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How U.S. And Chinese children talk about personal, moral and conventional choices

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ABSTRACT

There is agreement among children across cultures that matters of personal preference can be freely chosen, while moral actions are obligatory. Children's beliefs about actions that violate norms and conventions are more culturally variable. This study explores children's reasoning about personal (toy preference), moral (sharing vs stealing), and conventional (artifact use) choices among five- to seven-year-olds ($N = 62$; $M = 6.39$, $SD = 0.75$) in the U.S. and China by asking them to tell stories to accompany pictures showing a character prior to making decision and two possible post-decision outcomes for each domain. We found cultural similarities in children's stories about personal and moral issues: children in both cultures emphasized desires ("wanting" and "liking") when talking about toy preferences and combined an emphasis on evaluations and desires when talking about sharing or stealing. We found cultural differences in children's storytelling about artifact conventions: U.S. children's stories about this conventional choice contained more mental state language, while Chinese children's stories contained more evaluative language. We compared children's stories to simple forced-choice judgments of possibility and permissibility, and discussed how together they paint a richer picture of emerging cultural differences in choice construal.

1. Introduction

A fundamental part of human life is making different kinds of choices. Some involve actions that pertain to one's personal, idiosyncratic preferences for objects or activities, such as what to eat for breakfast, what sports or hobbies to pursue. Some involve actions that pertain to the intrinsic welfare and rights of other individuals, such as helping a fallen stranger to his feet or giving money to charity. Still others pertain to the agreed-upon conventions and social norms prevalent in a society. How we view these actions, whether we even construe them as choices at all, may have important consequences for how we make these choices ourselves, as well as how we evaluate the behaviors of others.

Cultural comparisons, in particular between European American and Asian adults, reveal that though we share intuitions of authorship for our own actions, and thus endorse the freedom to choose (Ryan & Deci, 2000; Sarkissian et al., 2010; Leotti, Iyengar, & Ochsner, 2010; Savani, Markus, Naidu, Kumar, & Berlia, 2010), we vary on specific views about whether to prioritize personal desires or social expectations when making choices (DeVoe & Iyengar, 2004; Iyengar & DeVoe, 2003), whether to view others' actions as personal preferences or social obligations (e.g., Miller, Bersoff, & Harwood, 1990; Miller & Bersoff, 1998; Rhodes & Wellman, 2017; Lagattuta & Weller, 2014) and on how we make moral decisions (Han, Glover, & Jeong, 2014). These similarities and differences correspond to documented differences between Western and Eastern cultures' emphasis on individualism vs collectivism (e.g.,

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Oyserman, Coon, & Kimmelmeier, 2002), cultural construals of the self as more independent or interdependent (Markus & Kitayama, 1991), and also differences in the importance of “tightly” following social norms and conventions (Gelfand et al., 2011).

Recent work has begun to investigate the emergence in childhood of these culturally-dependent views about agency and choice. Thus far, studies have employed forced-choice methods in which children are asked to judge the possibility (what one *can* and *will* do; Chernyak, Kushnir, Sullivan, & Wang, 2013; Wentz et al., 2016; Chernyak, Kang, & Kushnir, 2019) and/or the permissibility (what one *should* do; Killen, Smetana, & Smetana, 2006; Yau & Smetana, 2003b, 2003b) of various choices across personal, moral and conventional domains. These studies show that judgments in the personal domain are similar across ages and cultures; children say they *can*, and it is *ok* to, act on their personal preferences provided there are no social consequences. However, judgments of agency and choice in socio-moral domains diverge across Eastern and Western cultural contexts in childhood. Young children across cultures universally state that social and moral violations are not choices (one “cannot” act against them). But, by age 6 or 7, children in the U.S. often say that one can choose to act against social and moral norms (provided one wants to). In contrast, Asian children across the same ages state that agents “cannot” and “will not” act in socially or morally impermissible ways, even if they desire so. When prompted to justify their judgments about socio-moral choices, children’s explanations reflect emerging values of independence vs interdependence in line with their cultural context (Chernyak et al., 2019).

In sum, prior work has documented the emergence of culturally-dependent views about agency and choice in middle childhood. But forced-choice judgments and justifications cannot reveal the thought process that underlies children’s thinking about socio-moral choices across cultures, nor do they offer insights into how children differentiate between different types of social and moral choices (for example conventional violations vs. moral violations). To help address these questions, we employ an open-ended storytelling method that has been used to study cultural variation in children’s autobiographical narratives (Wang & Leichtman, 2000; Wang, Koh, & Song, 2015) and is often used to explore the spontaneous reasoning process that underlies children’s beliefs about causes and consequences of actions in various domains (e.g., Bartsch & Wellman, 1995; Wang et al., 2015). For our purposes, children’s stories can reveal the type of language they use to talk about choice, and whether we see cultural differences for actions with socio-moral consequences. They can reveal how children talk about all aspects of choice-making – how, for example, children talk about the moment before the decision happens, as well as what emphasis they place on permissible over impermissible outcomes when both can be included as part of the narrative. Finally, we compare and contrast children’s stories across with their forced-choice judgments as a way of connecting our method with previously found cultural differences in socio-moral domains.

The plan for the rest of the introduction is as follows. We first review what is known about children’s reasoning about personal, moral and conventional choices across Eastern and Western cultures, and to motivate a set of hypotheses about what similarities and differences we may find in children’s stories within each domain. We then discuss our chosen cultural comparison - between children in the U.S. and China – in some details in order to situate our predictions within this cultural context. We end with an overview of our storytelling task and explain our approach to coding the language and structure of the narratives.

1.1. Personal choice

Children’s views about personal preference emerge early in infancy and seem to be universal across cultures. Research has shown that infants and toddlers expect that an individual’s intentional and free actions reveal personal desires and preferences (Eason, Doctor, Chang, Kushnir, & Sommerville, 2017; Kushnir, Xu, & Wellman, 2010; Luo & Baillargeon, 2007; Ma & Xu, 2011; Wellman, Kushnir, Xu, & Brink, 2016; Woodward & Sommerville, 2000). As children get older, there is some cultural variation regarding the boundaries and content of what are viewed as personal preferences (Nucci & Smetana, 1996; Smetana, 2002) and how much children reference autonomy when explaining choice (Wentz et al., 2016). But there is general agreement among children across cultures (U.S., Hong Kong, Nepal, Singapore) that one is free to act on personal desires and preferences (e.g., what toys to play with) provided there are no socially harmful consequences (Kushnir, Gopnik, Chernyak, Seiver, & Wellman, 2015; Chernyak et al., 2013; Yau & Smetana, 2003b, 2003b; Smetana, Wong, Ball, & Yau, 2014; Zhao & Kushnir, 2018). These early understandings of personal preferences and choices as desire-based are considered developmental precursors of awareness and recognition of autonomy, a developmental hallmark during early adolescence across cultures (Smetana & Asquith, 1994). Considering the cultural universality consistently shown in prior work on children’s reasoning about the personal domain, we expect that children across cultures will tell stories about personal choices in similar ways, mainly making reference to desires and preferences of the decision-maker.

