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Weighing First- and Second-Hand Information: How Children and Adults Evaluate Sources of Moral and Factual Knowledge Across Two Cultures

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How do children and adults decide when to think for themselves and when to rely on others? In two cross-cultural experiments (N = 424), I ask whether children and adults value independent thinking over dependence on testimony when evaluating how others justify moral and empirical beliefs. In Study 1, 4- and 6-year-old children and adults in the United States and China evaluated two reasoners who made the same moral judgments (e.g., pushing others is wrong), but one showed independence in her thinking, and the other relied on another person's testimony. Adults in both cultures preferred the independent reasoner and judged her as more trustworthy, more likable, and more knowledgeable. Four- and 6-year-old Chinese children and 6-year-old U.S. children also judged the independent reasoner as having "better reasons" for her moral beliefs. In Study 2, when reasoning involved factual judgments about the content of containers, adults no longer preferred independent reasoning. Four- to 6-year-old Chinese children, however, maintained their preference for the independent reasoner, whereas U.S. children showed no clear preference. Taken together, these findings highlight how developmental and cultural factors influence not only what children learn but also how they evaluate the processes by which knowledge is acquired.

Public Significance Statement

This study shows that Chinese and U.S. adults valued independent reasoning over relying on others when assessing how others form moral beliefs, but not when assessing factual claims. In contrast, Chinese children displayed an earlier and more consistent preference for independent thinkers across contexts, suggesting an early emerging appreciation for intellectual autonomy. These findings highlight how cultural and developmental factors influence not only *what* children learn, but *how* they evaluate different ways of acquiring knowledge.

Keywords: testimony, social learning, moral judgment, belief formation, culture

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Consider two people who both believe that betraying a friend's trust is wrong. One arrived at this conclusion through personal reflection on loyalty and harm; the other simply accepted what they were told about friendship. While both hold the same belief, we might view the first person as having a deeper moral understanding and perhaps even better moral character. Now consider two people who both know that vaccines are effective. Here, accepting expert testimony seems perfectly legitimate, and we do not expect everyone to conduct independent research before accepting medical facts.

These examples suggest that the source of a belief may matter as much as its content and that we may hold different standards for different types of knowledge. From a young age, children acquire a wealth of factual knowledge from testimony supplied by others

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(Harris et al., 2018; Mills, 2013; Tong et al., 2020), including the meaning of new words (Koenig et al., 2004; Sobel & Corriveau, 2010), functions of artifacts (Lane & Harris, 2015), object locations (Jaswal et al., 2010; Liu et al., 2013), scientific facts (Clegg et al., 2019; Landrum & Mills, 2015), and cultural phenomena such as religious norms (Harris & Koenig, 2006). But beyond learning *from* testimony, do children develop beliefs *about* testimony, or intuitions about when it constitutes an appropriate source of knowledge? If so, are these intuitions universal, or do they reflect context-dependent and culturally specific values? The present studies address these questions by examining how children and adults in China and the United States evaluate independent reasoning versus testimony when others justify moral and factual beliefs.

The Limits of Testimony in the Moral Domain

Although testimony is a pervasive channel for learning that can transmit a wide range of information, philosophers have argued that testimony is paradigmatically well-suited for acquiring knowledge about contingent, mundane facts—those that are typically uncontroversial, situation-specific, and sometimes difficult to verify directly (Lipton, 1998). Such knowledge includes claims like "There's a book in the backpack," "germs make us sick," or "Paris is the capital of France," facts we typically learn by accepting others' claims rather than through direct observation or deduction. But how well does this extend to the moral domain?

Compared to factual knowledge, moral knowledge is often viewed as properly grounded in internal sources. This intuition is reflected in psychological research showing that people view moral beliefs as closely tied to moral intuitions, moral essence, or core aspects of identity (Heiphetz et al., 2018; Strohminger & Nichols, 2014; Yonas & Solomon, 2025). As such, the role of testimony in conveying moral knowledge remains a subject of theoretical debate (Gelfert, 2014; P. H. Li & Koenig, 2023). Some Western philosophers argue that deferring to moral testimony is epistemically insufficient because it bypasses the moral understanding that comes from grasping reasons through one's own moral sensibility (Hills, 2009; Hopkins, 2007). Others argue that relying on moral testimony for basic moral truths may signal not just epistemic dependence but a deficiency in moral character: Failure to take ownership of one's moral judgments may signal an absence of an internal moral compass, which undermines one's moral agency and authenticity (McGrath, 2011; Nickel, 2001). These concerns reflect a deeper intuition that moral knowledge should flow from one's own moral sensibilities rather than external sources. If these arguments hold, then the epistemic legitimacy of testimony may be domain-sensitive: While testimony efficiently transmits factual beliefs, people may view it as problematic or insufficient for transmitting moral beliefs. However, others argue that moral testimony can be legitimate when individuals recognize their own limitations and biases and see the informant as better positioned to make the judgment (Sliwa, 2012; Wiland, 2017). These competing philosophical positions raise empirical questions: Do people actually apply different epistemic standards to moral versus factual domains?

Despite these theoretical debates, little is known about how children and adults evaluate the relative legitimacy of moral testimony versus independent moral reasoning, and how such evaluations compare across domains. In one of the only empirical study to date, Andow (2019) asked Western adults to evaluate the legitimacy of instances of forming moral beliefs solely on the basis of testimony versus solely on the basis of first-hand experience (e.g., "Is it legitimate to rely solely on what [the friend/first-hand experience] tells you when forming your own opinion about whether the action is immoral?"]). Participants judged moral beliefs formed exclusively through testimony as less legitimate than independently acquired beliefs, and also less legitimate than factual beliefs formed through testimony (e.g., a friend telling them whether a painting is large). These findings suggest that adults may exhibit skepticism specifically toward moral beliefs acquired exclusively through testimony.

Developmental work also provides initial evidence children may differentiate across domains. By age 7 or 8, children begin to distinguish between domains of knowledge and view moral and factual expertise as requiring different traits (Danovitch & Keil, 2007). This emerging sensitivity to domain-specific expertise may influence how children evaluate the relative value of testimony versus independent reasoning in moral and nonmoral contexts. Yet existing studies leave open questions about how children explicitly judge the appropriateness of relying on testimony in any domain, moral, or otherwise (Harris et al., 2018).

The present studies compare how children and adults across two cultures evaluate independently reasoned and testimony-based judgments in moral and factual domains. Moral and factual judgments come in many forms. To ensure that any observed differences reflect evaluations of how knowledge is acquired rather than disagreements about what is believed, I selected uncontroversial, familiar beliefs across both domains. In Study 1 (moral domain), I used actions such as hitting or helping, which are behaviors that young children readily understand as violations or affirmations of moral norms (Smetana, 2006; Turiel, 1983). In Study 2 (factual domain), I used verifiable claims about the contents of bags or boxes (e.g., "There's a book in the backpack"), which are the kind of contingent, mundane facts that philosophers have identified as well-suited for testimony (Lipton, 1998) and widely used in developmental research (Koenig, 2012).

Balancing Reliance on Testimony and Independent Thinking

While the philosophical debates raise important questions about the epistemic legitimacy of testimony, developmental research has primarily focused on how children make first-person learning decisions when testimony conflicts with their own judgments. When learning empirical facts, children often calibrate self-reliance and dependence on testimony based on their level of confidence. Children typically favor independent judgments when adult testimony conflicts with clear, intuitive evidence (Jaswal, 2004; Koenig & Echols, 2003; Woolley & Ghossainy, 2013; for a review, see Lane & Harris, 2014), but often accept counterintuitive claims when situations are ambiguous (e.g., C. C. Chan & Tardif, 2013; Jaswal & Markman, 2007; Ma & Ganea, 2010; Ronfard et al., 2021). Recent research in statistical learning further reveals that children weigh both the strength of observational statistical evidence and the reliability of the informant when testimony conflicts with direct evidence (Bridgers et al., 2016; Fitneva et al., 2013; Gualtieri et al., 2020; McLoughlin et al., 2021).

Similar patterns emerge in children's moral reasoning. When testimony conflicts with strong moral intuitions (such as peers

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claiming that hitting is acceptable), 3- to 6-year-olds typically reject the testimony and rely on their own harm-based intuitions (Kim et al., 2016). However, in morally ambiguous contexts, children readily rely on adult testimony. For example, children judged unfamiliar, self-directed actions (e.g., painting one's own face white, Rottman et al., 2017) as morally wrong when an adult described them as harmful, suggesting that children can moralize otherwise neutral behaviors based on adult input. Conversely, children judged novel, distress-inducing actions as morally permissible when adults labeled them as "good" (P. H. Li & Koenig, 2025; P. H. Li et al., 2019).

While these studies reveal that children flexibly weigh their own knowledge against testimonial input across both empirical and moral domains, no studies to date have explored children's evaluations of whether testimony is a legitimate or preferable method of acquiring knowledge compared to independent reasoning. In other words, children's strategic reliance on testimony in learning contexts does not necessarily reveal their epistemic evaluations. A child might pragmatically accept testimony when uncertain while still viewing independent reasoning as the more "appropriate" way to form beliefs.

A few studies indirectly assess children's judgments about independent versus testimony-based knowledge in nonmoral domains, but with a focus on learning preferences. Children treat both independent reasoning (e.g., "Backpacks hold books. I think there is a backpack in there.") and learning from testimony by a reliable informant (e.g., "My teacher told me there's a ball in the box. I think there's a ball in there.") as reasonable when learning about contingent facts (Domberg et al., 2019; Koenig, 2012). However, when choosing whom to learn from, children sometimes prefer informants with independent knowledge over those relying on second-hand information: 4- to 5-year-olds prefer speakers who labeled animals independently over those who relied on other's help (Einav & Robinson, 2011), and 5- to 7-year-olds favor individuals who discovered toy operations without external instructions (Bridgers et al., 2018). Furthermore, children are sensitive to whether informants rely on first-hand observation ("I saw") or second-hand hearsay ("Someone told me"). Lane et al. (2018) found that younger children treated hearsay as more credible than first-hand observation when endorsing claims about improbable events, but children older than 6 years increasingly discount second-hand claims. Similarly, Danovitch and Lane (2020) found that younger children (ages 4–5) endorsed improbable claims more readily when attributed to hearsay compared children who heard no claims, whereas older children (age 8) exhibited greater skepticism toward second-hand testimony compared to baseline. These findings highlight children's growing sensitivity not only to informants' reliability but also to how informants acquire their knowledge. However, existing work has yet to directly examine whether children explicitly judge beliefs acquired through independent reasoning as more epistemically legitimate than testimony-based beliefs, especially in moral contexts.

