A Comparison of Nepalese and American Children's Concepts of Free Will

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Abstract

Recent work finds that children as young as four years old have an intuitive belief in free will. To what extent is this early-developing intuition universal, and to what extent culturally situated? We surveyed school-aged children (4-11) in two countries (Nepal and the United States) about their beliefs about people's "free will" to follow personal preferences; break physical and mental constraints; and break social constraints. Results showed both universal and culturally-learned beliefs in free will. Children across cultures shared the early-developing intuitions of free will and constraint, though American children were more likely construe actions as choices. While American children were more likely to believe in the free will to break social constraints as they aged, Nepali children showed the opposite pattern. These findings show that while a basic notion of free will is present and early-developing across both cultures, construals of choice are also culturally learned over time.

Keywords: free will, social cognition, cross-cultural psychology, development

Introduction

Our folk psychology involves the ability to reason about freedom of choice. Recent work in both social and developmental psychology finds that the belief that we are *free to do otherwise* (i.e., make a choice to take a *different* course of action) is intuitive (see Baer, Kaufman, & Baumeister, 2008) and early-developing (Chernyak, Kushnir, & Wellman, 2010; Kushnir, Wellman, & Chernyak, 2009; Nichols, 2004). Moreover, a belief in free will is fundamental to our everyday social cognition, and informs much of our intuitions about agency, attribution, and moral responsibility (Nichols & Knobe, 2007; Phillips & Knobe, 2009; Pizarro & Helzer, 2010; Vohs & Schooler, 2008).

What is the origin of this important belief? Recent studies suggest that even 4-year-olds have the ability to reason about free will (Chernyak et al. 2010; Kushnir et al., 2009). Importantly, preschoolers discriminate between actions which are free and actions which are not free, such as actions in which one is physically or mentally constrained and therefore does not have the choice to do otherwise.

However, work on preschoolers' developing concepts of free will has exclusively focused on children from Western, individualistic societies, in which freedom of choice is stressed from a young age. Do children from more collectivist societies, in which choice is stressed to a lesser degree, share similar intuitions?

Past work points to two competing conclusions. On the one hand, free will is thought to be a cognitive universal. A recent study which examined adult intuitions of free will across cultures found that the basic belief in free will is not culture-dependent (Sarkissian, Chatterjee, De Brigard, Knobe, Nichols, & Sirker, in press). Further evidence of the universality of free will intuitions comes from studies linking the "illusion of conscious will" to our ordinary physical experience of agency (Haggard & Tsakiris, 2009; Wegner, 2002). These two different types of evidence point to the fact that the experience of, and belief in, free will may be universal. Thus, to the extent that children share adult intuitions, children across cultures should articulate similar universal beliefs.

However, because issues of caste, traditional gender values, and a strong sense of familial and moral obligations, it is possible that a strong belief in *constraint*, rather than free will, is deeply infused into Eastern thinking even from a young age. Some work in cross-cultural psychology suggests that individualistic and collectivist cultures differ in their construal of *choice*, a concept closely related to free will. For example, Americans, unlike their East-Asian counterparts, are more prone to construing mundane, everyday actions such as selecting a pen to write with as a unique choice (Savani, Markus, Naidu, Kumar, & Berlia, 2010), to construing interpersonal obligations as choices (Miller, Bersoff, & Harwood, R. L., 1990), and to attributing others' behavior as intentionally chosen rather than situationally constrained (Morris & Peng, 1994).

Given both shared human experiences and cultural diversity in beliefs, we propose a universal existence of free will that manifests in nuanced versions across cultures. In this work, we compared children ranging from four to eleven years of age across two cultures: the United States and Nepal. Because of strong family, moral, and social obligations stressed in Nepalese culture, this group of children may be particularly susceptible to "constrained" free will. We included this wide age range because past developmental research has shown that cultural differences often increase with time (Miller, 1984; Wang 2004).