1.2. Moral choices

Children’s views pertaining to the intrinsic welfare and rights of other people – the moral domain (Turiel, 2015) – are also similar across cultures in many respects. Evidence for the moral domain is early and universal; studies showing that even infants have concepts of harm and fairness that guide their judgments about agents (helping and fairness, e.g., Hamlin, Wynn, & Bloom, 2007; DesChamps, Eason, & Sommerville, 2016; Geraci & Surian, 2011; Sloane, Baillargeon, & Premack, 2012). Furthermore, U.S. toddlers and preschoolers spontaneously protest against violations of moral norms (e.g., Vaish, Missana, & Tomasello, 2011), judge violations of moral norms as “not okay” in questionnaire interviews (e.g., Smetana, Killen, & Turiel, 1991; Killen et al., 2006; Yau & Smetana, 2003b, 2003b), and reason that one “has to” behave in accordance with moral norms (Chernyak et al., 2013). Similar patterns of moral judgment have been documented among young children in Asian cultures (Nepal: Chernyak et al., 2013; Korea: Song, Smetana, & Kim, 1987). For example, Hong Kong Chinese preschoolers also understand that moral transgressions are wrong across contexts and deserve punishment, and that moral norms cannot be changed. In middle childhood, however, although children across cultures agree that it is “not okay” to act contrary to moral norms, their judgments of the possibility of moral choices start to diverge: U.S.

children increasingly reason that one can choose to act contrary to moral norms if one has strong desires to do so, whereas Asian children are more likely to say that one has to do the morally right thing and will not do otherwise (Chernyak et al., 2013, 2019). Considering cultural agreement about what constitutes the moral domain, but cultural differences in how children reason about the possibility of immoral action, our predictions regarding children's narratives about moral decisions are mixed. On one hand, we might find a culturally universal tendency to talk about moral actions in terms of obligations and rules. On the other hand, we may find that children in the U.S. will be more likely to emphasize both possible outcomes than Chinese children, and perhaps also more likely to emphasize the role of the decision-maker's personal desires in determining her actions.

1.3. Conventional choices

In contrast to the personal and moral domains, past research shows significant variation across cultures in children's views about social norms and other types of conventional action. Conventions pertain to the manners of speech or action that are common in a society (Diesendruck, Carmel, & Markson, 2010; Kalish & Sabbagh, 2007; Rakoczy, Warneken, & Tomasello, 2008; Turiel, 1994). Unlike moral norms, conventional norms lack objective or intrinsic implications for others and are, to a great extent, arbitrary and context-dependent. Even young children understand this, and rate conventional rules as more alterable and less generalizable across different contexts than moral rules (Zhao & Kushnir, 2018; Davidson, Turiel, & Black, 1983; Mammen, Köymen, & Tomasello, 2018; Smetana, 1989; Nucci & Nucci, 1982; Smetana & Braeges, 1990; Schmidt, Rakoczy, & Tomasello, 2012; Josephs & Rakoczy, 2016). However, children in non-Western cultures treat conventional norms as more fixed and less alterable (Indian: Shweder, Mahapatra, & Miller, 1987; Israeli: Nisan, 1987; Nigerian: Hollos, Leis, & Turiel, 1986) than U.S. children. They are also less likely to view conventional transgressions as tolerable (Japan vs. U.S.: Loke, Heyman, Itakura, Toriyama, & Lee, 2014) and place a greater emphasis on social order, traditions, and norms when justifying conventional practices (e.g., Korean: Song et al., 1987). When it comes to reasoning about choices, Asian children are less likely to say one can choose to act contrary to conventional and social norms than U.S. children (Chernyak et al., 2013, 2019). This is also consistent with work showing culture-specific input on social issues: when talking to children, Asian parents and teachers emphasize rules and norms more than those in the U.S. (Chao & Tseng, 2002; Tobin, Wu, & Davidson, 1991; Wang, 2006). These differences suggest that, of all three domains, we can expect children's stories conventional choice to be most dependent on cultural context.

1.4. Cultural comparison

Prior cross-cultural research on adults and children's views about choice has identified differences between Eastern and Western cultures. To emulate this, we opted for a cultural comparison between children in the U.S and children in mainland China. The U.S. has been considered as one representative nation on the individualistic end of the individualism vs. collectivism dimension (e.g., Oyserman et al., 2002) and on the loose end of the culturally looseness vs. tightness (Gelfand et al., 2011). It emphasizes individuals rather than members of groups and has weak social norms and a high tolerance of deviant behavior. China has been considered as one of the collectivistic and cultural-tight nations that emphasize group harmony, social obligations and have strong norms and a low tolerance of deviant behavior (Gelfand et al., 2011; Mu, Kitayama, Han, & Gelfand, 2015). We focused on children ages 5–7 years, as this is the age range where prior work has found cultural divergence in children's views about choices and actions in socio-moral domains (Chernyak et al., 2013, 2019; Song et al., 1987).