To address this gap, the present study explored whether children and adults place greater value on independent thinking over dependence on testimony when evaluating how others justify moral and empirical claims. I developed a novel approach that shifts from examining children's first-person learning decisions to their third-person evaluations of others' reasoning processes. Participants evaluated two speakers who reached the same conclusion but justified their beliefs differently: one through first-hand, independent reasoning, and the other through second-hand testimony. Participants judged which speaker had a "better reason" for their conclusion and made comparative assessments of the speakers' epistemic competence. This approach isolates children's evaluation of reasoning processes from their assessment of accuracy or reliability, providing the first direct developmental test of whether children, like adults, apply different epistemic standards to moral versus factual testimony. Throughout my investigation, I use "independent reasoning" and "reliance on testimony" as descriptive terms for different epistemic strategies without assuming either approach is inherently superior. Rather, both strategies are essential for knowledge acquisition; the key question is if and when children might value one approach over another, recognizing that different strategies may be optimal for different domains and cultural contexts.

Cultural Differences in Independence and Interdependence

Children's social learning is deeply embedded in socially shaped learning experiences, as well as culturally shaped beliefs about what it means to be a good learner. Western cultures, such as the United States, often endorse a Socratic approach to learning which emphasizes active engagement, inquiry, and independent knowledge acquisition, whereas Chinese cultures tend to embrace a Confucian tradition which stresses reliance on sources of authorized knowledge, and speaking only when fully sure (K. W. Chan & Elliott, 2004; J. Li, 2005; J. Li & Fischer, 2004; Pratt et al., 1999). As a result, these cultural differences may manifest in differences between Western and East Asian parental socialization with their children, with East Asian parents placing more value on conformity, respect for authority, and intellectual humility than Western parents (Suizzo & Cheng, 2007). These divergent emphases suggest that Chinese children may be more attuned to the value of deference and humility and may be more likely to attribute knowledge to others. From this perspective, we might expect Chinese children to view deference to testimony as a legitimate and even preferred route to moral and factual knowledge.

Conversely, a competing hypothesis arises from other features of Chinese education and socialization. In highly competitive academic environments, Chinese children are expected to take responsibility for their own learning outcomes from an early age, and parents often stress diligence, persistence, self-regulatory skills, and independent problem-solving (C. C. Chan & Tardif, 2013; J. Li, 2005; Sy & Schulenberg, 2005). Moreover, Chinese parents tend to engage in more extensive talk about moral standards and social norms than U.S. parents (Doan & Wang, 2010; Wang et al., 2000; Wu & Honig, 2010). As a result, children may develop higher expectations for what others should know about basic moral issues, leading them to view reliance on testimony for familiar moral judgments as indicating insufficient moral competence. Thus, in an opposite direction, the stronger emphasis on autonomous learning in academic settings, as well as heightened sensitivity to moral reasoning quality, could alternatively lead Chinese children to prefer individuals who engage in independent deliberation over those who rely heavily on others' judgments.

To explore these competing possibilities, I compared how children and adults in China and the United States evaluate independent

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thinking and testimony as sources of knowledge. To further explore potential sources of individual and cultural variability, I included two self-report measures for adult participants and the parents of child participants. The first, the authoritarianism scale (Feldman & Stenner, 1997), captures endorsement of deference to authority over autonomy. Authoritarianism has traditionally been associated with conformity and deference to authority (Altemeyer, 1981). Children whose parents score high on authoritarianism are more willing to trust adults purely on status when accuracy cues are ambiguous (Tagar et al., 2017), which suggests that orientations toward authority are transmitted early and may affect children's judgments about how knowledge ought to be acquired. The second, the Self-Construal Scale (Singelis, 1994), assesses the extent to which individuals view the self as independent (e.g., valuing uniqueness and internal consistency) or interdependent (e.g., prioritizing harmony and responsiveness to others). Interdependent self-construals are associated with more collectivist norms, greater emphasis on shared knowledge and relational reasoning, and heightened attention to others' perspectives (Cross et al., 2000; Markus & Kitayama, 1991). By contrast, independent self-construals may align more closely with the ideal of the self-reliant learner. Although these trait-level measures cannot directly predict how parents evaluate specific epistemic strategies, they can serve as potential indicators of the epistemic values that parents may convey through modeling or socialization.

The Present Studies

To sum up, adults' and children's epistemic evaluations likely depend on what kind of knowledge is at stake, and the developmental and cultural factors that affect beliefs about legitimate ways of knowing. First, as philosophical debates suggest, people may apply different epistemic standards to moral versus factual domains, specifically viewing moral knowledge as requiring internal reasoning while treating factual knowledge as appropriately acquired through testimony (Andow, 2019; Gelfert, 2014; Hopkins, 2007). Second, developmental research reveals age-related differences in children's epistemic evaluations, with older children increasingly discrediting hearsay and preferring informants who acquired knowledge independently rather than through others' help (Danovitch & Lane, 2020; Lane et al., 2018). Third, epistemic values are culturally transmitted. Previous research has shown that Western traditions emphasize independent inquiry, while Chinese traditions stress both deference to authority and self-regulated learning (K. W. Chan & Elliott, 2004; J. Li, 2005; J. Li & Fischer, 2004). Importantly, these considerations cannot be studied in isolation because they likely interact in theoretically informative ways. For instance, if philosophical skepticism toward moral testimony reflects fundamental epistemic intuitions, it should emerge early and universally across cultures. However, if it reflects culturally transmitted values about moral agency, different cultural and developmental patterns may emerge.

Across two studies, I examine whether children and adults treat independently acquired beliefs as more intellectually commendable than testimony-based beliefs. In Study 1, Chinese and U.S. children and adults evaluated two reasoners who made judgments about familiar moral actions (e.g., pushing others and helping others): one who showed independence in her thinking and the other who relied on testimony. I assessed whether participants would view independent reasoner as having "a better reason," and whether they would express learning and social preferences for the independent reasoner over the deferential reasoner. In Study 2, I examined how Chinese and U.S. children and adults evaluated reasoners who made judgments about contingent, factual information (e.g., whether there is a book in the backpack). As described above, parents and adult participants completed measures of authoritarianism (Feldman & Stenner, 1997) and self-construal (Singelis, 1994) to explore potential sources of individual and cultural variability.

I predicted age-related increases in preferences for independent reasoning, consistent with evidence that older children increasingly discount second-hand testimony (Danovitch & Lane, 2020; Lane et al., 2018). In addition, if philosophical skepticism toward moral testimony reflects a basic intuition, then preferences for independence would emerge early in the moral domain and strengthen with age across both cultures, while testimony should remain broadly acceptable for factual claims. Conversely, if such preferences are culturally constructed, different developmental trajectories should emerge in Chinese versus U.S. samples.

Study 1

Method

Participants

Participants included 131 4- to 6-year-old children in the United States and China. The 64 U.S. participants (M_{age} = 5.67 years; range = 4.52–6.98 years, 33 boys and 31 girls) were recruited through a university-managed database of families in a Midwestern city. The 67 Chinese participants (M_{age} = 5.43 years; range = 4.03–7 years, 39 boys and 28 girls) were recruited through social media platforms across 16 provinces in mainland China. These ages were selected based on previous work revealing it as a transitional period when children become increasingly attentive to whether information is acquired second-hand (e.g., Danovitch & Lane, 2020; Lane et al., 2018). This is also the developmental window where children demonstrate selectivity in reasoning quality despite reaching the same conclusions (e.g., Corriveau & Kurkul, 2014; Koenig, 2012). An a priori G Power 3.1 analysis (Faul et al., 2007) was conducted based on a medium effect size of $f^2 = 0.25$ with an α level of .05, which showed that a sample size of 124 (64 children per culture) was needed to achieve 90% power for the main analyses of participants' reasoning evaluation responses. The final sample slightly exceeded the target sample size as additional families enrolled during the final week of data collection.

Information from parental questionnaires showed that 89.1% of the U.S. children were White (1.6% Black, 1.6% Asian, and 7.7% multiracial, 6.3% Hispanic or Latino of any race), and 100% of the Chinese children were of Chinese descent (94% Han ethnicity, 6% from minority ethnicity groups including Hui, Korean, Mongolian, and Qiang). Self-reported parental education was high across samples. In the United States, 96.9% of mothers and 83.5% of fathers had a bachelor's degree or higher. In China, 91% of mothers and 90.5% of fathers had attained at least a bachelor's degree. Family income was primarily middle to upper-middle income for both samples. 71.7% of the U.S. parents reporting an annual income greater than $100,000 per year (37.3% reported incomes between $100,000–$139,999, 17.2% between $140,000–$179,999, 7.8% between $180,000–$249,999 and 9.4% over $250,000). 77.6% of

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Chinese families reported monthly income exceeding 12,000 RMB (17.8% reported incomes between 12,000–17,999 RMB, 16.5% between 18,000–23,999 RMB and 43.3% over 24,000 RMB), which is higher than the national average for urban households (10,758.5 RMB, National Bureau of Statistics of China, 2021)

Adult comparison groups were also recruited to assess whether adults from both cultures had similar or different intuitions as children. Forty-one U.S. residents (M_{age} = 30.2 years; range = 21–51 years; 22 women, 16 men, and three nonbinary; 73.2% White, 12.2% Asian, 4.9% Black, 7.3% multiracial, 2.4% another race, 7.3% Hispanic of any race) were recruited online through *Prolific*. Thirty-nine Chinese residents (M_{age} = 39 years; range = 21–57 years; 23 women and 16 men; all ethnically Chinese, 89.8% of the Han ethnicity) were recruited online through social media. Child participants were tested via video-conferencing with a live experimenter, while adult participants completed the same tasks using the online survey platform Qualtrics. To ensure standardization across age groups and platforms, all participants viewed the same stimuli and received identical question wording and response options. Experimenters followed a standardized script, offering only verbatim repetition of questions when requested. Below, I describe the study procedure for the child participants.

