



Published in final edited form as:

Dev Psychol. 2013 March ; 49(3): 462–469. doi:10.1037/a0031595.

Children's Use of Moral Behavior in Selective Trust: Discrimination versus Learning

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Abstract

Does valence play a role in children's sensitivity to and use of moral information in the service of selective learning? In the present experiment, we explored this question by presenting three- to five-year-old children with informants who behaved in ways consistent or inconsistent with socio-moral norms, such as helping a peer retrieve a toy, or deliberately tearing a peer's artwork. 'Good' versus 'bad' informants were contrasted with putatively neutral-behaving informants. In an effort to specify the role that moral information plays in guiding children's selective trust, we measured children's ability to discriminate the informants as well as their willingness to learn from them. We found that children were significantly more likely to discriminate negatively-behaving agents from neutral ones than they were to discriminate positively-behaving agents from neutral ones. In contrast, children did not differ in the degree to which they used negative versus positive moral information in their selective learning; both types of information were used to guide trust across domains of knowledge. Results are discussed in terms of the positive-negative asymmetry observed and the different forms that a negativity bias might take.

Keywords

selective learning; social learning; moral development; trust in testimony; negativity bias; positivity bias; social cognitive development

Trust in communication concerns not only assessing an informant's knowledgability, but also one's motives and intentions to communicate truthfully (Koenig, 2010; Mascaro & Sperber, 2009; Sperber et al., 2010; Vanderbilt, Liu, & Heyman, 2011; Williams, 2004). While it is always in the interests of a listener or audience to be accurately informed, sincerity does not always serve a speaker's interests (Bergstrom, Moehlmann, & Boyer, 2006; Dawkins & Krebs, 1978; Faulkner, 2011; Fehr & Gächter, 2002; Sperber, 2001; Williams, 2002). Given that the intentions of a speaker to tell the truth or to deceive are not open to observation, listeners are left to track behaviors that indirectly reflect a speaker's intentions toward others (e.g., Ekman & Friesen, 1974). For example, individuals who do helpful things for others may be more likely to have good intentions toward others generally,

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whereas individuals who do deliberate harm to others may be more likely to harbor malevolent intentions more generally.

Recent research suggests that children do indeed track behavioral cues to an informant's motives and intentions, such as incorrect pointing (Mascaro & Sperber, 2009; Vanderbilt, Liu, & Heyman, 2011) and physical harm (Mascaro & Sperber, 2009), which they in turn use to guide their learning. Mascaro and Sperber (2009) found that 3-year-olds preferred the testimony of a source who behaved benevolently over one who behaved malevolently, and selectively avoided accepting information from a source described in negative moral terms. Vanderbilt et al. (2011) familiarized children with informants who tricked or helped others and found that five-year-olds preferred to learn from individuals who had a history of being helpful. These findings suggest that, like adults, children are attuned to certain indicators that an informant may not be inclined to cooperate and share information truthfully. However, what remains unclear is *how* they use this information.

In the present research, we investigate the possibility that the valence of a speaker's moral actions may have differential effects on children's behavior. Mascaro and Sperber (2009) speculated that the children in their study had preferences to learn from moral informants that were driven in part by heightened sensitivity to positive character traits. This interpretation coheres with a large literature indicating that young children display a general "positivity bias" in personality reasoning (see Boseovski, 2010, for a review). For example, young children show a positivity bias when rating their own and other's traits, insofar as their ratings tend to be overly positive in comparison to reality (Stipek & Mac Iver, 1989; Stipek, 1981), and tend to be overgeneralized to unrelated domains (Stipek & Daniels, 1990). They also use trait explanations for positive attributes earlier than they do for negative attributes (e.g., Beneson & Dweck, 1986) and tend to view positive traits as more stable and enduring than negative ones (Heyman & Giles, 2004). In terms of reasoning about personality on the basis of evidence, they require less evidence of positive behavior before making a trait attribution than they do negative behavior (Boseovski & Lee, 2006) and tend to selectively focus on positive versus negative behavioral information when both are available, disregarding relevant base rates (Rholes & Ruble, 1984).

