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Trusting Information From Friends: Adults Expect It but Preschoolers Do Not

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As adults, we might understand that beliefs often spread because people are strongly influenced by their friends, family, and other social connections. However, do we think those influences are strong enough to overrule direct evidence of a friend's unreliability? And do preschoolers expect people to show such biases toward friends and to privilege friendship over reliability? Across three experiments, we explored whether friendship influences the evaluations of trust when others learn labels for novel objects as well as personal opinions. After watching scenes involving a main character, her best friend, and a stranger, preschoolers and adults judged who would be trusted for information from the main character's perspective (third person) as well as their own (first person). Adults ($n = 128$, 55 female, recruited online from across the United States) expected the main character to trust information from her friend even if she had been previously inaccurate, while basing their own first-person judgments on accuracy. In contrast, 4- and 5-year-olds ($n = 128$, 62 female, from the United States) thought that the main character would be like themselves and prioritize accuracy over friendship. Further, preschoolers expected the main character to trust her (inaccurate) friend and (accurate) stranger equally when forming personal opinions. Thus, young children, unlike adults, do not expect others' epistemic trust to privilege friendship with the speaker over accuracy information.

Public Significance Statement
Children have stable and often enduring friendships from a young age, but how much do they favor a friend's words in learning contexts? The present study suggests that the U.S. American adults expected others to trust a friend over a stranger when learning new information, even if the friend had been previously inaccurate. By contrast, 4- and 5-year-old children did not expect others to show such learning biases toward a friend. These findings suggest that unlike adults, young children considered the prior accuracy of the speaker a more important factor than the friendship between the speaker and the addressee.

Keywords: friendship, trust in testimony, selective trust

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As humans, we are lifelong traders of information. We learn and convey information about every possible aspect of life, contributing to the cumulative cultural evolution taking place amongst us (Mesoudi & Thornton, 2018), for better and for worse. Children too are immersed in social learning from a young age (Gelman, 2009; Tomasello, 2016), building concepts, amassing knowledge, and acquiring skills. This ability to socially gain information allows us to build on the knowledge of others and past generations, widening our world from the narrow slice that we experience through our senses to the whole planet and beyond. And yet, the very social learning capacities that ensure our success as a species can also fail us spectacularly. Our trust in the words of others can lead us to believe in things that are false (Astapova, 2020), harmful (Roberts & Rizzo, 2021), and completely cut off from reality (O'Connor & Weatherall, 2019). For instance, persistent antivaccination attitudes are a global phenomenon (Hornsey et al., 2018), and extended to alarming levels of distrust in a vaccine for COVID-19 (Taylor et al., 2020).

Why do we believe false information? Given that information and attitudes spread in social networks (e.g., Paluck, 2011), one reason may be our social and epistemic motivations to collaborate with

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those we trust by accepting their claims, especially those who are dear and near to us (Koenig et al., 2021). That is, we may be less skeptical and more open to information when close social sources invite us to believe them. There is some evidence suggesting that adults' perception of others' trustworthiness is affected by their group membership (Platow et al., 2012) and the level of closeness in interpersonal relationships (Levin et al., 2006). Although there is a gap in the empirical literature examining the impact of social relationships, particularly friendships, on how we acquire information from others, all would agree that mutual trust is a fundamental aspect of strong friendships. This predisposition to trust friends may lead adults to lower their guards, thereby increasing their vulnerability to misinformation (Keller, 2004). In fact, 17% of participants in a survey said they would accept "anything a friend shares on social media as fact and impossible to be false because it is from someone they know well" (Many Trust What Their Friends Post on Social Media More Than Experts, Poll Claims, 2019). Here, across three experiments, we test if adults and preschool-aged children hold intuitions about how bias functions between friends, even in cases when they appear to be unreliable. We begin by describing previous work on friendships and social learning in young children.

Friendship Understanding in Early Childhood

Children have stable and often enduring friendships from a young age that center on shared play (Dunn, 1993; Hartup, 2006; Howes, 1988, 2009). While the significance of play may make early friendships seem superficial and transitory, they are in fact rich relationships built on coordinated communication and deft maneuvering of conflicts (Gottman, 1983). Alongside seeking and maintaining friends, children possess conceptual knowledge about what friendship is and what it entails. Although early views suggested that preschoolers thought friendship synonymous with fleeting playmateship (e.g., Selman, 1981), more recent evidence demonstrates that preschoolers take many cues that adults see relevant to friendship as indicative of a friendship between others. For instance, preschoolers infer friendship from voluntary (as opposed to arbitrary) proximity, similarity, and prosocial interactions such as helping behavior (Afshordi & Liberman, 2021; Afshordi, 2019; Liberman & Shaw, 2017, 2018). Thus, in addition to considering their own friendships, young children think and reason about other people's friendships in meaningful ways.

With regard to biased treatment in particular, preschoolers expect others to share more material resources with their friends compared to other peers (Liberman & Shaw, 2017; Olson & Spelke, 2008), and to talk about friends differently: even 3-year-olds expect individuals to speak favorably of their friends but do not hold such expectations for nonfriends (Liberman & Shaw, 2020). By ages 6–8, children are conscious of partiality in judgments, distrusting those who judge a contest in favor of their friends and against their enemies compared to those whose judgments mismatch their relationships (Mills & Grant, 2009; Mills et al., 2012). Therefore, it appears that young children have a burgeoning sense of the many ways that friendship biases affect social judgments.

Social Relationships and Children's Selective Learning

From a very young age, children are judicious and selective in learning information from others. Seminal research on children's social learning has shown that children factor in a history of epistemic accuracy when choosing who to learn from, trusting those who are more likely to have correct beliefs to share (e.g., Koenig & Harris, 2005; Koenig et al., 2004, 2019; Sobel & Finiasz, 2020). More recently, researchers have started to emphasize the importance of social and interpersonal processes that might affect children's trust (e.g., Koenig et al., 2021; Tong et al., 2020). Specifically, there is some evidence that starting from around 4 years of age, children prefer to learn from individuals based on their interpersonal and social characteristics, such as one's manner of address, being a native language speaker, or a prosocial agent (Kinzler et al., 2011; Lane et al., 2013; Li & Koenig, 2020). Furthermore, children trust information from close social partners over others, such as their mother (Corriveau et al., 2009), a familiar teacher (Corriveau & Harris, 2009), or group members (Elashi & Mills, 2014). However, despite the significant role that friendship plays when children make social judgments (Afshordi, 2019; Afshordi & Liberman, 2021; Liberman & Shaw, 2017), to our knowledge, no studies to date have explored the role of friendship in children's social learning. Children's trust in friends is a particularly interesting topic to study due to the unique learning opportunities that peers can provide. Rather than solely deferring to adult informants, peers offer collaborative learning experiences where children engage in cooperative discussions (Mammen et al., 2019; VanderBorght & Jaswal, 2009). Conversely, since peers can be limited in their knowledge and reliability (Jaswal & Neely, 2006; Wang et al., 2019), they can also be a more common source of misinformation for children.

If children trust their friends for information, another important question concerns how children weigh social factors when epistemic credibility is at stake. Would children judge that agents would be biased toward their friends in learning contexts because of the interpersonal trust they have for them (Koenig et al., 2021) and their motives to affiliate with close others (e.g., Jaswal & Kondrad, 2016), or would they judge others to be more rational or objective toward friends, and perhaps not trust a friend who might be a risk for misinformation? Since a central challenge in the social learning literature is to distinguish between the role played by children's evaluation of inductive evidence from the operation of social processes (e.g., social exclusion, pressures to conform; see Li & Koenig, 2020), exploring children's evaluation of inaccurate friends can shed light on how children weigh social information and epistemic considerations across different social learning contexts. Going beyond treating children's trust as evidence-based inferences by taking into account important interpersonal relationships can strengthen our current understanding of the role that trust plays in children's learning, and provide a more holistic picture of how children participate in epistemic collaboration with close others.

The Current Study

Given that preschoolers (a) have conceptions of friendship, (b) recognize friendship biases when making social judgment, and (c) are selective learners who sometimes privilege information from close social partners, here we assessed whether children expect others to trust friends over strangers in learning contexts, and if so, whether such expectations would persist even when the friend is a poor epistemic source of information. In order to test this, we presented participants with a main character (Maya) and contrasted a situation in which Maya's friend has a history of accuracy (i.e., accurate

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friend vs. accurate stranger) to one in which her friend does not (i.e., inaccurate friend vs. accurate stranger). Because friendship and prior accuracy are both legitimate factors to consider when deciding whom to trust, and because no prior research examined the interplay of these factors in adults, we extended the same paradigm to a sample of adult participants.