In this study, we surveyed children in both cultures about a variety of intuitions regarding free will and constraint. In particular, we looked at children's beliefs about whether they have free will to perform (1) simple, unconstrained actions (e.g., drinking milk instead of juice), (2) physically and mentally constrained actions (e.g., floating in the air instead of falling after a jump, doing something you don't know how to do), and (3) socially constrained actions (e.g., causing harm to another person, breaking the rules).

We predicted three main hypotheses:

1) Children across cultures should share the basic universal, early-developing complementary notions of freedom and constraint. Therefore, children from both the United States and Nepal would likely state that simple, unconstrained actions are freely chosen, whereas physically and mentally constrained actions are not. We should also expect to see consistency across ages.

2) Cultural variations in free choice to act against social constraints should emerge early but also increase with age. Specifically, Nepali children may be *less* likely to state that socially constrained actions (such as social and moral conventions) are freely chosen as they get older, whereas American children would be *more* likely to state that such actions are freely chosen as they get older.

3) There may also be age-related and/or culture related changes in action predictions that temper the basic folk-psychological intuition that that people generally choose to act based on their desires (Wellman & Miller, 2006). As such, Nepali children may be *less* likely than American children to state that characters will *act* on their desires, in particular when social factors such as obligations and rules conflict. This difference should also increase with age.

Experiment

We devised a questionnaire in which we asked children to answer a series of questions about choices and actions. Children heard a series of vignettes, each about a character who displays a consistent behavior over time (e.g., always using a pen to draw a picture), but wants to engage in a new action on one occasion (e.g., wants to use a pencil). Children were then asked two questions about the desired action: whether the character could choose to perform it (Free Will Judgment) and whether the character is going to perform it (Action Prediction). Each of the vignettes fell into the three categories mentioned above - unconstrained actions, physically and mentally constrained actions, and socially constrained actions. Details are provided below (and also in Table 1).

Method

Participants Fifty-two Nepalese children aged 4-11 (M = 8.02, SD = 1.94) participated. Participants were recruited from Kathmandu and the Annapurna Himalayan villages. Participants were recruited via local schools, as well as by being approached at their homes (in rural areas). A comparison sample of 32 American children aged 4-11 (M = 7.06, SD = 1.83), were recruited from preschools, elementary schools, and afterschool programs in a small university town and a mid-sized urban city.[1]

[1] Age recorded only in integers.

Procedure All children were interviewed in a quiet corner or separate room at the local school or in the home. Participants were read the questionnaire by the experimenter. The questionnaire was first devised in English, and then translated into Nepali by the third author. The translation was then independently verified by two local Nepalis versant in American culture, for both grammatical errors and cultural acceptability. Small changes to ensure cultural acceptability were made (e.g., changing the word "fork" to "hands"; using traditional Nepalese names for characters) for select items.

Questionnaire The questionnaire consisted of 27 child-appropriate items in the following general format:

"Peter draws a picture every day. He *always* uses a pen to make his picture. But today, he wants to do something different. Peter *wants* to make his picture with pencils."

The complete set of 27 items fell into 9 categories (3 items per category). Table 1 shows a sample item from each category. In the first category of items, the target actions were simple, unconstrained actions; they were both possible and did not violate any known laws, norms, or rules. The next two sets of items comprised physically and mentally constrained actions. That is, the target action was impossible because it violated either a physical law (e.g. solidity of matter) or a mental constraint (e.g., knowledge). The next six categories comprised socially constrained items. For these, we included three items in which the target action violated a known convention. Importantly, we contrast social norms (e.g., gender-appropriate dress), artifact conventions (e.g., common use), and moral norms (e.g., harm). We also included actions which violate rules (either arbitrary or justified by an appropriate explanation). Finally, we included actions which show a character who wants to perform an action which does not violate any conventions or rules but is selfish (that is, it prioritizes helping oneself over helping another).