1.5. Overview of task

Our task was structured around three sets of pictures (see Fig. 1) each consisting of one picture depicting a child prior to making a choice, as well as two pictures showing two possible outcomes of the choice. We chose our stories to meet two basic criteria: The first was to find situations that would be universally understood by children across cultures in this age range, and second was to find examples that would be easy to depict non-verbally (so we didn't have to "lead" children's storytelling by explaining the meaning of the pictures). We therefore settled on a choice of two toys for the personal domain, a choice to share or to "steal" a toy for the moral domain, and a choice to use an artifact that was conventional/unconventional and conformed/did not conform to the way another child was using it for the conventional domain.¹

We examined children's stories for language use that could reveal children's spontaneous reasoning process (e.g., Bartsch & Wellman, 1995; Gelman, 2003; Wang, 2006). Our coding scheme was based on broad categories of words and phrases that have been identified in prior work to be relevant for talking about choice, preferences, and moral and conventional norms. One important aspect is internal motivations for choice, such as desires and preferences. We thus coded for use of desire words such as "want" and "like." Another important aspect, especially in moral and conventional domains, are evaluations. We thus examined the use of words that suggest evaluation of one (or both) outcomes (e.g., "fun/boring", "right/wrong", "good/bad", "nice/mean"). Another aspect worth considering is language which denotes sensitivity to norms, obligations, or other regularities. We thus coded words and phrases which convey ideas about normativity (e.g., "should", "have to") or other general claims that convey generalities (e.g., "boys like

¹ In addition to ensuring that children understood the pictures without requiring any verbal prompting, we piloted the procedure in a mother-child conversation task. Results indicated that the personal, moral, and conventional stories were similarly understood as such (again without verbal prompting) by mothers across both cultural communities.

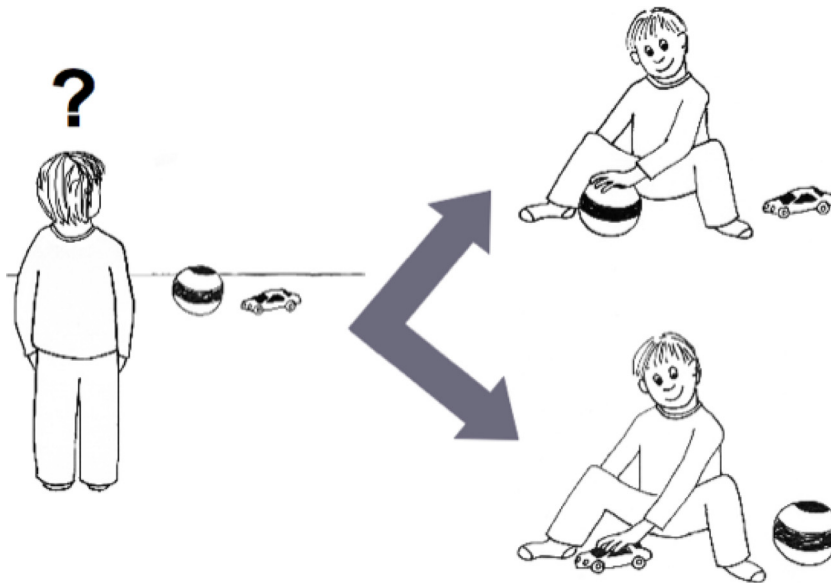


Fig. 1. Personal Choice storyboard.

cars”, “umbrellas are used for holding the rain”). Finally, as children were initially told that the stories were “about choices”, we coded any spontaneous mention of words and phrases which directly convey ideas about choice (e.g., “choose”, “decide”) or possibilities of actions (e.g., “can”, “could”, “will”).

In addition to looking at language use, we reasoned that the narrative structure of children’s stories might provide hints as to whether children are thinking of the actions as choices or not. For example, if children spontaneously talk about both possible options in their stories, then it may reflect their consideration of both possibilities as actions one can freely choose between. In contrast, children may focus on one of the two options and avoid the other, which may indicate that children think only that option is the “right” one. Thus, we coded for whether children discussed only one or both options presented.

At the end of the study, we also asked children forced-choice judgments of choice (i.e. possible to “do otherwise”) taken from previous studies (e.g., Chernyak et al., 2013, 2019). This was in part a validity check of our method – we wanted to ensure that we would replicate previous findings using vignette-based judgment tasks showing that Asian children are less likely than U.S. children to say that it is possible to act against moral or conventional norms. But this was also, importantly, an opportunity to directly compare (and contrast) children’s spontaneous storytelling with their forced-choice judgments in line with our original aim of revealing aspects of children’s reasoning that judgments of choice alone do not.

2. Methods

2.1. Participants

Thirty-two U.S. children (4.97–7.70 years old, $M = 6.39$, $SD = 0.87$, 16 boys, 16 girls) and thirty Chinese children (5.08–7.70 years old, $M = 6.40$, $SD = .59$; 16 boys, 14 girls) were recruited from local preschools, afterschool programs, elementary schools, and science museums. The U.S. participants were recruited from a community in Ithaca, NY. The families in the community are predominantly White middle and upper-middle class and speak English as native language. Most parents hold a college degree or above. The Chinese participants were recruited from a preschool in Wuhan, China. The parents of the children in the preschool were predominantly middle and upper-middle class and hold a college degree or above. All the children spoke Mandarin and were of the Han ethnicity. All parents provided written informed consent. We chose our sample size based on prior work using a similar storytelling method to investigate cultural similarities and differences among children (e.g., Wang & Leichtman, 2000).

2.2. Materials

Three storyboards were used in the experiment. Each storyboard depicted a different type of choice by showing a question mark above the child, and two arrows pointing to two pictures each of which showed the child making one of the two choices. Figures show the choices placed vertically, but for children they were placed horizontally (one on the left and one on the right, counterbalanced across children). Six storyboard orders were created for counterbalancing purposes. For each child, only one order was used. The *Personal Choice* storyboard depicted the child choosing to play with either a ball or a car (see Fig. 1). The *Moral Choice* storyboard depicted a child choosing to either share a toy with another child or to take the toy away (see Fig. 2). The *Conventional Choice* storyboard depicted the child choosing to use an umbrella or a bucket in the rain (see Fig. 3).

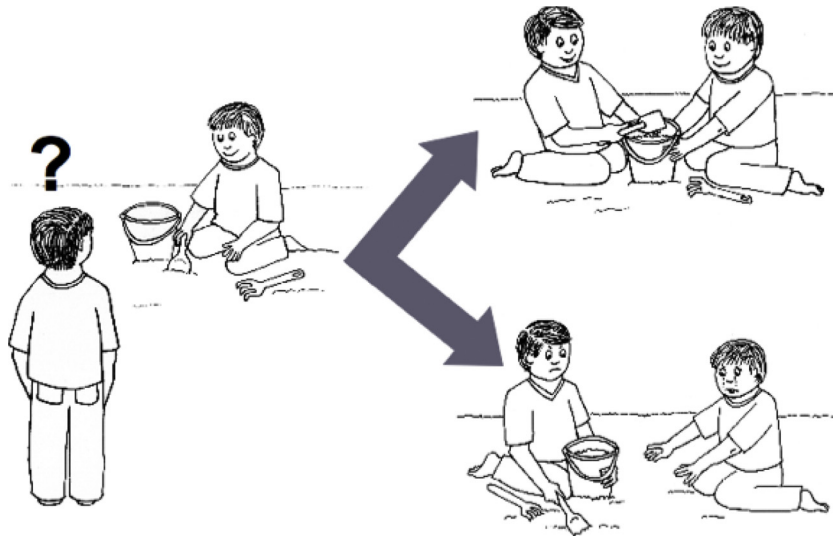


Fig. 2. Moral Choice storyboard.