Further, we also ask children and adults to make their own decisions to trust information from the friend versus stranger. The inclusion of both first- and third-person perspectives in documenting an understanding of interpersonal bias is crucial. In order to show that interpersonal biases are understood to function in the specific relationship that holds between two people (i.e., friendship), it is important to examine participants' predictions both within and outside of the friendship relationship. To recognize that others selectively trust their friends is to expect others to trust their friend (because of friendship) while not doing so yourself (because of lack of friendship). Thus, if children distinguish between the two perspectives, they will have shown their understanding of a bias that operates uniquely between friends. By comparing participants' third-person intuitions about the main character's perspective with participants' own first-person judgments, we tested whether children and adults take the friendship between the main character and the friend into account when predicting what the main character will do (third person) and when judging what to do for oneself (first person).

Experiment 1 asked these questions in the context of labels for novel objects, testing if preschoolers and adults expect others (in third-person contexts), but not themselves (in first-person contexts), to believe another person's friend. In third-person contexts, if participants think that others would be influenced by friendship, they should expect the main character (i.e., Maya) to preferentially endorse information from her friend over information from the stranger. If, however, participants do not see friendship as an influencing factor, their judgments on behalf of the main character will be split between the friend and the stranger. As discussed, in order to assess participants' understanding of the force of this bias, our experiment also lay out a conflict between accuracy on the one hand and friendship on the other. If participants see friendship biases as strong enough to overwhelm epistemic information such as prior accuracy, they should expect the main character to trust her friend for information, even when the friend has been inaccurate. However, if they view accuracy as a limiting factor on friendship biases, they should expect the main character to trust an accurate stranger over the friend who has been inaccurate in the past.

In Experiment 2, we changed the type of information presented to child participants from labels to opinions. By having the friend and the stranger offer up opinions, which are inherently subjective, we give children another opportunity to demonstrate recognition of the epistemic favor that friends may show toward each other. If children expect the main character to trust her friend for facts in Experiment 1 even when the friend has a history of inaccuracy, it is possible that children expect others to weigh the social closeness of friendships more than the informant's epistemic competence. Thus, we expect that this bias to seek information from friends in a factual domain would extend to a similar or greater extent in the context of personal opinions such as object preferences. Indeed, the threshold for accepting a belief is typically lower for subjective opinions when compared to objective facts. This is due to the fact that factual beliefs often necessitate a greater amount of evidence concerning the veracity of the statement and the reliability of the informant. Alternatively, if children do not expect that the main character will trust her friend in Experiment 1, they may still expect her to trust her friend for personal opinions since someone's prior accuracy or lack thereof in labeling objects has less bearing on the legitimacy of their personal preferences. Finally, if children do not think that friends are prone to believing each other over strangers, they will not judge the main character as more likely to believe her friend in either experiment, and instead prioritize information from whoever is shown to be more accurate. In Experiment 3, we chose to delve deeper into adults' judgments by testing their prescriptive judgments (who the main character should trust), as well as their predictions of who they would believe if they were in the main character's position. Together with Experiment 1, this experiment aims to provide a fuller snapshot of adults' expectations about bias in believing friends.

Experiment 1

The main goal of this experiment was to test whether children and adults expect a protagonist named Maya to be biased in seeking and endorsing labels for novel objects from her friend, and if so whether they expect her to still do so when her friend is clearly a poor source of information. To test whether children's own learning decisions diverged from what they expected Maya to do, we asked questions from two perspectives: third person (Maya) and first person (the participant). Additionally, we tested children's inferences about social preferences between the two characters. If children indicated that the main character—Maya—would prefer information from her friend and act prosocially toward her, it would provide evidence that they had encoded the friendship and understood its social implications correctly.

Method

Participants

Sixty-four children aged 4 and 5 ($n = 32$ four-year-olds; $n = 32$ five-year-olds; $M = 59.6$ months, 31 female) were recruited through a university-managed database of families from the greater Twin Cities areas, Minnesota, and participated in-person in the lab (pre-COVID-19 pandemic). The sample size was selected based on prior work using similar methods (e.g., Elashi & Mills, 2014; Souza et al., 2021). Three additional participants were excluded for not completing the task (one), experimenter error (one), and technical failure (one). Participants were recruited from a departmental database of local families interested in child development research. Demographic information was not directly collected. Demographics were available for 39% of the children in the departmental database, from which the sample was recruited, and is as follows: 86% White, 1% Black, 2% Asian, 11% mixed race, or other. The study was approved by the IRB at University of Minnesota. Families received a small reimbursement and children chose a small toy after participation. Additionally, 64 adults ($M = 37$ years, 24 female, 80% White, 8% Black, 6% Asian, and 6% mixed race) were recruited from Amazon mTurk and participated online.

Materials

The stimuli included videos of three women wearing different colored T-shirts, as well as a number of pictures. Materials were presented to children on a Macbook with a covered keyboard. Adults participated through the survey platform Qualtrics.

Design

Participants were randomly assigned to either the equivalent accuracy condition (accurate friend vs. accurate stranger), or the inaccurate friend condition (inaccurate friend vs. accurate stranger). The identity of the friend (person on the left or right) and order of perspectives for ask and endorse trials (Maya's perspective first or second) were counterbalanced across participants.

Procedure

The experiment consisted of two phases: familiarization and test.

Familiarization Phase. Participants watched an introduction video that began with all three characters waving at the camera. The main character introduced herself as Maya and then indicated one of the others, saying, "This is my best friend Jenny. Jenny and I have been friends for a long time. We go to the same school and we like doing everything together." She then indicated the third person and said, "This is Sophie, and I met her just a few minutes ago. Sophie goes to a different school. She seems nice but I don't know anything about her."

Next, participants watched a Naming video in which Maya brought out familiar objects (spoon, cup, ball, and duck) one by one, held them up while looking into the camera and said, "Check this out!" She placed the object on a stand in front of her and continued, "I wonder what this is called." The side characters then spoke in turn, naming the object. In the equivalent accuracy condition, both the friend and the stranger named all objects correctly. In the inaccurate friend condition, the stranger named the objects correctly, but the friend named them incorrectly (calling the spoon a "boat," the ball a "hat," the cup a "book," the duck a "shoe").

At the end of this phase, we tested whether participants remembered the identity of the friend and stranger. In the inaccurate friend condition, we also tested whether they remembered who had given correct labels and who had given incorrect ones.

Test Phase.

Ask and Endorse (Six Trials). For a block of three trials, participants answered from their own perspective (i.e., first person). For another block of three trials, we asked about Maya's perspective (i.e., third person). To make this clear, a picture of a hand pointing at the camera (first person) or to Maya (third person) was displayed at the start of each block. This was reinforced by an explicit statement, "I'm going to ask some questions about what [you think]/[Maya thinks]."

On each trial, participants watched Maya bring out a novel object. Similar to the Naming video, she displayed it and wondered what it was called. Before the side characters spoke, however, the experimenter posed an ask question (participant's perspective: "Let's find out what this is called. Who do you want to ask?" Maya's perspective: "Maya wants to know what this is called. Who do you think she's going to ask?"). After the participant's response, the side characters offered different novel labels. The experimenter then asked an endorse question ("Sophie called this a wug and Jenny called this a dax." Participant's perspective: "What do you think it's called?" Maya's perspective, "What will Maya think it's called?").

Social Preference (Six Trials). We asked participants for preferences between the friend and stranger from their own perspective and Maya's (who they/Maya like best, would share with, would help).

At the end, adults completed two more ask and endorse trials (one from their own perspective and one from Maya's) so that they could provide justifications for their choice (see the online supplemental materials). Adults' selective learning choices in these trials are not included in the analyses below. Finally, we used the same wording as before to test memory for the relationships (friend and stranger), and speaker accuracy (inaccurate friend condition only).

A number of exploratory dependent variables were included in this experiment and came after the ask and endorse trials. These asked who had access to public versus private information, who had expertise in specific domains (e.g., dinosaurs), as well as control questions (e.g., who likes oranges; also included in Experiment 2), and memory of labels. The findings from these measures were not particularly informative and did not bear on the main findings reported in the paper. As a result, we have decided to not include them here. We also collected authoritarianism and conformity measures from parents in order to test their correlation with children's performance in Experiments 1 and 2, but found no significant correlation (see the online supplemental materials).