Procedure

At the beginning of the session, children were introduced to two adults on the computer screen. For U.S. participants, the speakers were introduced using first names ("Daisy" and "Iris"), which is common when referring to unfamiliar adults in U.S. child-directed contexts. For Chinese participants, it is rare and inappropriate to refer to adults by their first names. The speakers were referred to as "张阿姨" (Auntie Zhang) and "王阿姨" (Auntie Wang), a culturally normative form of address used to refer to unfamiliar young adult women. The characters wore identical T-shirts in different colors and appeared side-by-side (see Figure 1). Prerecorded voiceovers were completed by native English and Mandarin speakers.

Each child first completed four trials of the *reason evaluation task*, which is the primary measure of interest that directly probed whether children judged independently acquiring beliefs as better than relying on testimony for specific moral scenarios. In addition, I included several exploratory measures: a selective learning task, a social preference task, and an explicit judgment task. These measures were designed to test whether any preference for independent reasoning or reliance on testimony extended beyond context-specific evaluations of reasons and generalized to learning preferences, social affiliations, and global trait-based inferences about the reasoners. I also included parent-reported measures, which enabled exploratory analyses of whether parental values are associated with children's reasoning preferences across cultures.

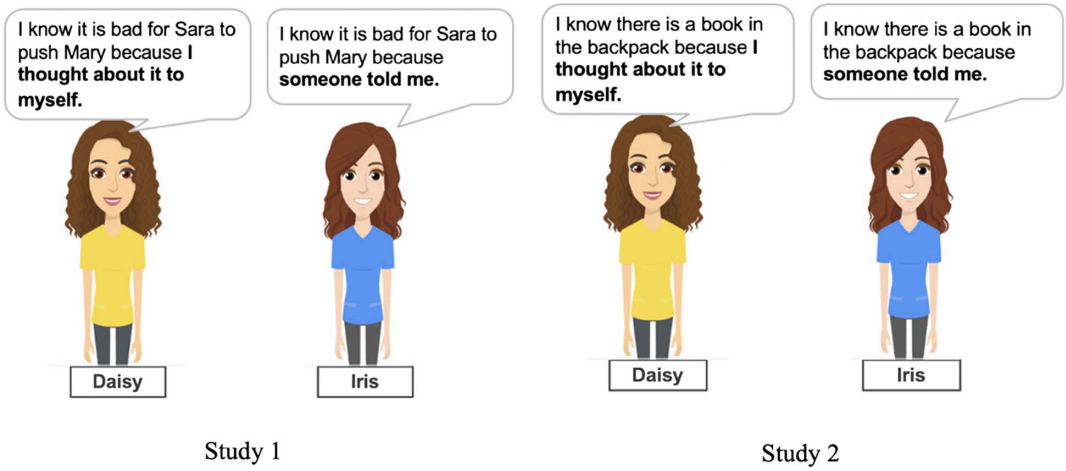
Reason Evaluation Task

In each of the four trials, children first heard a story with illustration involving familiar prosocial or antisocial actions with child characters (e.g., "One day, Sara pushed Mary at school, and Mary said 'Ouch!' and told the teacher," see Supplemental Table S1). This was followed by a video in which both reasoners made the same correct moral judgment but gave different justifications: one relied on independent reasoning (e.g., "because I thought about it to myself"), while the other relied on testimony (e.g., "because someone told me," see Figure 1). The specific speaker who engaged in independent thinking, the side that each speaker was on, and the order in which they spoke were counterbalanced across participants.

After each video, children answered a *reason evaluation* question: "Who do you think *has the best reason* to know that [pushing is bad]? Daisy or Iris?" Children were then asked to explain their choice (e.g., "Why do you think [Daisy] has a better reason than [Iris]?"). Children's answers to these *justification* questions were transcribed and coded by a research assistant who was blind to the hypotheses of the study.

Figure 1

Speaker Statements in Studies 1 and 2



Note. Example of speaker statements used in the United States. In both studies, one speaker shows independence in her thinking, and the other relies on testimony to make judgments. See the online article for the color version of this figure.

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Selective Learning Task

To further probe children's own social learning preferences, I included a *selective learning* task (Doebel & Koenig, 2013; Koenig, 2012). Children completed two types of trials: *novel moral action* trials and *novel content* trials. The order of trial types was counterbalanced across participants.

In each of three *novel moral action* trials, children were shown pictures of two children with neutral expressions. The experimenter introduced a novel action (e.g., "One day, Devon *lepped* Casey.") and asked: "Hmmm, I wonder if it is good or bad to *lep* someone. I bet one of these people can tell us. Who would you like to ask?" After making a choice, children watched a video in which one reasoner said the action was good and the other said it was bad. They were then asked an *endorse* question (e.g., "Daisy said it is good to *lep*. Iris said it is bad to *lep*. What do you think, is it good or bad to *lep*?"). The *novel content* trials followed the same structure, but involved identifying the contents of generic containers (e.g., a box, paper cup, or bag). In all trials, the order in which the reasoners spoke and the specific judgments they made were counterbalanced across participants.

Social Preference Task

To assess which children preferred to affiliate with, children were asked to make choices about which of the two reasoners they liked more and would like to play with more. They were also asked who they would prefer to share a cookie with, and who they would like to help move some boxes.

Explicit Judgment Task

At the end of the study, I also asked children to make a more general judgment on the person who consistently had a better way of thinking: "These people told us a lot about [whether it was good or bad to do something]. Who had the best reasons to know [whether it is good or bad to do something/what was inside these things], Daisy or Iris?" Children were also asked to explicitly evaluate the two agents' epistemic competence by answering questions on who was smarter and who knew more.

Parent Measures

To explore associations between parental values and children's epistemic preferences, one parent completed a four-item Authoritarianism Scale (Feldman & Stenner, 1997) in which they selected which of two contrasting child-rearing values they found more important (e.g., "obedience" vs. "self-reliance"). Parents also completed a Self-Construal Scale (Singelis, 1994). The Self-Construal Scale consists of 30 statements that measure cultural values related to independent (e.g., "I act the same way no matter who I am with.") and interdependent (e.g., "Even when I strongly disagree with group members, I avoid an argument.") self-values on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*). Following the Self-Construal Scale scoring system (Singelis, 1994), mean scores were computed for each dimension by dividing each dimension's total score by the number of items. For Chinese participants, the questionnaires were translated and back-translated by bilingual research assistants.

Results

Because all outcome variables were coded as binary (i.e., choosing the speaker who relied on testimony = 0, choosing the speaker who engaged in independent thinking = 1), and each task involved multiple trials, I used generalized linear mixed-effect models with binomial error distribution to analyzed participants' responses. Models were fitted using the *glmer* function in the *lme4* package (Bates et al., 2015) in R (Version 1.2.5019; R Core Team, 2019) with age group (children ages 4–6, adults), culture (United States vs. China), and their interaction as fixed effects, and participant ID as a random effect. I also ran separate analyses for children to examine the effects of children's age (continuous, centered) and culture. Below, I first report the primary reasoning evaluation findings, then examine additional measures assessing learning preferences, social preferences, and explicit judgments. Finally, I present exploratory analyses examining whether parental values (authoritarianism and self-construal) are associated with children's epistemic evaluations.

Reason Evaluation Task ("Who Has the Better Reason to Know That?")

The primary question of interest was which reasoner participants judged as having the better reason for their belief. The best model combining responses from children and adults revealed a Age Group × Culture interaction($OR = 0.04$, 95% CI [0.01, 0.24]; $p < .001$). Post hoc pairwise comparisons (Benjamini–Hochberg corrected) revealed that U.S. adults were more likely to choose the independent reasoner compared to U.S. children ($p < .001$), but Chinese adults and Chinese children's responses did not differ significantly ($p = .161$).

I then ran separate mixed-effects binary regression models for children and adults. For adults, there was a significant effect of culture ($OR = 12.9$, 95% CI [1.77, 93.5]; $p = .012$), indicating that U.S. adults were more likely to favor the independent reasoner compared to Chinese adults. Adults in both countries chose the independent reasoner at significantly above chance levels (U.S. adults: $M = 0.93$, 95% CI [0.89, 0.97], $p < .001$; Chinese adults: $M = 0.76$, 95% CI [0.69, 0.83], $p < .001$).