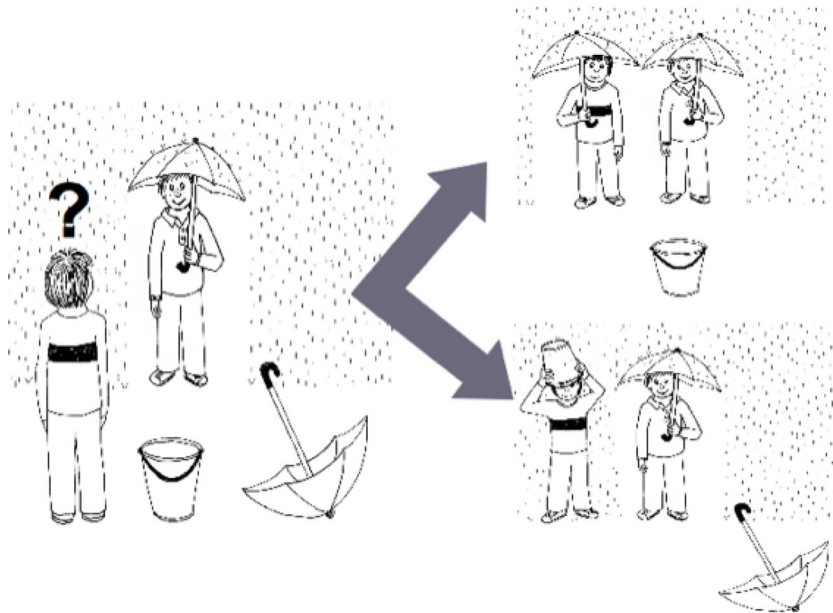


Fig. 3. Conventional Choice storyboard.

2.3. Procedure

All children were tested individually in a quiet room in local museums, preschools or elementary schools. Children in the U.S. were tested in English by a U.S. experimenter, while children in China were tested in Mandarin by a Chinese experimenter. The English protocol was first translated into Mandarin Chinese by the first author, a native Mandarin speaker, and back-translated into English by another Mandarin-English bilingual research assistant. Another research assistant unfamiliar with Mandarin then compared the back-translation with the original English protocol to check for accuracy. Differences were revised through discussion.

Each child was asked to tell stories based on three sets of pictures. For each set of pictures, the experimenter showed the child the first picture and pointed to the character with a question mark and said, “Here’s a picture of Billy/Timmy/Joey². This is Billy/Timmy/Joey. Can you tell me what else you see in this picture?” The experimenter prompted by saying “Can you tell me more about that?” if the child didn’t say much. Then the experimenter showed the child the second and third pictures and said, “Billy/Timmy/

² For the Chinese version, the three main characters in the pictures are called “Xiaoming”, “Xiaogang” and “Xiaozhang”.

Joey has a choice to make. He could either do this (show one picture) or he could do this (show the other picture). I want you to make up a story to go along with the pictures. You can make up the story however you want, as long as you use the pictures to help you.” while placing pictures left to right from the child’s perspective (order counterbalanced). After that, for each picture, the experimenter asked further prompt questions “Can you tell me what you see in this picture?”

After that, the experimenter asked three choice judgment questions: one about the story character “Which of these do you think Billy/ Timmy/Joey will choose to do? How come?” and one about the children themselves “Which of these would you choose to do? How come?” Finally, for the option they didn’t pick, the experimenter asked, “Let me ask you about this one. Can Billy choose to do this if he wants to?” After the child answered, the experimenter prompted explanations, “How can he do that?” or “Why can’t he do that?” Conversations usually lasted for about 10 min.

2.4. Coding

2.4.1. Length of stories

To analyze the length of the stories, we counted the number of utterances produced by each child in the whole conversation (including responses to the choice judgment questions³). Based on prior work on narrative coding (Wang, 2007; Wang, Song, & Kim Koh, 2017), we defined an utterance as a propositional unit, that is a subject-verb construct (in Chinese, 主谓结构) (e.g., “he likes the car” “he should share”). Off-topic utterances (e.g. about the testing room) were rare and not counted.

2.4.2. Words and phrases

To analyze the content of the stories, we then coded words and phrases children produced that fell into the following four categories: reference to desire, reference to choice and possibility, evaluative language and normative language (See Table 1 for examples).

2.4.2.1. Reference to desire. This category included words “want”, “like” referring to the protagonists’ independent desires, needs, intentions or preferences. For example, “He’s thinking about which one he wants to play with.” The word “like” was categorized as *reference to desire* only when used to indicate a desire or preference, and *not* when used to denote similarity (such as “this toy is like the one you have at home”).

2.4.2.2. Reference to choice and possibility. This category included words children use to refer to the protagonists’ choice or possibilities of actions. Words included “choose”, “choice”, “decide”, “pick”, “option” and “can”, “could”, “can’t”, “could not”, “will”, “will not”, “would”, “wouldn’t”, “would not”. For example, “He’s got a choice between a ball or a car.” It also included phrases children used to refer to choice such as “either this or that”, “which one”. Another example would be “he could do both”.

2.4.2.3. Evaluative language. This category included words such as “fun/boring/serious/silly” “good/bad”, “nice/mean”, “right/wrong” used to make evaluations on the choices in the pictures. For example, “it is fun to play with cars” and “it’s nice to play together”.

2.4.2.4. Normative language. This category included phrases that contained deontic verbs that refer to normativity or regularity (e.g., “should,” “have to”, “ought to”). For example, “He should put the umbrella on his head.” This category also included general claims that refer to conditions that happen regularly and generally in life, rather than just the specific condition shown in the picture. Specifically, it includes a) using generic noun phrases to imply conventionality or regularity (e.g., “umbrella is for raining”, “boys like cars”), b) using generic pronouns “you” or “we” to indicate norms or rules (e.g., “when you share you have fun”, “you use an umbrella in the rain”, “this is what we do with friends”) and c) using quantifiers, such as “sometimes”, “usually” and “always”, to refer to statistical regularity (e.g., “you always share”, “you never use a bucket in rain”).