Such a bias to see others (and themselves) in a positive light may function, in part, to support children's dependence on others for information. Indeed, a compelling case can be made that when it comes to evaluating others' claims, all testimony can be accepted at face value *unless* it is marked as potentially irrational, mistaken or deceptive (Burge, 1998; Goldberg, 2007; McDowell, 1994). Thus, given how dependent children are on others for information, being able to quickly evaluate someone's harmful intentions could prove useful. As such, a "negativity bias" in which children are more likely to pick out and/or make use of negative information than they are positive information, might be critical in selective learning by facilitating children's discrimination of harmful sources and steering them away from their testimony. A heightened sensitivity to negative information is a well-documented psychological phenomenon in adults (Baumeister, Bratslavsky, Finkenauer, & Vohs, 2001; Cacioppo & Berntson, 1994; Taylor, 1991), and has also been proposed to support cognitive development by constraining social learning processes in childhood (Vaish, Grossmann, & Woodward, 2008). Developmental evidence also suggests that a

negativity bias operates with respect to specifically moral information in childhood, both in its identification and use. Preschool children have better recognition memory for faces of individuals who they have been told have engaged in harmful actions (Kinzler & Shutts, 2008). Three-year-olds have also been found to be better at predicting socio-moral outcomes when the information provided is negative as opposed to positive (Boseovski & Lee, 2006). In addition, children at this age are able to selectively avoid helping individuals who intend to and/or cause harm, yet do not prefer to assist helpful individuals more than neutral ones (Vaish, Carpenter, & Tomasello, 2010). Furthermore, recent evidence using infant paradigms suggests that sensitivity to negative moral information emerges quite early in development (e.g., Hamlin, Wynn, & Bloom, 2010) and quickly grows in sophistication: toddlers evaluate negative and positive behaviors toward others in terms of whether they are deserved (Hamlin, Wynn, Bloom, & Mahajan, 2011; Vaish, Carpenter, & Tomasello, 2009).

It has also been suggested that a negativity bias may operate in young children's selective avoidance of incompetent speakers (Koenig & Doebel, in press). Infants give heightened attention to mistaken labellers by 16 months (Koenig & Echols, 2003), and toddlers modulate their learning from an informant after witnessing overt labeling errors (Koenig & Woodward, 2010). Corriveau, Meints, and Harris (2009) pitted accurate, inaccurate, and neutral informants against one another and found that although four-year-olds demonstrated selectivity across all three informant pairings (e.g., accurate-inaccurate, accurate-neutral, inaccurate-neutral), 3-year-olds only proved selective when one of the two informants had previously been inaccurate (see also Pasquini, Corriveau, Koenig, & Harris, 2007).

Evidence for negativity effects also emerged in recent research on children's treatment of expertise versus incompetence (Koenig & Jaswal, 2011). Across two studies, 3- and 4-year-old children were presented with people who varied in how much they knew about dogs. While most children were adept in discriminating and identifying the more knowledgeable person, their decisions to trust depended on the whether they were favoring the expert or avoiding the incompetent source. When presented with a dog expert versus a neutral source, children preferred the expert for the names of new dogs, but showed no selective preference for either informant regarding the names of novel artifacts. In contrast, when presented with an incompetent source versus a neutral source, children's avoidance of the incompetent source guided learning about both novel dogs and artifacts. Children's domain-general avoidance of an incompetent source may reflect the greater weight children give to signs of incompetence relative to signs of knowledgeability.

In sum, the empirical literature supports the possibility of both positivity and negativity biases in children's sensitivity to and selective use of moral behavioral information in the service of learning in early childhood. At present, there is no clear experimental evidence indicating whether such a bias prevails in this domain, and if it does, in which direction. Thus far, valence has not been manipulated experimentally to allow for inferences about the independent effects of negative versus positive information; rather, studies have either looked at one valence in isolation (e.g., Mascaro & Sperber, Experiment 3) or contrasted valences directly (e.g., Vanderbilt et al., 2011; Mascaro & Sperber, Experiment 1), preventing conclusions about which type of information – positive or negative – drives children's preferences. Thus, given the evidence that children show a negativity bias in their

sensitivity to and use of moral information, and also in selective trust, the current research aimed to investigate whether children show valence biases in selective trust based on moral behavior, and if yes, how such a bias manifests. Specifically, we first sought to evaluate whether valence biases might operate at the level of discrimination. We pursued this goal by carefully balancing the presentation of positive, negative, and neutral moral behavioral information. Second, we examined the possibility that children show a valence bias at the level of their selective learning.

