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The Role of Testimony in Children's Moral Decision Making: Evidence From China and United States

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What does it take know a moral truth or principle? Although testimony is an undisputed source of empirical knowledge of contingent facts, it is less clear whether it is possible to acquire "second-hand moral knowledge" (Jones, 1999; Wolff, 1998). In the present studies, 3- to 5-year-old Chinese ($N = 124$) and U.S. American ($N = 90$) children were asked to judge whether novel, distress-inducing actions were morally permissible, both independently and after either 1 or 3 adult informants had made counterintuitive judgments. Although participants made appropriate moral judgments independently, children from both countries were affected by the counterintuitive testimony provided by the adult informant(s). Moreover, Chinese children were especially receptive to such counterintuitive claims. These findings demonstrate that intuitive moral judgments based on perceived harm are common across 2 cultural groups, but adult testimony can potentially shift those judgments.

Keywords: trust in testimony, moral judgment, consensus, conformity, culture

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In the domains of science, morality, and religion, children often face conflicts between adult testimony and what they believe themselves (e.g., Harris & Koenig, 2006; Lane, 2018). Although testimony is an undisputed source of empirical knowledge, the role that it can play in providing moral knowledge is unclear: Many have argued that core aspects of moral understanding are innate (Haidt & Joseph, 2007; Hamlin, 2013), authority independent (Smetana, 2006), or may need to be independently acquired (Harris, Koenig, Corriveau, & Jaswal, 2018; Kant, 1785/1959). If any of these positions are true, then testimony might be insufficient to transmit or change moral knowledge.

However, when it comes to putting moral principles into practice in real life, testimony affords people the means to express diverse views about what counts as "harm", whether any benefit might outweigh the harm, or whether a victim is really without fault, rendering such judgments susceptible to social influence. In the present studies, we investigated how children respond when they are confronted with adult testimony about novel, distress-inducing actions that run counter to their own moral intuitions. In the face of such conflicts, will children defer to adult testimony, will they rely on their own beliefs, and how will they decide?

Below, we review evidence of children's trust in counterintuitive testimony with respect to factual knowledge, as well as literature implying the limits of moral testimony. We then review recent evidence on children's flexibility in evaluating and learning moral norms and on cross-cultural variation in children's learning of conformity-related norms. Based on this evidence, we propose that adult testimony can influence children's evaluations of distress-inducing actions by affecting their understanding of how harm-related principles apply to novel circumstances.

Children's Reactions to Counterintuitive Testimony Concerning Objects

Recent developmental research has revealed that children can be flexible in their acceptance of counterintuitive testimony. First, children's decisions to trust what they are told are guided by their level of confidence. On one hand, even toddlers query claims that are obviously discrepant from their own perception or past knowledge (Koenig & Echols, 2003). When an adult informant pointed to a shoe and called it a cup, for example, many 16-month-olds infants spontaneously corrected the speaker, or looked at the speaker with interest or surprise (Koenig & Echols, 2003, see also Wellman, Song, & Peskin-Shepherd, 2019). On the other hand, when the relation between a speaker's claims and the world is not

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evidently false but includes some degree of ambiguity, children often accept the testimony of others (Lane, 2018; Lane & Harris, 2014). For example, Jaswal and Markman (2007) presented preschoolers with testimony that ran counter to the majority of the perceptual evidence available. Thus, when shown pictures of hybrid animals (e.g., a creature composed of 75% fish features and 25% bird features), most 2- and 3-year-olds made an initial judgment based on the predominant perceptual features ("It's a fish"), but they were subsequently receptive to adult testimony affirming the contrasting category ("It's a bird;" see also, Jaswal, 2004). In addition to category induction and word learning contexts, there is evidence that children often accept verbal testimony that conflicts with their intuitive beliefs about the physical world, such as gravity (Jaswal, 2010) or the spherical shape of the earth (Harris & Koenig, 2006).

Another important factor that increases children's acceptance of a countervailing claim is the presence of a consensus among informants. Fusaro and Harris (2008) found that when two informants made equally plausible but conflicting claims in naming a novel object, 4-year-olds were influenced by the consensual approval of two bystanders. Similarly, if three informants all converged in indicating one object whereas a lone dissenter pointed to a different object, 3- and 4-year-old children systematically agreed with the group of three (Corriveau, Fusaro, & Harris, 2009). There is also evidence that 3- and 4-year-old children preferred the majority's opinion of novel object functions, although 4-year-olds' tendency to endorse this information provided by two informants was modulated by the plausibility of the claims (Schillaci & Kelemen, 2014) and the success of the action (Wilks, Collier-Baker, & Nielsen, 2015).

Children's Moral Judgments: Autonomous or Susceptible to Influences?

Turning to the domain of moral judgment, how far are children influenced by the testimony of other people? Historically, children's understanding of moral norms is linked to the nature of an act and its consequences for a victim, independent of any prescription by local authorities (Turiel, 1983). Indeed, this is consistent with work in philosophy on the limitations of moral testimony, where beliefs formed on the basis of another's judgments are in poor epistemic standing (Williams, 1972; Wolff, 1998) or that moral understanding must be "self-given" through the exercise of one's own reasoning (Kant, 1785/1959). Social domain theory also suggests that young children's moral judgments might be relatively impervious to social influences. By around four years of age, children view moral transgressions as wrong regardless of whether an adult or a group (e.g., the school) forbids them. For example, when presented with hypothetical scenarios of a school with no rules or an adult authority who ignores the transgressions, 3- and 4-year-old children still judged misdemeanors like hitting others to be bad and deserving of punishment, and social conventional transgressions like wearing pajamas to school to be less serious (e.g., Smetana, 1981; Smetana et al., 2012). Further, preschool children judged that an unfamiliar action (e.g., "mibbing") was wrong when informed of the consequence of this unfamiliar action via pictures of the victim crying or via verbal descriptions ("When you mibbed [the victim], you hurt her;" Harris, 2012; Smetana, 1985). Taken together, these results suggest that preschoolers understand that the wrongfulness of an action should be assessed in terms of the harm and distress that such an action causes other people rather than in terms of the way that adult authority reacts to the action.

However, although moral norms are traditionally hypothesized to be universally applicable and conventional norms alterable, children may evaluate harm-related moral transgressions more or less severely depending on the perceived social situation (Koenig, Tiberius, & Hamlin, 2019; Paulus & Schmidt, 2018). Indeed, recent evidence has revealed that even if children view the norm of avoiding harm as an intrinsic obligation, such beliefs can be altered by group-based considerations (Rhodes & Wellman, 2017). For example, children expected outgroup members to violate moral norms (Liberman, Howard, Vasquez, & Woodward, 2018) and thought it was markedly less bad to harm an outgroup member in the absence of extrinsic rules (Rhodes & Chalik, 2013). Children's social relationships can also mitigate their judgment of the wrongness of a moral transgression. For example, preschool children treated moral transgressions, such as taking a toy, as more permissible when the transgressor was a friend of theirs (Slomkowski & Killen, 1992).