Pilot work showed that the full 27-item questionnaire was too lengthy for young children. Thus, each child was asked 9 items only, one from each category. Items were counterbalanced across participants. Two orderings of the 9 items (forwards and backwards) were counterbalanced across participants as well.[2]

Dependent Measures After hearing each item, participants were asked to answer two questions related to the character's desire to perform the target action: (1) a *Free Will Judgment* regarding whether the character *can* act in line with his/her preference (e.g., "Can Peter make his picture with pencils today – yes or no?"); and (2) an *Action*

[2] A small set of the eldest children were able to complete more than one subset. For these children, only their first responses were analyzed.

Table 1: Sample Questionnaire Items by Category

Category	Example
Free Choice	"Peter draws a picture every day. He *always* uses a pen to make his picture. But today, he wants to do something different. Peter *wants* to make his picture with pencils."
Physical Laws	"Bobby walks to the store every day. He *always* walks around the big brick wall. But today, he wants to do something different. Bobby *wants* to walk right through the big brick wall."
Mental Constraints	"Andrew draws pictures every day. He *always* draws a picture of a dog. But today, Andrew wants to do something different. Andrew *wants* to draw a monkey. But Andrew has never seen a monkey before. He doesn't know what a monkey looks like."
Social Norms	"Gary puts on his clothes every day before he goes outside. He *always* puts on a shirt and pants. But today, Gary wants to do something different. Gary *wants* to wear his sister's dress today."
Artifact Conventions	"It is raining in Ben's town today. He *always* uses an umbrella when it rains. But today, Ben wants to do something different. Ben *wants* to use a bucket when it rains."
Moral Norms	"Pat sees his friend every day. He *always* tells his friend something nice. But today, Pat wants to do something different. Pat *wants* to say something that will make his friend cry."
Arbitrary Rules	"Dina's mom tells her that she has to sit on the green chair during dinner. She *always* listens to her mom and sits on the green chair. But today, Dina wants to do something different. Dina *wants* to sit on the red chair."
Justified Rules	"Polly's parents tell her not to lift her little sister because she's too heavy for Polly and Polly might get hurt. Polly *always* listens to her parents and doesn't lift her little sister. But today, Polly wants to do something different. Polly *wants* to lift her little sister."
Selfish Act	"Timmy eats lunch with his friends. He *always* helps his friends clean the table after they are done eating. But today, Timmy wants to do something different. Timmy *wants* to go play outside and not help his friends clean the table.

Prediction regarding whether the character *will* act in line with that preference (e.g., "What do you think Peter will do today – make his picture with a pen or make his picture with pencils?").

Coding For each question, participants were given a score of "0" if they answered "no" and "1" if they answered "yes".

Results

Our first hypothesis was that children of both cultures would share a universal, early-developing intuition of free choice as well as the complementary notion of constraint. Thus, we would expect no cultural differences in the first three categories of vignettes (Free Choice, Physical Laws, and Mental Constraints). The dark bars in Figure 1 show responses to the Free Will Judgment for each of these three types of vignettes. An overwhelming majority of both American (29/32; 91%) and Nepalese children (46/52; 88%) answered that the characters had the Free Will to perform simple unconstrained actions, Binomial p's $< .001$. In contrast, the majority of both American and Nepalese children answered that the characters did *not* have the Free Will to act against Physical Laws (American: 30/32 (94%); Nepalese: 35/52 (67%)), or against Mental Constraints (American: 22/32 (69%); Nepalese: 34/52 (65%)), all Binomial p's $\leq .05$. Thus, children in both cultures share the complementary intuitions that some actions are freely willed and some are not free.

To investigate whether these universal intuitions show any developmental or cultural variation, we performed a set of binary regression analyses for each of these items. In each regression, we used culture (US vs. Nepal), age, and age x culture interaction as predictors and Free Will Judgment as the response variable. Due to the number of analyses and statistical tests, we used a stringent alpha level of .01 for all regression analyses. For each of these three item types, none of these predictors were significant (all p's

>.01). These analyses lend further support to the idea that the notions of free choice and constraint are early developing and culturally universal.