We pursued these questions using a modified version of the selective trust paradigm used by Koenig and Jaswal (2011). First, in order to make clear inferences about children's use of positive versus negative moral behavior, we presented children with either an overtly harmful actor (in the Immoral condition) or a helpful actor (Moral condition) who was contrasted with a neutral actor who did not direct any actions toward another person (e.g., an agent completing a drawing at the same table as a peer). Second, after being presented with two actors, children were asked to explicitly discriminate them by identifying who was nicer, both at the beginning and end of the experiment. Third, we gave children the opportunity to show their selective learning in two domains, one that was near or proximal to the area of competence demonstrated by the informant during familiarization (i.e., novel behavioral rules such as discrepant instructions from the informants about how to play a game) and one that was relatively distal (i.e., contrasting novel object labels). If young children's social learning in the moral domain is guided by a positivity bias, one would expect children to be superior at discriminating the more moral of two actors in the Moral condition versus the Immoral one, and/or more inclined to use the discriminated information in selective trust, both by being more likely to trust the more moral actor for information, and also by generalizing this trust broadly to different informational domains. If, on the other hand, children are guided by a negativity bias, one would expect the opposite pattern to hold, with heightened discrimination, and more general avoidance of the immoral actor.

Method

Participants

Participants ($N = 159$) included 51 three-year olds (range = 3;0 to 3;11 years, $M = 3;6$), 56 four-year-olds (range = 4;0 to 4;11 years, $M = 4;5$), and 52 five-year-olds (range = 5;0 – 5;7 years, $M = 5;3$). The sample was randomly selected from a database of children living in a Midwestern city. Children from this pool are predominately Caucasian, native English speakers from middle to high SES homes. An additional 7 participants were enrolled but excluded from the study because of uncooperativeness ($N = 5$) and experimenter error ($N = 2$).

Design

Children were randomly assigned to one of two experimental conditions in which they were familiarized with either a helpful/neutral pair of informants (Moral condition), or a harmful/neutral pair (Immoral condition). Within each condition, children were randomly assigned to one of two selective trust test conditions in which the domain of learning was manipulated: a

proximal learning condition (novel behavioral rules) and a distal condition (novel object labels).

All children participated in a Familiarization phase that included 8 scenes in total (4 consecutive scenes of each informant engaged in various activities with a peer) and a Test phase that consisted of 4 Ask trials and 4 Endorse trials. At the end of each of the Familiarization and Test phases (2 trials total), children completed a Discrimination Trial (also known as “explicit judgment trial”). This design permitted us to measure (i) children’s ability to distinguish a morally-valenced agent from a neutral one and (ii) the extent to which children would use the valenced information to make judgments about whether to trust their testimony. The duration of the experiment was approximately 15 minutes.

Procedure

Children were presented with video clips of two female actors, one in a solid yellow shirt and one in a blue shirt. In the Familiarization phase, depending on the condition, children saw 4 trials of an actor behaving in either a consistently helpful (Moral condition) or consistently harmful (Immoral condition) way toward a peer, along with 4 trials of a neutral actor who never interacted with the peer. In the test phase, all children were presented with clips of the same actors they were familiarized with, this time providing conflicting names for a novel object.

The experimenter introduced the task by pointing to still images of the two informants while saying, “We’re going to play a game with these two people I know. Do you want to see them? Look! Here’s Kate. She’s wearing the yellow shirt. And here’s Mary. She’s wearing the blue shirt. We’re going to watch Kate and Mary do different things. One of them is nicer than the other one. I want you to pay careful attention to what they do, okay? Then I’m going to ask you what you think. Ready? Let’s watch _____ first.”

Children were then shown the familiarization trials, followed by the first discrimination trial, followed by the test trials and second discrimination trial.

Familiarization Phase—The familiarization phase provided children with an opportunity to observe an informant behaving in a consistently helpful or harmful way toward a peer, such as sharing a toy, or tearing up the peer’s drawing. A challenge we faced in examining questions about valence in moral behavior and selective trust was to create stimuli that had the appropriate valence while being balanced insofar as they convey moral content without drawing attention for other reasons. For example, if children were better at discriminating the immoral because the actor was perceptually more salient (e.g., louder voice or more exaggerated physical movements) then this would fail to inform us as to presence of negativity bias in discrimination of moral behavior per se. We strove to create stimuli that conveyed moral information without superfluous information that might bias attention in either direction. All children also watched 4 familiarization clips that depicted a neutral actor who did nothing to directly affect the peer but engaged in parallel activities such as playing with stuffed animals or drawing pictures while seated at a table. Children were familiarized with the neutral informant to minimize the chance that she would be preferred or avoided on the basis of her unfamiliarity relative to the valenced informant. Table 1

provides a brief description of what children saw in each scene, by condition. These clips were otherwise equivalent to the clips in which the actor behaved either morally or immorally. Order of presentation (neutral actor first or last) was counterbalanced, as were the actors' roles.