Aside from children's tendency to calibrate their judgment of the wrongness of harm-related transgressions depending on the context, recent developmental evidence also suggests that harm-based norms and fairness norms may not be immune to social and cultural influences. For example, Engelmann, Herrmann, Rapp, and Tomasello (2016) found that 42% of 5-year-old children followed the majority of two peer confederates and chose to put a cereal bar that belonged to someone else into their own box, even after the experimenter told the children that the owner of the cereal bar was really hungry. Similarly, Blake, Corbit, Callaghan, and Warneken (2016) found that children's sharing behavior, both in the United States and India, was influenced by their parents' demonstration of a stingy donation. There is also limited evidence suggesting that children's interpretation of morality-related actions might be influenced by other people's opinions. After viewing videos of two peers raising their hands when being asked whether familiar moral transgressions (e.g., hitting another child) were okay, 20% of the U.S. preschoolers conformed to their peers' judgments in at least one out of four trials (Kim, Chen, Smetana, & Greenberger, 2016). Rottman, Young, and Kelemen (2017) also found that testimony invoking moral principles such as harmfulness and fairness significantly affected children's moral evaluations of novel actions (e.g., aliens covering their heads with sticks), indicating that social communication can serve as an important source of moralization.

Cross-Cultural Differences in Testimonial and Moral Learning

Children's social learning and moral development are both situated in sociocultural contexts, making cross-cultural comparisons particularly relevant in exploring children's acceptance of unexpected moral testimony. Social domain researchers have found that moral norms such as preventing harm to others are universally recognized, but acknowledge that people from different cultural contexts may weigh various types of coexisting concerns differently in multifaceted situations (Smetana, 2006). When faced with testimony contradicting the moral norm of preventing harm, the weight that children attach to that testimony is likely to depend on the social norms surrounding conformity in their culture.

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Children's level of conformity toward members of their cultural group appears to be influenced by culturally shaped experiences and beliefs. Cultural expectations for conformity have been found to be weaker in Western individualistic societies than in collectivistic cultures like China (e.g., Bond & Smith, 1996) as well as other non-Western communities such as Vanuatu (Clegg, Wen, & Legare, 2017; Wen, Clegg, & Legare, 2019). Kim and Markus (1999) argued that nonconformity connotes deviance in East Asian cultures but uniqueness in Western cultures. Roberts, Guo, Ho, and Gelman (2018) found that 4- to 6-year-old Chinese children and adults were more likely to disapprove of nonconforming individuals who deviate from group norms (e.g., listening to a different kind of music) than their U.S. counterparts. Compared to their Western peers, Chinese children are slower to acknowledge that opinions may differ (Wellman, Fang, Liu, Zhu, & Liu, 2006). More direct evidence of cross-cultural variation in conformity was reported by Corriveau and Harris (2010), who found that Asian American children were more likely than U.S. American children to show "respectful deference" (2010, p. 444) in making perceptual judgments. When 3- and 4-year-old children were asked to pick out the longest of three lines—in the classic Asch paradigm—more Asian American children (about 60%) endorsed the inaccurate selection made by a three-person consensus on at least one trial as compared with their U.S. American peers (30%). In a follow-up study, 100% of first-generation Asian children deferred at least once in the public setting; 55% of second-generation Asian children deferred at least once; but only 29% of European American children ever deferred (Corriveau, Kim, Song, & Harris, 2013). Both studies demonstrated that Asian American children were more likely to defer to a consensus, but few studies to date have directly compared children living in China with their U.S. American counterparts. The current study explored the role of cultural background by including a sample of Chinese children and a sample of U.S. American children. It is possible that when children are asked to make moral judgments that deviate from the judgments made by others, Chinese children will place more value on conformity-related considerations.

Accordingly, given the evidence reviewed above, we investigated children's moral judgments in the context of countervailing testimony from other people. The studies to be reported were designed with three goals in mind. The primary goal was to directly assess how adult testimony affects children's moral judgments. We adapted the stories developed by Smetana (1985) in which the protagonist engaged in novel actions referred to by means of unfamiliar words such as "mibbing" and "lepping". Despite their unfamiliarity, children could make a moral evaluation of these unfamiliar actions because each story recounted their distress-inducing consequences. To assess the potential impact of adult testimony, we invited children to evaluate the actions both before and after counterintuitive testimony from adults. The reason for using novel actions was to avoid any uncontrolled bias from adult testimony associated with familiar actions. In sum, we assessed how children would judge distress-inducing actions independently as well as in response to counterintuitive claims by adults.

The second goal was to explore whether a consensus would weigh more heavily than a single informant in children's moral decision-making. Children in the current studies were randomly assigned to two conditions, one condition presented children with a consensus of three adult informants, and another condition with a single informant. Finally, because previous research has indicated that Asian children may be more deferential to adult testimony than European American children, our third goal was to examine whether children's cultural background affects their level of deference in making moral decisions. Therefore, Study 1 was conducted with preschool children in mainland China, and Study 2 was conducted with children in the United States.

Study 1

Method

Participants. We recruited a total of 124 children (66 female, M_{age} = 4.48; range = 3.08–5.64) in Dalian, a medium-sized, coastal city located in Liaoning Province, People's Republic of China: 48 3-year-olds (29 female, M_{age} = 3.72; range = 3.08–3.99), 34 4-year-olds (20 female, M_{age} = 4.52; range = 4.09–4.96) and 42 5-year-olds (19 female, M_{age} = 5.30; range = 5.01–5.64). All children were ethnically Chinese. Although no information on socioeconomic status was collected, children were recruited from two kindergartens that served a predominantly middle- to upper-class population. Four additional children were excluded for failure to complete the experiment.

A post hoc G Power 3.1 analysis (Faul, Erdfelder, Lang, & Buchner, 2007) was run to determine the achieved power with standard alpha (.05) and the effect size of $\eta_p^2 = 0.29$ for the main mixed ANOVA analysis, which showed that our sample size was sufficient to achieve 99.5% power. The study was approved by the Harvard University Institutional Review Board under the project name Trust in Testimony (Study Number IRB F12421-111).

Materials. Two stimulus stories were presented to each participant, with one story presented in the informant trial and the other in the control trial. Each story described a child who engaged in a novel action (i.e., "mib", in Chinese pinyin syllables *miè bó*; and "lep", in Chinese pinyin syllables *pái fù*), making a peer cry as a consequence. One story was depicted as taking place in a preschool classroom, the other story was depicted as taking place at home. Story protagonists were assigned genders consistent with the participant's own gender. Gender-neutral names were chosen deliberately for the protagonists and the victims (see the scripts for the stories in Appendix S1 in the online supplementary material).

Each story was accompanied by four colored cartoon drawings (each 4 in × 4in) with no written text on them. A picture of the "victim" in tears in the last drawing was used to depict the victim's distress (see Figure S1 in the online supplementary material). Note that such depictions of distress have proven effective in stimulating children's judgments of moral transgressions (Harris, 2012; Smetana, 1985). The participants received different versions of the drawings to reflect their own gender.

