Children consider latency to help when evaluating others

Jonas Ventimiglia[1], Amanda Mae Woodward[1], Brandon F. Terrizzi[2], & Jonathan S. Beier[1]

[1] University of Maryland, College Park, [2] Cincinnati Children's Hospital Medical Center

Introduction

Early in life, children prefer agents who help to those who hinder another's goals. These evaluations incorporate both the intent of the agent and the outcome of its actions[1,2]. But other factors, such as the strength of an individual's motivation to help, are also relevant to moral evaluation and partner selection.

Adults are less trusting of people who deliberate for a long time before deciding whether to help others[3]. And 3- to 8-year-old children prefer people who do not experience inner conflict before deciding to do good[4].

Thus, young children may also view a person's hesitation to help others as evidence that they are not strongly motivated to act prosocially—even if the person's helpful actions reflect a positive intention and ultimately produce a good outcome.

- Do preschool-age children evaluate a hesitating helper more negatively than an immediate helper?

Method

31 4-year-olds (of planned 32)
32 5-year-olds
31 6-year-olds (of planned 32)

Video sequences:

Hesitating Helper: One person reaches for a dropped box. Another person watches for 20 seconds and then hands it to them.

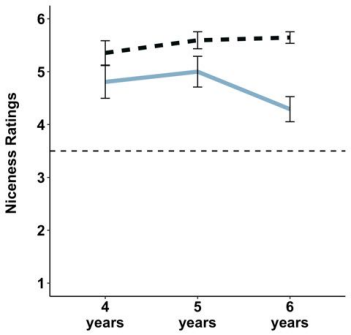
The need of a person-to-be-helped is expressed for longer when help is delayed. To investigate how this contributes to negative evaluations of hesitating helpers, we created two versions of Immediate Helping (tested as a between-subjects factor):

Immediate Helper (Onscreen): One person reaches for a dropped box. Another person hands it to them without delay.

Immediate Helper (Offscreen): One person reaches for a dropped box. After 20 seconds, another person enters the room, sees their reach, and hands the box to them without delay.

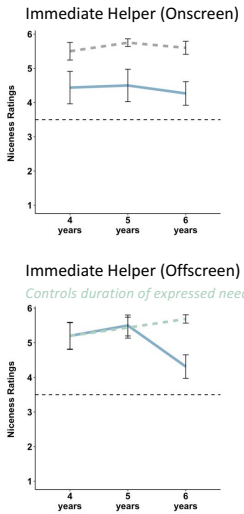
Results

Do children think immediate helpers are nicer than hesitating helpers?

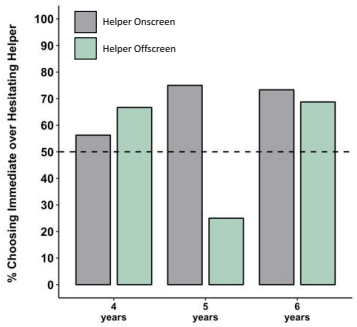


Yes, by 6 years

Combining Onscreen/Offscreen:
$b = 1.37$, $t = 2.08$, $p = 0.03$



Do children prefer to play with immediate over hesitating helpers?



Across all ages and both Immediate Helper conditions:
Children prefer to play with Immediate Helpers
(57 of 94, $p = .025$)

Examining each age separately:
Only 6-year-olds preferred Immediate Helpers
(22 of 31, $p = .015$)

Discussion

Children look beyond intentions and outcomes when evaluating others' helpfulness.

They rated immediate helpers as nicer than hesitating helpers, and this difference was particularly apparent by 6 years.

- Only 6-year-olds favored the immediate helper when the duration of the other person's need was controlled (Offscreen condition).
- Six –year-olds also preferred to play with immediate helpers over hesitating helpers (collapsed across conditions).

In this study, there was no clear reason *not* to help. Children may have thus viewed hesitation as evidence that the helper was not strongly motivated to support the other person.

This work extends a growing line of research in which we have documented spontaneous detection of, and moral reasoning about, unhelpful inaction during early- and middle-childhood[5,6]. Children dislike those who are indifferent to others' needs, seek exculpatory accounts of unhelpful inaction, and associate unhelpful inaction with social power. Here, even a temporary bout of unhelpful inaction impacted children's social evaluations.

Future Directions

Expectations of prosocial support vary with the severity of need and one's relationships to others. Would children younger than 6 be more sensitive to a person's hesitation to comfort their close friend?

Because adults prefer uncalculating collaborators, people hesitate less when they can be observed. Do children do the same?