Coding

In all experiments, choices for the friend were coded as 1 and choices for the stranger were coded as 0.

Results

Familiarization Phase

Almost all participants remembered the identity of the friend and stranger (94% of children, 98% of adults). In the inaccurate friend condition, all children and adults remembered which character had been correct and which one had been wrong in labeling familiar objects.

Test Phase

For each measure, several mixed-effects binary logistic regression models were fitted to the data using the glmer function from the package lme4 in R (R Core Team, 2021). These models included the variables of interest (e.g., condition, perspective, and age group) and combinations of their interactions as fixed effects and participant as a random effect. The best-fitting model was selected based on comparisons between nested models using the analysis of variance function. To compare performance against chance, regression models including only the intercept as a fixed effect and participant as a random effect were run on responses in each of the conditions and perspectives for each set of questions. In order to deal with multiple comparison issues that arise from conducting several comparisons against chance analyses, a Holm–Bonferroni correction was applied to p values from children's response comparisons against chance, and separately to those from adults.

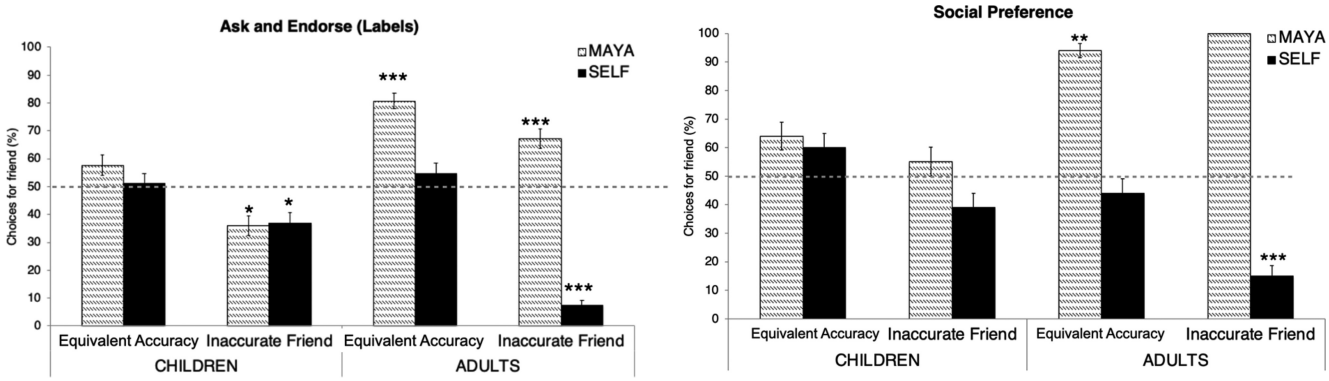
Ask and Endorse. These questions asked participants who they or Maya would ask and endorse labels from for novel objects. See Figure 1 for a graph of children's and adults' responses. We initially tested for possible differences between ask and endorse questions, but found none ($p = .62$), indicating that responses were comparable. All subsequent analyses collapsed ask and endorse responses (maximum = 6).

Combined responses from children and adults were analyzed using mixed-effects binary logistic regressions. The best model found a three-way interaction between age group (i.e., child and adult), condition, and perspective ($OR = 51.78$; 95% CI [14.64,

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Figure 1

Responses From Children and Adults in Experiment 1



Note. Responses are separated by condition for (a) ask and endorse questions combined (left) and (b) Social preference questions (liking, helping, sharing, and right). Responses are separated by perspective (Maya, Self). Error bars reflect the standard error of the mean. Dotted lines show chance level. Results of comparison of performance against chance are noted.
* $p < .05$. ** $p < .01$. *** $p < .001$.

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201.49]; $p < .0001$). Following-up on this, we ran separate mixed-effects regressions on the child and adult data that included condition, perspective, and their interaction. For children, there was a significant effect of condition ($OR = 0.35$; 95% CI [0.17, 0.69]; $p = .002$), but no effect of perspective and no interaction between the two. That is, children in the inaccurate friend condition ($M = 36.2\%$) chose the friend less often than those in the equivalent accuracy condition ($M = 54.3\%$). For adults, there was a significant interaction between condition and perspective ($OR = 0.01$, 95% CI [0, 0.04]; $p < .0001$), thus divergence between responses from Maya's and the self's perspective were larger in the inaccurate friend condition than in the equivalent accuracy condition.

Comparisons against chance revealed that children's responses in the equivalent accuracy condition were at chance (see Figure 1), meaning that they were not biased toward the friend and did not expect Maya to be biased either. In contrast, adults judged that Maya would side with her friend at rates significantly above chance in the equivalent accuracy condition, while judgments for themselves were at chance. In line with the main effect of condition reported above for children, responses in the Inaccurate friend condition were significantly below chance, from both the child's and Maya's perspective, indicating that children preferred the accurate stranger over her inaccurate friend and thought that Maya would too. In contrast, adults in the Inaccurate Friend condition thought that Maya would trust her inaccurate friend with higher than chance likelihood, but were significantly less likely than chance to trust the friend themselves.

Social Preference. These trials probed a social preference between the friend and stranger (liking, helping, and sharing) from first- and third-person perspectives. Analyzing pooled responses for children and adults revealed a significant interaction between age group and perspective ($OR = 80.05$; 95% CI [18.41, 418.72]; $p < .0001$), indicating that the divergence in responses between first- and third-person perspectives was larger for adults than it was for children. When considering the child and adult data independently, the best models found only a significant effect of perspective (children: $OR = 0.5$; 95% CI [0.29, 0.85]; $p = .009$; adults: $OR = 0.01$; 95% CI [0, 0.02]; $p < .0001$), showing that both children and adults chose the friend as a social partner more when answering from Maya's perspective than their own.

Comparison of responses to chance found children statistically at chance regardless of condition or perspective. Despite this, in response to the question "Who does Maya like best?" children chose the friend significantly more often than chance in both conditions according to binomial tests (equivalent accuracy: 26/32, $p = .0005$; inaccurate friend condition: 25/32, $p = .002$). In contrast, adults almost unanimously thought that Maya would prefer her friend regardless of whether she had been previously accurate or inaccurate. For themselves, adults chose the friend and stranger equally in the equivalent accuracy condition, but were significantly less likely than chance to say they liked the friend in the Inaccurate Friend condition.

At the end of the task, 86% of children and 95% of adults identified the friend and stranger, and 81% of children and 97% of adults in the inaccurate friend condition remembered who had initially offered correct and incorrect labels during familiarization.

Discussion

This experiment asked whether children and adults expect others to trust information from a friend over a stranger, and whether they expect the friend's prior accuracy to affect this trust. Adults believe that other people's epistemic trust is heavily influenced by that person's relationship with the speaker. When reasoning from Maya's vantage point, they expected her to choose the friend despite her prior inaccuracies. When answering for themselves, adults valued accuracy, and endorsed and remembered information from the accurate stranger. When accuracy information was removed in the Equivalent Accuracy condition, adults were impartial between the friend and the stranger—after all, the friend was not their friend so they had no particular reason to favor her. In contrast, children did not expect Maya to be biased to believe her friend. Indeed, children's responses diverged from adults in that they seemed to care more about accuracy than friendship by making similar accuracy-based judgments for themselves and for Maya.

For Social preference questions, children and adults both chose the friend more when answering from Maya's perspective compared to

their own, although the divergence between self and Maya's perspective was larger for adults than for children. This means that children differentiated their perspective from Maya's clearly when answering who they or Maya liked more. Children's responses show that they understood the perspective manipulations correctly. This rules out the possibility that children's lack of discrimination between the two perspectives on learning questions (e.g., ask and endorse) was due to children's failure to appreciate the difference in perspective between themselves (first person) and Maya (third person).

Unlike adults, children did not expect Maya to be biased toward her inaccurate friend in learning labels for objects. In Experiment 2, we test whether children expect such bias when asked to make judgments about a different type of information.

Experiment 2

Four- and 5-year-olds in Experiment 1 did not think that Maya would prefer her friend or react differently from themselves when seeking and endorsing information. Children aged 4–6 years prioritized epistemic reasons over social ones in their own learning (Tong et al., 2020), thus it is possible they may expect others to do the same as well. To explore whether this pattern holds across other types of information, we moved from the domain of labels in Experiment 1 to opinions in Experiment 2 because opinions and preferences are inherently subjective (Heiphetz et al., 2013; Wainryb et al., 2004), and appreciated as such from a young age (Repacholi & Gopnik, 1997). Young children appreciate that what one person thinks of a movie or type of food can be different from another person's point of view. As such, someone's prior accuracy or lack thereof in labeling objects may be irrelevant to the validity of their preferences or personal opinions. Because of this, an informant may be less penalized for prior inaccuracy when the new claim under consideration reflects a personal opinion rather than a statement of fact. Thus, we investigated whether children's recognition of bias would be more likely to surface when evaluating subjective opinions.