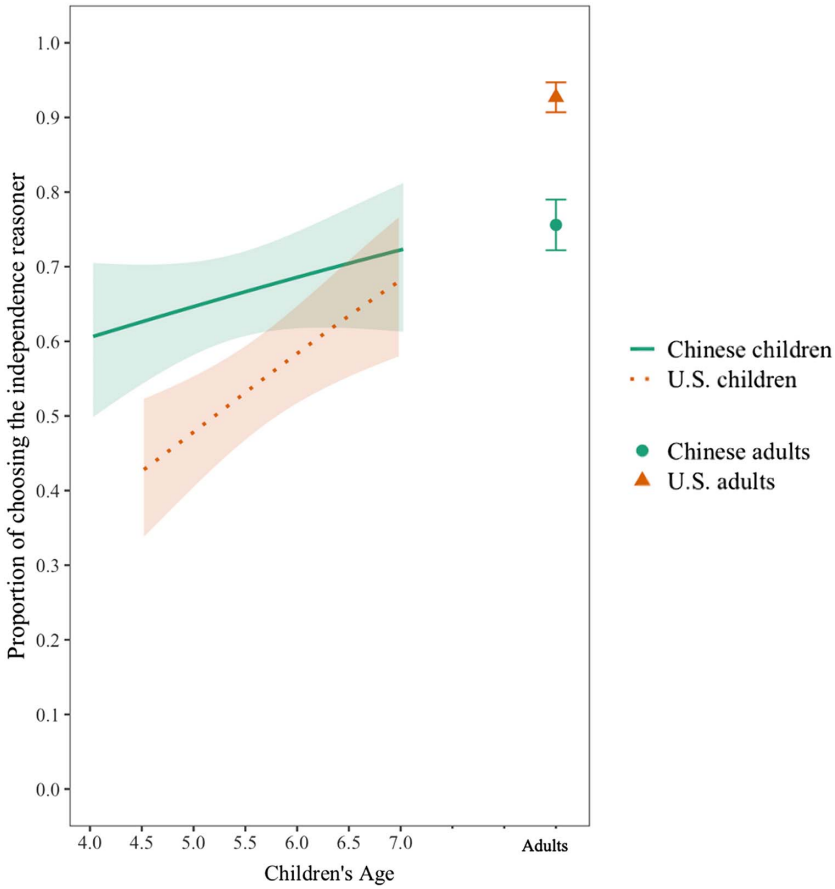
Analyses of children's responses revealed a significant main effect of culture and age. Chinese children were more likely than U.S. children to choose the independent reasoner ($OR = 0.37$, 95% CI [0.16, 0.88], $p = .024$), and older children were more likely to choose her than younger children ($OR = 1.65$, 95% CI [1.07, 2.56], $p = .024$; see Figure 2).

To further explore the age-related effect, I compared each age group's likelihood of choosing the independent reasoner to chance. Four-year-old U.S. children's responses were at chance ($M = 0.45$, 95% CI [0.37, 0.54], $p = .291$), but 4-year-old Chinese children were significantly more likely to favor the independent reasoner ($M = 0.59$, 95% CI [0.51, 0.68], $p = .031$). For 6-year-olds, children from both countries judged the independent reasoner as having a better reason compared to the deferential reasoner (Chinese 6-year-olds:

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Figure 2

Proportion of Trials in Which Participants Chose Independent Thinking as a Better Reason in Study 1, as a Function of Age Group and Culture



Note. See the online article for the color version of this figure.

$M = 0.74$, 95% CI [0.66, 0.81], $p < .001$; United States Six-year-olds: $M = 0.64$, 95% CI [0.56, 0.73], $p = .001$).

Reason Justifications

As an exploratory measure, I analyzed the types of justifications participants provided for preferring one type of reason over the other. To assess interrater reliability, 20% of justifications were also coded by a second coder who was blind to the study's hypotheses. Interrater reliability analyses revealed a high level of agreement between raters (U.S. sample: Cohen's $\kappa = 0.93$; Chinese sample: Cohen's $\kappa = 0.97$). Discrepancies were resolved through discussion. Here, I divided participants' responses into three levels. Level 1 responses restated what the agent said without further elaboration (e.g., "Because someone told her."). Level 2 responses included an explicitly stated preference for one way of thinking without further elaborate on their choice (e.g., "It's better that Daisy knows this is bad already."). Level 3 responses included a clear explanation for the participant's choice. Specifically, Level 3 justifications in favor of independent thinking were further categorized into four categories: (a) speaker knowledge, intelligence, or virtue; (b) common ground knowledge or inference; (c) independent agency; and (d) potential errors of testimony. Level 3 responses for preferring reliance on testimony included (a) credible informant, (b) importance of learning, and (c) potential errors of independent thinking (see definitions and examples of the categories in Table 1).

For child participants, the majority of responses were Level 1 across both cultures (Chinese children: 62.08%, U.S. children: 57.01%), and around 11%–14% of the responses fell at Level 2. Adults predominantly responded at Level 3 (70% of all responses for Chinese adults and 78% for U.S. adults). The most frequently used category was *independent agency* (36% of all Level 3 responses for Chinese adults and 53.5% of all Level 3 for the U.S. adults), indicating that adults may place value on independent agency when justifying moral beliefs (see Supplemental Table S3.1 for a detailed breakdown of participants' choices of reasons across countries).

Selective Learning Task

Preliminary analyses revealed no significant effects of question type (*ask* vs. *endorse* questions), so I collapsed *ask* and *endorse* responses for all subsequent analyses (as in, e.g., Doebel & Koenig, 2013; Elashi & Mills, 2014).

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Table 1
Participants' Justification Categories for Choices of Reasons in Studies 1 and 2

Level	Level/category name	Description	Example
Level 1	Restatement	Repeating what the agents said, restating their choices or making irrelevant comments	"Because someone told her"; "Because she thought about it"
Level 2	Explicit preference or nonpreference	Explicit preference or nonpreference for one way of thinking over the other	*Child:* "Because it is usually better to just think of things."; *Adult:* "It's better that Daisy knows this is bad already."
Level 3: Providing reasons for preferring the independent speaker	Speaker knowledge, intelligence, or virtue	Stating that the speaker already knew the information, how one agent was smarter than the other, or commenting on the agents' moral characters and virtues.	*Child:* "Because she has a better brain"; *Adult:* "Iris has come to her decision on her own, which says something about Iris's own moral character."
	Common ground knowledge or inference	Stating that a concept should be known or understood by everyone, or that a fact should be easily inferred.	*Child:* "You're supposed to know kindness"; *Adult:* "This should be an intuitive reaction, there must be books in backpacks, people should assume so."
	Independent agency	Stating that independent epistemic or moral agency was needed, or that merely relying on others was not enough.	*Child:* "Although Ms. Wang might not be right, she is very right to have used her own brain. Ms. Zhang always has to be told by others, and she doesn't have any right intuitions about things, and needs others to tell her everything, that isn't very right." *Adult:* "I don't think it's always best to base judgments just on what you've been told, and personal reflection is important in questions about morality and ethics."
	Potential errors of testimony	Arguing that relying on testimony was prone to errors, for example, when the addressee had encountered unreliable informants.	*Child:* "Because I don't really know if the person who told Daisy is telling the truth or not"; *Adult:* "Because she 'thought about it' might mean that she reasoned her way to that conclusion using premises she didn't tell us whereas 'someone told me about it' is uninvestigated secondhand information and also untrue in this case."
Level 3: Providing reasons for preferring the deferring speaker	Credible informant	Stating that the informant who told the deferring agent had knowledge was more credible or authoritative.	*Child:* "Because Iris just thought about it, Daisy actually got told from the person who owned it" *Adult:* "Daisy's beliefs are most likely attributed to an authority figure telling her that helping is good whereas Iris may not really know why it is good despite thinking about it."
	Importance of learning	Commenting on how certain facts, norms, or values needed to be learned or socialized.	*Child:* "If you don't know something, you need to learn." *Adult:* "I chose Daisy because I think of how with younger kids, they are usually told by their parents or teachers that sharing is good. A lot of the times we don't like to share, so having someone tell us it is good, helps us understand it more."
	Potential errors of independent thinking	Arguing that independent thinking was prone to errors, for example, arguing that the independent agent was merely guessing.	*Child:* "if you think about it yourself, you could be wrong. If someone told you, you could probably be like 'I agree'"; *Adult:* "Iris can think about it all she wants, unless she has the power to investigate jars with her mind then she's really just guessing."

For the analyses with the full sample, I found a main effect of age group (OR = 0.46, 95% CI [0.31, 0.68], $p < .001$), indicating that child participants were less likely to learn from the independent reasoner than adult participants. There was also a main effect of culture (OR = 0.57, 95% CI [0.39, 0.84], $p = .004$), indicating that Chinese participants were more likely to learn from the independent reasoner than U.S. participants. I did not find any significant effects of trial type (novel moral trials vs. novel content trials, $p = .724$).

Next, I conducted separate analyses for adults and children. For adult participants, there was a moderate main effect of culture (OR = 0.49, 95% CI [0.24, 1], $p = .048$) and a marginal effect of trial type (OR = 1.36, 95% CI [1, 1.85], $p = .053$). Consistent with their response in the *reason evaluation* task, adults from both countries preferred to learn from the independent reasoner at significantly higher than chance levels (U.S. adults: M = 0.6, 95% CI [0.56, 0.64], $p < .001$; Chinese adults: M = 0.72, 95% CI [0.68, 0.76], $p < .001$).

For children, I found a marginal effect of culture (OR = 0.67, 95% CI [0.43, 1.03], $p = .070$). I also found a significant main effect of age (OR = 0.75, 95% CI [0.6, 0.94], $p = .013$). Interestingly, with age, children were more likely to learn from the deferential reasoner (see Figure 3). To further probe these effects, I compared children's selective learning responses to chance by age group and culture. I found that 4-year-old children in China selected the independent reasoner at rates significantly above chance levels (M = 0.59, 95% CI [0.55, 0.64], $p < .001$), whereas 6-year-old Chinese children only had a marginal preference for the independent reasoner (M = 0.55, 95% CI [0.5, 0.6], $p = .056$). For children in the United States, 4-year-olds performed at chance (M = 0.54, 95% CI [0.49, 0.59], $p = .126$), but 6-year-olds showed a preference for the deferential reasoner (M = 0.42, 95% CI [0.37, 0.47], $p = .002$).