References

1. Hamlin. Failed attempts to help and harm: Intention versus outcome in preverbal infants' social evaluations. *Cognition, 128*, 451-474 (2013).
2. Margoni & Surian. Explaining the U-shaped development of intent-based moral judgments. *Front. Psychol., 7*, 219 (2016).
3. Jordan, et al. Uncalculating cooperation is used to signal trustworthiness. *PNAS, 113*, 8658-8663 (2016).
4. Starmans & Bloom. When the spirit is willing, but the flesh is weak: Developmental differences in judgments about inner moral conflict. *Psych Sci., 27*, 1498-1506 (2016).
5. Beier, Terrizzi, Woodward, & Ventimiglia. What you should have done: Children's moral judgments incorporate representations of unhelpful inaction. (in prep).
6. Terrizzi, Woodward, & Beier. Young children and adults associate social power with indifference to others' needs. Presented at SRCD (March, 2019).

Young children and adults associate social power with indifference to others' needs

1-005

Brandon F. Terrizzi[1], Amanda Mae Woodward[2], Jonathan S. Beier[2]

[1]Cincinnati Children's Hospital Medical Center, USA
[2]University of Maryland, College Park, USA

Background

Hierarchical societies distribute social power unevenly across their populations[1]. Children quickly pick up on this structure. Infants' initial sensitivity to physical dominance[2] soon expands; by preschool, children also associate power with social roles that grant normative authority[3].

Knowing who is in charge means knowing who will get their way[4]. But what other social expectations do children have about people with social power?

Preschool-age children recognize that certain affiliative relationships are partially constituted by the selective provision of prosocial support: They expect friends, kin, and group members to share resources and comfort one another[5-7].

However, no research has investigated whether children, or even adults, hold intuitions about one person's prosocial responsiveness to another within a hierarchical relationship. Real-world links between social power and prosocial behavior are complex. In some contexts, people with high power feel obliged to look after those with less power[8]. In other contexts, people with high power feel that prosocial norms do not apply to them[9].

Questions

Do children associate social power with helpful action? With unhelpful inaction?

Having indicated which person within a dyad is "in charge", do children negatively evaluate authorities who are unresponsive to others' needs? Or does social power license indifference?

Do these intuitions about social power and relative authority change across childhood and into adulthood?

Method & Results

4- to 5-year-olds (n = 32, *M* = 4.92 years, *SD* = .57), 17 girls
6- to 7-year-olds (n = 32, *M* = 6.98 years, *SD* = .59), 13 girls
Adults (n = 32, *M* = 20.91, *SD* = 2.45), 24 women

Participants were asked about relative authority and niceness for each condition.
Condition order and both the identity and left/right location of the helpful/unhelpful character were counterbalanced across participants.

Social Power as Normative Authority

When someone is "in charge" they get to make all of the rules and tell others what to do.

Helpful Condition

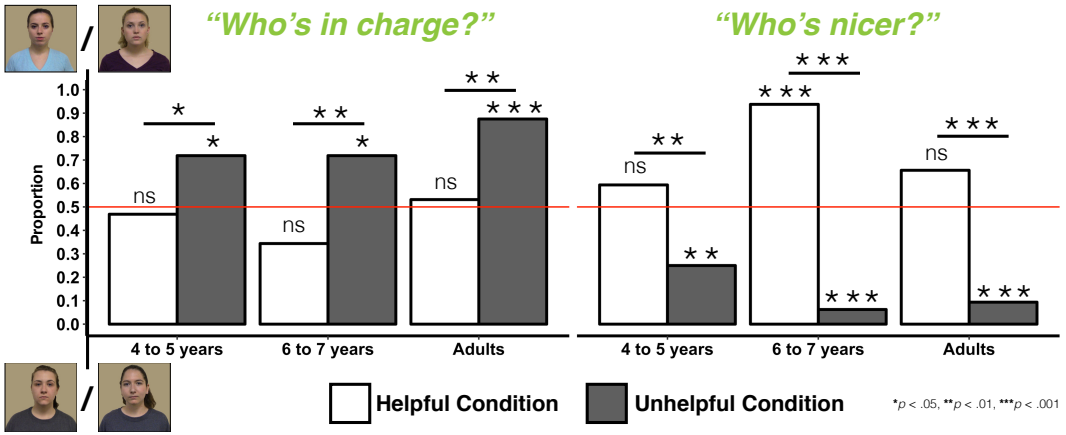
Unhelpful Condition

Character Introductions | **Display of Need** | **Character Response** | **Test Questions**

14-second video sequence

Who's in charge?
Who's nicer?