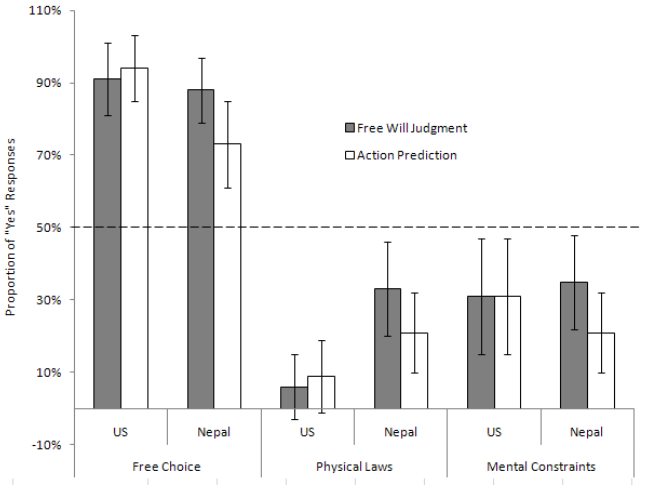

Figure 1: Proportion of "Yes" Responses to the Free Will Judgment and Action Prediction Questions for the Free Choice, Physical Laws, and Mental Constraints Items (Bars represent 95% confidence intervals for each mean)

Thus far, the above analyses indicate that both American and Nepalese children share the intuition that simple free actions are free, and unambiguously constrained actions are not. The next set of analyses investigates cultural variation by focusing on our second hypothesis, namely that culture would shape what is and isn't a constraint across time. That is, as they age, American children would show a greater tendency to believe in the free will to perform socially constrained actions (e.g., social norms, artifact conventions, moral norms, arbitrary and justified rules, and acts which prioritize the self over others), while Nepalese children would show a decreased tendency to believe in the freedom to act against social constraints.

To investigate this hypothesis, we first summed each child's Free Will Judgments for the socially constrained items. Therefore, each child received an overall score of 0-6 for the Free Will Judgment (Cronbach's $\alpha = .80$).

We then ran a linear regression with culture, age, and an age x culture interaction as the predictor variables, and Free Will Judgment score (0-6) as the response variable. The results of this analysis are shown in Figure 2. There was a significant main effect of culture ($\beta = 9.39$, $SE = 1.70$), $t(79) = 5.51$, $p < .001$, a significant main effect of age ($\beta = .86$, $SE = .18$), $t(79) = 4.67$, $p < .001$, and a significant culture x age interaction ($\beta = -1.26$, $SE = .23$), $t(79) = -5.60$, $p < .001$.

To investigate this interaction, we then ran two follow-up regressions, separately for each culture. For the Nepalese children, a linear regression with Free Will Judgment score (0-6) as the response variable and age as the predictor variable confirmed that age positively predicted Free Will Judgment score, ($\beta = 6.07$, $SE = 1.10$), $t(50) = 5.52$, $p < .001$. For the American children, age negatively predicted Free Will judgment scores, although this effect was, by our strict criteria, only marginal ($\beta = -3.32$, $SE = .86$), $t(29) = -2.63$, $p < .05$. The overall results thus confirm our analysis that with increased age, American children showed an increased tendency to endorse the free will to act against social constraints, while Nepalese children showed a decreased tendency.

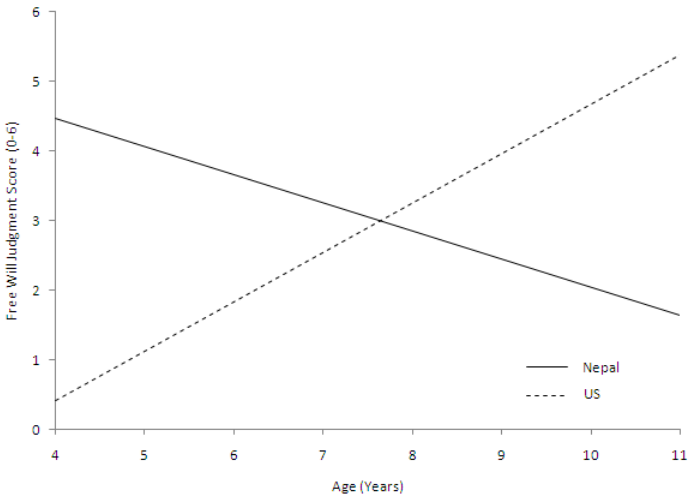

Figure 2: Regression Lines for Free Will Judgment Sums (0-6) of the Socially Constrained Items (Social Norms, Artifact Conventions, Moral Norms, Arbitrary Rules, Justified Rules, and Selfish Acts) vs. Age.