First Discrimination Trial—The video was paused on a split screen of the two informants and the experimenter said, “You saw Kate and Mary do a lot of things. One of them was nicer than the other. Which one was nicer than the other? Can you point to the person who was nicer?” The phrasing of this question was carefully selected so that it could be used in both the Moral/Neutral and Immoral/Neutral informant conditions and compared accordingly. Children did not receive any feedback in response to their answers.

Selective Trust Test Phase—This test phase aimed to gauge whether children would selectively prefer to learn from one of the two informants. In this phase there were 4 Ask and 4 Endorse trials. The content of these trials varied depending on whether the child was in the Novel Labels condition or the Novel Moral Rules condition. Each is described below.

Ask trials: novel labels condition: Prior to playing the video the experimenter said, “Now Kate and Mary are going to tell you about some things.” Children were first shown an image of a novel object and the experimenter said, “Hmmm, I wonder what this is called?” A split screen of the actors in the blue shirt and the yellow shirt was shown, and the experimenter said, “I bet one of these people can tell us. Who would you like to ask?” Once the child made a selection the experimenter said, “Okay, let’s see what they say.”

Endorse trials: novel labels condition: The experimenter played a video clip in which a new actor approaches and stands in between the two seated actors and placed the novel object in the center of the table. The central actor asked each of the seated actors in turn, “Can you tell me what this is called?” The two actors provided discrepant novel labels for the object (e.g., “It’s a mogit” and “It’s a dax.”) The experimenter then paused the video and asked, “What do you think it’s called, a mogit or a dax?” The order in which the central actor addressed each of the seated actors alternated across trials, and the first actor spoken to was counterbalanced across participants. The experimenter then repeated the labels in the order they were provided by each speaker and asked children to indicate which speaker they endorsed, saying, “She said it’s a mogit, and she said it’s a dax. What do you think it’s called, a mogit or a dax?”

Ask trials: novel behavioral rules condition: Prior to playing the video clip the experimenter said, “Now Kate and Mary are going to tell you about some things.” Children were first presented with a still image of objects that were relevant to the particular experimental trial, such as a pair of colored boxes or a set of colored plastic cups. See Table 2 for full descriptions of the trials in this condition. The experimenter indicated that a permission or prohibition was relevant (e.g., “In the cup game, one of these (4) cups cannot be played; it’s cheating.”) and then presented a split-screen image of the two familiarized informants and said, “I bet one of these people can tell us which one. Who would you like to ask?” Once the child made a selection, the experimenter said, “Okay, let’s see what they say.”

Endorse trials: novel behavioral rules condition: The experimenter played a video clip in which the central actor approached the two actors seated at a table in front of centrally placed objects. The central actor asked each of the seated actors about the object(s) on the table, which prompted each actor to provide discrepant permissions or prohibitions (e.g., “Don’t play the blue cup. It’s cheating.” vs. “Don’t play the orange cup. It’s cheating”). The participant was then asked to indicate which rule she endorsed.

Second Discrimination Trial—After the fourth test trial, the video was paused on a still shot of the two informants and the experimenter said, “You saw Kate and Mary do a lot of things. One of them was nicer than the other. Which one was nicer than the other? Can you point to the person who was nicer?” Children did not receive any feedback in response to their answers.

Results

Discrimination Trials

To assess whether children showed a valence bias at the level of discrimination, we examined their performance on the discrimination trials. An omnibus Analysis of Variance (ANOVA) was conducted with Gender, Actor (Kate in role of target actor and Mary in role of neutral or reverse), Order of familiarization trials (Moral or Immoral presented first); Condition (Moral versus Immoral) and Age (3, 4 and 5 years) as between-subjects factors and Discrimination Trial as the dependent measure. We found no effects of actor, age, gender, or order. We found a main effect of condition, such that children discriminated immoral from neutral moral behavior ($M = 83.75$, $SD = 31.60$) at a higher rate than moral from neutral ($M = 64.56$, $SD = 39.35$), $t(157) = 3.39$, $p = .001$. Performance in both the Moral and Immoral conditions was above chance: $t(78) = 3.288$, $p < .01$ and $t(79) = 9.544$, $p < .001$, respectively. The majority of children in the Immoral condition (61 of 80 or 77%) correctly identified the nicer informant on both discrimination trials. In contrast, only 39 of 79 (49%) children in the Moral condition did so, $\chi^2(1) = 4.84$, $p = .028$.