Selecting the unhelpful / helpful character over the needy one



Conclusions

Both children and adults associate social power with indifference to others' low-severity instrumental needs.

But being seen as "in charge" did not exonerate unhelpful people. Consistent with our prior research[10], all participants viewed unhelpful people as "not nice".

In contrast, helping may be viewed as so common that it provides little evidence about relative power or niceness.

Only 6- to 7-year-olds viewed the helper as nicer than a character in need.

The overall pattern across age groups suggests that the experiences occurring between early childhood and adulthood do not substantially alter intuitions about social power, helpful action, and unhelpful inaction.

Future Directions

This study documented inferences about relative power from displays of prosocial unresponsiveness. Given evidence about a specific hierarchical relationship, would children actually expect powerful people to be unresponsive?

How might these intuitions vary across different demonstrations of need (e.g., comforting) or other aspects of hierarchy (e.g., prestige)?

Even 4-year-olds' intuitions were consistent with adults'. At what age do these intuitions arise, and how?

References

1. Chase. Social Hierarchy Formation in Small Groups: A Comparative Perspective. *Am. Sociological Review.* 45,905 (1980).
2. Thomsen, et al. Big and Mighty: Preverbal Infants Mentally Represent Social Dominance. *Science.* 331, 477–480 (2011).
3. Gülgöz & Gelman. Who's the Boss? Concepts of Social Power Across Development. *Child Development,* 1–23 (2016).
4. Terrizzi, Brey, Shutts, & Beier. Children's developing judgments about the physical manifestations of power. *Dev Psych* (2018).
5. Liberman & Shaw. Children use partial resource sharing as a cue to friendship. *JECP.* 159, 1–14 (2017).
6. Spokes & Spelke. Children's Expectations and Understanding of Kinship as a Social Category. *Front. Psychol.* 7, 773–13 (2016).
7. Jin & Baillargeon. Infants possess an abstract expectation of ingroup support. *PNAS.* 114, 8199–8204 (2017).
8. Fiddick, et al. A Cross-Cultural Study of Noblesse Oblige in Economic Decision-Making. *Hum Nat.* 24, 318–335 (2013).
9. Piff, et al. Higher social class predicts increased unethical behavior. *PNAS.* 109, 4086–4091 (2012).
10. Terrizzi, Woodward, Ventimiglia, & Beier, Young children negatively evaluate people who do not help, even when helping is challenging. Presented at ICIS (July, 2018).

Children's Prosocial Facilitation of Others' Communicative Goals

Shirley Duong[1,2], Brandon F. Terrizzi[1,3], Lucas P. Butler[1], Jonathan S. Beier[1]

[1]University of Maryland, College Park; [2]University of Pittsburgh; [3]Cincinnati Children's Hospital

Introduction

From early in life, children help others[1]. Research has primarily focused on the development of children's support for others' physical goals, such as picking up a dropped object.

Social goals—i.e., goals directed toward people, their mental experiences, and states of the social world—are ubiquitous and central to social life. By 3 years, children help others achieve their social goals[2,3]. They helpfully assist an actor influence another person's attentional state, but only if the actor's goal is *specific to the target*, the actor *requires the child's assistance*, and the target *has not expressed disinterest* in the actor's goal.

Here we investigate children's support for a different type of social goal: communication.

- Do **5-year-old** children spontaneously support one person's goal of influencing another's **epistemic state**?
- If so, is their motivation to **help the communicator** or **inform the recipient** of something she may wish to know?
- And is support for a third-party communicative goal regulated by the **success** or **failure** of the initial communication?

Method

(two trials per study, counterbalanced)

Children play a hiding game with two researchers. One player places an object in 1 of 3 containers; another guesses where it is. On test trial game rounds, the child watches the researchers play.

Communication event: During the hiding, while one researcher (the **Receiver**) is turned away, the other (the **Communicator**) decides to tell her where the object will be. She shares this intent with the child and then points to a container, saying, "*It's here!*"

Study 1: The Receiver does not see the Communicator's point

Truthful Intent: the Communicator points to the object location
Deceitful Intent: the Communicator points to a false location

Study 2: The Communicator is always deceitful, but:

Incomplete communication: The Receiver does not see her point.
Complete communication: The Receiver sees her point.

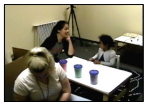
Opportunity to Help

The Communicator is called away. The Receiver turns around to play the game.

Does the child repeat the Communicator's message?