Our final hypothesis was that there may be cultural variation in children's construal of *actions as choices* (like for adults in previous studies, e.g., Savani et al., 2010). To investigate this, we began with children's Action Prediction responses for the "universal" vignettes (i.e., Free Choice, Physical Laws, and Mental Constraints). These are shown in the light bars of Figure 1 next to the Free Will Judgment responses, for comparison. The significant majority of both American (30/32; 94%) and Nepalese children (38/52; 73%) predicted that the characters would end up performing simple, desired actions (i.e., Free Choice items; Binomial p's $< .01$). Moreover, children of both cultures predicted that the characters would *not* act against either Physical Laws (American: 29/32 (91%); Nepalese: 41/52 (79%)) or Mental Constraints (American: 22/32 (69%); Nepalese: 41/52 (79%)), all Binomial p's $\leq .05$. Binary logistic regressions confirmed these results (i.e., age, culture, and age x culture interactions were not significant predictors for Action Prediction scores, all p's $> .01$). Thus, for these actions, we see no evidence of developmental or cultural differences.

However, we did see both developmental and cultural variation of Action Predictions for the social constraint items. We once again summed each child's Action Prediction answers across the six social constraint questions, resulting in a score of 0-6 (Cronbach's $\alpha = .71$). We then ran a linear regression with culture, age, and an age x culture

interaction as the predictor variables and Action Prediction score (0-6) as the response variable (see Figure 3). There was a significant main effect of culture (β = 4.93, *SE* = 1.57), $t(77) = 3.14$, $p < .01$, main effect of age (β = .58, *SE* = .17), $t(77) = 3.45$, $p < .01$, and culture x age interaction (β = -.74, *SE* = .21), $t(77) = -1.77$, $p < .01$.

Once again, to investigate the interaction more closely, we ran two follow-up linear regressions, separately for each culture. In each regression, we used Action prediction score as the response variable and age as the predictor variable. For the Nepalese children, age did *not* significantly predict Action prediction scores, $p > .10$. However, for the American children, age positively predicted Action prediction scores (β = .58, *SE* = .19), $t(29) = 3.13$, $p < .01$.

Thus, with increased age, American children were *more* likely to endorse the idea that the characters would act on their desires, even when those desires went against social constraints. Nepalese children, however, showed no such age-related changes. We thus confirm our third hypothesis that there is cultural variation in the tendency to construe actions as choices.

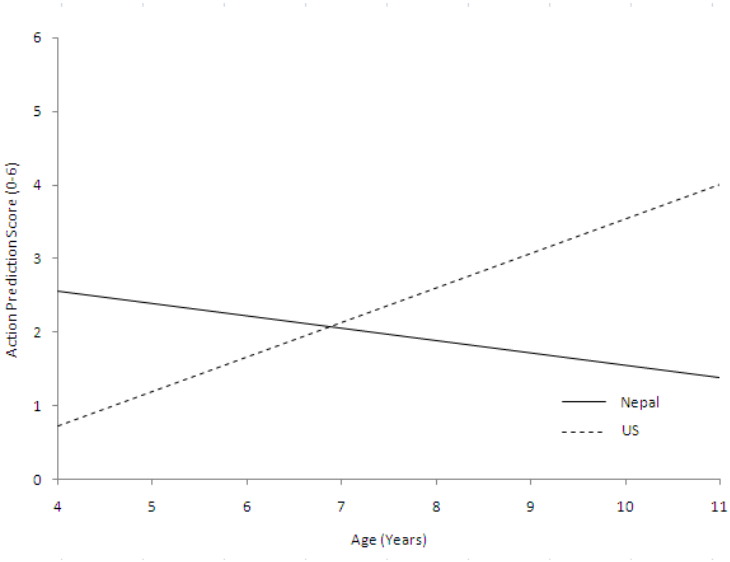

Figure 3: Regression Lines for the Action Prediction Sums (0-6) of the Socially Constrained Items (Social Norms, Artifact Conventions, Moral Norms, Arbitrary Rules, Justified Rules, and Selfish Acts) vs. Age.