The videos that children watched featured Chinese adult informants in their twenties. For half the children in each age group, the informant trial included a single informant; for the remaining children, the informant trial included three informants. All informants were female, wore different, primary-colored T-shirts and were sitting at the right side of the table (see Figure 1). Because young children often rely on adult input when acquiring moral knowledge, we chose to use adult informants for our study (Harris,

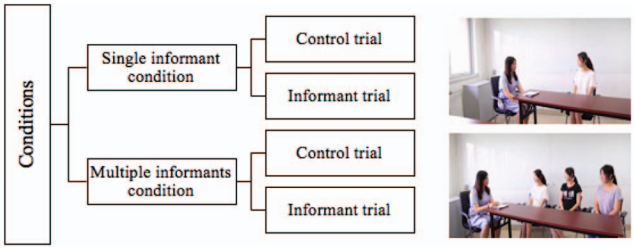


Figure 1. Visual description of the condition assignment of the Study 1. Participants were randomly assigned to one of two between-subject conditions. All children received a control trial and an informant trial. The individuals whose face appears here gave signed consent for their likeness to be published in this article. See the online article for the color version of this figure.

2012). The informants maintained neutral expressions in the videos and spoke in neutral tones.

Procedure. Participants were randomly assigned to one of two between-subject conditions: the *single informant* condition or the *multiple informants* condition. The only difference between the two conditions was the number of informants featured in the videos. All children received a control trial and an informant trial (see Figure 1 for a visual depiction of condition assignment). In each trial, children first heard a story of a novel transgression, then watched either a control video (with no testimony) or an informant video (with the counterintuitive testimony). Afterward, children made explicit judgments of the transgression. The order of the control and informant trials and the story scripts associated with these trials were counterbalanced across participants. All participants were tested separately in a quiet room in their preschools by a female experimenter who was a native Mandarin speaker.

The first session began with the experimenter saying: "I'm going to tell you a story today. But before I tell you the story, [child name], do you know what mib (or lep) means?" If the child offered an answer, the experimenter would say: "Actually, I don't think that's what it means, but we'll find out in just a minute." This introduction served two functions. The first was to draw the child's attention to, and familiarize the child with, the name of the novel action. The second was to reduce the possibility that certain participants associated the nonsense words with other familiar words, which might affect the results. Then, the experimenter told the first story of how the novel action made a child cry with the aid of the four drawings.

After narrating the first story, the experimenter brought out a laptop, turned on the video and immediately paused at a still frame where she (i.e., the experimenter) was shown sitting at the table with either a single informant (in the *single informant* condition) or three informants (in the *multiple informants* condition) sitting on the other side of the table. The experimenter invited the child to find her in the video, and then pointed to the informant(s) and told the child that they came and heard the same story yesterday. Then, the video was activated and showed the experimenter saying to the informant(s), for example: "Alright. Now you've heard the story of Abu. In this story, did Abu lep Pipi?" Depending on the condition, there was either one single informant answering "Yes" or three informants answering "Yes" in turn.

At this point, the videos for control and informant trials differed. In the *control trial*, the video ended after this precheck phase and the experimenter proceeded with the *outcome check* question (see below). In the *informant trial*, however, the video continued with the experimenter in the video asking the informant(s) whether it was good or bad to "lep". The informant(s) replied by saying that they thought it was good to "lep" (see an example of the video script in Figure 2). Thus, in the informant trial, children were presented with a claim (i.e., that the novel action was good) that appeared to run counter to the evident distress that the novel action caused.

After playing the video, children's memory for the action in the story was checked. For example, for the story depicting "lepping", the experimenter first asked: "In the story, what did Abu do to Pipi?" If the child could not remember, the experimenter said: "He lepped Pipi." The experimenter then asked an *outcome check* question: "What did Pipi do after Abu lepped him?" Children received one point if they correctly remembered the outcome, namely that the victim had cried. If the child could not remember, the experimenter placed the last drawing on the table again and prompted the child until the story outcome was accurately recalled. In the informant trial, children also received an *informant check* question asking what the informant(s) said, and they received one point if they correctly remembered that the informant(s) said the act was good rather than bad. The video was shown again if the child answered this question incorrectly.

After the comprehension checks, the experimenter asked for the participant's *moral judgment*: "What do you think? Is it good or bad for Abu to lep?" If the child indicated that it was good, the experimenter said: "Do you think it's a little good or very good?" If the child indicated that it was bad, the experimenter said: "Do you think it's a little bad or very bad?" The child received 3 points for indicating the novel action was very bad, 2 points for indicating it was a little bad, 1 point for indicating it was a little good and 0 points for indicating it was very good. Immediately afterward, the child was asked a *justification* question: "Why is it good (or bad) to lep?" The child's answer was recorded. The child was also asked a *practical judgment* question: "If Abu were in your class, would you want to play with him? Yes or no?" After the child offered an answer, the experimenter asked: "Are you very sure or a bit sure?" Children received 3 points if they were very sure about not wanting to play with the protagonist, 2 points if they were a bit sure about not wanting to play with the protagonist, 1 point if they were a bit sure about wanting to play with the protagonist and 0 points if they were very sure about wanting to play with the protagonist. The procedure for the second trial was similar to the first trial with the exception that a different story was told, and a different type of video was presented (control trial video vs. informant trial video, see Figure 2). To avoid any negative influences the experiment might have on participants, the experimenter debriefed them at the end of the study and confirmed that it was actually not very nice to make others cry.

Justification coding and reliability. All children's answers were transcribed live by the experimenter. Children's answers to the justification questions for their moral judgments were then coded by Pearl Han Li and a research assistant blind to the hypotheses of the study. Both coders were blind to children's age, condition, and moral judgments scores. To develop the coding categories, Pearl Han Li drew a random sample of 78 justifications (50% of the data points). Reliability coding was then calculated on the basis of these 78 justifications. Interrater reliability using a mean Cohen's Kappa was 0.85 (average percent agreement = 95%). Discrepancies were re-