The primary coder (the first author, English-Chinese bilingual) coded all the stories in both cultures. Two other research assistants each coded half of the stories produced by U.S. children. A third research assistant coded all the stories produced by Chinese children. The inter-rater reliabilities (measured by Cohen’s kappa) between primary coder and the three other coders for *reference to desire* are 0.88, 0.92, 0.92. The inter-rater reliabilities for *reference to choice and possibility* are 0.88, 0.92, 0.91. The inter-rater reliabilities for *evaluative language* are 0.96, 0.97, 0.92. The inter-rater reliabilities for *normative language* are 0.82, 0.86, 0.84. Disputes were discussed and resolved between coders.

For each of the four coding categories listed above, we coded the number of each category of words and phrases the child produced in each domain. The same utterance can be coded for more than one category. For example, a story like “Timmy likes playing with his ball and his car. He wasn’t sure which one he wanted to play with first. He chose the car. Car is fun” would be coded as including 2 references to desire (i.e., “like”, “want”), 2 reference to choice and possibility (i.e., “which one”, “chose”), and 1 evaluative language (i.e., “fun”). “It’s raining. Billy saw an umbrella and a bucket. He should take the umbrella. Umbrella is for raining” would be coded as including 2 normative language (i.e., “should”, “umbrella is for raining”).

For narrative structure, we coded whether the child spontaneously talked about the story character engaging in both possible outcomes or not. For each story, children were given a score of “1” if they talked about both possible outcomes, and “0” if they did not. For example, a child may first talk about one option and then move on to talk about the other option in her/his Personal Choice

³ Analyses without responses to the choice judgment questions yielded results in very similar pattern

Table 1
Coding Scheme and Examples.

Word type	Words (English)	Words (Chinese)	Example
Reference to desire	Want, like	想要, 喜欢	“he wants to share” / “他想分享”
Reference to choice and possibility	Choose, choice, decide, pick, option, this or that, which one, can, could, can't, couldn't will, won't, would, wouldn't	选, 选择, 决定, 这个或者那个, 哪一个, 能, 可以, 会, 不能, 不可以, 不会	“he chose the umbrella”/“他选择雨伞” “he can just take the bucket and cover on his head”/“他可以拿起水桶放在头上”
Evaluative language	fun/boring, serious/silly/weird, good/bad, nice/mean, right/wrong,	好玩, 有趣, 无聊, 奇怪, 好/坏, 礼貌/善良, 对/错,	“the car is fun”/“小汽车很好玩” “it's good to share” / “分享比较好”
Normative language	Ought to, have to, should, always, usually, often, never, X is for..., we, you	应该, 必须, 总是, 经常, 通常, 从不, ...就是...用的, 我们, 大家, 人们	“he should use umbrella” / “他应该用雨伞”, “umbrellas are for raining”/雨伞就是下雨天用的

Table 2
Total number of coded words children produced in each story type.

M (SD)	Personal	Moral	Conventional
U.S.	4.16 (2.07)	4.06 (2.64)	4.00 (2.81)
China	3.87 (2.86)	4.40 (2.51)	2.90 (2.87)

story (e.g., “He first played with the car and then played with the ball), then she/he was given a score of “1” for that story. If the child mostly talked about one of the two options and did not talk about the other option until being prompted to talk about each picture, then she/he was given a score of “0” for that story. The inter-coder reliabilities (Cohen's kappa) between primary coder and the three other coders on coding of narrative structure were 0.96, 0.98, 0.96.

For choice judgment questions, we coded for the question that whether the characters can choose to do the action the participants did not pick. Participants were given a score of “0” if they answered “no” and “1” if they answered “yes”.

3. Results

We did not find any effect of gender or storyboard order in preliminary analyses, so we combined the data across genders and orders. We first present results on the coded words and phrases children used in the picture storytelling task, followed by results on the narrative structure children used (whether they talk about both outcomes or only one). At the end, we present results on children's responses to the choice judgment questions.

We first present analyses on length of the stories children produced, and then present analyses on cultural similarities and differences on words and phrases children produced in each type of story.

3.1. Length of stories

We first looked at the number of utterances children in each culture produced in each story type. We performed a repeated measures ANOVA on the number of utterances produced with story type (Personal, Moral, Conventional) as a within-subjects factor, and culture (U.S., China) as a between-subjects factor, and age as a covariate. We found a significant main effect of age ($F(1,58) = 11.41, p < 0.001$), that children producing more utterances with age. We found no significant main effect of culture ($p = 0.39$) or story type ($p = 0.83$) or interactions (p 's $> .71$). We also looked at the total number of words and phrases we coded based on our coding scheme (see Table 2). We performed a repeated measures ANOVA with story type (Personal, Moral, Conventional) as a within-subjects factor, and culture (U.S., China) as a between-subjects factor, and age as a covariate. We found no significant effect of story type ($p = .70$), culture ($p = .47$) or age ($p = .07$)⁴. Thus, although older children tended to produce longer stories in general, children across the age range (from 5–7 years) in each culture produced similar amounts of total coded words and phrases in each type of choice story. This suggests that our coding scheme was culturally and age appropriate, that is, that all children in our sample were able to tell stories referencing desires, choice and possibility, evaluations and normativity using the pictures provided.

3.2. Cultural similarities and differences on each coding category

We then present analyses on percentage⁵ of each coding category (the number of words and phrases in each coding category divided by number of total coded words and phrases in each story). Fig. 4 shows the percentage of each coding category split by story type and culture. We first ran a repeated measures ANOVA on percentage of words and phrases with coding category (Reference to

⁴ We also ran univariate ANOVA on total number of coded words for each story type, with culture and age as factors. We found no significant effects of age (p 's $> .09$) or culture (p 's $> .13$) for any story type.

⁵ Analyses with frequency yielded results in very similar pattern.