Selective Learning

Given that we were interested in whether moral behavior (nice or mean) would guide children’s trust decisions, it was important that children recognize the individual who was the more moral informant. Thus, we focused our next analyses on those children who successfully discriminated the more moral of the two informants to determine whether they used that information to guide their preferences for whom to trust, and if so, whether such preferences would evince a valence bias in either a positive or negative direction.

Selective trust was operationally defined as a demonstrated preference to ask and endorse the more moral of two informants. Thus children received a score out of 8 on the selective trust index: 1 point per correct response on each of the Ask and Endorse questions across 4 test trials. The score was converted to a percentage for ease of interpretation. An omnibus Analysis of Variance (ANOVA) was conducted with Gender, Actor, Order of Familiarization Trials, Age Group, Valence Condition (Moral versus Immoral), and Learning Domain (Moral Rules versus Object Labels) as between-subjects factors, and score

on the Selective Trust task as the dependent measure. We found no effects of actor, age, gender, order or learning domain. In addition, there was no main effect of condition, which is to say, no effect of valence on children's patterns of selective trust. Children were above chance in preferring the more moral agent in the Moral condition ($M = 60.58, SD = 19.54$) and in preferring the neutral source in the Immoral condition ($M = 57.9, SD = 15.46$), $t(38) = 3.19, p < .01$ and $t(60) = 4.272, p < .001$, respectively. That is, those who accurately identified the more moral informant as 'nicer', in both the Moral and Immoral conditions, preferred to learn from that person. This pattern of findings for the Discrimination and Selective Learning trials suggests that while children were better able to identify the nicer actor in the presence of negative information than positive information, both positive and negative behaviors were seen as equally relevant for judgments of whom to learn from.

Discussion

The present study investigated the nature of valence effects in children's evaluations of moral information in the context of selective learning. Specifically, we sought to examine whether children were better at discriminating moral or immoral information from neutral information, and whether discriminated information was treated differently, depending on valence. As reviewed in the introduction, there are compelling reasons to expect either pattern at the level of discrimination and selective trust. We found evidence for a negativity bias at the level of discrimination of moral information, such that children were better at identifying the nicer of two informants when presented with an immoral informant in contrast with a neutral one, versus when they were presented with a contrast between a moral and a neutral informant. However, no such bias emerged in selective learning: children were equally likely to learn from the nicer of two informants, regardless of whether that informant behaved neutrally in contrast to an immoral informant, or morally in contrast to a neutral informant.

Although young children do not exhibit a bias to weight negative moral behavioral information more heavily than positive information in decisions about whom to trust, in effect such information is more likely to be utilized simply because children can readily discriminate it. The finding that children find negative moral information relatively salient is consistent with previous findings that children are poised early on to be sensitive to negative social information more broadly, and that this sensitivity may function to support social cognitive development (Vaish, Grossmann, & Woodward, 2008). Why might children find negative moral information more salient than positive moral information? In line with the view of Peeters and colleagues, one possibility is that negative information is perceived against the frequent backdrop of positive events and interactions with others (Peeters, 1989; Peeters & Czapinski, 1990). Because negative events tend to be much more rare than positive events, it makes sense for us to assume the positive (because they tend to be likely) while being especially cautious toward the negative (because they can be dangerous). And given that most children (and adults) perceive and experience the world as a predominantly positive place, we speculate that negative events become more salient as a result. Also, some have suggested that negative moral behavior is more likely than positive behavior to invite attributions to an individual person. For example, given that sincerity is a norm, it is hard to know where to attach credit when it is observed (i.e., to the norm, social pressure, the

individual). Insincerity is different: by flouting the norm, an insincere person invites personal attributions or responsibility for that behavior (Gilbert & Malone, 1995; Jones, 1990). Similarly, children's performance may represent a tendency to treat negative moral behavior as informative about an individual's general trustworthiness, precisely because it represents a deviation from behavior that is normatively positive (Cacioppo & Berntson, 1994; Fiske, 1980; Peeters & Czapinski, 1990). On such accounts, it is adaptive to take for granted the positive events (i.e., truthful statements, conventional behavior), since they are more likely to occur, while being especially watchful or attentive to the dangers of the negative events (i.e., misinformation, malevolent behavior).