Following a similar procedure to Experiment 1, we divided children between the equivalent accuracy and inaccurate friend conditions and introduced them to the characters and their labeling of familiar objects. At test, we presented two items of the same type (books, food, or games) and asked participants who Maya would like to ask an opinion from when seeking the best item, and whose opinion she would endorse. Once again, we asked the same questions from the participant's own perspective too.

If children think that friends are biased to believe each other, they should respond to questions from Maya's perspective by choosing the friend in the equivalent accuracy condition. If they do so in both the equivalent accuracy and inaccurate friend conditions, it would provide a particularly strong indication of their recognition of bias toward friends. If, however, they only do so in the equivalent accuracy condition (i.e., when the friend and stranger were both accurate), it would still constitute evidence that children think people trust the opinions of their friends more than strangers. If, however, children choose the friend and stranger at similar rates in the equivalent accuracy condition when answering from Maya's perspective, this will provide evidence that they do not discern the influence of friends.

Separately, this experiment will shed light on whether children view accuracy as important for seeking and endorsing opinions. If children choose the friend more when she is accurate than when she is inaccurate, they are demonstrating that prior accuracy affects the trustworthiness of opinions. If, however, they favor the friend or see the friend and stranger as similar regardless of accuracy, this would suggest that children disregard prior inaccuracy when evaluating subjective claims like opinions.

Method

Participants

Sixty-four children ($n = 32$ four-year-olds; $n = 32$ five-year-olds; $M = 60.35$ months, 31 female) took part. Two additional participants were excluded due to experimenter error. Children were recruited from the same population as Experiment 1. Thirty-six children participated in-person in the lab. The remaining 28 participants completed the experiment online due to COVID-19 restrictions.

Materials

Videos and pictures for the familiarization phase and social preference questions were identical to Experiment 1. For online sessions, an experimenter videoconferenced with the child and parent over Zoom, and stimuli were presented on slides.com, a platform that supports synchronous online presentations.

Design

Children were divided between the equivalent accuracy ($n = 33$) and inaccurate friend ($n = 31$) conditions. The following variables were counterbalanced across participants: identity of the friend (person on the left or right), order of perspectives for ask and endorse trials (Maya's perspective first or second), order of item types (e.g., books first, second, or third), and order of social preference perspective (Maya's perspective first or second).

Procedure

Experiment 2 consisted of two phases: familiarization and test.

Familiarization. Identical to Experiment 1, children viewed the introduction video followed by the Naming video. Then, memory for relationships and accuracy (inaccurate friend condition only) was probed, and the videos were repeated in cases of wrong responses.

Test.

Ask and Endorse (Six Trials). Each participant answered a block of three trials from their own perspective, and another block of three from Maya's. Within the perspectives, each of the trials showed a different type of item: books, food, or games. In each trial, pictures of two items appeared and the experimenter posed the ask question (e.g., child's perspective, "Let's find out which one is the best book to read. Who do you want to ask?" Maya's perspective, "Maya wants to know which one is the best book to read. Who do you think Maya is going to ask?"). Following the child's response, she told them each informant's opinion (e.g., "Jenny thinks this one is the best book to read, and Sophie thinks this one is the best book to read"). Then she posed the endorse question (e.g., child's perspective, "Which one do you think is the best book?" Maya's perspective, "Which one will Maya think is the best book?").

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Social Preference (Six Trials). Like Experiment 1, children were asked who they/Maya liked best, would share with, and would help.

COVID-19 Online Modifications. A number of changes were made to the procedure in order to accommodate online testing. Parents were asked ahead of time to be in a quiet area without distraction from siblings. At the start of the session, the experimenter instructed parents to not interfere in any way in children's responses. Right before starting the study, the experimenter turned off her camera, meaning that children could hear but not see her. Following the practice of color-coding options from Sheskin and Keil (2018), we used the informants' shirt colors in addition to their names to refer to them. At the start of the study, we tested children's recognition of these colors (orange and yellow). In order to clearly associate items (e.g., book) with characters, item and character pictures were set against a panel of the character's shirt color. In addition to the option of providing responses that referred to characters using names or colors, children could point on the screen. In these cases, which happened rarely, parents informed the experimenter of the child's choice using the alphabet letter next to the option.

Data Availability

Data for all three experiments are available at the Open Science Framework (OSF) and can be accessed at https://osf.io/wyrzt/ (Afshordi et al., 2022).

Results

Familiarization Phase

Overall, 88% of children remembered the identities of the friend and stranger (83% in-person, 93% online). In the inaccurate friend condition, 68% of children (65% in-person, 71% online) remembered who had given correct and incorrect labels. Thus, online participants appeared to be even more attentive than those tested in person. Children who did not respond correctly were informed that their response was not correct and watched the familiarization videos again.

Test Phase

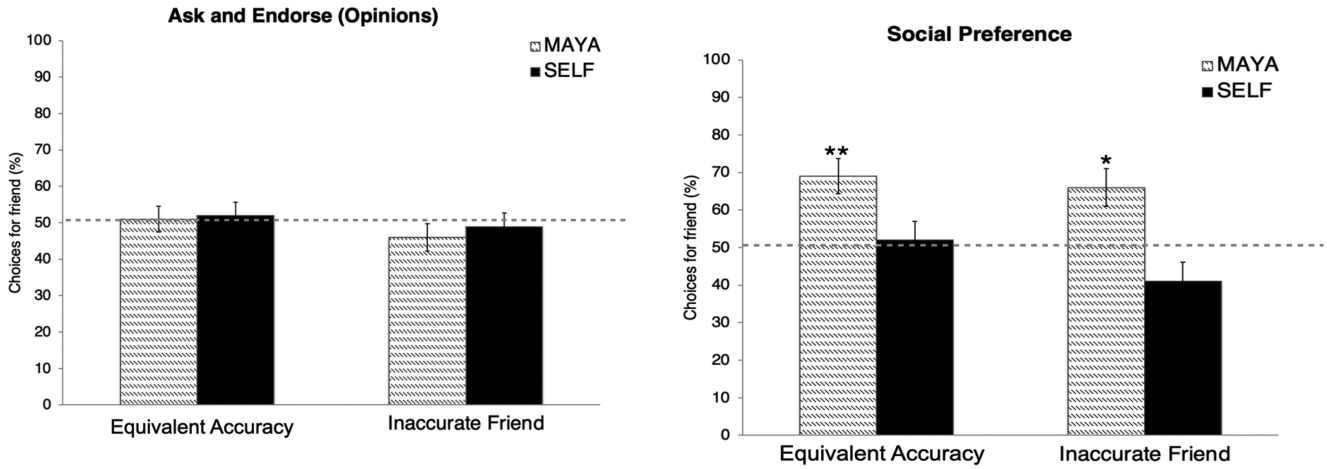
Ask and Endorse. See Figure 2 for a graph of results. An initial mixed-model binary logistic regression including question type (ask vs. endorse) as a fixed effect and participant as a random effect found no effect of question type ($p = .27$). Therefore, ask and endorse responses were collapsed for all subsequent analyses.

We ran a set of mixed-effects binary regression models including variations of condition, perspective, and location (in-person vs. online) and their interactions as fixed effects and participant as a random effect. The best model found a significant main effect of location ($OR = 1.74$; 95% CI [1.06, 2.88]; $p = .027$), and no other effects. That is, children's performance on the ask and endorse trials were statistically indistinguishable depending on condition and perspective, but children participating online chose the friend more than those participating at the lab. We followed up on the effect of location by comparing performance against chance. Despite the difference in performance between locations, children were statistically at chance in their choice of the friend in both cases (in-person: 44%, $p = .21$; online: 56%, $p = .21$, p values corrected for multiple comparisons). We also ran separate comparisons against chance for responses from all children (in-person and online participants combined) depending on condition and perspective. All responses were statistically at chance level (all corrected p values = 1).