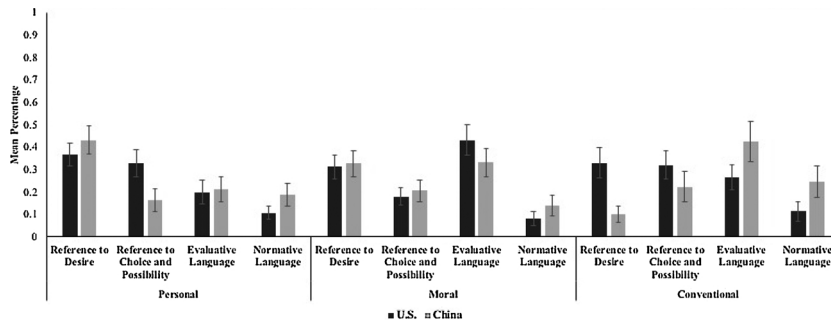


Fig. 4. Mean percentage of each coding category children produced in each type of Story split by culture (Error bars represent Standard Errors).

Desire, Reference to Choice and Possibility, Evaluative Language, Normative Language) and story type (Personal, Moral, Conventional) as within-subject factors and culture (U.S, China) as a between-subjects factor. We found no significant effects of age when it was included as a covariate ($p = 0.74$), so age was not included in this model. We found a significant main effect of coding category ($F(2.52, 140) = 5.84, p = 0.002, \eta_p^2 = .10$). Across story types and cultures, children produced most references to desire ($M = 0.32, SD = 0.32$) and evaluative language ($M = 0.31, SD = 0.36$), followed by references to possibility and choice ($M = 0.24, SD = 0.30$), with normative language the least ($M = 0.15, SD = 0.25$). Post-hoc Bonferroni-adjusted pairwise comparisons revealed a significant difference between references to desire and normative language ($p < 0.001$) and between evaluative language and normative language ($p = 0.001$). No other significant differences were found among other pairwise comparison. Importantly, we also found a significant two-way interaction between coding category and story type ($F(6, 312) = 4.12, p = 0.001, \eta_p^2 = 0.07$) and a significant three-way interaction between coding category, story type and culture ($F(6, 312) = 2.40, p = 0.028, \eta_p^2 = 0.04$).

The two-way interaction was driven by differences between stories in references to desire (more in the personal domain) and evaluative language (more in the moral and conventional domains). Post-hoc Bonferroni-adjusted pairwise comparisons showed that children across cultures made more references to desire in the Personal story ($M = .41, SD = 0.31$) than in the Conventional story ($M = 0.22, SD = 0.32, p = .001$). Children used more evaluative language in the Moral story ($M = 0.38, SD = 0.36$) and the Conventional story ($M = 0.36, SD = 0.38$) than in the Personal story ($M = 0.19, SD = 0.30$; Moral vs. Personal: $p = .005$, Conventional vs. Personal: $p = 0.023$). Children referred to choice and possibility in three types of stories at equal rates (Personal: $M = 0.26, SD = 0.32$; Moral: $M = 0.20, SD = 0.23$; Conventional: $M = 0.26, SD = 0.34$). Children used normative language in three types of stories at equal rates (Personal: $M = 0.14, SD = 0.23$; Moral: $M = 0.12, SD = 0.21$; Conventional: $M = 0.18, SD = 0.30$).

To investigate the three-way interaction, we ran separate repeated-measures ANOVAs for each story type with coding category as a within-subjects factor and culture (U.S., China) as a between-subjects factor. For each model, we checked for age effects and found no significant effects of age in any model, so age was not included in our models.

In the Personal story, the repeated measures ANOVA revealed a main effect of coding category ($F(3,177) = 6.20, p < .001, \eta_p^2 = .10$), and no significant main effect of culture ($p = 0.83$) or interaction ($p = 0.16$). Across two cultures, children produced references to desire the most ($M = 0.40, SD = 0.31$), followed by references to choice and possibility ($M = 0.25, SD = 0.32$), then evaluative language ($M = 0.21, SD = 0.31$) and normative language ($M = 0.15, SD = 0.43$). Post-hoc Bonferroni-adjusted pairwise comparisons revealed that children produced significantly more reference to desire than evaluative language ($p = 0.034$) and normative language ($p < 0.001$). No significant differences were found for other pairwise comparisons (p 's > 0.15).

In the Moral story, the repeated measures ANOVA revealed a significant main effect of coding category ($F(2.26, 133.14) = 8.39, p < 0.001, \eta_p^2 = 0.13$), and no significant main effect of culture ($p = 0.78$) or an interaction ($p = 0.54$). Across two cultures, children produced evaluative language ($M = 0.38, SD = 0.36$) and references to desire ($M = 0.32, SD = 0.30$) the most, followed by references to choice and possibility ($M = 0.19, SD = 0.23$) and normative language ($M = 0.11, SD = 0.20$). Post-hoc Bonferroni-adjusted pairwise comparisons revealed that children produced significantly more evaluative language than references to choice and possibility ($p = 0.048$) and normative language ($p < 0.001$) and significantly more references to desire than normative language ($p = 0.002$). No significant differences were found for other pairwise comparisons (p 's > 0.11).

In the Conventional story, the repeated measures ANOVA revealed no significant main effect of coding category ($p = 0.11$) or culture ($p = 0.38$), but revealed a significant interaction between coding category and culture ($F(3, 159) = 2.07, p = .026, \eta_p^2 = .056$). Post-hoc Bonferroni-adjusted pairwise comparisons revealed the nature of the interaction: U.S. children produced significantly more references to desire than Chinese children, $p = 0.008$, whereas Chinese children produced marginally more evaluative language than U.S. children, $p = .089$. No other significant cultural differences were found for other coding categories (p 's > 0.15). Looking at the interaction from the other perspective, for the U.S. children, they produced references to desire the most ($M = 0.33, SD = 0.37$), followed by references to choice and possibility ($M = 0.31, SD = 0.35$) and evaluative language ($M = 0.27, SD = 0.33$), with normative language ($M = 0.11, SD = 0.25$) the least. The difference between references to desire and normative language is marginal, $p = .052$, and no significant differences were found for other pairwise comparisons. Chinese children, however, produced evaluative language the most ($M = 0.43, SD = 0.44$), followed by normative language ($M = 0.25, SD = 0.33$) and references to choice and possibility ($M = 0.23, SD = 0.33$), with references to desire ($M = 0.10, SD = 0.17$) the least. The difference between evaluative language and references to desire is significant, $p = 0.035$. No other significant differences were found for other pairwise comparisons.