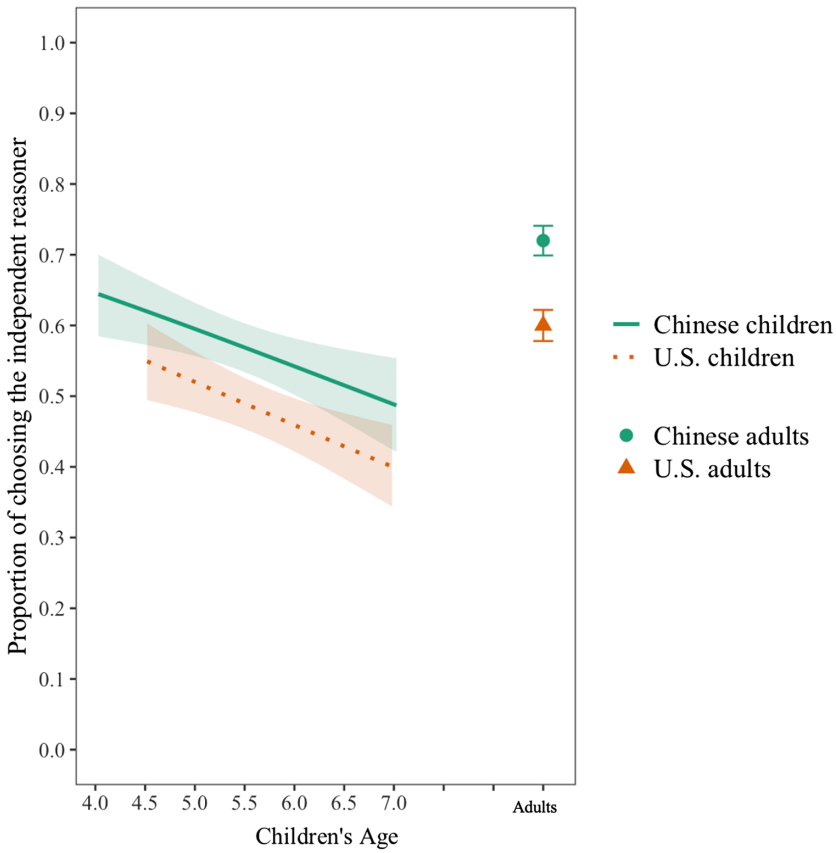
Social Preference Task

To examine participants' social preferences between the two reasoners, I pooled children's and adults' responses to the liking, play, helping, and sharing questions. The main generalized linear mixed-effect model with age group and culture as fixed effects, and participant ID as the random effect, revealed a significant effect of age group, OR = 0.06, 95% CI [0.02, 0.18], $p < .01$. I did not find any significant main effect of Culture, or Age Group × Culture interaction.

When I ran separate models for adults, there was no main effect of culture ($p = .593$). Consistent with the other tasks, on average, adults from both countries preferred the independent reasoner over the deferential reasoner at above chance levels (Chinese adults:

Figure 3

Proportion of Trials in Which Participants Chose the Independent Reasoner to Learn From in Study 1, as a Function of Age Group and Culture



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$M = 0.75$, 95% CI [0.68, 0.82], $p < .001$; U.S. adults: $M = 0.84$, 95% CI [0.78, 0.89], $p < .001$).

For the child participants, there were also no significant main effects of culture ($p = .356$) or Age ($p = .591$). U.S. children's responses were at chance ($M = 0.49$, CI [0.43, 0.55], $p = .708$), and Chinese children's responses are marginally above chance at choosing the independent reasoner ($M = 0.55$, 95% CI [0.49, 0.61], $p = .076$), indicating that they did not have a clear social preference for one reasoner over the other.

Explicit Judgment Task

Participants answered three explicit judgment questions (i.e., "Who has better reasons?" "Who is smarter?" and "Who knows more?") For all three questions, the models with the full sample revealed significant main effects of age group, indicating that in general, adults were more likely to choose the independent reasoner than children. Among adults, U.S. participants preferred the independent reasoner at above-chance levels across all three questions ($ps < .01$). Chinese adults also judged the independent reasoner as having "better reasons" ($p = .001$), and as "smarter" ($p = .001$), but performed at chance when judging who "knows more," $M = 0.62$, $p = .152$.

Among children, Chinese participants preferred the independent reasoner as "smarter" ($M = 0.71$, 95% CI [0.6, 0.82], $p < .001$) and showed a marginal preference for the independent reasoner as "knowing more" ($M = 0.6$, 95% CI [0.49, 0.73], $p = .085$). In contrast, U.S. children did not show selectivity in any of the questions ($ps > .3$, see Supplemental Material for detailed analyses).

Authoritarianism, Independent and Interdependent Self-Construal

I administered surveys to parents and adult participants to examine whether authoritarian values and self-construal (independence and interdependence) predicted participants' evaluations of the reasoners. A linear regression using participant group (adult participants, parents) and culture (China and United States) as predictors revealed a significant main effect of culture, $B = -0.45$, 95% CI [−0.74, −0.16], $p = .003$, indicating that Chinese participants ($M = 1.37$ out of 4, $SD = 0.9$) had higher authoritarian scores than U.S. participants ($M = 0.92$ out of 4, $SD = 1.2$).

For the Self-Construal Scale, Chinese participants scored significantly higher than U.S. participants in their interdependence score (China: $M = 5.11$, $SD = 0.76$; U.S.: $M = 4.64$, $SD = 0.64$;, $B = -0.47$, 95% CI [−0.66, −0.27], $p < .001$) and also higher in the independence score (China: $M = 5.11$, $SD = 0.73$; U.S.: $M = 4.77$, $SD = 0.73$; $B = -0.34$, 95% CI [−0.54, −0.14], $p = .001$). I also found that authoritarianism was positively correlated with interdependence, $r = 0.24$, $p < .001$, but only marginally and negatively correlated with independence, $r = -0.13$, $p = .066$.

I also explored whether parental values were associated with children's evaluations of the reasoners. Parents' independence scores were positively correlated with children's likelihood of learning from the independent reasoner, $r = .26$, $p = .012$, and marginally associated with judgments of the independent reasoner as "smarter," $r = .18$, $p = .062$. However, including parental Independence as a predictor in the main models did not significantly improve model fit, selective learning: $\chi^2(1) = 0.36$, $p = .549$; smartness judgment: $\chi^2(1) = 1.98$, $p = .159$. No other correlations between parental measures and children's responses were significant.

Discussion

In Study 1, I explored how individuals from China and the United States evaluate first-hand versus second-hand knowledge in the context of moral judgments. Participants evaluated two reasoners who made the same judgment about familiar moral actions, but one showed independence in her thinking, and the other relied on another person's testimony. Chinese and U.S. adults preferred the independent reasoner in the reason evaluation task, and inferred that she was more trustworthy, more likable, and more knowledgeable. Four- and 6-year-old Chinese children and 6-year-old U.S. children also judged that the independent reasoner had "better reasons" for their moral beliefs, and 4-year-old U.S. children showed no clear preference.

Adults in both countries judged the independent reasoner as having "better reasons," and their justifications often emphasized independent moral agency. For example, participants commented on the reasoners' moral character (e.g., "Iris has come to her decision on her own, which says something about Iris's own moral character"; "I think it's important for people to make up their own mind about what is right and wrong. It also ideally involves some empathy and being able to put yourself in the position of the person who was harmed") or the importance of independent moral understanding and reasoning (e.g., "Personal reflection is important in questions about morality and ethics"). These explanations may suggest that in the context of familiar moral judgments, participants viewed self-derived moral knowledge as not only epistemically preferrable, but also reflective of one's moral autonomy and moral responsibility. This pattern aligns with philosophical arguments that deferring to moral testimony represents a failure to engage one's moral sensibility (Hills, 2009) and with empirical findings that adults judge independently formed moral beliefs as more legitimate than testimony-based ones (Andow, 2019).

Notably, U.S. adults in my sample showed a stronger preference for the independent reasoner compared to Chinese adults, viewing them as having better reasons and knowing more. This finding aligns with cultural frameworks that emphasize autonomy and independent insight in Western cultures, in contrast to modesty and intellectual humility in East Asian cultures (e.g., K. W. Chan & Elliott, 2004; J. Li & Fischer, 2004). Chinese adults' relatively greater openness to the deferential reasoner may reflect a cultural emphasis on co-constructed knowledge.

Interestingly, a different cultural pattern emerged for children: In the reason evaluation task, Chinese children displayed an earlier and stronger preference for independently reasoning about moral actions compared to U.S. children. This finding is notable given previous research showing that Chinese children are generally open to accepting testimony across various domains (P. H. Li et al., 2019; Sebastián-Enesco et al., 2020). One possibility is that Chinese children, like adults, viewed seeking others' input about familiar moral actions as signaling a lack of basic moral understanding, potentially undermining the reasoner's moral character. Alternatively, this earlier and stronger preference may reflect broader cultural norms that emphasize diligence and accountability in one's own learning (C. C. Chan & Tardif, 2013; J. Li, 2005). Such experiences may lead

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Chinese children to associate independent reasoning not only with moral competence but also with broader intellectual virtues such as diligence, maturity, and higher levels of intellectual competence.

I also found divergent age-related patterns in children's responses across tasks. With age, children in both countries were more likely to judge the independent reasoner as having "better reasons" in the reason evaluation task. This aligns with prior findings showing increasing skepticism toward second-hand claims with age (Danovitch & Lane, 2020; Lane et al., 2018). However, somewhat paradoxically, children's preference to learn from the independent reasoner in the selective learning task diminished with age. These findings warrant further investigation. One possibility is that older children may have started to distinguish between reasoning processes used to form beliefs and the credibility of those beliefs once established. That is, while they valued independent reasoning, they may have viewed the deferential reasoner as equally trustworthy for acquiring new information because, both reasoners consistently reached the same, correct conclusions about moral actions. This possibility is consistent with previous work suggesting that uncertainty or ignorance alone may not lead children to doubt speakers when they do claim to know something (Kushnir & Koenig, 2017; P. H. Li & Kushnir, 2025). Relatedly, younger children's acceptance of hearsay might reflect interpreting second-hand information as a form of consensus corroborated by at least two individuals (Danovitch & Lane, 2020; Lane et al., 2018). In the selective learning task, older children may have increasingly viewed the deferential reasoner as having access to social consensus or collective wisdom, making her reliable for acquiring new information. Another possibility is that although older children judged independent reasoning as epistemically superior, they may infer that the deferential informant is more willing to share knowledge or be approachable, which makes her a good or even preferable choice for learning. This is consistent with prior research showing that children sometimes prefer socially engaging informants over more competent but disengaged individuals (Rowles & Mills, 2018).