Another possibility is that children are more physiologically aroused by negative information, which in turn causes them to encode it more deeply, making it more available for future use (Nelson, Morse, & Leavitt, 1979; Rozin & Royzman, 2001). Children in Kinzler and Schutts' (2008) study may have been better at recognizing the faces of individuals described as previously engaging in harmful behaviors because the descriptions evoked fear or dislike. Likewise, children in our study may have found individuals who engaged in immoral behavior towards a peer to be viscerally aversive, prompting arousal processes that facilitated the encoding of information for future use (Peeters & Czapinski, 1990).

We also found that children use both positive and negative behaviors when deciding whom to learn from, and did so comparably across valence conditions. That is, in the Moral and Immoral conditions, children preferred to trust whoever they had correctly identified as 'nicer'— whether the individual's behavior was neutral (Immoral condition) or overtly helpful (Moral condition). Furthermore, the nicer source was preferred across both proximal and distal domains (i.e., rules and words, respectively). These findings raise questions concerning the nature of the children's selectivity: Do children prefer nicer informants (and avoid mean ones) because they credit them with good intentions? Or are they simply seen as more approachable and likeable, and children's selective learning reflects their positive feelings toward nice people and aversion towards those who are mean? One way to get at this question would be to conduct further research that confirms whether this pattern varies as a function of how informative the moral information is likely to be with respect to selective trust. That is, an informant can behave immorally in ways that do not appear to have any bearing on the likelihood that they will be motivated to tell the truth to a listener. For example, an informant who lies to preserve social harmony may be regarded differently than one who lies for selfish reasons, and selective trust patterns may reflect this difference. Research is needed to establish that children are not simply valuing the testimony of the individual identified as nice. This might be achieved with using a single informant paradigm, or assessing selective learning on the basis of behavior without soliciting explicit, categorical identifications. Finally, while the finding that children generalize trust in nicer informants across proximal and distal domains of information is consistent with the possibility that children's learning decisions can be based in prosocial judgments toward those who they like more, more direct investigations that give children the opportunity to observe both moral behavior and intentions or motives are needed.

The finding of an asymmetry in children's discrimination of positive versus negative moral information raises the possibility (at least) that selective learning is not biased by valence, except to the extent that it is easier to discriminate one kind of valence (negative from neutral) relative to the other (positive from neutral). However, the greater weight given to negative *epistemic* evidence about a source in children's selective learning, as in Koenig & Jaswal (2011), does provide evidence for a negativity bias. Different methodologies (e.g., hearing explicit mention of knowledge differences versus observing spontaneous moral behavior) may be responsible for such differences in results. However, it could also relate to the way in which children differentially evaluate incompetence versus harmful behavior: whereas it may be especially urgent or adaptive to identify instances of harm, it may be more consistently pressing to identify whoever has more knowledge across a broad range of contexts. Thus, future studies that ask children both to discriminate between sources and to attribute to them different types of knowledge will help to clarify the conditions under which children identify and selectively avoid certain types of informants.

A potential limitation of the study is the possibility that children were better at discriminating the more moral informant in the Immoral versus Moral condition because the Moral informant was actually seen as more similar to the neutral one. As discussed by several theorists, a 'positivity offset' may lead children to treat relatively neutral events or individuals as mildly positive (Cacioppo & Berntson, 1999; Vaish et al., 2008). We aimed to control for the possibility that neutral informants appeared "friendly" to the bystander in the scenarios, by not having the actors display facial or physical gestures that indicated positive emotions or familiarity with each other. However, it is possible that the sustained presence of two individuals in each other's company is perceived as weakly positive. In general, the methodological logic underlying a negativity bias can be quite complex, largely because of the difficulty of equating negative and positive events. However, there are still ways of making meaningful comparisons without establishing scalar equivalents. One is to show that a negative event pushes some behavior or output towards negativity (i.e., avoidance in the discrimination judgment), whereas a positive event that corresponds to it in some way has no such effect in the positive direction (i.e., approach in the discrimination judgment) (see Rozin & Roysman, 2001; Peeters & Czapinski, 1990). This avoids the scaling problem and indeed, it was the strategy we took in our design.