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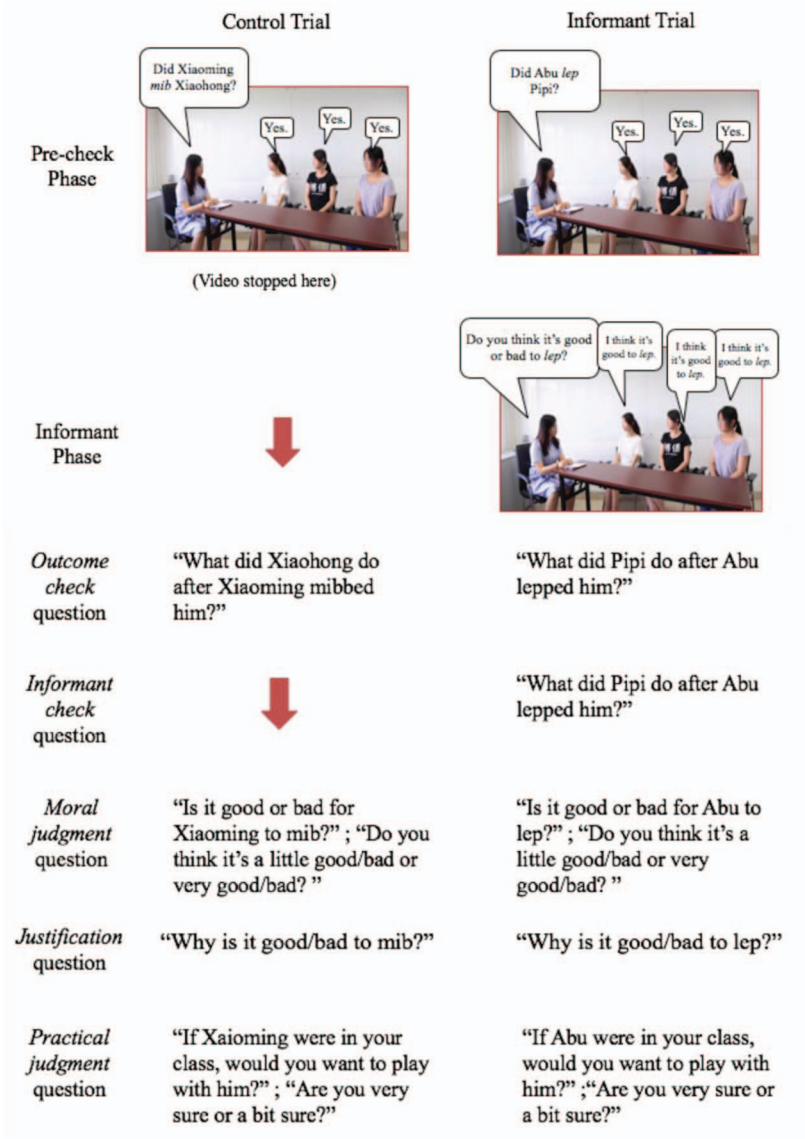


Figure 2. An example of video scripts and study procedure used in the multiple informants condition in Study 1. The procedure for the single informant condition is the same, except that there was only one informant in the videos. The individuals whose face appears here gave signed consent for their likeness to be published in this article. See the online article for the color version of this figure.

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solved through discussion. The research assistant coded the remaining explanations.

Results

We analyzed children's answers to the moral judgment questions, practical judgment questions, and justification questions.[1] Preliminary analyses revealed no effects of gender, the order of the stories, or scores on the outcome and informant check questions. Thus, all subsequent analyses were conducted, collapsing across these variables.

Moral judgments. We first asked if adult testimony influenced children's moral judgments, collapsing across children in the single informant condition and multiple informants condition. In the control trial, 74.2% of children (62.5% 3-year-olds, 76.5% 4-year-olds, 85.7% 5-year-olds) said the action was bad. In the informant trial, only 45.2% of children (29.2% 3-year-olds, 44.1% 4-year-olds, 64.3% 5-year-olds) said the action was bad.

Turning to children's moral ratings (*very bad* = 3, *very good* = 0), children rated the novel action as worse in the control trial ($M = 2.024$, $SD = 1.078$) than in the informant Trial ($M = 1.371$, $SD = 1.158$). A four-way, mixed Analysis of Variance (ANOVA) was conducted with informant condition (single, multiple), age (three, four and five years) and trial order (control trial first, informant trial first) as between-subjects factors, trial type (control

[1] Data for Study 1 and Study 2 are posted at https://osf.io/dyfj2/.

trial, informant trial) as a within-subjects factor and the moral rating as the dependent variable. This analysis revealed three main effects but no interactions. First, there was a main effect of Trial Type, $F(1, 112) = 45.847$, $p < .001$, $\eta_p^2 = .29$, confirming that children's ratings were less negative on the informant trial as compared to the control trial. Second, there was a main effect of trial order, $F(1, 112) = 5.608$, $p = .02$, $\eta_p^2 = .048$, showing that children made more negative ratings (across both trials) if they received the control trial first rather than the informant trial (control trial first: $M = 1.912$, $SD = 1.329$; informant trial first: $M = 1.509$, $SD = 1.381$). Finally, there was a main effect of age, $F(2, 112) = 6.413$, $p = .002$, $\eta_p^2 = .103$; older children made more negative ratings than younger children ($M_{5\text{-year-olds}} = 2.050$, $SD_{5\text{-year-olds}} = 0.998$; $M_{4\text{-year-olds}} = 1.738$, $SD_{4\text{-year-olds}} = 1.151$; $M_{3\text{-year-olds}} = 1.344$, $SD_{3\text{-year-olds}} = 1.212$). There was no main effect of informant condition, $F(1, 112) = 0.587$, $p = .455$, and, as noted, none of the interactions were significant. In particular, there was no interaction of age × trial type, indicating that although children made more negative ratings as they got older, all three age groups were equally affected by the positive ratings of the informant(s; see Figure 3).

Practical judgments. Children's answers to the practical judgment questions were also analyzed with a 2 (informant condition: single, multiple) × 2 (trial type: control trial, informant trial) × 3 (age: three, four, or five years) × 2 (trial order: control trial first, informant trial first) mixed ANOVA. This analysis revealed a modest effect of trial type, $F(1, 112) = 4.167$, $p = .044$, $\eta_p^2 = .036$. Children were less likely to want to play with the wrongdoer in the control trial as compared to the informant trial (control trial score: $M = 1.593$, $SD = 1.105$; informant trial score: $M = 1.404$, $SD = 1.125$). There was also a main effect of age, $F(2, 112) = 6.684$, $p = .002$, $\eta_p^2 = .107$; older children were less likely to want to play with the wrongdoer than younger children (see Figure S2 in the online supplementary material, $M_{5\text{-year-olds}} = 1.875$, $SD_{5\text{-year-olds}} = 1.046$; $M_{4\text{-year-olds}} = 1.474$, $SD_{4\text{-year-olds}} = 1.228$; $M_{3\text{-year-olds}} = 1.146$, $SD_{3\text{-year-olds}} = 0.984$). There were no other main effects, and none of the interactions were significant.

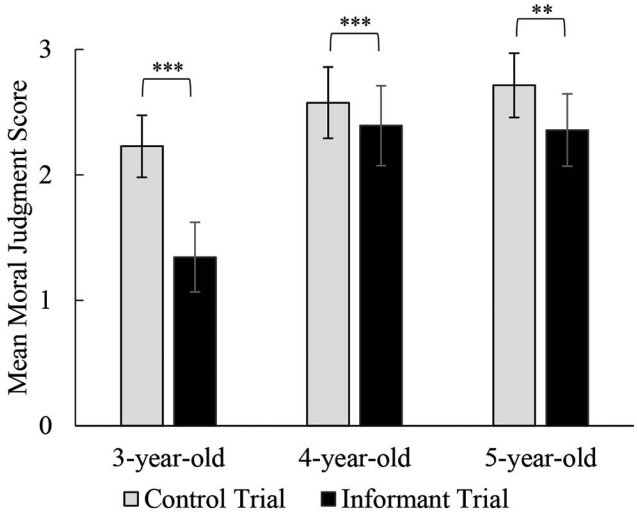


Figure 3. Average moral rating score (very bad = 3, very good = 0) in Chinese children aged 3, 4 and 5 years as a function of trial type (control vs. informant). Asterisks indicate significant differences between trial types. ** $p < .01$. *** $p < .001$.