3.3. Narrative structure

To investigate whether the narrative structure differed across domains and culture, we ran a logistic GEE on whether the story involved both possible outcomes with story type (Personal, Conventional, Moral) as a within-subjects factor and culture (U.S., China) as a between-subjects factor. We found a main effect of story type (Wald $\chi^2(2, 62) = 9.20, p = 0.01$); children across cultures were more likely to spontaneously talk about both possible outcomes in the Personal story than the Conventional story (Wald $\chi^2(1, 62) = 5.74, p = 0.017$) and the Moral story (Wald $\chi^2(1, 62) = 8.74, p = 0.003$). We found no significant effect of culture ($p = 0.45$).

3.4. Choice judgement questions

Finally, we looked at children's responses to the choice judgement questions. Preliminary analyses revealed no effect of age for any item; we thus combined data across ages. For the question of "Which of these do you think Billy/ Timmy/Joey will choose to do?", a significant majority of the participants in both cultures answered that the character in the picture would choose to play with the car in the Personal story (U.S.: 80%, China: 73%, Binomial p 's < 0.05), would choose to hold an umbrella in the rain in the Conventional story (U.S.: 88%, China: 97%, Binomial p 's < .001), and would choose to share in the Moral story (U.S.: 100%, China: 97%, p 's < 0.001), Binomial p 's < 0.001. For the question of "Which of these would you choose to do?", in the Personal story, about half of the U.S. children said they would choose the ball (52%), and the rest said they would choose the car (48%), Binomial $p > 0.05$. Most Chinese children said they would choose the ball (70%, Binomial $p = 0.04$). In the Conventional story, a significant majority of the participants in both China and the U.S. answered that they would choose to hold an umbrella in the rain (U.S.: 84%, China: 100%, Binomial p 's < 0.001). In the Moral story, a significant majority of the participants in both China and the U.S. answered that they would choose to share in Moral story (U.S.: 97%, China: 97%, Binomial p 's < 0.001).

For the question that whether the characters can choose to do the action the participants did not pick about, we ran a logistic regression on their responses ("yes" = 1, "no" = 0) with story type (Personal, Moral, Conventional) as a within-subject factor and culture (U.S., China) as a between-subject factor (See Fig. 5). We found a significant main effect of culture ($\chi^2(1, N = 62) = 328.18, p < 0.001$), with U.S. children significantly more likely to answer "yes". We also found a main effect of story type ($\chi^2(2, N = 62) = 230.18, p < 0.001$), with children significantly more likely to answer "yes" for personal choice than moral choice ($\chi^2(1, N = 62) = 19.54, p < 0.001$) and conventional choice ($\chi^2(1, N = 62) = 20.78, p < 0.001$) and no significant differences between moral choice between conventional choice ($p = 0.65$). Importantly, we also found a significant interaction between story type and culture ($\chi^2(1, N = 62) = 608.39, p < 0.001$). U.S. children were more likely to answer "yes" than Chinese children for the moral choice story ($\chi^2(1) = 13.30, p < 0.001$) and the conventional choice story ($\chi^2(1) = 36.53, p < 0.001$), but not the Personal choice story ($p = 1.00$).

We also ran Binomial Sign tests to compare children's responses to chance for each story type in each culture. For the personal choice, a significant majority of both U.S. and Chinese children answered "yes" (U.S.: 100%, Chinese: 97%, p 's < 0.001). For the moral choice, 67% of the U.S. children answered "yes", which was not significantly different from chance (Binomial $p = 0.10$), while 20% of the Chinese children answered "yes" which was significantly below chance (Binomial $p < 0.001$). For the conventional choice, 94% of the U.S. children answered "yes", which was significantly above chance (Binomial $p < 0.001$), while only 17.6% of the Chinese children answered "yes", which was significantly below chance (Binomial $p < 0.001$).

4. Discussion

Prior work has shown divergence in judgments of agency and choice in socio-moral domains between Western and Eastern

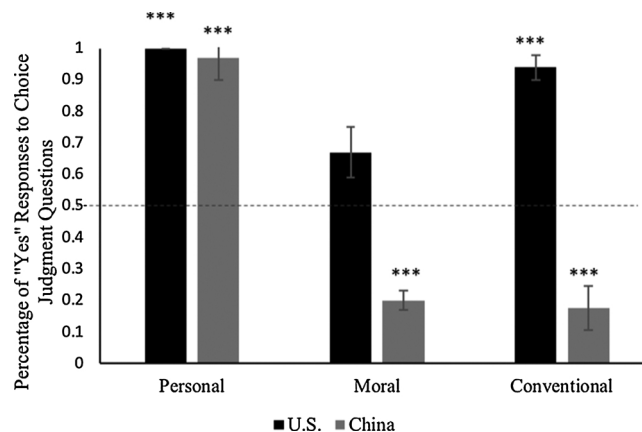


Fig. 5. Percentage of "Yes" responses to the questions of whether the characters can choose to do the action the participants did not pick (error bars represent standard errors; asterisks indicate a significant difference from chance: (*) $p < .05$, (**) $p < .01$, (***) $p < .001$, using Binomial sign tests).

cultural contexts beginning in middle childhood. In the current study we replicated these prior culture effects – while 5- to 7-year-old U.S. children judged all actions to be possible choices, even the moral and conventional violations, Chinese children said that these violations were not possible choices (Chernyak et al., 2013; Kushnir, 2018). But our main objective was to move beyond simple judgments to investigate whether children’s open-ended narratives further illuminate both the similarities and differences in their reasoning about personal, moral, and conventional choices. Our results show that patterns of cultural similarity and variability in children’s stories complement choice judgments, but also provide additional distinct information. In particular, we found that although children in each culture produced stories of similar length for each type of choice, the language and narrative structure they use differed, in particular when children were narrating stories pertaining to conventional, rather than personal or moral issues.

Cultural similarities in children’s stories about personal choice show that, even in rich narratives, children express views that personal choices are free to be otherwise: When telling stories about a personal choice with consequences only to the protagonist himself (choosing one of two toys to play with), children in both cultures focused on the desires and preferences of the character and referenced both possible outcomes in their stories. Their forced-choice judgment also showed similarities that children in both cultures endorsed both outcomes as possible.

When talking about moral choices with consequences to another child’s welfare, children in both cultures created stories which paired an emphasis on evaluation (e.g. “good/bad”) with references to desires. They also focused their narratives on the positive moral outcome rather than both outcomes. These stand in contrast with their talk about personal choice and support the idea that the distinctions between personal preferences and moral obligations are culturally universal (e.g., Killen et al., 2006; Turiel, 1994; Yau & Smetana, 2003b, 2003b). Although children’s stories about the moral choice were similar across cultures, we replicated the cultural differences in their forced-choice judgments found in prior work: Children in the U.S. are more likely to judge the immoral outcome as possible than Chinese children (Chernyak et al., 2013, 2019). Looking at children’s narratives and choice judgments together, it seems that although children at this age in both cultures see immoral actions as “wrong”, “mean” and “not okay” and emphasize these evaluations in decision-making of moral choice, children in the U.S., but not China, endorse the possibility to choose immoral actions to some extent.