Social Preference. See Figure 2 for social preference results. Several models including condition, perspective, and location were applied to the social preference responses. The best model found a significant main effect of perspective ($OR = 3.36$; 95% CI [2.04, 5.67], $p < .0001$), indicating that children thought Maya would prefer her friend to the stranger to a greater degree than they themselves preferred the friend to the stranger. There was also a main effect of location ($OR = 2.87$; 95% CI [1.27, 6.82]; $p = .011$), indicating that like ask and endorse trials, choices in favor of the friend were higher for children participating online compared to in-person. Follow-up comparisons against chance found responses from online participants to be above chance (67%, $p = .006$), while those from in-person participants were at chance (49%, $p = .88$).

Figure 2

Responses From Children in Experiment 2



Note. Responses are separated by condition and perspective for (a) ask and endorse questions combined (left) and (b) social preference questions (right). Error bars reflect the standard error of the mean. Dotted lines show chance level. Results of comparison of performance against chance are noted.
* $p < .05$. ** $p < .01$.

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When compared to chance, children's responses from Maya's perspective were significantly above chance (equivalent accuracy condition: 69%, $p = .003$, inaccurate friend condition: 66%, $p = .017$), while those from their own perspective were at chance (equivalent accuracy condition: 52%, $p = .81$, inaccurate friend condition: 41%, $p = .39$). As in Experiment 1, responses to who Maya liked were significantly above chance (equivalent accuracy condition: 28/33 choices for friend, $p < .0001$; inaccurate friend condition: 26/31 choices for friend, $p = .001$, binomial tests).

Most children remembered the relationships between Maya and the other characters (84% overall: 79% in-person, 89% online), as well as the accuracy of the friend and stranger in the inaccurate friend condition (77% overall: 82% in-person and 71% online).

Discussion

This experiment asked if children expected others to trust opinions from their friends over those from strangers. Children's responses were consistently at chance level, meaning that children sought and endorsed the opinions of the friend and the stranger equally for themselves and for Maya, regardless of whether the friend had been accurate in the past or not. These findings suggest that 4- and 5-year-olds do not expect people to believe their friends over strangers. This is indicated by their lack of choosing the friend more from Maya's perspective, particularly in the equivalent accuracy condition across both Experiments 1 (labels) and 2 (opinions). Second, we found that children had similar responses across the equivalent accuracy and inaccurate friend conditions and did not prefer to learn from one speaker over the other. One possibility is that preschoolers do not think that prior accuracy or lack thereof bears on the trustworthiness of an informant's opinion. In other words, children may have the emerging understanding that an informant's inaccuracy about objective factual knowledge does not necessarily affect their credibility about subjective opinions (Williams & Danovitch, 2019). Future studies can further assess the boundaries of children's judgments when reasoning about objective and subjective domains.

Finally, children's higher rates of choosing the friend when answering social preference questions from Maya's perspective compared to their own shows once again that they think people are likely to select their friends when asked who they like best, will share with and help. In the next and final experiment, we turn back to adults in order to clarify the reasoning behind their expectations that friendship guides trust, even in inaccurate friends.

Experiment 3

In Experiment 1, recall that adults justified Maya's trust in her inaccurate friend by mentioning friendship but it was not clear exactly whether they thought friendship can lead to trust in inaccurate informants, or whether friendship justifies trust in inaccurate informants. In other words, one possibility is that adults think that people typically trust their friends even though they believe that they should not trust someone who is a poor source of information. Another possibility is that adults think people trust their friends because they should do so. They may think that part of being a good friend is believing your friends and having faith in their judgments about the world, even when that trust is tested by a friend's inaccuracy. Somewhat similar arguments have been made by philosophers who posit that the obligations of friendship require believing friends, at least in the context of their beliefs and claims about themselves (e.g., Keller, 2004). While the case of trusting information about objective facts like labels is different, such moral considerations may still compel people to condone believing information from friends. A separate ambiguity in adult responses from Experiment 1 stems from its third-person nature. A prediction about what a third party will do does not clarify what the participant themselves would do when faced with such a situation. Participants may see themselves acting similarly or differently to what they predicted for Maya. Experiment 3 addresses both of these questions. In a between-subjects design, we asked half of the participants what Maya should do, and the other half what they would do if they were in Maya's place. We did not include the equivalent accuracy condition, because we already know from Experiment 1 that adults think that others would favor information from their friends. Thus, the friend was presented as inaccurate in both conditions.

Method

Participants

Sixty-four participants from the United States ($M = 33$ years, 31 female, 78% White, 1.5% Black, 8% Asian, and 12.5% mixed race or other) were recruited through Prolific.

Materials

The study was designed as a Qualtrics survey. The same videos and pictures from Experiment 1 were used.

Design

Half the participants were randomly assigned to the prescriptive condition (asked to judge what Maya "should" do), while the other half were assigned to the vicarious condition (asked what they would do if they were in Maya's shoes).

Procedure

The procedure was similar to Experiment 1, with some notable differences.

Familiarization Phase. Participants first watched the introduction video in which Maya introduced herself and the other two individuals. Then, participants in the vicarious condition received the vicarious manipulation, in which they saw pictures of the characters and were asked to place themselves in Maya's shoes. They had to imagine that the character Jenny was their friend who they had known for a long time, and the character Sophie was someone they had just met. Then, all participants watched the Naming video, in which the friend and stranger named four everyday objects. For all participants, the friend provided wrong responses and the stranger provided correct ones. Following these sections, memory questions were asked to check if participants recalled the relationships. These were worded differently across the two conditions (prescriptive: "Which one is Maya's best friend?" vicarious: "Which one is your best friend?"). Like before, we also checked memory of prior accuracy. If a participant did not recall the manipulation correctly, they were shown the corresponding video (introduction or naming) again.

Test Phase. There were three sets of questions in the test phase.

Ask and Endorse (Six Trials). This was similar to Experiment 1, meaning that Maya brought out a novel object and wondered what its

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name was. The friend and stranger then offered different novel labels. In the prescriptive condition, we asked what Maya should do (ask question: "Who should Maya ask?" endorse question: "What should Maya call this?"). In the vicarious condition, we asked what the participant would do if they were in Maya's place (ask question: "Who will you ask?" endorse question: "What will you call this?").

Social Preference (Six Trials). In the prescriptive condition, we asked participants who Maya liked best, preferred to share with, and help. In the vicarious condition, we asked the same questions about the participants themselves.

Justification (One Trial). Participants saw a new novel item and endorsed a label for it after seeing the friend and stranger offer their labels. They then explained their choice.

Results

Familiarization Phase

Participants in both conditions remembered the identity of the friend and stranger (prescriptive condition: 94%, vicarious condition: 91%), and who had given correct and wrong labels for objects (prescriptive condition: 81%, vicarious condition: 97%).

Test Phase

Ask and Endorse. Participants chose the friend 11% of the time in the prescriptive condition, compared to 20% in the vicarious condition (see Figure 3). Responses in both conditions were significantly below chance (prescriptive condition: $p = .001$, vicarious condition: $p = .0003$), and there was no difference between the two conditions.

Social preference. Participants chose the friend on average for 88.5% of trials in the prescriptive condition, and for 45.8% of trials in the vicarious condition. These rates were significantly different from each other ($OR = 0.05$; 95% CI [0.01, 0.15]; $p < .0001$), and while responses in the prescriptive condition were significantly above chance ($p < .00001$), they were at chance for the vicarious condition ($p = .5$).

Justification. The majority of justifications appealed to accuracy (prescriptive condition: 81.3%, vicarious condition: 53.1%), and there was no difference between the two conditions ($p = .21$). See the online supplemental materials for more details.

Discussion

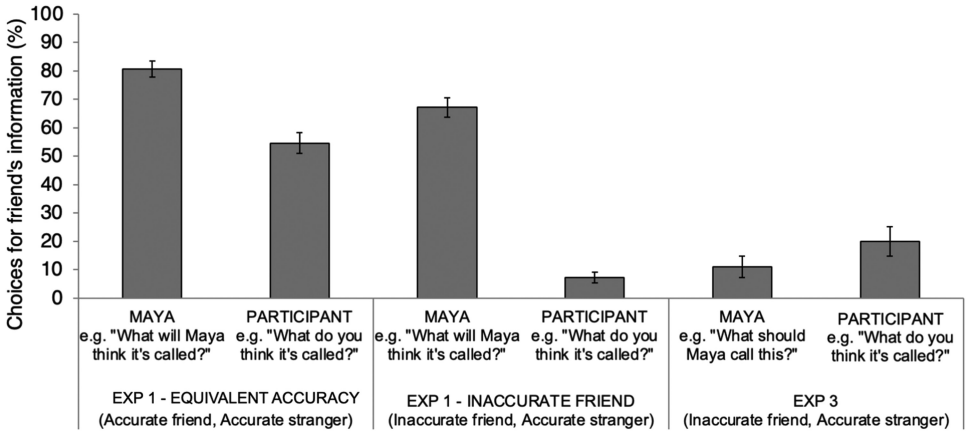
Across Experiments 1 and 3, we found that adults think that (a) other people will tend to believe their friends even if they are inaccurate, (b) people should not trust inaccurate friends, and (c) they themselves would not trust information from inaccurate friends. Thus, adults think other people, unlike themselves, will trust information from inaccurate friends when they should not. One possibility is that adults may be cynical, and view others' belief acquisition—but not their own—as nepotistic. Alternatively, adults may genuinely think they would not believe inaccurate friends but still do so. In other words, the pull of trusting a friend in real life could mask epistemic concerns and leave a blind spot leading people to think they are not biased toward believing friends when they actually are. If this is the case, their low levels of professed belief in the friend in the vicarious condition may have been aspirational, rather than realistic.