Children's justifications of their moral judgments. The percentage of participants offering an explanation for their moral judgments varied with age. Thus, 48% of 3-year-olds, 47% of 4-year-olds, and 69% of 5-year-olds gave a reason in at least one trial. Overall, 44.4% of the participants gave an explanation in the informant trial, and 48.4% of the participants gave an explanation in the control trial. The children who did not give a justification either said "I don't know" or remained silent.

All the explanations could be assigned to one of three categories: (a) focusing on the transgression or its negative consequences; (b) focusing on good behavior or its positive consequences; and (c) other (see definitions and examples of the categories in Table 1).

Pearson chi-square analysis revealed that the number of participants who mentioned good behavior or its positive consequences as an explanation was significantly impacted by trial type, $\chi^2(1, N = 115) = 6.32$, $p = .012$, Cramér's $V = 0.258$. More specifically, a larger percentage of children provided a justification focusing on good behavior or its consequences in the informant trial (25.45%) than in the control trial (6.67%). By contrast, the percentage of children who provided an explanation focusing on transgression or its negative consequences was not significantly different across the two type of trials, even if a slightly larger percentage of children provided explanations under this category in the control trial (61.67%) than in the informant trial (52.73%), $\chi^2(1, N = 115) = 0.61$, *ns*. Also, 100% of the justifications focusing on good behavior or positive consequences were produced by children who said the novel transgressions were good in their moral ratings.

Discussion

Consistent with previous studies (Harris, 2012; Smetana, 1985), children judged that novel actions that made others cry were bad actions. Nevertheless, after viewing either one informant or three informants claim that such novel actions were "good", children in all three age groups rated them less negatively. Indeed, the magnitude of this shift did not vary across the three age groups.

When children deferred to the adult testimony and judged the novel transgression to be "good", they were more likely to provide a justification referring to good behavior or positive consequences (e.g., mentioning that the action would make the perpetrator happy or that nobody really got hurt). By implication, children who said that the action was good were not blindly deferring to the informant(s) but could provide a rationale for their judgment.

Children's judgments of whether they would like to play with the misbehaving characters were also influenced by trial type. However, this impact was modest, suggesting that children mostly evaluated the characters independent of input from adults. One limitation of this particular task is that even if some children disapproved of the novel actions, they might have thought that one bad action did not mean that they should not befriend the wrongdoer. To get a better idea of whether children truly revised their initial beliefs in response to informants' claims, we added a peer transmission task in Study 2 to examine children's transmission of the counterintuitive claims to a third party. An unexpected finding was that the impact of such counterintuitive claims was equally strong whether they were provided by a single informant or a

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Table 1
Categories of Children's Explanation of Their Moral Judgments

Category name	Description	Example
Focusing on the transgression or its negative consequences	Stating that the action caused the victim to cry or that it would hurt victim's feelings, referring to familiar moral transgressions, or restating that the action was bad.	"Because she made her friend cry by mibbing her"; "That is bullying and bullying is bad"; "Because it is not nice".
Focusing on good behavior or its positive consequences	Stating that the protagonist got what he or she wanted or that the victim was unharmed by the protagonist.	"Xiaohong didn't hurt others"; "Because if you lep you can eat (the ice cream)"; "Because he behaves well".
Other	Simply restating the fact that the protagonist mibbed (or lepped) the victim or giving reasons that are irrelevant to the story context.	"Because he mibbed him"; "Because she is patient".

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consensus of three informants. We explored the stability of this finding in Study 2.

Study 2 was designed to extend the findings from Study 1 to children in the United States. Given the possible differences in cultural values of conformity (e.g., Roberts et al., 2018), we were interested in whether children's susceptibility to adult influence in the moral domain varies across different cultures. When faced with a conflict between the basic moral principle of preventing harm and the social norm of conformity, it is possible that Chinese children would be more likely to subordinate the basic moral concern to the social concern of deference to adult testimony than U.S. children, and judge the novel transgressions less harshly. Therefore, we tested 3- to 5-year-old children in the U.S. using the same procedure.

In addition, at the end of each trial, children completed a brief peer transmission task to probe their true beliefs about the novel actions. In this task, children were asked whether the novel action was good or bad by a puppet operated by a second experimenter who was not present for previous tasks. Similar transmission tasks have been used in previous studies to evaluate whether children who endorsed a counterintuitive claim were merely complying with the leading experimenter or had genuinely revised their beliefs (e.g., Clegg & Legare, 2016; Jaswal, Lima, & Small, 2009). We reasoned that children would only choose to pass on the counterintuitive judgment by the informant(s) to a naïve experimenter if they believed the judgments to be true or normative.

Study 2

Method

Participants. We recruited a total of 90 children (43 female, M_{age} = 4.59; range = 3.07–5.99) from a university-managed database of children who are primarily European American, native English speakers from middle to high SES homes in Twin Cities, MN in the United States: 30 3-year-olds (17 female, M_{age} = 3.63; range = 3.07–3.98), 30 4-year-olds (12 female, M_{age} = 4.59; range = 4.03–4.99) and 30 5-year-olds (14 female, M_{age} = 5.54; range = 5.01–5.99). A post hoc power analysis determined a sample size of 90 could achieve power .97 for the main analyses. Three additional children were excluded for failure to complete the experiment. The study was approved by the University of Minnesota Institutional Review Board under the project name Moral Judgments (Study Number STUDY00001480).

Materials. The stimulus stories presented to the participants were the same as in Study 1. The only differences were that the hair color and skin tone of the colored drawings were adjusted to depict European American children. We also chose gender-neutral American names for the characters in the stories. The informants in the videos were also replaced by young European American female adults who were around the same age as the Chinese informants in Study 1.

Procedure. The procedure was the same as in Study 1, except that we added a *peer transmission task* at the end of each of the two trials in order to evaluate children's true belief.[2] This task was included to determine whether children were complying with the experimental demands for social reasons or had genuinely changed their beliefs about the moral acceptability of the novel actions described in the stories.

After asking the practical judgment questions in each trial, the leading experimenter (E1) told the child that she was going to go get something and left the testing room, and another experimenter (E2) came in with a 25-in.-tall child puppet that matched the child's gender. The puppet was introduced to the child as "Sam". After the child was familiarized with the puppet, E2 told the child that neither Sam nor herself knew anything about "mibbing" or "lepping", and asked the child, for example: "Sam would like to learn about lepping. Can you tell him whether lepping is good or bad?" All children's answers were transcribed live by E1 and recorded on video.

Results

Preliminary analyses revealed no effects of gender, the order of the story used, or scores on the outcome and informant check questions. Thus, all subsequent analyses were conducted, collapsing across these variables. After analyzing children's responses in this second study, we also performed a cross-cultural analysis comparing the Chinese and the U.S. American samples from Studies 1 and 2.

