risk ( $RR$ ) as an effect size analogue.  $RR$  was calculated as the  $P(\text{observed})/P(\text{expected})$ , where  $P(\text{expected})$  was 0.50.

vening by soliciting help on behalf of someone else poses one such challenge, particularly for those who are hesitant to interact with unfamiliar others. The present findings demonstrate that even after hearing the request for help, almost half of the sample did not engage in indirect helping. It is unlikely that these children were simply confused regarding whom to approach; when these children were subsequently asked who could provide help, the majority knew to ask the able, unblocked actor. In addition, their responses to the earlier comprehension question were not unlike the group of children who provided help. However, in contrast to children who did intervene on behalf of the experimenter, this group predominately consisted of children whose earlier approach behavior was characterized as “very shy.” Our measure, which took into account whether children spoke to the actors during the familiarization period, was meant to mimic the approach and communication that would be required for engaging in indirect help, and these children’s behavior indicated a hesitancy to interact with the unfamiliar actors in this testing situation.

The current findings indicate that social inhibition is an important barrier to helping behavior when helping would require communicative interaction. This is consistent with an earlier observation, in which children had to convey information between two experimenters (Beier et al., 2017). In that study, like the present one, shy children were less likely to intervene. However, for future research examining ways to promote forms of helping that require highly social actions, it is important to note that children may not engage socially for a variety of reasons; temperament and personality traits, cultural rules and norms about approaching others, social disinterest, and negative mood all may contribute (e.g., Coplan & Armer, 2007; Eisenberg, 1992; Xu, Farver, Chang, Zhang, & Yu, 2007).

That children must recognize that they can and should be the one to play an agentive role in order to provide indirect help is a second motivational challenge. In the present sample, no children engaged in indirect helping spontaneously when the experimenter merely stated her need; instead, helping occurred only after their role was made explicit via a verbal request to ask someone to help. It is possible that this cue was required because, although the actors were distracted and thus potentially unaware of the experimenter’s need, their presence might have led to a “bystander effect;” previous studies with children suggest that the presence of others decreases the frequency of direct helping and comforting behavior (Caplan & Hay, 1989; Plötner, Over, Carpenter, & Tomasello, 2015). In relation to the Latané and Darley (1970) model of bystander intervention, the request may have made the child’s role salient by either directing responsibility to the child, providing information on how to help (though not specifically who to ask), or both.

We suspect that both motivational challenges (i.e., feeling shy and having an insufficient sense of agency or responsibility) can interact, jointly determining how difficult a child will find the indirect helping task to be. For instance, if the actors in the test situation had been highly familiar, children might have felt less shy in approaching them. If that were the case, children may already have felt enough agency or responsibility to motivate an indirect helping response, even before the experimenter made a direct request for their involvement (see Allen, Perry, & Kaufman, 2018, for the role of familiarity in direct helping).

In sum, we suggest that by 3 years of age, children are capable of rational prosocial reasoning that can lead to effective indirect helping. Further, the present study demonstrates that this type of instrumental helping behavior is not necessarily reflexive or dependent on a pretrained script (e.g., “find a caregiver”). Rather, it is supported by a problem-solving process that allows for some degree of situational flexibility in choosing a helper (i.e., being able to consider who is physically capable of providing the needed help). Yet, we also suggest that young children face challenges that may impede their actual engagement in indirect helping. The present findings most clearly implicate social inhibition, or a hesitancy to interact with an unfamiliar adult, as a motivational challenge that can discourage children from prosocial action. The findings also suggest that other factors, such as recognizing one’s responsibility and potential agency, likely play a role. The study thus points to both increasing children’s sense of agency and reassuring children when they feel socially hesitant as directions for future researchers and early childhood educators to pursue, to better build from children’s existing, early developing foundations for rational prosocial reasoning.

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