It is worth noting that although most favored trusting the accurate stranger, 20% of responses in the vicarious condition (from 14 out of 32 participants) and 10% in the prescriptive condition (from eight out of 32 participants) maintained trust in the inaccurate friend. If these numbers are any indication, some individuals may be prone to believing their inaccurate friends some of the time, and a small number may even be "super" believers, particularly prone or perhaps morally motivated to believe their friends outright no matter what. So even if most people place limits on the friendship bias in cases of clear inaccuracy, there exists a sizable minority who do not.

Finally, responses to the social preference questions in the vicarious condition were, somewhat surprisingly, significantly lower than those in the prescriptive condition. It is unlikely that vicarious condition participants forgot the identity of the friend and stranger, especially given the clear results from the other condition. Rather, participants were likely demonstrating their lack of enthusiasm about a friend who was so inaccurate as to not know the names of everyday objects.

Figure 3

Adults' Ask and Endorse Judgments From Experiments 1 and 3



Note. Exp = experiment. Error bars reflect the standard error of the mean.

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General Discussion

Through three experiments, we report four main findings. First, 4- and 5-year-old middle-class, mostly White, U.S. children did not expect people to believe their friends, be it for labels or opinions. Second, children valued accuracy when learning about labels (which are objective), but accuracy did not play a role when it comes to endorsing opinions (which are subjective). Third, children distinguished between their own perspective from another's in their social affiliation decisions, but not in their selective learning about labels or opinions from the friend. Lastly, U.S. adults expected people to be partial to their friends even when inaccurate but believed they themselves would not, and should not be so. They prioritized accuracy in their own judgments both when answering as themselves and when putting themselves in the protagonist's shoes.

The findings suggest that children reason differently from adults with regard to possible biases in believing information from friends. Adults judged that even though other people should not trust their inaccurate friends, they will likely do so anyway. That is, adults seem to view other people's favor toward their inaccurate friends as an unfortunate trap that others (unlike themselves) fall prey to. Our data from Experiment 3 further suggested that a considerable minority of respondents thought that they would or the main character should believe some information from the inaccurate friend. As a result, while adults may have exaggerated the rates at which others would favor close but dubious sources, they were correct in thinking that such practices exist. Thus, their appreciation of such friend-favoring biases probably serves their own critical thinking well.

By contrast, preschoolers begin with the expectation that others will value accuracy over partiality. Indeed, 4- and 5-year-old children's responses can be regarded as reasonable and well-founded during early childhood, as they often prioritize epistemic cues over social ones when acquiring knowledge from others by selectively learning from accurate informants over more familiar but less reliable social partners (Corriveau & Harris, 2009; Corriveau et al., 2009; Tong et al., 2020), While previous studies have focused on how children balance epistemic and social cues in adult informants (e.g., mothers and teachers), our studies are the first to directly examine the effects of friendship on children's trust in testimony. We suggest that it may be a good practice for children to be cautious about placing epistemic trust in friends, given that they are often surrounded by peers who possess a limited amount of knowledge, similar to their own. Indeed, in their everyday experience, preschool-aged children may frequently encounter situations where their friends make claims that they themselves recognize as false or that are later disproven by an adult. Thus, the distinct judgments that children and adults make may be attributable to their respective social experiences and peer contexts.

In our task, participants made judgments about someone else's belief acquisition, a process that involves a mentalizing component. Children and adults had to think through which label Maya would trust and endorse for a novel object, and keep this independent of their own belief about the correct label for that object. Could the task's need for mentalizing explain why preschoolers in our study did not think that Maya would believe her friend? Did they fail to consider that Maya could come to a different conclusion than themselves about the label of the novel objects? This does not seem to be the case. First, we tested only 4- and 5-year-olds because their well-documented and robust success at solving false belief tasks—one aspect of successful mentalizing—is well established (Wellman et al., 2001). Second, preschoolers differentiated their perspective from Maya's in social preference responses, demonstrating that they were capable of mentalizing the choices and preferences of others separately from their own. Therefore, while there is a role for mentalizing in our task, we do not believe that this explains differences between children and adults. Rather, children likely think that everyone should believe accurate informants and distrust inaccurate informants, regardless of their relationship with the learner. Some support for this claim already exists in previous work. Securely attached preschoolers were able to discount information from their mothers if their claims went against the evidence (Corriveau et al., 2009), and children trusted their preschool teachers over a stranger, but less so if she had been inaccurate (Corriveau & Harris, 2009). Thus, children appear to value accuracy more than relationships when judging selective learning decisions.

This study departs from the classic trust in testimony paradigm in two ways, thereby contributing to the broader literature on social learning. First, we asked children to make judgments about others' selective learning decisions, as well as their own selective decisions. This allowed us to assess not only children's values in learning and decision making, but also their assessments of other people's values. Although children answered from Maya's perspective similarly to their own, there may be domains or situations in which even this age group would better differentiate the first- and third-person perspectives. For instance, if asked to choose between information from their own mother and a friend's mother, children may prefer their mother but recognize that their friend would prefer their own mother. Using such manipulations of the trust in testimony paradigm can help chart out the development of critical thinking and evaluating information in real-world contexts that involve familiar informants. Second, we asked children to choose an informant from whom to gain opinions as well as labels. We found that preschoolers clearly differentiated between labels and opinions and were willing to entertain opinions from an inaccurate informant. This finding builds on the small literature on children's trust in subjective claims (e.g., food preferences, Lumeng et al., 2008; Williams & Danovitch, 2019), and speaks to the versatility of children's reasoning about the different types of statements that make their way from one individual to another). It would be worthwhile to investigate whether children view other types of nonfactual statements (e.g., preferences and interpretations) as more akin to labels or opinions.

Our findings also have implications for the burgeoning literature on friendship concepts. Preschoolers understand that affection is central to friendship (e.g., Furman & Bierman, 1983), and here too, they expected Maya to like her friend as a social partner in both experiments. Nevertheless, they did not expect her to preferentially share with or help her friend in Experiment 1, which seems to go against preschoolers' expectation that friends share with and help one another (Afshordi, 2019; Liberman & Shaw, 2017). However, the situation here is somewhat different because children know that Maya has met the stranger and seems to be positively inclined toward her (i.e., saying, "she seems nice"). Therefore, some children may reason that Maya feels some favor toward this potential social partner or seeks to make her feel welcome. Thus, the current findings are in alignment with friendship concepts and expectations as they apply to the domain of affection and prosocial actions.

The current study was limited in a number of ways. First, data collection was hampered by the COVID-19 breakout, and we collected data online from half of the sample in Experiment 2. The change was not ideal, but we did our best and believe we succeeded in making

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the experiment comparable across in-person and online testing. In fact, we saw somewhat better memory from online participants than from in-person ones, signaling that the integrity of the manipulations in the procedure was not compromised. Nonetheless, we found small although ultimately unimportant differences between the in-lab and online groups. Second, we were unable to collect informative justifications for responses from children. We tried a number of approaches, but most children responded by saying "I don't know." Had we succeeded in eliciting justifications from children, we might have gained more insight into whether and when they considered friendship as possible grounds for trust. Further, due to logistical limitations, our samples of children and adults were quite racially and ethnically homogenous, and we regret the lack of greater balance in our sample.