The equal emphasis on evaluations and desires in both personal and moral stories might at first seem surprising, especially in light of the finding that Chinese children tend to “downplay” idiosyncratic mental states in their autobiographical narratives more so than U.S. children (e.g., Wang, 2006; Wang & Leichtman, 2000). But it can be productively understood as an expression of the belief, present already by this age, that people not only *will* do the right thing but also *want* to do it (e.g., Starmans & Bloom, 2016). This alignment between moral action and moral desires is consistent with work showing the importance of intentionality in moral judgment both in children and in adults (Cushman, Young, & Hauser, 2006; Vaish, Carpenter, & Tomasello, 2010; Woo, Steckler, Le, & Hamlin, 2017). In our study, children in both cultures frequently say, “he wants to play with him together”, “he would want to share”. By looking at spontaneous language, our study adds to this work by suggesting that, already by elementary age, children in both cultures emphasize the role of intentionality in moral decisions.

In contrast to the personal and moral domains, we found striking cultural differences in children’s stories about conventional choices. In general, U.S. children told stories that emphasized desires, while Chinese children downplayed desires but emphasized evaluations in their stories. This is consistent with the cultural differences shown in prior findings that Asian children are less likely to view violation of conventional norm as possible and are less likely to judge conventional norms as flexible (e.g., Chernyak et al., 2013, 2019; Shweder et al., 1987). It is also consistent with findings that U.S. children and adults view all types of choices or behaviors as an expression of personal attributes, while Asians are less likely to do so, in particular when there are social consequences to the decision (e.g., Iyengar & DeVoe, 2003; Miller et al., 1990; Morris & Peng, 1994). Our findings show that these cultural differences can be invoked in children’s narratives about choice-making even when they are not forced to choose one outcome over the other, not asked to evaluate an outcome as possible or permissible, and not asked directly about an agent’s motivations and attributes. At least by age 5, their spontaneous stories emphasize different aspects of the decision-making process underlying a choice to act in a conventional (and conforming) vs unconventional (and non-conforming) way: though both groups of children talked about the conventional outcome more, U.S. children seem to see this conventional choice as more influenced by personal desires, while Chinese children may see it as more influenced by others’ evaluations.

Interestingly, for the Chinese children, the low rates of desire talk in conventional story stands in contrast to an emphasis on desires in moral story. Just as the emphasis on desires suggests the relative importance of intent in moral choice-making, the deemphasizing of desires suggests the relative importance of outcomes and consequences in conventional choice-making. In our example, following conventional artifact function doesn’t require having a strong desire to do so – it can be motivated by the artifact’s common use, by conforming to what others do (such as the other child in the picture) or by habitual past experience. Interestingly, the Chinese children made this intent vs consequence decision while the U.S. children did not. This is of course consistent with prior work showing that Chinese children tend to downplay idiosyncratic mental states in their autobiographical narratives in general more so than U.S. children (e.g., Wang, 2006; Wang & Leichtman, 2000). But more importantly, this echoes findings that children are more likely to punish intent for moral over conventional transgressions (Josephs, Kushnir, Gräfenhain, & Rakoczy, 2016) and suggests Chinese children may have a more sophisticated understanding of this aspect of the moral-conventional distinction than U.S. children.

The current study has several limitations and raises important questions for future work. First, in order to give children enough time to tell stories and to compare children’s stories across domains, we limited our task to one story item within each domain. The story items we selected satisfy basic criteria of each domain and have been shown as appropriate for children in both cultures in prior work using vignette-based judgment tasks (e.g. Chernyak et al., 2013, 2019). For example, we selected artifact use (specifically the use of umbrella in rain) for conventional story as it satisfies the basic criteria of conventional norm including that it is arbitrary (as

opposed to objectively true), commonality-bound (as opposed to idiosyncratic or universal) and prescriptively powerful within the community (as opposed to completely flexible) (Diesendruck & Markson, 2011). However, we acknowledge that our selected story may not be the only canonical case for conventional norm and our study did not address potential within-domain variation. Given our findings of cultural differences in the conventional domain, within-domain variation regarding children's narratives about social and conventional norms remains an interesting open question. Future work can extend this method to other known social conventions (e.g. table manners, greeting manners, manners of dress). Future work could also extend our task to examine the role of pictorial cues to norm following: for example, by giving children pictures of same conventional choice but different rates of conformity by additional story characters for either the normative choice or the violation. Rich narratives about either known or novel conventions, marked by conformity or other depicted cues, could reveal cultural differences that extend beyond judgment tasks, and add to the growing literature on culturally-dependent developmental change in conceptions of normativity in meaningful ways (Corriveau & Harris, 2010; Haun & Tomasello, 2011; Wen, Clegg, & Legare, 2017).

Second, the current study focused on cross-cultural comparisons on restricted regions of each country. Our sample size was sufficient to meet our goals for such cultural comparison⁶. However, we acknowledge that there may be other subtler differences that we have missed due to our choice of sample size. Also, prior work has shown some variability between different areas of China (e.g., Yau & Smetana, 2003b, 2003b). Moreover, it would be reasonable to expect that children use quite different language to talk about choices as they get older, especially during early adolescence when their views about autonomy and authority, and their understanding of the regulatory function of social conventions, become more sophisticated (e.g., Smetana & Asquith, 1994). We suggest investigating both within-culture regional variation and developmental changes using a larger sample size as avenues for future work.

There is still more to learn about the role of cultural input in shaping children's narratives and judgments of choices with social consequences, how their beliefs are shaped by the messages they get from parents and other adult influences, and what role their own direct observations of people's actions play. Our method could be fruitfully extended to examine these questions. This type of work will help us understand the way children make meaning of human choices, and how it reflects both basic understandings of human actions that are culturally universal and socio-moral understandings that are directly influenced by culturally specific values.

Declaration of Competing Interest

None.

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⁶ Post-hoc power analyses revealed a statistical power of 96% to detect the main effects and interactions in our omnibus repeated-measures ANOVA.

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