Setup

Communicator:
"I'm going to hide it in one of these containers. Turn around!"



The Receiver turns around. The Communicator hides the object and tells the child her communicative intent.

Manipulation

Study 1

Failed Communication
Receiver does not see the deictic point

Truthful Intent	"I'll just tell her"
	OR
Deceitful Intent	"I'll play a trick on her"

Study 2

Deceitful Intent
Communicator: "I'll play a trick on her"

Complete Communication	Receiver sees the deictic point
	OR
Incomplete Communication	Receiver does not see the deictic point

Communication

The Communicator points to a container:
"It's in here!"

Opportunity to Help

Will the child tell the Receiver where to look?

Study 1

24 five-year-olds (12 girls)

Do children complete another person's communicative goal?

Yes!

Do children repeat the Communicator's message to help the Communicator or benefit the Receiver?

Children's responses matched the **Communicator's intent**, even if that meant deceiving the Receiver.

Child indicated:

Communicator had:	True location	False location
Truthful intent	19	5
Deceitful intent	1	23

Study 2

26 five-year-olds (14 girls)

Were children more likely to help the Communicator when her message did not go through?

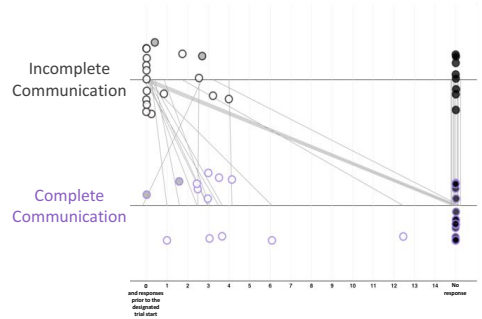
Yes! *McNemar's, one-tailed, $p = .03$*

Were children quicker to help the Communicator when her message did not go through?

Yes! *Wilcoxon signed ranks, one-tailed, $p < .0005$*

Note: In Study 1, the Receiver said to herself, "Now where is it…" after turning around. Study 2 removed this prompt; hence, the non-responses.

Latency to Help (seconds)



Child deceives Receiver
Child tells truth to Receiver

Conclusions

In **Study 1**, children spontaneously repaired a third party's failed communication, even when doing so conflicted with another person's interest in being truthfully informed.

In **Study 2**, this social helping behavior was guided by:

- children's awareness of the Communicator's intent
- children's evaluation of whether the Communicator had successfully influenced the Receiver's beliefs.

Early prosocial behavior includes support for one person's communicative goal toward another person's epistemic state.

Broader Questions

Children help people achieve both physical and social goals. How does this insight change our characterization of the developmental trajectory of helping?

What other forms of social behavior might be recognized as helping? We have recently documented 6-year-olds' protests against unwarranted blame to a third party[4]. Is maintaining a good reputation a social goal, and can others help us achieve it?

Do children appreciate the commonalities among forms of helping that appear vastly different on the surface? If so, do experiences that promote or inhibit one form of helping generalize to other forms?

Acknowledgements

We thank Carianne Powers, Nicole Rodriguez, Iris Zou, Sabine Huber, and Min Hee Song for their contributions to data collection and coding.

References

1. Warneken, F., & Tomasello, M. (2006). Altruistic Helping in Human Infants and Young Chimpanzees. *Science, 311,* 1301-1303.
2. Beier, J. S., Over, H., & Carpenter, M. (2014). Young children help others to achieve their social goals. *Developmental Psychology, 50,* 934-940.
3. Beier, J. S., Terrizzi, B. F., Woodward, A. M., & Larson, E. G. (2017). Shyness and Social Conflict Reduce Young Children's Social Helpfulness. *Child Development, 88,* 1922-1929.
4. Woodward, A. M., Woller, S., & Beier, J. S. (March, 2019). Six-year-olds protect others' reputations against unwarranted blame. *Poster 08-128 at SRCD.*

Six-Year-Olds Protect Others' Reputations Against Unwarranted Blame

Amanda Mae Woodward, Suzanne Woller, & Jonathan S. Beier

University of Maryland, College Park

Introduction

Maintaining a positive reputation is vital to an individual's well-being, ensuring access to good social partners. By 5 years, children monitor and manipulate how others see them, and they report the reputations of others through social gossip (Engelmann et al., 2012, 2016; Fu et al., 2015).

Young children may also recognize that other people wish to have a good reputation. Do they prosocially defend the reputation of a third party?