Future work should explore how older children's responses differ from those of preschoolers, and when they begin to show adultlike inferences. We chose the older preschool ages because of children's rich concepts of friendship and the considerable body of work on selective learning. Given the vast amount of literature on this age range, our findings engage with and contribute to ongoing scholarship on the distinction between interpersonal and epistemic grounds for trust in that age group (Harris et al., 2018; Koenig et al., 2021). In the next steps following-up on this work, an expanded age range would clarify the developmental trajectory in understanding of trust in friends. Children often treat inaccuracy as evidence that informs their mistrust of unfamiliar informants (Koenig et al., 2004), but also their mothers (Corriveau et al., 2009), teachers (Corriveau & Harris, 2009), and peers (Jaswal & Neely, 2006), and we take the current evidence as further corroboration of the priority children of this age give to inaccuracy in the context of personal relationships. However, as discussed above, much less studied is children's expectations of how other people will learn from their mothers, teachers, and peers. When charting a developmental trajectory between children (who expected people to mistrust inaccurate friends) and adults (who expected people to trust friends despite inaccuracy), we expect to see fairly stable interest in inaccuracy as an epistemic cue across time coupled with an increasing priority given to the interpersonal pull of friendship on these decisions. Middle childhood and adolescence is a time when peer relationships, especially friendships, become more central to children's social lives (e.g., Barber & Erickson, 2001; Brown & Larson, 2009). This may translate to a stronger effect of friends and peer groups in children's own social learning, as well as their expectations of other people when learning from friends. Perhaps, with age, children grow in their context-sensitive understanding of people's vulnerability to misinformation and biased perspectives (Herrero-Diz et al., 2020; Koenig et al., 2019), and make more nuanced person-specific inferences in middle childhood. One way to gain insight into the nature of developmental change would be to examine individual differences in slightly older children (e.g., 6- to 10-year-olds) and ask them about a range of friendships, some close and some casual. This would allow us to see how much variation is a function of general gains in experience, and how much is dependent on particular social experiences with specific friendships.

Future work should also consider delving more deeply into children's views on trust in subjective opinions. One notable finding here was that the accuracy of the friend or lack thereof did not bear on children's trust in her opinions, unlike trust in labels. The fact that the lack of accuracy did not penalize trust in opinions stands in contrast with previous work about factual knowledge. For instance, Koenig and Jaswal (2011) found that children distrusted an inexpert who was clearly wrong about dogs even when she offered labels for novel objects, a phenomenon they termed the "pitchfork" effect. However, we found that even when the friend was completely wrong on the labels of familiar objects, children were still choosing equally between her opinions and those of the stranger. This lack of a pitchfork effect in our findings may point to children's understanding of the subjective nature of expressed opinions, which may be less easily undermined by a speakers' inaccurate statements of fact. Future work should investigate whether this pattern indeed signifies children's openness toward testimony from previously inaccurate informants when it is in the form of subjective opinions.

The testimony of others has the power to inform us, to educate us, and to make us aware of a world much bigger than the one we inhabit in our daily lives. Remarkable feats of human culture are made possible by our ability to put our trust into the veracity of what others tell us. However, testimony can also mislead us, warping our reality, and making us wary of nonexistent dangers. As our findings from Experiment 3 suggest, some individuals seem more prone than others in believing their friends, even when they are known to be poor sources of information. Not surprisingly, then, adults seem to factor partiality into their judgments, expecting others to be biased to believe their friends, and they presumably use this expectation to remain skeptical about information that others have procured from their friends. Preschoolers, meanwhile, seem to think that others, like themselves, would be incredulous of information coming from an inaccurate friend. Thus, the developmental trajectory of expecting epistemic biases in favor of friends is only just starting in the preschool years.

References

Afshordi, N. (2019). Children's inferences about friendship and shared preferences based on reported information. *Child Development*, *90*(3), 719–727. https://doi.org/10.1111/cdev.13237

Afshordi, N., Li, P., & Koenig, M. (2022, May 26). *Trust in friends*. https://osf.io/wyrzt/

Afshordi, N., & Liberman, Z. (2021). Keeping friends in mind: Development of friendship concepts in early childhood. *Social Development*, *30*(2), 331–342. https://doi.org/10.1111/sode.12493

Astapova, A. (2020). Rumours, urban legends and the verbal transmission of conspiracy theories. In M. Butter & P. Knight (Eds.), *Routledge handbook of conspiracy theories* (pp. 391–400). Routledge.

Barber, B. K., & Erickson, L. D. (2001). Adolescent social initiative: Antecedents in the ecology of social connections. *Journal of Adolescent Research*, *16*(4), 326–354. https://doi.org/10.1177/0743558401164003

Brown, B. B., & Larson, J. (2009). Peer relationships in adolescence. In R. M. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (pp. 74–104). John Wiley & Sons. https://doi.org/10.1002/9780470479193.adlpsy002004

Corriveau, K. H., & Harris, P. L. (2009). Choosing your informant: Weighing familiarity and recent accuracy. *Developmental Science*, *12*(3), 426–437. https://doi.org/10.1111/j.1467-7687.2008.00792.x

Corriveau, K. H., Harris, P. L., Meins, E., Fernyhough, C., Arnott, B., Elliott, L., Liddle, B., Hearn, A., Vittorini, L., & De Rosnay, M. (2009). Young children's trust in their mother's claims: Longitudinal links with attachment security in infancy. *Child Development*, *80*(3), 750–761. https://doi.org/10.1111/j.1467-8624.2009.01295.x

Dunn, J. (1993). *Young children's close relationships: Beyond attachment*. Sage Publications.

Elashi, F. B., & Mills, C. M. (2014). Do children trust based on group membership or prior accuracy? The role of novel group membership in children's trust decisions. *Journal of Experimental Child Psychology*, *128*, 88–104. https://doi.org/10.1016/j.jecp.2014.07.003

Furman, W., & Bierman, K. L. (1983). Developmental changes in young children's conceptions of friendship. *Child Development*, *54*(3), 549–556. https://doi.org/10.2307/1130041

Gelman, S. A. (2009). Learning from others: Children's construction of concepts. *Annual Review of Psychology*, *60*(1), 115–140. https://doi.org/10.1146/annurev.psych.59.103006.093659

Gottman, J. M. (1983). How children become friends. *Monographs of the Society for Research in Child Development*, *48*(3), 1–86. https://doi.org/10.2307/1165860

Harris, P. L., Koenig, M. A., Corriveau, K. H., & Jaswal, V. K. (2018). Cognitive foundations of learning from testimony. *Annual Review of Psychology*, *69*(1), 251–273. https://doi.org/10.1146/annurev-psych-122216-011710

Hartup, W. W. (2006). Relationships in early and middle childhood. In A. L. Vangelisti & D. Perlman (Eds.), *The Cambridge handbook of personal relationships* (pp. 177–190). Cambridge University Press.

Heiphetz, L., Spelke, E. S., Harris, P. L., & Banaji, M. R. (2013). The development of reasoning about beliefs: Fact, preference, and ideology. *Journal of Experimental Social Psychology*, *49*(3), 559–565. https://doi.org/10.1016/j.jesp.2012.09.005

Herrero-Diz, P., Conde-Jiménez, J., & Reyes de Cózar, S. (2020). Teens' motivations to spread fake news on WhatsApp. *Social Media Society*, *6*(3), Article 2056305120942879. https://doi.org/10.1177/2056305120942879

Hornsey, M. J., Harris, E. A., & Fielding, K. S. (2018). The psychological roots of anti-vaccination attitudes: A 24-nation investigation. *Health Psychology*, *37*(4), 307–315. https://doi.org/10.1037/hea0000586

Howes, C. (1988). Peer interaction of young children. *Monographs of the Society for Research in Child Development*, *53*(1), Article 94. https://doi.org/10.2307/1166062

Howes, C. (2009). Friendship in early childhood. In K. H. Rubin, W. M. Bukowski, & B. Laursen (Eds.), *Handbook of peer interactions, relationships, and groups* (pp. 180–194). Guilford Press.