Moral judgments. First, we examined children's moral judgments. Overall, 91.1% of children (83.3% 3-year-olds, 93.3% 4-year-olds and 96.7% 5-year-olds) in the control trial and 71.1%

[2] A video of the study procedure can be provided by Pearl Han Li (lixx5592@umn.edu).

of children (43.3% 3-year-olds, 83.3% 4-year-olds, 86.7% 5-year-olds) in the informant trial said that the action was bad.

As in Study 1, children generally rated the novel actions as worse in the Control Trial than in the Informant Trial (Control Trial Score: $M = 2.481$, $SD = 0.722$; Informant Trial Score: $M = 1.984$, $SD = 0.942$). A four-way mixed Analysis of Variance (ANOVA) was conducted with informant condition (single, multiple), age (three, four, and five years) and trial order (control trial first, informant trial first) as between-subjects factors, trial type (control trial, informant trial) as a within-subjects factor and the moral ratings as the dependent variable. This revealed a main effect of trial type, $F(1, 78) = 32.531$, $p < .0001$, $\eta_p^2 =. 294$, confirming that children's ratings were less negative on the informant trial as compared to the control trial. There was no main effect of informant condition, $F(1, 78) = 1.207$, $p = .275$ or trial order, $F(1, 78) = 2.146$, $p = .147$. However, there was a main effect of age, $F(2, 78) = 12.772$, $p < .001$, $\eta_p^2 = .247$ ($M_{5\text{-year-olds}} = 2.567$, $SD_{5\text{-year-olds}} = 0.698$; $M_{4\text{-year-olds}} = 2.344$, $SD_{4\text{-year-olds}} = 0.774$; $M_{3\text{-year-olds}} = 1.786$, $SD_{3\text{-year-olds}} = 0.953$). Unlike Study 1, the ANOVA also revealed a significant Age × Trial Type interaction, $F(2, 78) = 4.984$, $p = .009$, $\eta_p^2 = .113$ and a significant three way interaction between age, trial type, and informant condition, $F(2, 78) = 6.475$, $p = .003$, $\eta_p^2 = .142$.

To better understand the three-way interaction, we computed simple tests of the effect of informant condition for each of the six combinations of age and trial type using a Bonferroni correction. As would be expected, children's moral rating in the control trial was not influenced by informant condition, all three comparisons $p > .12$. In the informant trial, 3-year-olds rated the novel action less negatively in the multiple informants condition ($M = .93$, $SD = .704$) than the single informant condition ($M = 1.8$, $SD = .862$), $F(1, 84) = 8.552$, $p = .004$, 95% CI [0.277, 1.456]. By contrast, 4- and 5-year-old children's ratings did not differ significantly between the two informant conditions, $p > .16$ (see Figure S3 in the online supplementary material). Thus, overall, only 3-year-old children were significantly influenced by the number of informants in the informant trial.

Practical judgments. Children's answers to the practical judgment question were also analyzed with an Age × Condition × Trial Order × Trial Type mixed ANOVA. This analysis revealed a significant main effect of age, $F(2, 78) = 9.484$, $p < .001$, $\eta_p^2 = .196$. Similar to Study 1, younger participants evaluated the protagonists more positively than older participants (see Figure S4 in the online supplementary material, $M_{5\text{-year-olds}} = 1.958$, $SD_{5\text{-year-olds}} = 1.104$; $M_{4\text{-year-olds}} = 1.839$, $SD_{4\text{-year-olds}} = 1.06$; $M_{3\text{-year-olds}} = 0.962$, $SD_{3\text{-year-olds}} = 0.901$), but there was no main effect of trial type, $F(1, 78) = 0.515$, $p = .475$, indicating that children's practical judgment of whether they would like to play with the transgressor was not affected by the claims of the informant(s). There were no other main effects and none of the interactions were significant.

Children's justifications of their moral judgments. The percentage of participants offering an explanation for their judgment increased with age. Thus, 50% of 3-year-olds, 73.33% of 4-year-olds and 83.33% of 5-year-olds gave a reason in at least one trial. Across age groups, 58.89% gave an explanation in the informant trial, and 56.67% gave an explanation in the control trial. The rest of the children either said "I don't know" or remained silent.

We coded children's explanations into the same three categories as in Study 1: (a) focusing on the transgression or its negative consequences; (b) focusing on good behavior or its positive consequences; and (c) other. Pearl Han Li and a research assistant blind to the hypotheses of the study coded 50% of children's justifications ($n = 53$). Interrater reliability was 95.7% ($\kappa = .89$). In both trials, the majority of the responses focused on the transgression or its negative consequences (92.16% in the control trial and 79.25% in the informant trial), $\chi^2(1, N = 104) = 0.843$, *ns*. A slightly larger percentage of children provided an explanation regarding good behavior or its consequences in the informant trial (11.32%) than in the control trial (3.92%), but unlike Study 1, this difference was not significant, $\chi^2(1, N = 104) = 2.00$, $p = .16$.

Peer transmission task. To examine whether children would pass on their moral judgment consistently to another person, we created a dichotomous variable: whether or not children were consistent in their judgment of the novel moral transgression when asked to teach a puppet. Overall, 85.56% children gave a response in the peer transmission task that was consistent with their earlier moral judgment in the control trial, and 88.89% children were consistent in the informant trial. Thus, the rate of consistency was high in both types of trial. For the 22 children who changed their answer when transmitting the judgment in one of the two trials, 8 children changed their answer from saying the transgression was good to judging it as bad, and 14 children changed their answer from bad to good. None of the participants changed their answer in both trials. A binary logistic regression model examining the effects of trial type on whether children changed their judgments revealed no main effect of trial type (control trial, informant trial), Wald $\chi^2(df = 1) = 0.82$, $p = 365$. Thus, regardless of whether children were presented with the counterintuitive claim, a similar proportion of children changed their judgments when asked to transmit the information to the puppet.

Cross-cultural comparison of children's moral ratings in Study 1 and 2. A 3 (age) × 2 (country) × 2 (informant condition) × 2 (trial type) mixed Analysis of Variance (ANOVA) with moral ratings as the dependent variable revealed a main effect of Country, $F(1, 202) = 19.985$, $p < .001$, $\eta_p^2 = .090$, indicating that Chinese children judged the novel moral transgressions less negatively than U.S. children. There was a significant main effect of trial type, $F(1, 202) = 70.202$, $p < .0001$, $\eta_p^2 =. 258$, and a main effect of age, $F(2, 202) = 14.736$, $p < .001$, $\eta_p^2 = .127$. There was no main effect of informant condition, $F(1, 202) = 1.44$, $p = .232$.

The interaction of age × trial type failed to reach significance, $F(2, 202) = 2.729$, $p = .068$, $\eta_p^2 = .026$, but there was a significant 4-way interaction between age, trial type, culture and condition, $F(2, 202) = 3.282$, $p = .04$. None of the other interactions were significant. Figure 4 illustrates the moral ratings of children in each country as a function of trial type and age.