Together these results show both universalities in free will endorsements as well as a cultural divergence over time. Over time, American children were less likely to view social constraints as constraints on choice whereas Nepalese viewed social norms as constraining across all ages. Importantly, such age-related changes were not observed for the Free Choice, Physical Laws, and Mental Constraint items, thus suggesting that social constraints are particularly susceptible to age and cultural variation.

Discussion

These results provide evidence for the idea that at least two intuitions related to free will – that of freedom of choice and understanding of situational constraint – are intuited from early in development. Specifically, our results found that children in both the United States and Nepal stated that simple acts (such as drinking milk instead of juice) are free and acts that violate physical and mental laws are not.

These results are in line with past work which has found that adults from the U.S, Hong Kong, India, and Colombia all believe an indeterminist universe (Sarkissian et al., in press). Moreover, our study adds to this work by finding evidence for the idea that beliefs in free will may be culturally universal and emerge early in development. This study moves us one step closer to a developmental account of cultural universals on free choice and constraint.

We also found evidence for cultural learning in children's concepts of free will. Older Nepali children were less likely than younger Nepali children to state that breaking social norms, artifact conventions, moral norms, arbitrary or justified rules; or performing selfish acts was a free choice. However, American children showed the opposite pattern: older American children were more likely than younger American children to state that breaking such social constraints was a free choice. These age-related changes are mirrored in past work (Miller, 1984; Wang, 2004).

Finally, we found evidence that American children were more likely than Nepalese children to believe that people would *act* on their preferences. Critically, however, this pattern was not found for preferences that posed no constraint (i.e., simple choices), but only for preferences which were constrained by societal norms such as social and artifact conventions. Moreover, American children in particular showed an increased tendency over time to believe that the characters would act against such norms. These results support previous theoretical and empirical work arguing for both universal and culturally constructed intuitions about the underlying causes for behavior (see Liu, Wellman, & Tardif, & Sabbagh, 2006; Wellman & Miller, 2006). While links between desire and action are early-developing and culturally universal, over time we learn to consider obligation and responsibility as motivators of action as well, even when such deontic considerations conflict with our own preferences.

Together, these data point to how culture shapes cognition over time. To the extent that one's culture provides evidence for social learning, Nepali and American children may have answered in this pattern having learned what people around them actually do and don't do.

One intriguing finding is the difference between the youngest children in both cultures. Specifically, our results indicate that younger Nepali children say characters can and will chose to act against social constraints, while younger American children are more likely to say they can't and won't. This difference may be due in part to our very small sample of younger children. On the other hand, this could

also be due to differing interpretations of the word "can". It is possible that the younger American children, in answering that the characters "can't" perform certain actions meant to say that the characters shouldn't. This interpretation is consistent with our preliminary work which has found that even American children at times respond as if moral rules as constrain their choices (Chernyak et al., 2010) and possibly warrants further investigation.

This study is the first to take a developmental approach to study cross-cultural differences in the belief in free will. Further research is needed to tease apart the specific mechanisms for how culture shapes this understanding over time. For example, future work could more specifically examine how beliefs in free will and constraint are transmitted via parental beliefs, learned from one's schooling environment, or encoded and transmitted through one's language. Additionally, it may be important to look more closely at free will beliefs across the lifespan to more closely examine the impact of development.

Overall, we believe that this cross-cultural developmental approach is a fruitful area for future research. Our work follows a small by strong following of studying conceptual learning across cultures (Liu et al., 2006; Miller, 1984). In further studying how concepts in young children differ and don't differ across cultures, we may study how cultural context provides evidence for children to learn.

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