Open questions remain concerning whether a more general negativity bias is present from an early age across cognitive and affective domains, or whether the present findings reflect more specific responses to important negative events (e.g., threat, misinformation). In line with the possibility that deviant behavior carries greater informational complexity for adults (Fiske, 1980) and may require more cognitive effort for children, future steps include investigations of whether young children spend more time processing negative events, look longer at unreliable than reliable sources, and remember the identity of negative sources better than neutral or positive sources.

Conclusion

One of the main risks of human communication lies in the freedom speakers have to intentionally misinform. We found that young children selectively learn from a moral

informant over a neutral one, reject the testimony of an immoral informant in favor of a neutral one, and show a superior ability to discriminate speakers in the presence of negative moral behavior. Important questions for future research concern the circumstances in which one should expect to find a negativity bias, the role played by early experience in explaining such effects, and how positivity and negativity biases interact in social learning.

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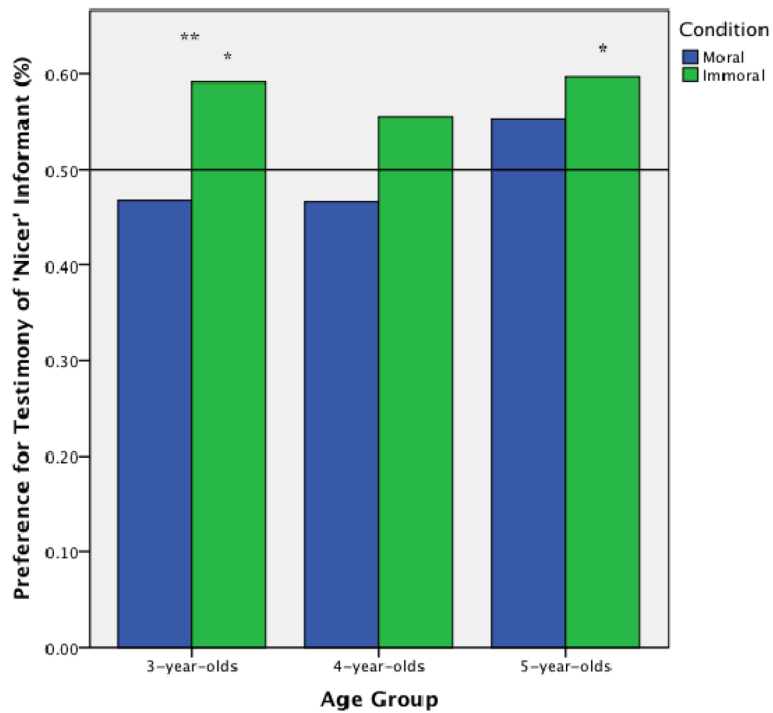


Figure 1.

Selective Trust test trial performance by age and valence.

Note. Horizontal line indicates chance performance (4 of 8 trials correct, on average). ‘*’ = above chance, ‘**’ = significant difference between groups.

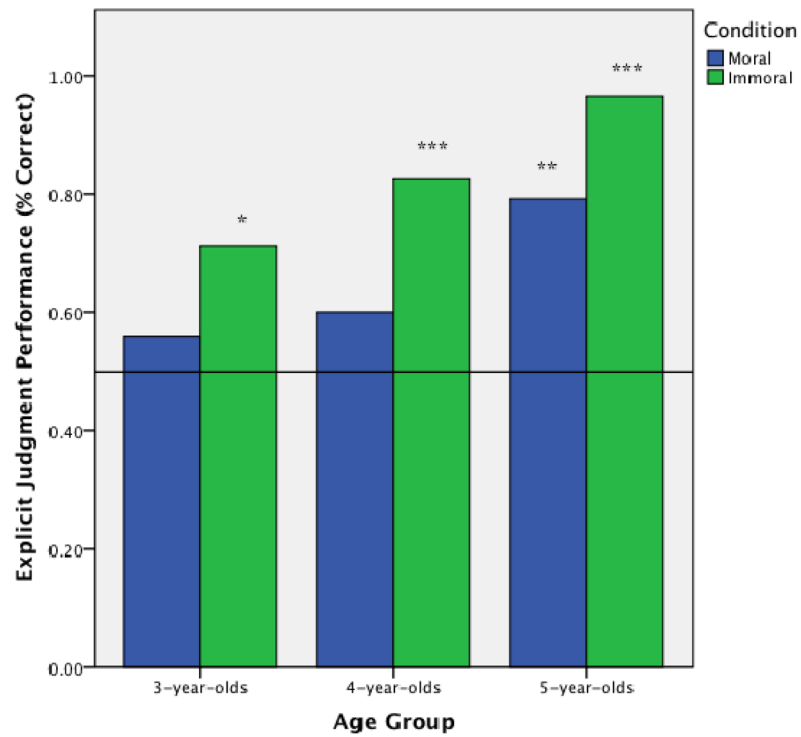


Figure 2.