We have recently advocated for a more expanded view of helping than research on early prosocial behavior often assumes. People do not just help each other accomplish physical tasks; they support each other's social goals as well (Beier et al., 2014, 2017; Duong et al., SRCD 2019). Maintaining a good reputation is a paradigmatic social goal: An individual may *want* others' *beliefs* about them to support a positive evaluation.

- Do 6-year-olds protest a character's unwarranted blame toward a third party? (**Study 1**)
- If so, is this different from correcting a character's mistaken beliefs about a non-social event? (**Study 2**)

Methods

Characters:

Accuser's drawing is destroyed; blames Target
Social Target: Another puppet (absent during blame)
Non-social Target: A fallen streetlamp

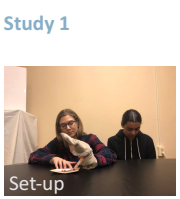
Study 1	Study 2
Water spills on Accuser's drawing	
Incidental condition: There is no clear cause	There is no clear cause
Purposeful condition: Social Target was mean	
Accuser wrongly blames a Target	
Social Target	*Social Target condition*
	Non-social Target condition

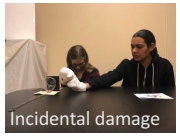
How do children protest or affirm the blame?

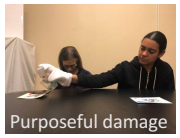
Researcher asks:

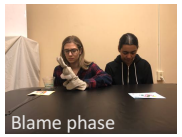
Rating Scale questions

Study 1

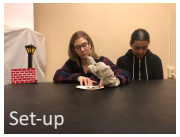


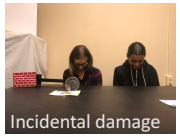


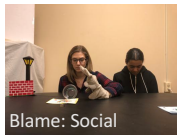


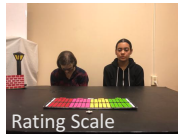


Study 2



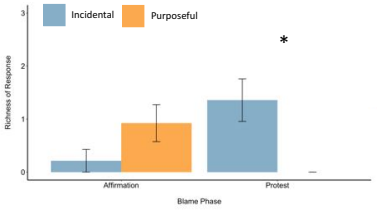






Results

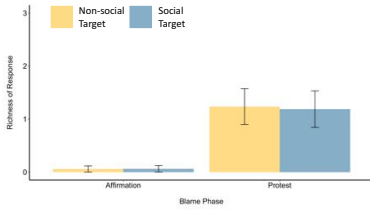
Study 1: Spontaneous responses



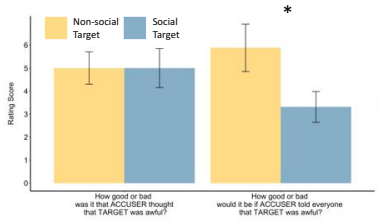
Coding maximal richness of spontaneous responses

1 point	Affirmation or Protest	*"Yeah", "Nuh-uh"*
2 points	Explanation of what happened, not mentioning Target	*"The water spilled."*
3 points	Explanation of the event that affirms/denies the Target's involvement	*"Baba didn't do it!"*

Study 2: Spontaneous responses



Study 2: Rating scale questions



Counts of maximal richness scores:

Study	Condition	"0"	"1"	"2"	"3"	N (of planned N)
1	Incidental Damage	7	1	0	6	14 of 20
	Purposeful Damage	13	0	0	0	13 of 20
2	Social Target	8	2	1	5	16 of 20
	Non-social Target	9	0	3	5	17 of 20

Conclusions

Children protested more richly against unwarranted versus justified blame to a third party (**Study 1**).

There was mixed evidence as to whether children's protests against unwarranted blame were driven by concern for the Social Target's reputation (**Study 2**).

- Whether the Accuser blamed another character (Social Target) or the streetlamp (Non-social Target) did not influence the quality of children's protests/affirmations. The protests against unwarranted blame in Study 1 may have been motivated by a desire to correct the Accuser's false belief.
- However, children did indicate that it is worse to spread a false accusation about another character than about a streetlamp.

Overall, these **preliminary results** indicate that children act in ways that repair unwarranted damage to the reputations of third parties, and this may be motivated by prosocial concerns.

Current and Future Directions

Data collection for both studies is ongoing

We are coding additional aspects of children's protests, such as their latency and frequency. Although children's protests of unwarranted blame to the Social and Non-social Targets were similarly rich, perhaps children were more insistent in the Social Target condition

Another way to assess children's motivation to protect the Social Target's reputation would be to manipulate their affiliation with the Target, via assignment to the same or different social groups.