While adults consistently preferred the independent reasoner across all measures, children's preference for the independent reasoner's "better reasons" did not generalize to social preferences or character judgments. In social preference tasks, neither United States nor Chinese children showed clear preferences for one reasoner over the other. In the explicit judgment task, Chinese children judged the independent reasoner as "smarter," but U.S. children made no trait-based inferences. These findings suggest that while children can discern differences in moral reasoning processes when making context-specific evaluations, their ability to extend these epistemic judgments to broader trait-based inferences may still be developing.

Study 2

To further explore whether the preference for independent reasoning extends beyond moral judgments, Study 2 examined participants' evaluations of reasoners who make judgments about contingent facts: identifying the contents of familiar containers (Domberg et al., 2019; Koenig, 2012). Philosophers characterize contingent, mundane facts as paradigmatic cases where testimony is epistemically appropriate and efficient (Coady, 1992; Lipton, 1998). Unlike moral judgments which may reflect personal agency, mundane factual claims are low-stakes and efficiently transmitted through testimony. Thus, participants may be more receptive to testimony-based reasoning when making factual judgments, especially when the reasoners are not described as having direct access to the containers' contents. Alternatively, if participants consistently prefer independent reasoning across domains, this would suggest a more general epistemic stance favoring self-reliance over deference, irrespective of knowledge type. Using the same paradigm as Study 1, participants in Study 2 evaluated two speakers who made the same, plausible judgments about familiar containers' contents (e.g., "There's a book in the backpack"): one through independent inferences based on typical container contents, and one through reliance on testimony from others.

Method

Participants

One hundred thirty 4- to 6-year-old children in the United States and China were recruited via the same recruitment methods as Study 1 (64 U.S. participants, M_{age} = 5.7 years, range = 4.54–6.97 years, 30 boys and 34 girls; 66 Chinese participants, M_{age} = 5.51 years, range = 4.04–6.99 years, 34 boys and 32 girls). In the U.S. sample, 85.8% of children were White, 1.6% Black, 1.6% Asian, 9.4% multiracial, 1.6% indicated "other," and 3.1% were Hispanic or Latino of any race. For the Chinese children, 78.8% were identified as being of Han ethnicity, and 21.2% of other minority ethnicity groups including Daur, Man, Miao, Mongolian, Tujia, Qiang, and Yao.

For the U.S. parents, 87.5% of the mothers and 79.7% of the fathers (or other primary caregiver) had a bachelor's degree or above; 72.6% of the U.S. parents reported an annual income greater than $100,000 per year (22.6% reported incomes between $100,000–$139,999, 14.1% between $140,000–$179,999, 20.3% between $180,000–$249,999 and 15.6% over $250,000). For the Chinese parents, 73% of the mothers and 71.4% of the fathers held a bachelor's degree or higher; 60.6% of the families reported monthly incomes higher than 12,000 RMB (13.3% reported incomes between 12,000–17,999 RMB, 20% between 18,000–23,999 RMB and 27.3% over 24,000 RMB). For the adult comparison group, 43 U.S. adults (M_{age} = 32 years; range = 20–57 years; 23 women, 17 men, and three nonbinary; 74.4% White, 9.3% Asian, 4.7% Black, 9.3% more than one race, 2.3% another race, 14% Hispanic of any race) were recruited online through *Prolific*. Forty Chinese adults (M_{age} = 31.3 years; range = 20–51 years; 23 women and 17 men; all ethnically Chinese, 92.5% of the Han ethnicity) were recruited through social media in China.

Procedure

The procedure for Study 2 was identical to Study 1, with the exception that participants evaluated reasoners who made judgments about the content of familiar containers. I chose these judgments based on prior research that have used similar container-content tasks to assess children's ability to evaluate speakers' reasoning quality (Domberg et al., 2019; Koenig, 2012). In addition, as discussed, philosophical accounts suggest that testimony is particularly well-suited for transmitting mundane, easily verifiable empirical facts such as the contents of everyday objects (Gelfert, 2014; Lipton, 1998). To ensure comparability with Study 1 (which involved familiar moral actions), I selected everyday containers

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whose contents participants could reasonably infer from contextual cues. Specific items were adapted for cultural appropriateness through piloting with families in both countries. Chinese scenarios featured culturally common items (a bag containing a bao bun, a jar containing juice), while U.S. scenarios used corresponding American equivalents (a bag containing a sandwich, a jar containing jam). Two items were identical across cultures because they were equally familiar in both school contexts: a book in a backpack and an eraser in a pencil box.

In each trial, participants heard a story about two child characters discussing the content of a container (e.g., "One day, Sara showed Mary a backpack at school, and Mary said: 'Is there a book in here?'") Participants then watched a video in which the two reasoners made the same judgment (e.g., that there is a book in the backpack), but one relied on independent inference, and the other cited testimony (see Figure 1). As in Study 1, children then answered a *reasoning evaluation question* (e.g., "Who do you think has the best reason to know that [there is a book in the backpack], Daisy or Iris?") and provided a justification. After completing all four trials, participants completed the same three tasks as in Study 1: the selective learning task, the social preference task, and the explicit judgment task.

Transparency and Openness

Data for both studies are available at the OSF and can be accessed at P. Li (2025). The studies were not preregistered.

Results

As in Study 1, all participants' responses were coded as binary (i.e., choosing the speaker who relied on testimony = 0, choosing the speaker who engaged in independent thinking = 1) and analyzed using logistic mixed effects models.

Reason Evaluation Task

When participants judged which reasoner had the better reason to know the contents of containers, there was a main effect of age group (OR = 4.32, 95% CI [2.25, 8.27]; $p < .001$), indicating that children were more likely to favor the independent reasoner than adults. I also found a significant main effect of culture, OR = 0.4, 95% CI [0.21, 0.74]; $p = .004$. Overall, Chinese participants were more likely to choose the independent reasoner compared to the U.S. participants.

Separate models by age group revealed that for adults, there are a main effect of culture (OR = 0.3, 95% CI [0.11, 0.82]; $p = .019$), indicating that Chinese adults preferred the independent reasoner more than U.S. adults. Notably, U.S. adults chose the independent reasoner at below chance levels (25.6%, $p < .001$), whereas Chinese adults were at chance, and did not show a clear preference for either reasoner (42.5%, $p = .069$).

For children, I conducted a mixed-effects logistic regression model which included children's age (centered, continuous) and culture as fixed effects, and participant as a random effect. I found a marginal effect of culture, OR = 0.47, 95% CI [0.22, 1.01]; p = .052There were no significant effects of age ($p = .542$) or Age × Cultures interaction. Comparisons to chance revealed that U.S. children's responses were at chance (4-year-olds: $M = 0.49$, 95% CI [0.4, 0.58], $p = .791$; 6-year-olds: $M = 0.52$, 95% CI [0.43, 0.6], p = .725). In contrast, Chinese children preferred the independent reasoner at above chance levels in both age groups (4-year-olds: M = 0.62, 95% CI [0.53, 0.71], $p = .005$; 6-year-olds: $M = 0.61$, 95% CI [0.53, 0.7], $p = .011$, see Figure 4).

Reason Justifications

Reliability coding was calculated based on 20% of the justifications. Interrater reliability was high (U.S. sample: Cohen's κ = 0.93; Chinese sample: Cohen's $\kappa = 0.91$). For child participants, approximately 60% of the responses across both countries were classified as Level 1 (restating the reasoners' justifications), and around 7%–11% as Level 2 (expressing explicit preference for one reasoner without elaboration). For children who provided Level 3 responses (providing a justification), the most common categories were *speaker knowledge, intelligence, or virtue* (27% of all Level 3 responses for Chinese children and 34.2% of all Level 3 for the U.S. children).

As in Study 1, adults predominantly gave Level 3 responses (73% for Chinese adults and 69% for U.S. adults). For Chinese adults. the most common categories were *common ground knowledge or inference* (35.4% of all Level 3 responses) and *credible informant* (37.8% of all Level 3 responses). For U.S. adults, the most common category was *credible informant* (47% of all Level 3 responses, see Supplemental Table S3).

Selective Learning Task

For participants' learning preferences, I found a main effect of age group (OR = 1.61, 95% CI [1.03, 2.52], $p = .036$), indicating that adults were more likely than children to choose the deferential reasoner to learn from (see Figure 5). There are no other main effects, and none of the interactions improved model fit.

I then conducted separate analyses for adults and children. For adults, the model revealed a significant main effect of trial type, OR = 1.71, 95% CI [1.25, 2.34], $p = .001$, indicating that adults were less likely to selectively learn from the independent reasoner in the novel content trials (38.8%) compared to the novel moral action trials (47%). Although no main effect of culture ($p = .112$) was found, comparisons to chance revealed that U.S. adults chose the independent reasoner at significantly lower than chance levels (38.2%, $p < .001$); whereas Chinese adults were at chance (47.9%, $p = .670$).

For children, I did not find any significant main effects of age (continuous), culture, or trial type ($ps > .1$). However, comparisons to chance revealed some age and cultural variability. Four-year-old children in China preferred the independent reasoner to learn from at above chance levels (M = 0.57, 95% CI [0.52, 0.62], $p = .009$), whereas 6-year-old Chinese children had a moderate learning preference toward the deferential reasoner ($M = 0.45$, 95% CI [0.4, 0.5], $p = .044$). U.S children showed no preference in either age group (4-year-olds: $M = 0.54$, 95% CI [0.49, 0.59], $p = .168$; 6-year-olds: M = 0.5, 95% CI [0.45, 0.55], $p = 1$).