Jaswal, V. K., & Kondrad, R. L. (2016). Why children are not always epistemically vigilant: Cognitive limits and social considerations. *Child Development Perspectives*, *10*(4), 240–244. https://doi.org/10.1111/cdep.12187

Jaswal, V. K., & Neely, L. A. (2006). Adults don't always know best: Preschoolers use past reliability over age when learning new words. *Psychological Science*, *17*(9), 757–758. https://doi.org/10.1111/j.1467-9280.2006.01778.x

Keller, S. (2004). Friendship and belief. *Philosophical Papers*, *33*(3), 329–351. https://doi.org/10.1080/05568640409485146

Kinzler, K. D., Corriveau, K. H., & Harris, P. L. (2011). Children's selective trust in native-accented speakers. *Developmental Science*, *14*(1), 106–111. https://doi.org/10.1111/j.1467-7687.2010.00965.x

Koenig, M. A., Clément, F., & Harris, P. L. (2004). Trust in testimony: Children's use of true and false statements. *Psychological Science*, *15*(10), 694–698. https://doi.org/10.1111/j.0956-7976.2004.00742.x

Koenig, M. A., & Harris, P. L. (2005). Preschoolers mistrust ignorant and inaccurate speakers. *Child Development*, *76*(6), 1261–1277. https://doi.org/10.1111/j.1467-8624.2005.00849.x

Koenig, M. A., & Jaswal, V. K. (2011). Characterizing children's expectations about expertise and incompetence: Halo or pitchfork effects? *Child Development*, *82*(5), 1634–1647. https://doi.org/10.1111/j.1467-8624.2011.01618.x

Koenig, M. A., Li, P. H., & McMyler, B. (2021). Interpersonal trust in communication: The case of child learners. *Mind and Language*, *37*(5), 955–974. https://doi.org/10.1111/mila.12361

Koenig, M. A., Tiberius, V., & Hamlin, J. K. (2019). Children's judgments of epistemic and moral agents: From situations to intentions. *Perspectives on Psychological Science*, *14*(3), 344–360. https://doi.org/10.1177/1745691618805452

Lane, J. D., Wellman, H. M., & Gelman, S. A. (2013). Informants' traits weigh heavily in young children's trust in testimony and in their epistemic inferences. *Child Development*, *84*(4), 1253–1268. https://doi.org/10.1111/cdev.12029

Levin, D. Z., Whitener, E. M., & Cross, R. (2006). Perceived trustworthiness of knowledge sources: The moderating impact of relationship length. *Journal of Applied Psychology*, *91*(5), 1163–1171. https://doi.org/10.1037/0021-9010.91.5.1163

Li, P. H., & Koenig, M. A. (2020). Children's evaluations of informants and their surprising claims in direct and overheard contexts. *Journal of Cognition and Development*, *21*(3), 425–446. https://doi.org/10.1080/15248372.2020.1745208

Liberman, Z., & Shaw, A. (2017). Children use partial sharing as a cue to friendship. *Journal of Experimental Child Psychology*, *159*, 96–109. https://doi.org/10.1016/j.jecp.2017.02.002

Liberman, Z., & Shaw, A. (2018). Secret to friendship: Children make inferences about friendship based on secret sharing. *Developmental Psychology*, *54*(11), 2139–2151. https://doi.org/10.1037/dev0000603

Liberman, Z., & Shaw, A. (2020). Even his friend said he's bad: Children think personal alliances bias gossip. *Cognition*, *204*, Article 104376. https://doi.org/10.1016/j.cognition.2020.104376

Lumeng, J. C., Cardinal, T. M., Jankowski, M., Kaciroti, N., & Gelman, S. A. (2008). Children's use of adult testimony to guide food selection. *Appetite*, *51*(2), 302–310. https://doi.org/10.1016/j.appet.2008.03.010

Mammen, M., Köymen, B., & Tomasello, M. (2019). Children's reasoning with peers and parents about moral dilemmas. *Developmental Psychology*, *55*(11), 2324–2335. https://doi.org/10.1037/dev0000807

Many Trust What Their Friends Post on Social Media More Than Experts, Poll Claims. (2019). *Independent*. https://www.independent.co.uk/extras/lifestyle/social-media-facebook-friends-trust-experts-a9015636.html

Mesoudi, A., & Thornton, A. (2018). What is cumulative cultural evolution? *Proceedings of the Royal Society B: Biological Sciences*, *285*(1880), Article 20180712. https://doi.org/10.1098/rspb.2018.0712

Mills, C. M., Al-Jabari, R. M., & Archacki, M. A. (2012). Why do people disagree? Explaining and endorsing the possibility of partiality in judgments. *Journal of Cognition and Development*, *13*(1), 111–136. https://doi.org/10.1080/15248372.2010.547236

Mills, C. M., & Grant, M. G. (2009). Biased decision-making: Developing an understanding of how positive and negative relationships may skew judgments. *Developmental Science*, *12*(5), 784–797. https://doi.org/10.1111/j.1467-7687.2009.00836.x

O'Connor, C., & Weatherall, J. O. (2019). *The misinformation age: How false beliefs spread*. Yale University Press.

Olson, K. R., & Spelke, E. S. (2008). Foundations of cooperation in young children. *Cognition*, *108*(1), 222–231. https://doi.org/10.1016/j.cognition.2007.12.003

Paluck, E. L. (2011). Peer pressure against prejudice: A high school field experiment examining social network change. *Journal of Experimental Social Psychology*, *47*(2), 350–358. https://doi.org/10.1016/j.jesp.2010.11.017

Platow, M. J., Foddy, M., Yamagishi, T., Lim, L. I., & Chow, A. (2012). Two experimental tests of trust in in-group strangers: The moderating role of common knowledge of group membership. *European Journal of Social Psychology*, *42*(1), 30–35. https://doi.org/10.1002/ejsp.852

R Core Team. (2021). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. https://www.R-project.org/

Repacholi, B. M., & Gopnik, A. (1997). Early reasoning about desires: Evidence from 14-and 18-month-olds. *Developmental Psychology*, *33*(1), 12–21. https://doi.org/10.1037/0012-1649.33.1.12

Roberts, S. O., & Rizzo, M. T. (2021). The psychology of American racism. *American Psychologist*, *76*(3), 475–487. https://doi.org/10.1037/amp0000642

Selman, R. L. (1981). The child as a friendship philosopher. In S. R. Asher & J. M. Gottman (Eds.), *The development of children's friendships* (pp. 242–272). Cambridge University Press.

Sheskin, M., & Keil, F. (2018). *TheChildLab.com: A video chat platform for developmental research*. https://psyarxiv.com/rn7w5

Sobel, D. M., & Finiasz, Z. (2020). How children learn from others: An analysis of selective word learning. *Child Development*, *91*(6), e1134–e1161. https://doi.org/10.1111/cdev.13415

Souza, D. D. H., Suárez, S., & Koenig, M. A. (2021). Selective trust and theory of mind in Brazilian children: Effects of socioeconomic background.

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Journal of Cognition and Development, *22*(2), 169–184. https://doi.org/10.1080/15248372.2020.1867553

Taylor, S., Landry, C. A., Paluszek, M. M., Groenewoud, R., Rachor, G. S., & Asmundson, G. J. (2020). A proactive approach for managing COVID-19: The importance of understanding the motivational roots of vaccination hesitancy for SARS-CoV2. *Frontiers in Psychology*, *11*, Article 2890. https://doi.org/10.3389/fpsyg.2020.575950

Tomasello, M. (2016). Cultural learning Redux. *Child Development*, *87*(3), 643–653. https://doi.org/10.1111/cdev.12499

Tong, Y., Wang, F., & Danovitch, J. (2020). The role of epistemic and social characteristics in children's selective trust: Three meta-analyses. *Developmental Science*, *23*(2), Article e12895. https://doi.org/10.1111/desc.12895

VanderBorght, M., & Jaswal, V. K. (2009). Who knows best? Preschoolers sometimes prefer child informants over adult informants. *Infant and Child Development*, *18*(1), 61–71. https://doi.org/10.1002/icd.591

Wainryb, C., Shaw, L. A., Langley, M., Cottam, K., & Lewis, R. (2004). Children's thinking about diversity of belief in the early school years: Judgments of relativism, tolerance, and disagreeing persons. *Child Development*, *75*(3), 687–703. https://doi.org/10.1111/j.1467-8624.2004.00701.x

Wang, F., Tong, Y., & Danovitch, J. (2019). Who do I believe? Children's epistemic trust in internet, teacher, and peer informants. *Cognitive Development*, *50*, 248–260. https://doi.org/10.1016/j.cogdev.2019.05.006

Wellman, H. M., Cross, D., & Watson, J. (2001). Meta-analysis of theory-of-mind development: The truth about false belief. *Child Development*, *72*(3), 655–684. https://doi.org/10.1111/1467-8624.00304

Williams, A. J., & Danovitch, J. H. (2019). What does Mickey Mouse know about food? Children's trust in favorite characters versus experts. *Journal of Experimental Child Psychology*, *187*, Article 104647. https://doi.org/10.1016/j.jecp.2019.05.014

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