Acknowledgments

We thank Umniya Gabbani, Kate Hedges, Megan McClure, and Lauren Kinzie for their substantial contributions to coding and data collection.

References

Beier, J. S., Over, H., & Carpenter, M. (2014). Young children help others to achieve their social goals. *Developmental Psychology, 50*(3), 934–940

Beier, J. S., Terrizzi, B. F., Woodward, A. M., & Larson, E. G. (2017). Shyness and social conflict reduce young children's social helpfulness. *Child Development*, *88*, 1922–1929.

Duong, S., Terrizzi, B. F., Butler, L., & Beier, J. S. (2019). Children's Prosocial Facilitation of Others' Communicative Goals. Poster #02-129, SRCD.

Engelmann, J.M., Herrmann, E., Tomasello, M. (2012). Five-year olds, but not chimpanzees, attempt to manage their reputations. *PLoS One.* 7(10):e48433.

Engelmann, J. M., Herrmann, E., & Tomasello, M. (2016). Preschoolers affect others' reputations through prosocial gossip. British Journal of Developmental Psychology, 34(3), 447-460.

Fu, G., Heyman, G.D., Quian, M., Guo, T., Lee, K. (2016). Young children with a positive reputation to maintain are less likely to cheat. *Developmental Science, 19*(2), 275-283.

Do Different Choice Contexts Shape Children's Expectations for Selective Comforting Among Friends?

Amanda Mae Woodward, Tara K. McCurry, & Jonathan S. Beier

University of Maryland, College Park

Introduction

Social relationships shape children's expectations for selective prosocial behavior. By middle childhood, children's reasoning about prosocial obligations between friends versus strangers varies according to the type and severity of need involved (Miller et al., 1990).

Around 4 years, children expect friends to favor one another when dividing resources (Liberman & Shaw, 2017; Olson & Spelke, 2008). But expectations about other prosocial behaviors—such as comforting, which differs in type and severity—may have a different trajectory.

Children's expectations of partiality may also depend on how a scenario is framed. Friends and non-friends alike may be expected to aid an injured person, even if children assume that people usually choose to favor aiding friends over a non-friend.

- Do children expect friends to selectively comfort one another?
- If so, do these expectations vary across decision contexts?

Methods

Study 1: 72 4- to 6-year-olds
Study 2: 63 4- to 6-year-olds (72 planned)

Practice Trials:

Children twice practiced showing how a single, unpaired character comforts a hurt protagonist

Test Trials:

6 trials, each featuring unique characters and introduction/comforting scenes

Protagonist Introduction

Friendly Interaction: The Protagonist has a friendly, familiar interaction with the Friend, instead of sitting alone

No interaction: The Protagonist engages a fun solo activity, instead of joining the Non-friend

Test Phase: Children indicate who will comfort the protagonist (**Study 1**) or whom the protagonist will comfort (**Study 2**)

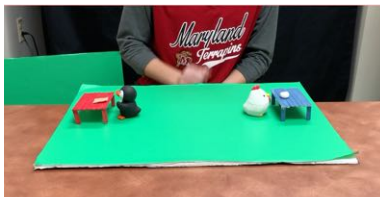
On each of 6 trials…

Familiarization Phase

Protagonist Introduction

Friendly Interaction with Friend

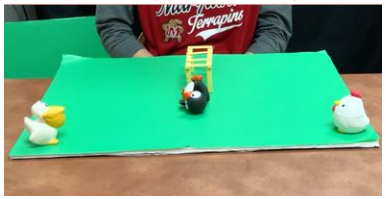
No Interaction with Non-Friend



Test Trial

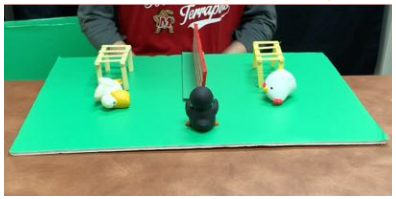
Study 1

Who will comfort the Protagonist?



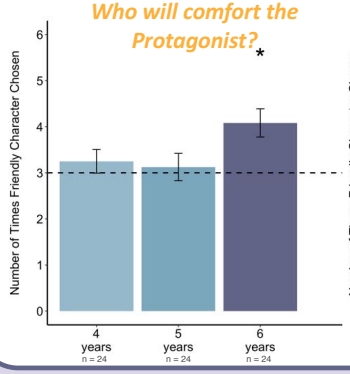
Study 2

Whom will the Protagonist comfort?