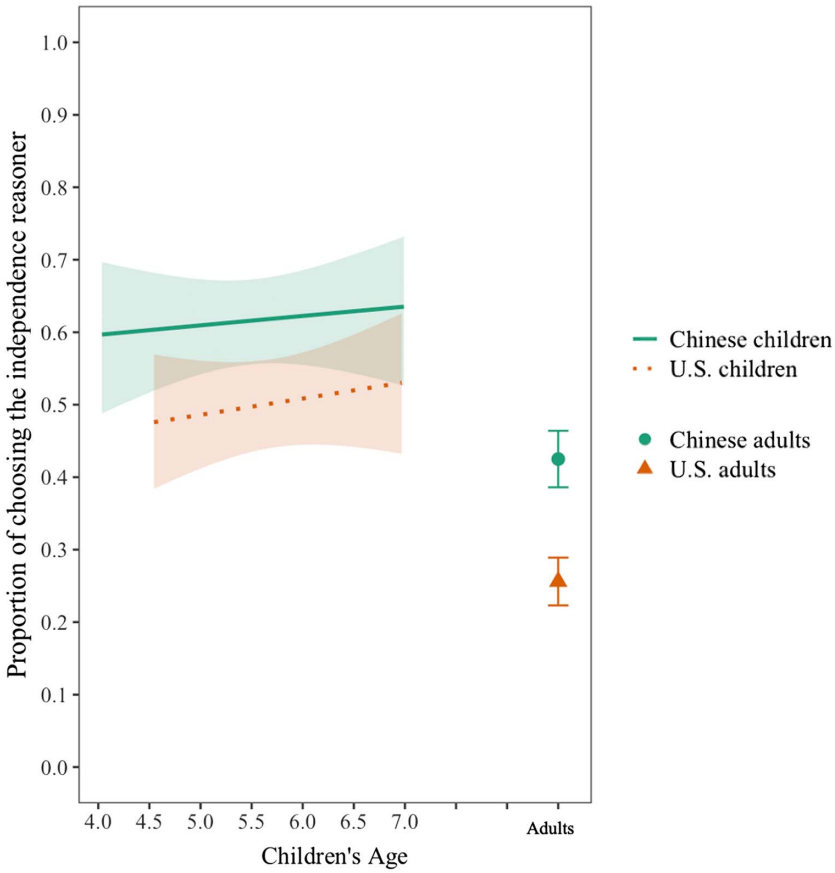
Social Preference Task

A mixed-effects logistic regression model on participants' social preferences revealed a main effect of culture, $OR = 0.33$, 95% CI [0.13,

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Figure 4

Proportion of Trials in Which Participants Chose Independent Thinking as a Better Reason in Study 2, as a Function of Age Group and Culture



Note. See the online article for the color version of this figure.

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0.88], $p = .027$, indicating that U.S. participants had a lower social preference for the independent reasoner compared to Chinese participants. No main effect of age group or interaction effects were found.

Separate analyses for adults revealed no significant main effect of culture ($p = .093$). But comparison to chance revealed that on average, Chinese adults preferred the independent reasoner at above chance levels ($M = 0.59$, 95% CI [0.51, 0.67], $p = .026$), whereas U.S. adults were at chance ($M = 0.44$, 95% CI [0.36, 0.51], $p = .094$).

For children, there were no significant main effects of culture ($p = .130$) or age ($p = .705$). However, comparisons to chance revealed that while U.S. children's responses were at chance ($M = 0.49$, CI [0.43, 0.55], $p = .662$), Chinese children preferred the independent reasoner at above chance levels ($M = 0.59$, 95% CI [0.52, 0.64], $p = .007$).

Explicit Judgment Task

For the question "who has better reasons," I found a main effect of Culture in the adult sample ($OR = 0.23$, 95% CI [0.08, 0.6]; $p = .003$). U.S. adults were significantly below chance in selecting the independent reasoner ($M = 0.19$, $p < .001$) and Chinese adults were at chance ($M = 0.5$, *ns*). For the questions "who is smarter" and "who knows more," adults from both countries responded at chance levels.

For children, Chinese children preferred the independent reasoner for the "smarter" question ($M = 0.65$, 95% CI [0.53, 0.77], $p = .013$), but responded at chance levels in the other questions. U.S. children showed no preferences across any of the explicit judgment questions (*ps* > .7, see Supplemental Material for the detailed results).

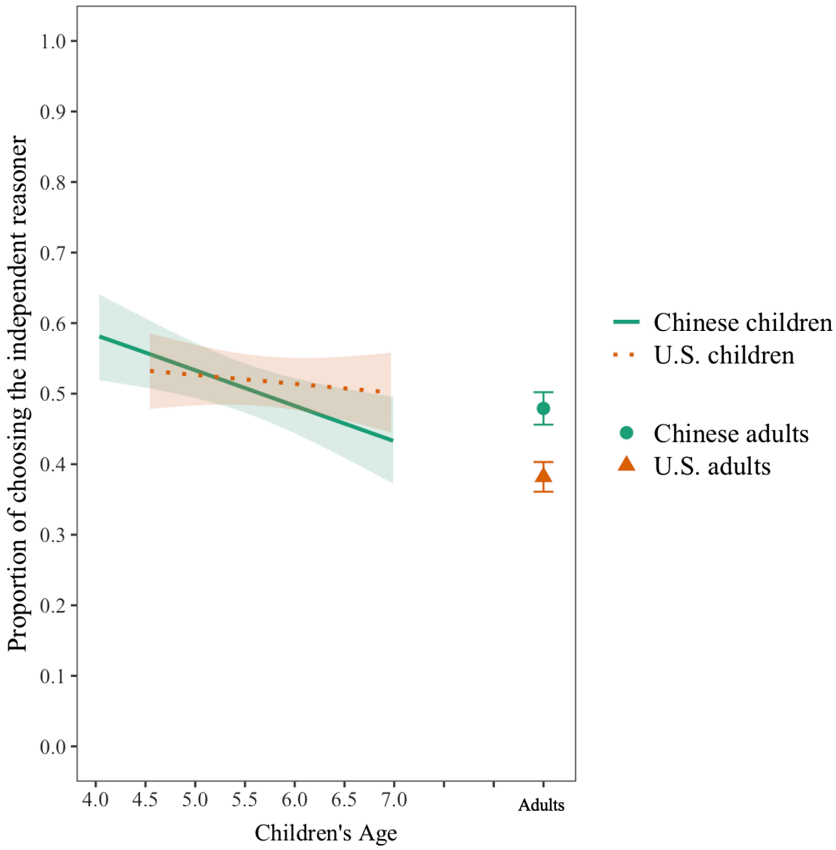
Authoritarianism, Independent, and Interdependent Self-Construal

As in Study 1, a linear regression using participant group (adults, parents of child participants) and culture (China and United States) as predictors revealed a significant main effect of culture on authoritarianism scores, $B = -0.78$, $SE(B) = 0.13$, $p < .001$, indicating that Chinese participants ($M = 1.62$ out of 4, $SD = 0.88$) scored higher on authoritarianism than U.S. participants ($M = 0.85$ out of 4, $SD = 1.01$).

I also found significant cultural differences in both dimensions of the Self-Construal Scale. Consistent with Study 1, Chinese participants scored higher than U.S. participants on interdependence

Figure 5

Proportion of Trials in Which Participants Chose the Independent Reasoner to Learn From in Study 2, as a Function of Age Group and Culture



Note. See the online article for the color version of this figure.

($B = -0.5$, $SE = 0.09$, $p < .001$; Chinese, $M = 5.12$, $SD = 0.64$; United States, $M = 4.62$, $SD = 0.70$) and independence scores ($B = -0.30$, $SE = 0.10$, $p = .002$; Chinese, $M = 5.06$, $SD = 0.62$; United States $M = 4.76$, $SD = 0.78$). Authoritarianism was significantly positively correlated with interdependence ($r = .25$, $p < .001$) but not with independence ($r = –.001$, $p = .989$).

I also examined associations between parental measures and children's responses. Parents' authoritarianism was positively correlated with children's preference for the independent reasoner in their reason evaluation ($r = 0.19$, $p < .001$), social preference ($r = 0.17$, $p < .001$), and in judgments of smartness ($r = 0.29$, $p = .002$) and knowledge ($r = 0.25$, $p = .007$). Other parental measures were not significantly correlated with children's responses.

Including parental authoritarianism in the main models significantly improved model fit for children's reason evaluation, $\chi^2(1) = 8.73$, $p = .003$; social preference, $\chi^2(1) = 5.56$, $p = .018$; judgments of who was smarter, $\chi^2(1) = 10.07$, $p = .002$; and judgments of who knows more, $\chi^2(1) = 7.77$, $p = .005$. Specifically, higher parental authoritarianism scores predicted greater likelihood of selecting the independent reasoner as having a better reason ($OR = 1.99$, 95% CI [1.25, 3.17], $p = .004$), being more likable ($OR = 2.20$, 95% CI [1.12, 4.34], $p = .023$), being smarter ($OR = 2.18$, 95% CI [1.33, 3.81], $p = .004$), and knowing more ($OR = 1.86$, 95% CI [1.20, 3.01], $p = .008$). Although the interaction between authoritarianism and culture was not significant, exploratory analyses revealed that these associations were significant for Chinese children ($ps < .01$) but not U.S. children.

Discussion

In Study 2, I explored how United States and Chinese children and adults evaluated the legitimacy of testimony versus independent reasoning in the context of mundane, contingent facts. Participants evaluated two reasoners who arrived at same conclusions about the contents of familiar containers, with one reasoner using independent inference and the other relying on testimony. Two major findings emerged. First, adults showed a clear domain-specific shift: Both United States and Chinese adults were less likely to prefer independent reasoning when assessing the content of containers. Second, Chinese children in my sample still evaluated the independent reasoner as "having a better reason" and as more knowledgeable than the deferential reasoner when learning mundane facts. Conversely, U.S. children showed no clear preference.

Adult responses suggest contextual sensitivity in evaluating reasoning strategies. In Study 1, adults in both cultures strongly favored the independent reasoner for moral judgments. In Study 2,

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however, U.S. adults reversed this preference: They judged the deferential reasoner as having "better reasons" to know the content of containers in the reason evaluation task and preferred to learn from her in the selective learning task. Yet, this preference did not extend to evaluations of the reasoner's character or competence; U.S. adults did not judge her as more likable, smarter, or more knowledgeable in the explicit judgment task. Together, these findings indicate that U.S. adults may treat reliance on testimony as a practical and efficient means of acquiring low-stakes factual knowledge, but not as a reflection of intellectual or moral virtues. Chinese adults, by contrast, did not show a marked preference for either reasoner across most measures, suggesting openness to both reasoning styles. This more neutral stance may reflect reasoning that both independent inference and social input can be legitimate sources of knowledge, especially when the task involved mundane, easily verifiable facts.