To further interpret the four-way interaction, simple tests of the effect of informant condition were calculated for each of the 12 combinations of age, country, and trial type using a Bonferroni adjustment. For the Chinese participants, 3- to 5-year-old children's moral ratings did not differ significantly between the single informant condition and the multiple informants condition in either the control trial or the informant trial, all six comparisons, $p > .22$. For the U.S. children, consistent with the findings in Study 2, we found a statistically significant effect of informant condition for 3-year-olds in the informant trial, $F(1, 84) = 8.552$, $p = .004$. U.S.

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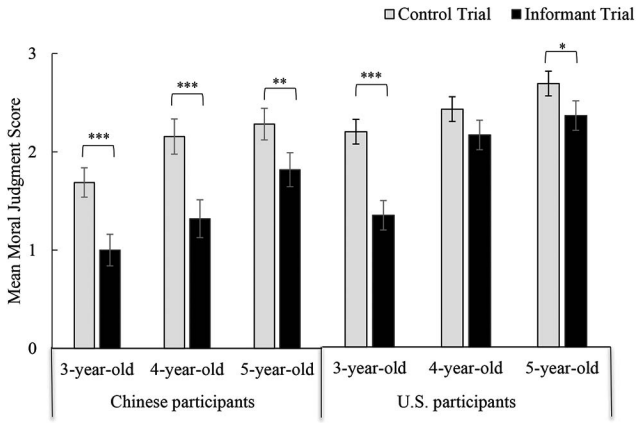


Figure 4. Average moral rating score (very bad = 3, very good = 0) for the Chinese participants (left) and the U.S. participants (right) as a function of age and trial type. Asterisks indicate significant differences between trial types. * $p < .05$. ** $p < .01$. *** $p < .001$.

children's moral ratings did not differ significantly between the two conditions in the other five comparisons of informant condition.

In summary, children from both countries were affected by the counterintuitive claims regarding the novel actions. Chinese children were more likely to judge the novel moral transgressions positively than U.S. children. There was no systematic effect of the number of informants providing the counterintuitive claims in either culture.

Discussion

Study 2 replicated key findings of Study 1. Overall, both U.S. and Chinese children rated a novel action more positively in the informant trial than in the control trial. Also, U.S. children's justification of their moral judgments fell into the same general categories as those of the Chinese children, although the majority of their responses focused on the transgression or its negative consequences.

Despite these similarities between the two studies, there were some notable differences in Chinese and U.S. children's responses. First, unlike Chinese children, there were condition-related differences in 3-year-old U.S. American children's responses to adult testimony. Three-year-old U.S. children were more affected by a consensus of three adult informants than by a single informant. We also found that, overall, U.S. children rated the transgressions more severely than Chinese children did.

In Study 2, we also added a peer transmission task to explore the possibility that children's agreement with informant testimony was less of a reflection of their updated beliefs and more of a response to social pressure. The majority of children gave a response consistent with their moral judgments when attempting to teach a puppet about the novel behaviors in both trials. In other words, the majority of the participants chose to transmit their answers to the moral judgment questions. This finding suggests that children's responses, if updated after hearing the adults' claims, did not merely signal compliance to authority or the social demands of the task, but likely reflected genuine changes in their moral judgment.

A possible limitation of the procedure we used was that children may have inferred that E1 and E2 were not totally independent given that they were in the same lab space when the child arrived. However, we used the puppet as the agent asking for information instead of a human experimenter, and repeatedly made it clear in our script that the puppet, E1 and E2 were all ignorant about the status of these novel actions. Nevertheless, future research could benefit from the use of actual peers in information transmission tasks (Flynn & Whiten, 2008) and additional methods to systematically explore children's true beliefs after hearing counterintuitive moral information, such as examining children's endorsement of the claims after a delay in order to assess the long-term impact of counterintuitive claims (Ronfard, Lane, Wang, & Harris, 2017).

General Discussion

Previous studies by social domain theorists have emphasized that children make judgments about moral transgressions independent of the surrounding social context (e.g., Smetana, 1981, 1985), even if their pro-social behavior can sometimes be susceptible to negative social influence (e.g., Blake et al., 2016; Engelmann et al., 2016). In the present study, we investigated the extent to which Chinese and U.S. American preschoolers' moral judgments are influenced by the testimony of other people. More specifically, we asked how far preschoolers' moral ratings would be swayed by counterintuitive claims in the moral domain.

The findings from both Study 1 and Study 2 suggest that although children negatively rated novel actions that made others cry in the control trial, they rated such actions more positively after briefly viewing either one or three adults claim that the novel actions were "good". It is also worth emphasizing that children's judgments did not signal simple parroting of what they were told but appeared to reflect changes in children's actual beliefs. Thus, children were able to provide explanations of their updated judgments and were willing to transmit their updated judgments to another person.

The finding that children were affected by counterintuitive testimony is not consistent with the suggestion that by around age 3 to 4 years, children view moral transgressions, defined by actions that cause harm to others' welfare or rights (Turiel, 1983), as wrong irrespective of the social context (e.g., Kim et al., 2016; Smetana, 1985; Smetana et al., 2012). Instead, these results suggest that children's judgments of harmful acts can be influenced by information provided by others. Part of the explanation for this discrepancy may be due to the nature of the judgment task that we used. Thus, we replaced familiar harmful actions, such as hitting or stealing, with unfamiliar actions conveyed via novel words. Because these unfamiliar actions lacked familiar details or a ready means of description, children may have been more receptive to the adults' claims.

The use of novel words in the current study opens up the possibility that children may have interpreted the actions neutrally, amorally or even positively. More specifically, following the adult testimony, children may have reinterpreted the action as neutral or positive and the victim's crying as unrelated to the action (i.e., the other child happened to cry during that time) or as not necessarily reflecting distress (e.g., tears of joy). However, it is unlikely that the scenarios had no moral implications for participants given the implied causal link between the action and the outcome of distress

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described in the vignettes (e.g., "Abu was mad. He felt like lepping his friend Pipi and so he did. He lepped Pipi and Pipi began to cry.") as well as the visual stimuli depicting the transgressor's negative facial expressions and the victim's distress (see Appendix S1 and Figure S1 in the online supplementary material). Yet, given children's justifications, there are at least three ways in which children's judgments may have been susceptible to testimonial influence. First, children may have accepted adult guidance on the interpretation of new or ambiguous harm-related actions and reasoned that inducing distress in this new context was more permissible compared to other familiar transgressions (e.g., "Mibbing [unlike hitting] is good behavior/ not that bad.") An alternative possibility is that testimony prompted children to downplay the seriousness of causing harm to others in general, although the perceived amount of harm remained unchanged (e.g., "Because I think when [sibling name] hits me then I just cry. But then I stop.") Yet another possibility is that children resolved the tension between their own intuition and the adults' testimony by minimizing the distress caused to the victim and putting more weight on positive outcomes for the transgressor (e.g., "Because if you lep, you can eat (the ice cream).") In sum, children either focused on reassessing the novel action itself, or weighing the positive and negative consequences caused by the action.