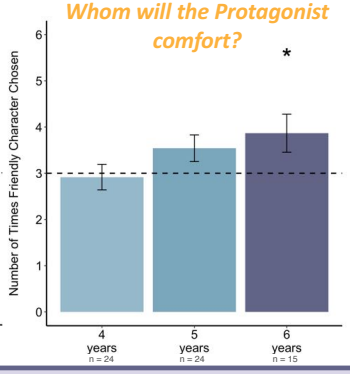


Results

Who will comfort the Protagonist? *



Whom will the Protagonist comfort? *



Do children expect friendly characters to selectively comfort one another?

Yes, by 6 years.

Do children's expectations vary across decision contexts?

No.

Experiment:
b = 1.2, z = 0.81, p = 0.35
Experiment x Age:
b = -0.02, z = -0.91, p = 0.36

* < 0.05; Error bars denote standard errors

Discussion

In both studies, children's choices reveal expectations for selective comforting between friends by 6 years.

- This is notably later than expectations for selective resource division. Might the greater severity of need have attenuated younger children's expectation of partiality?

Children's choices appear similar across decision contexts:

- Counter to our prediction, expectations of partiality did not emerge earlier when reflecting on a Protagonist's relative concern for each of two injured characters (Study 2), compared to reflecting on the relative concern that different characters would have for an injured Protagonist (Study 1).
- Data collection is ongoing for Study 2's 6-year-olds, so the overall comparison between decision contexts remains preliminary.

Future Directions

To explore the possibility that younger children had expectations of partiality, we are now coding further details of their responses, such as latency and how they act out comforting with the dolls.

Our relationship manipulation was based on a single behavioral demonstration of affiliation – we did not explicitly label the affiliated characters as "friends." This term means different things to children of different ages (Furman & Bierman, 1983). For what ages might verbal labels enhance expectations of partiality in comforting behavior?

References

Furman, W. & Bierman, K.L. (1983). Developmental changes in young children's conceptions of friendship. *Child Development, 54*(3), 549-556.
Liberman, Z. & Shaw, A. (2017). Children use partial resource sharing as a cue to friendship. *Journal of Experimental Psychology, 159*, 96-109.
Miller, J.G., Bersoff, D.M., & Harwood, R.L. (1990). Perceptions of social responsibilities in India and in the United States. *Journal of Personality and Social Psychology, 58*(1), 33-47.
Olson, K.R. & Spelke, E.S. (2008). Foundations of cooperation in young children. *Cognition, 108*(1), 222-231.

Helpers or Halos: Do Dispositional Attributions or Global Evaluations Guide Children's Partner Choice?

Kayla Eisenberg[1], Anna-Francesca Boatswain-Jacques[1], Xiao Min Chang[2], Brandon F. Terrizzi[3,4], Laina Isler[1], Jonathan S. Beier[3], & Kristen A. Dunfield[1]

[1]Concordia University, [2]University of Toronto, [3]University of Maryland, College Park, [4]Cincinnati Children's Hospital Medical Center

INTRODUCTION

Humans are exceptionally prosocial[1]. Prosociality is beneficial in many circumstances but, when indiscriminate, it can lead to exploitation by free-riders. Free-riders are individuals who benefit from others' prosocial acts without ever bearing the costs[2].

Reciprocity is a solution to the problem of prosociality because the costs incurred by helping another are later compensated[3]. Previous research suggests that children engage in reciprocity (e.g., selective helping) from very early in development; however, the mechanisms that support this selectivity are poorly understood[4].

Two potential mechanisms have been proposed based on the specificity with which the observing individual evaluates the actor's action. One possibility is that children are making very general, valence based evaluations and 'reciprocate' by matching the valence of previous evaluations with future interactions (i.e., **Global Evaluations**). Another possibility is that children are making specific evaluations of another's prosociality and reciprocating based on expectations regarding another's likelihood of acting prosocially in a future interaction (i.e., **Dispositional Attributions**).

By presenting participants with individuals who vary on a variety of positively valenced characteristics that range from previous prosociality to attractiveness, and having the participants make selections about who they prefer to interact with across a variety of scenarios, we hope to gain better insight into the specificity of the evaluations that underlie selective prosocial behavior.

METHOD

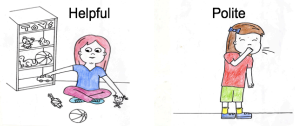
ADULTS: 381 psychology undergraduates, enrolled at the University of Maryland, read vignettes describing two individuals.