While adults' evaluations varied by domain, Chinese children demonstrated a consistent preference for independent reasoning across contexts. As in Study 1, 4- and 6-year-old Chinese children in Study 2 judged the independent reasoner as having "better reasons" and as being smarter. This pattern suggests that Chinese children may attribute general epistemic competence to individuals who reason independently, regardless of whether the knowledge is moral or empirical. In contrast, U.S. children showed no systematic preference for either type of reasoner in Study 2. These diverse patterns may reflect cultural differences in socialization. In China, educational and parental practices often emphasize self-driven effort and responsibility in learning (J. Li, 2005; Luo et al., 2013), which may lead children to associate independence as a marker of intellectual ability, even in contexts where reliance on others might be pragmatically acceptable. I return to these cross-cultural differences in children's reasoning in the General Discussion.

General Discussion

In two studies, I examined how United States and Chinese adults and children evaluate different sources of moral and empirical knowledge, namely, independent judgments and reliance on testimony. Adults across both cultures showed a context-specific tendency: They preferred independent thinking over deference to testimony when others reasoned about familiar moral actions (Study 1) but not when evaluating factual claims about familiar objects (Study 2). In contrast, children's responses were more stable across contexts: 4- to 6-year-old Chinese children demonstrated a marked preference for the independent reasoner over the deferential reasoner across both studies, whereas U.S. children showed weaker and less consistent preferences across domains.

Consistent with philosophical debates about the epistemic legitimacy of moral testimony, adults showed domain-specific patterns in their evaluations. These results may reflect differences in how people conceptualize moral versus factual knowledge. Adults' preference for independently acquired moral knowledge aligns with philosophical arguments that moral understanding requires grasping reasons through one's own moral sensibility (Hills, 2009; Hopkins, 2007) and psychological research showing that moral traits are viewed as central to identity and personal essence (Heiphetz et al., 2017, 2018; Strohminger & Nichols, 2014). From this perspective, forming moral beliefs through testimony may signal not only epistemic insufficiency but also a lack of moral agency. In contrast, adults evaluated testimony as appropriate or even preferable for factual claims about container contents. This domain-specificity also extended beyond reasoning evaluations to character judgments: adults attributed more favorable traits (smarter, more likable, and more knowledgeable) to the independent reasoner in the moral domain (Study 1) but made no such inferences when they endorsed testimony-based reasoning in the factual domain (Study 2). This suggests that adults intuitively apply different epistemic standards based on knowledge type: They valued independent reasoning for establishing moral agency and accepted testimony as efficient for transmitting mundane facts but not indicative of greater epistemic merit.

My findings also reveal important developmental differences in epistemic evaluation. Unlike adults, children applied relatively consistent epistemic standards across moral and factual contexts. One possible explanation is that young children may treat familiar moral beliefs similarly to factual beliefs (Heiphetz & Young, 2017; Wainryb et al., 2004). It may not be until later in development that children appreciate that how a belief is formed—particularly in the moral domain—can reflect an individual's agency, character, and epistemic responsibility. Nevertheless, children showed early signs of domain differentiation: With age, children in the current samples were more likely to endorse independent reasoning as "a better reason" for forming moral beliefs in Study 1, but age was unrelated to evaluations of empirical beliefs (Study 2). This suggests that children may initially apply similar standards across domains before gradually developing the adultlike distinction that prioritizes independent thinking specifically in moral contexts. Future research should include a broader age range to examine whether children's preferences become increasingly context-sensitive with age, eventually aligning with adultlike distinctions that prioritize independent thinking more in the moral domain compared to the factual domain. It is possible that during middle childhood, developing metacognitive abilities and higher order theory of mind (Kuhn, 2000; Miller, 2012) may enable children to appreciate how different knowledge domains place different demands on knowers. In addition, research suggests that moral identity begins to emerge during middle childhood (Krettenauer, 2022) and becomes increasingly central to self-concept through adolescence (Hardy & Carlo, 2011), potentially leading older children and adolescents to view independently formed moral judgments as expressing authenticity and moral autonomy.

These developmental patterns varied by cultural context, revealing that epistemic preferences are culturally constructed rather than universally acquired. This study is the first to reveal cultural differences in how United States and Chinese children, compared to adults, evaluate the legitimacy of independent thinking and reliance on testimony as sources of moral and factual knowledge. From age 4, Chinese children consistently judged the independent reasoner as having "better reasons" and as "smarter" across both moral and empirical contexts. U.S. children, by contrast, developed preferences later and more selectively: by age 6, they favored independent reasoning only for moral beliefs, and showed no clear preference for factual beliefs.

Why would Chinese children show stronger and earlier preferences for independent reasoning than U.S. children? This finding seemingly challenges expectations based on traditional individualist–collectivist cultural frameworks (Suizzo & Cheng, 2007; Triandis, 1993). However, two explanations may account for this pattern. First, Chinese children may exhibit greater selectivity regarding the identity and perceived reliability of testimonial sources. While

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socialized to trust specific authorities (e.g., teachers, parents), Chinese children may remain skeptical of unspecified or ambiguous sources. Supporting this interpretation, prior research shows that Chinese children deferred to adult consensus (Enesco et al., 2016) but they were less trusting of peer testimony compared to Spanish children (Sebastián-Enesco et al., 2020). This suggests that while Western children may be more open to generalized testimonial input, Chinese children may be more vigilant than their U.S. counterparts when evaluating source credibility (C. C. Chan & Tardif, 2013).

A second explanation involves culturally specific socialization practices related to intellectual autonomy and academic achievements. Influenced by Confucian traditions and the highly competitive educational environment, Chinese parents often emphasize diligence, self-regulated learning, and taking responsibility for one's own academic outcomes as both epistemic and moral virtues (J. Li, 2005; Luo et al., 2013). This emphasis may lead Chinese children in the sample (predominantly from mid- to high-socioeconomic status families) to perceive independent reasoning not only as a preferred epistemic strategy, but as a signal of competence and moral character. Supporting this interpretation, Chinese parents in the sample scored higher on measures of authoritarianism, interdependence, and independence compared to U.S. parents. Moreover, parental independence values were correlated with children's reason evaluation in Study 1, and parental authoritarianism significantly predicted Chinese children's likelihood of favoring the independent reasoner in Study 2. The latter finding, though seemingly counterintuitive, may reflect a distinctive dynamic in Chinese parenting, where authoritarian values can coexist with—and even reinforce—expectations for intellectual autonomy, effort, and self-discipline in learning contexts. Previous work revealed that children of high-authoritarian parents are particularly attuned to clear signals of competence and trustworthiness (Tagar et al., 2017). In the present studies, the independent reasoner explicitly demonstrated first-hand knowledge and reasoning competence, whereas the testimony-based reasoner relied on an unspecified source. Thus, Chinese children whose parents are high authoritarian may have perceived the independent reasoner as providing clearer evidence of competence.

Future studies should explore whether preference for independent moral reasoning vary across different types of moral and empirical contexts. In the present study, I selected familiar moral actions (e.g., pushing, helping), which enabled participants to focus on evaluating the reasoning process (i.e., how beliefs were formed) rather than the content or correctness of the beliefs. However, moral reasoning in real-world contexts often involves more complex or ambiguous scenarios such as dilemmas (P. H. Li & Kushnir, 2025). In such cases, children and adults may be more open to relying on others' testimony to resolve moral uncertainty. Similarly, empirical domains vary considerably in whether independent reasoning or testimony provides epistemic advantages. Future research could examine contexts where independent reasoning should be preferred (e.g., causal reasoning like "why the lever makes the toy spin") as well as factual domains where testimony should be favored (e.g., historical events or scientific facts beyond direct observation). Exploring children's evaluations in these contexts could clarify the boundary conditions under which independent thinking is valued, versus when reliance on others is treated as a responsible strategy, regardless of the domain of knowledge.

It is also important to note that the current experimental design presented a somewhat artificial dichotomy between independent reasoning and reliance on testimony. In reality, epistemic decisions rarely involve clear-cut choices between complete independence and passive reliance on others. Rather, learners typically engage in varying degrees of epistemic evaluation when encountering testimony, which may involve assessing source credibility, evaluating claim plausibility, and integrating new information with existing knowledge. Although this forced-choice design was a useful first step for identifying clear comparative preferences, future studies should consider comparing passive acceptance with critical evaluation of testimony, or explore how testimony can scaffold rather than replace independent reasoning. This might reveal situations when children view independent reasoning and testimony as jointly legitimate rather than mutually exclusive strategies. An additional limitation concerns the phrasing used to convey independent reasoning: "because I thought about it to myself." While this phrasing was necessary for parallel construction across languages (the Mandarin equivalent "因为是我自己想到的" is natural in Chinese), it is somewhat awkward in colloquial U.S. English. Future research could examine whether alternative phrasings (e.g., "I figured it out myself") yield similar patterns.

Children's learning involves navigating the dynamic balance between independently constructed knowledge and input from others. This research reveals an important but understudied dimension of social learning: how children and adults evaluate the legitimacy of different knowledge sources. The findings reveal that beliefs about legitimate ways of knowing emerge through the interplay of domain-related reasoning, developmental change, and cultural transmission. Chinese and U.S. adults showed domain sensitivity; they prioritized independently derived moral knowledge over second-hand moral knowledge, but this preference did not extend to contingent, empirical facts. Children's developmental trajectories, however, diverged culturally: Six-year-old U.S. children preferred the independent reasoner for moral (but not yet factual) judgments. Chinese children as young as four preferred the independent reasoner across both domains, possibly reflecting cultural values that prioritize intellectual autonomy and self-directed learning as general virtues. These findings reveal that epistemic evaluations are neither universal nor static but are culturally constructed through the course of development.

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