It should be stressed that these findings do not imply that children who deferred to the adult testimony abandoned a basic antiharm principle. Rather, preschool-aged children deferred to others on how the principle applies to given cases. By implication, children may rely on others' testimony to appreciate and reason about the significance and scope of a moral principle, and to understand when and how the moral principle applies to specific circumstances (Harris, 2012; Harris et al., 2018; Jones, 1999). Additional research is needed to further examine children's receptivity to adults' claims when making moral assessments in other situations, such as whether apparently prosocial or neutral behavior could be perceived as morally impermissible after hearing counterintuitive testimony (Rottman et al., 2017), or whether children's understanding of more complex or nuanced situations could be affected by testimonial reasoning that highlights specific aspects of the issue. Future studies are also needed to explore whether children's ratings would be equally affected by testimony when presented with more unambiguously prosocial or antisocial story vignettes. There is evidence that in those cases, children's level of conformity to the unexpected testimony would be attenuated (Guerrero, Elenbaas, Enesco, & Killen, 2017; Kim et al., 2016). At the same time, it is important to note that children's apparent resistance to adults' counterintuitive testimony concerning familiar transgressions such as hitting or shoving (Kim et al., 2016) also warrants further study. Such resistance might reflect children's awareness of adults' typically negative appraisal of such actions rather than children's autonomous assessment of the intrinsic moral status of such actions. In other words, imagining a social context in which adults entirely deny or ignore moral transgressions might be challenging for young children.

We found a main effect of culture when comparing the two studies, with Chinese children evaluating the novel actions more positively in both the control and informant trials compared to their American counterparts. One possibility is that this finding reflects children's different interpretations of the novel actions. Namely, it is possible that Chinese children rated novel actions causing distress more positively regardless of whether there was testimony that ran counter to their intuition. However, this account is unlikely because previous studies have shown that children are sensitive to actions causing harm and distress across a variety of cultural contexts, including China (Yau & Smetana, 2003). An alternative, more plausible possibility is related to the finding of an order effect in the Chinese children's moral ratings: Chinese children rated the novel actions more positively across both trials if they heard the counterintuitive claim in the first trial. It is possible that the power of the counterintuitive claim was sufficiently strong that it continued to influence these children in the control trial. In fact, if we only compare children who received the control trial first in the two countries, there was no effect of culture in children's judgments in the control trial ($p = .115$). By implication, culture did not function to shape whether children judge actions causing distress as morally wrong but rather the extent to which children were open to counterintuitive claims made by adults in specific morally significant situations. This possibility is consistent with previous studies reporting a higher rate of deference to counterperceptual claims among Asian American children, especially in a public setting (Corriveau & Harris, 2010; Corriveau et al., 2013). Indeed, it is possible that early socialization practices that emphasize the importance of learning from adult authorities and parenting values with respect to conformity and humility are key mechanisms by which young Chinese children come to display such differences (Corriveau, Min, & Kurkul, 2014; Li, 2005; Suizzo & Cheng, 2007; Wang, Elicker, McMullen, & Mao, 2008; Wellman et al., 2006). However, we also recognize the need for caution and additional research in interpreting these results given the post hoc nature of this interpretation.

The finding that older U.S. preschoolers were more likely to ignore adults' countervailing claims is consistent with other evidence that 4- to 5-year-old Euro American children are inclined to resist claims that defy the perceptual evidence and their previous knowledge (e.g., Bernard, Harris, Terrier, & Clément, 2015; DiYanni & Kelemen, 2008; Jaswal, 2004). This finding is also in line with previous studies demonstrating that Euro American children view moral issues as more independent of authorities with increasing age (Smetana et al., 2012). For the Chinese children, the magnitude of children's shift in their moral ratings did not significantly vary across the three age groups. Future studies need to be conducted to examine the developmental trajectory in evaluating moral related testimony and accepting counterintuitive claims in diverse cultures.

Finally, we turn to the impact of receiving testimony from one as compared to three informants. Across the two cultures, 3- to 5-year-old Chinese children and 4- to 5-year-old U.S. children's receptivity to counterintuitive testimony was observed whether it was provided by a single informant or by a consensus of three informants. This finding stands in contrast to previous studies reporting children's selective trust in claims made by a consensus compared to a single informant (e.g., Corriveau et al., 2009; Fusaro & Harris, 2008). Note that previous work on the influences of consensus has largely focused on perceptual judgments (Corriveau & Harris, 2010) and conventional judgments (Corriveau et al., 2009; Fusaro & Harris, 2008). One interesting possibility is that for moral judgments, a single informant's testimony is just as powerful as a consensus. In our study, preschoolers may have

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treated the testimony in a similar fashion regardless of the number of informants, and their tendency to stick or switch was not guided by whether the testimony was presented by a consensus of three informants. A few recent studies lend support to this possibility. When presented with a picture of an individual lying on the ground and another individual standing close by, 3- to 9-year-old Korean children agreed with a negative interpretation of the situation over a neutral interpretation at a similar rate, regardless of whether the testimony was provided by a single informant or a consensus of peers (Noh, Elenbaas, Park, Chung, & Killen, 2017). Previous work by Hussar and Harris (2010) also found that young independent vegetarians explained their choice to not eat meat in terms of their concern about animal welfare even though they were being raised in families and communities that typically supported eating meat. It is plausible that these children learned about the harm caused to animals from a source outside the family. Thus, although meat-eating is a practice supported by a consensus both within and beyond the family, this outside source of discrepant information trumped the overall consensus in children's moral decision making. In the future, it will be worth delving into specific moral domains to explore whether certain moral judgments are more sensitive to a consensus than others.

An alternative possibility is that because the consensus information in the video was presented successively instead of simultaneously, children did not treat the three sources as providing independent moral judgments. Perhaps children would have been more affected by multiple informants if the claims were presented simultaneously by the three informants (Herrmann, Legare, Harris, & Whitehouse, 2013). Simultaneous verbalization of a claim by three informants would likely have appeared unnatural in our procedure but it has been the most common approach in other studies reporting a consensus effect (e.g., Corriveau & Harris, 2010; Bernard et al., 2015). However, it is indeed possible that preschoolers reasoned that the last two informants were just copying what the first speaker said, so that their claims did not serve as additional evidence when it came to children's revision of their own moral evaluations.

The role that other people's testimony plays in children's moral judgment has received little attention. Previous research on testimonial learning has indicated that when children face conflicts between adult testimony and their own intuitions, they might be either autonomous or deferential, depending on a variety of contextual factors. Research on moral judgment has often focused on children's ability to identify actions that lead to harm and distress as morally wrong, independent of the dictates of authority. However, testimony likely plays a key role in children's moral development, especially when learning about the applications, extensions or generalizations of moral norms. This study attempted to assess how far children's judgments about novel moral actions are influenced by adult testimony. It is the first to examine cross-cultural differences in preschoolers' judgments facing counterintuitive moral information. Overall, the results showed that preschool-aged Chinese and American children were receptive to adult testimony and were willing to recalibrate their initial moral stance based on perceived harm and distress.

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