- One individual demonstrated a **prosocial** quality (e.g., *helpfulness*), and the alternative individual reflected either a **positive social** quality (i.e., *politeness*) or a **generally desirable** quality (i.e., *attractiveness*). There were 72 fully crossed pairings.
- For each pair, participants selected an outcome for one of the individuals, in one of three scenarios**: prosocial** (who to help**), social** (who to sit next to on the bus)**,** or **general** (who would be likely to win the lottery)**.**

CHILDREN: 28 6-year-olds, living in Montreal, Canada, viewed drawings and heard stories about pairs of individuals.

- The individuals varied on the same characteristics as above (i.e., prosocial, positive social, generally desirable).
- For each pair, children selected an outcome for one of the individuals: who they wanted to **help** with a puzzle, **play** with, or **give** a valued resource to.

Familiarization Characteristics



Test Scenarios

RESULTS

Selecting the **prosocial** individual was considered a *'hit'*, whereas selecting the **alternative** (either social or generally desirable) indicated a *'miss'*. To compare the relative 'hit' rate when contrasting a prosocial individual against either a social or generally desirable individual, we conducted a GLMM (with binomial responses of hit rate). Subject and items were included as random effects to control for the non-independence of these variables. Type of alternative within vignette (either social or general) was included as a fixed effect. Follow up analyses also considered scenario type (i.e., adults: social/general/prosocial; children: play/give/help) as a fixed effect in this decision-making process. An interaction effect was found for adults ($\chi^2(2) = 14.21$, $p < .001$) but not children ($\chi^2(2) = 0.19$, $p = .909$).

ADULTS

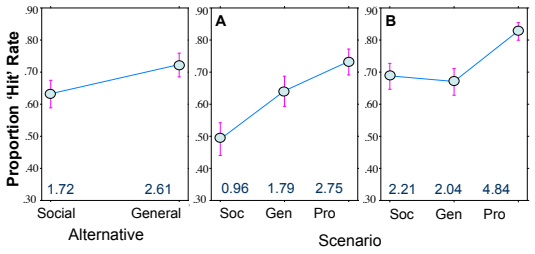


Figure 1: Prosocial selections (95% CI) when alternates were Social or General

Figure 2: Prosocial selections (95% CI) in each scenario, assessed separately due to interaction **A**) Social alternate **B**) General alternate.

SIX YEAR OLDS

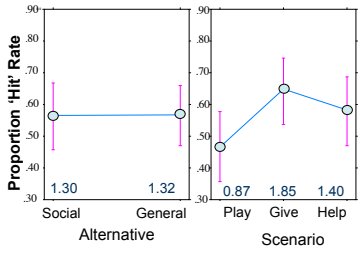


Figure 3: Prosocial selections (95% CI) when alternates were Social or General

Figure 4: Prosocial selections (95% CI) in each scenario.

* Odds Ratios listed in blue

DISCUSSION

This research explores the evaluative mechanisms that support reciprocity. If global evaluations are used, we expect to see little variability in participants' preferences across characteristics or scenarios. In contrast, if dispositional attributions are used, we should see a specific preference to benefit a previously prosocial individual.

Based on the present results, adults engage in more dispositional attributions than children:

- Adults showed both a preference for the prosocial individual over the positive alternatives (Fig. 1), and a specific preference to *help* the prosocial individual (as compared to sitting nearby them or selecting their name from a lottery, Fig 2).
- 6-year-olds did not show a preference for the prosocial individual over either positive alternative (Fig. 3). They also did not specifically wish to *help* the prosocial individual; however, they did select her to receive a high value reward (i.e., a cookie, Fig 4).

Taken together, these findings suggest a developmental trajectory whereby individuals transition from reciprocating based on global valence, to monitoring others' specific prosocial intent.

ACKNOWLEDGMENTS

Thank you to members of the Concordia Social Cognitive Development (CSCD) Lab, the Lab for Early Social Cognition at the University of Maryland, College Park and Montreal families that participated in the study.

REFERENCES

1. Eisenberg, Fabes, & Spinrad (2006). In N. Eisenberg (Ed.), *Handbook of child psychology: Social emotional, and personality development* (6th ed., Vol. 3, pp. 646-718). Hoboken, NJ: John Wiley & Sons.
2. Nowak, M. (2006). *Science, 314*, 1560–1563
3. Axelrod, R. & Hamilton, W. D. (1981). *Science, 211*, 1390–1396
4. Kuhlmeier, V. A., Dunfield, K. A., & O'Neill, A. C. (2014) Frontiers in Psychology, 5, 836.

CORRESPONDENCE: kristen.dunfield@concordia.ca

Université Concordia University