



Contents lists available at ScienceDirect

Journal of Experimental Child Psychology

journal homepage: www.elsevier.com/locate/jecp



Give as I give: Adult influence on children's giving in two cultures



Peter R. Blake^{a,*}, John Corbit^b, Tara C. Callaghan^c, Felix Warneken^d

^a Department of Psychological and Brain Sciences, Boston University, Boston, MA 02215, USA

^b Department of Psychology, Simon Fraser University, Burnaby, British Columbia V5A 1S6, Canada

^c Department of Psychology, St. Francis Xavier University, Antigonish, Nova Scotia B0H 1X0, Canada

^d Department of Psychology, Harvard University, Cambridge, MA 02138, USA

ARTICLE INFO

Article history:

Received 19 October 2015

Revised 21 July 2016

Available online 20 August 2016

Keywords:

Imitation

Altruism

Dictator Game

Cross-cultural

Social learning

Cultural evolution

ABSTRACT

Adult influence on children's altruistic behavior may differ between cultural communities. We used an experimental approach to assess the influence of adult models on children's altruistic giving in a city in the United States and rural villages in India. Children between 3 and 8 years of age were tested with their parents in the United States ($n = 163$) and India ($n = 154$). Parents modeled either a generous or stingy donation; children then performed a similar task in private. Children in both communities were influenced by the stingy model, but only children in India increased their giving after viewing a generous model. The model's influence also increased with age in India. Results of a questionnaire revealed that parents in both communities believed that children learned sharing behavior from them. We consider these results in light of differences between these societies, including different socialization goals, cultural values, and content biases that may affect altruistic giving.

© 2016 Elsevier Inc. All rights reserved.

Introduction

Giving away resources entails a cost to individuals, and self-interest frequently predominates or constrains this altruistic behavior. This is especially true for young children who show limited

* Corresponding author.

E-mail address: pblake@bu.edu (P.R. Blake).

willingness to give resources to their peers after receiving a windfall gain (Benenson, Pascoe, & Radmore, 2007; Birch & Billman, 1986; Blake & Rand, 2010; Rao & Stewart, 1999). As children grow older, they become more willing to give away resources, but the mechanism that underlies this developmental change is unclear. Recent studies comparing children's giving in multiple societies have revealed differences in children's giving, with older children approaching adult behaviors in some populations (House et al., 2013; Rochat et al., 2009). These results suggest that children may learn norms of giving from adults but that this social influence may also vary depending on the society. However, little is known about how this learning occurs in different cultural settings. In the current study, we tested the influence of adult models on children's giving behavior in two very different societies: a U.S. city and villages in rural India.

One key strategy that children use to learn about the world is imitation. By faithfully imitating adults, children can rapidly acquire the typical behaviors, beliefs, and values of their societies (Bandura, 1977; Legare & Nielsen, 2015; Over & Carpenter, 2013; Tomasello, 2016). This process of cultural transmission helps to maintain cultural diversity across populations and provides a foundation for further cultural evolution within a society (Legare & Harris, 2016; Richerson & Boyd, 2008). Despite the theoretical importance of imitation for the intergenerational transmission of cultural knowledge, most research in this area has been conducted in Western societies and studies of non-Western populations remain rare. Furthermore, no studies have tested children's imitation of altruistic behaviors in non-Western populations. Below we review recent research on the development of children's imitation strategies in different societies and prior work on imitative altruism. We then consider differences between the two societies in the current study and make predictions for differences in children's imitation of altruistic giving.

Children's imitation strategies in different societies

Children engage in high-fidelity imitation in several contexts. When preschool-age children observe an adult demonstrate how to open a puzzle box or create a necklace, they tend to imitate all of the adult's actions, including those that are obviously unnecessary for achieving the goal (Horner & Whiten, 2005; Lyons, Young, & Keil, 2007; McGuigan, Makinson, & Whiten, 2011). Imitation in these tasks can help children to learn practical skills, but it may also serve a social function such as learning the conventions of their group (Over & Carpenter, 2013). Indeed, children imitate with higher fidelity when the demonstrator offers cues to the conventional nature of a task ("Everyone does it like this") compared with cuing the instrumental nature ("I am going to make a necklace") (Clegg & Legare, 2016; Legare, Wen, Herrmann, & Whitehouse, 2015).