Explicit Judgment performance by age and valence.

Note. Horizontal line indicates chance performance (1 of 2 judgments correct, on average).

All age groups were above chance in immoral/neutral condition, but only 5-year-olds were in moral/neutral condition. * $p < .05$. ** $p = .001$. *** $p < .001$.

Table 1

Familiarization trials used in experiment

Moral	Immoral	Neutral
<p>Actor playing with a toy, notices her playmate does not have a toy and says, "Aw, you don't have any toys...here." And proceeds to share her toy. The friend accepts the toy and smiles widely.</p>	<p>Actor playing with a toy, notices her playmate does not have a toy and says, "Ha ha, You don't have any toys." And proceeds to continue playing with her own toy. The playmate frowns and bows her head down.</p>	<p>Actor and playmate each playing with their own toys along side each other.</p>
<p>Actor and playmate seated on chairs and engaged in parallel play with stuffed animals. Playmate drops her toy in the direction of the main actor and main actor quickly picks up the toy and gives it to her playmate, who accepts it, smiling back.</p>	<p>Actor and playmate seated on chairs and engaged in parallel play with stuffed animals. Playmate drops her toy in the direction of the main actor and main actor quickly kicks the toy further away and stares back at the playmate. The playmate meets her eyes, frowning.</p>	<p>Actor and playmate seated on chairs and engaged in parallel play with stuffed animals.</p>
<p>Actor and her playmate drawing pictures together at a table. The playmate accidentally tears her own picture while drawing too vigorously. Main actor says, "Aw, you ripped your picture! Here, I can help," and tapes her playmate's picture. The playmate smiles back at the main actor.</p>	<p>Actor and her playmate drawing pictures together at a table. The playmate accidentally tears her own picture while drawing too vigorously. The main actor says, "Ha ha, you ripped your picture," and proceeds to rip the picture further. The playmate frowns and bows her head down.</p>	<p>Actor and her playmate drawing pictures together at a table.</p>
<p>Playmate enters room, carrying a large bag that is difficult to handle. The main actor is seated, reading a magazine. The playmate asks, "Can you help me?"; and the main actor says, "Sure! I can help!" and quickly jumps out of her seat to help set the bag down. The playmate smiles back at the main actor.</p>	<p>Friend enters room, carrying a large bag that is difficult to handle. The main actor is seated, reading a magazine. The playmate asks, "Can you help me?"; and the main actor says, "No, I don't want to help!" and stares at the playmate. The playmate stares back, frowning.</p>	<p>Friend enters room, carrying a bag and sets it down on the table without difficulty. The main actor is seated, reading a magazine.</p>

Note.

Depending on the condition, children were presented with four consecutive clips of the moral or immoral actor. All children also saw four consecutive clips of the neutral actor.

Table 2

Novel Behavioral Rule Selective Trust Trials

Experimenter preface	Informants' testimony	Experimenter Endorse prompt
Only one of the buttons on that box is okay to push, and the other is not okay to push.	If you push the yellow [blue] button, you'll get in trouble.	She said not to press the yellow button, and she said not to press the blue button. Which button should you NOT press, the yellow or the blue?
This is the stacking cup game. One of these cups cannot be played – it's cheating.	Don't play the blue [orange] cup, it's cheating.	She said the orange cup is cheating and she said the blue cup is cheating. Can you tell me which cup is cheating, the orange or the blue
One of these boxes has something kind of scary inside and should NOT be opened	Do NOT open the green [blue] box.	She said you shouldn't open the blue box, and she said you shouldn't open the green box. Which box should you NOT open, the blue or the green?"
One of these bowls is okay to take candy from, and one belongs to a girl named Kelly.	You can take candy from that bowl, but don't take candy from the pink [blue] bowl because it belongs to Kelly and that would be stealing.	She said you shouldn't take candy from the pink bowl, and she said you shouldn't take candy from the blue bowl. Which bowl should you NOT take candy from, the pink or the blue?