Despite much theoretical and empirical work on children's imitation (Legare & Nielsen, 2015), research on these learning processes with non-Western populations has just begun and differences have already been found. Studies of indigenous groups in South Africa and Australia have found high levels of instrumental imitation that were comparable to urban Westernized Australians (Nielsen, Mushin, Tomaselli, & Whiten, 2014; Nielsen & Tomaselli, 2010). High levels of instrumental imitation have also been found with children of Ngandu horticulturalists in the Central African Republic, but very low levels of imitation were found with children from a neighboring Aka hunter-gatherer community (Berl & Hewlett, 2015). A comparison of children in the United States and Vanuatu, a collectivist Pacific island society, found higher levels of imitation for instrumental tasks among Ni-Vanuatu children. Intriguingly, the same study found no cultural differences for imitation of the same task cued as a social convention, with higher fidelity imitation in this condition compared with the instrumental conditions in both societies (Clegg & Legare, *in press*).

The reasons for these cultural differences in imitation remain speculative, but differences in child socialization practices present one plausible explanation. Adults in both the U.S. and Aka societies tend to emphasize child autonomy as opposed to conformity (Berl & Hewlett, 2015; Clegg & Legare, *in press*; Hewlett, Fouts, Boyette, & Hewlett, 2011). Children in these societies, thus, may be more inclined to deviate from modeled actions and find novel solutions to instrumental tasks. By contrast, greater fidelity to an adult's modeled actions may occur in collectivist societies that emphasize conformity and respect for elders such as the Ni-Vanuatu and Ngandu. Socialization differences may more generally affect how children interact with adults during learning opportunities, how closely they

attend to adult demonstrations, and ultimately how much they learn from observing others (Correa-Chavez & Rogoff, 2009; Rogoff et al., 1993).

Imitative altruism in the West

In the imitation tasks described above, the cost of imitating a few inefficient steps is quite low, and children are unlikely to have preexisting biases that guide their behavior. By contrast, altruistic behaviors are costly, and a self-interested bias affects children's behavior across many tasks in both Western and non-Western societies (Benenson et al., 2007; Birch & Billman, 1986; Blake & Rand, 2010; Cowell et al., 2016; Fehr, Bernhard, & Rockenbach, 2008; House et al., 2013; Rao & Stewart, 1999; Smith, Blake, & Harris, 2013). Furthermore, experiments with Western children have found that children tend to favor themselves in giving tasks even when they explicitly identify an equal split as a norm for giving (Blake, Piovesan, Montinari, Warneken, & Gino, 2015; Smith et al., 2013). For children in the United States, the norm of an equal split seems to act as an upper limit on altruistic giving (Smith et al., 2013). Therefore, resource sharing is a good test case for the question of whether children will show high-fidelity imitation despite the concrete costs associated with giving and the preexisting biases that may affect this behavior.

Early research on "imitative altruism" found that Western children would change their giving behavior to some extent after observing adult models. In several studies, children increased their donations to a charity over control conditions after seeing a generous adult model (Eisenberg & Fabes, 1998; Rushton, 1976). In one study, children also decreased their donations after seeing a self-interested model (Rushton, 1975). However, although children were willing to deviate from their baseline self-interest in these studies, the upper limit of giving half was still evident. In several studies where elementary school children observed a generous model give more than half, average giving remained below 50% (Bryan, 1971; Bryan & Walbeck, 1970; Elliott & Vasta, 1970). In two studies where children did give more than half after seeing a generous adult, children either were explicitly told that they "should" give (Midlarsky, Bryan, & Brickman, 1973) or witnessed an experimenter praise the model for giving more than half (Presbie & Coiteux, 1971).

In summary, research on imitative altruism reveals some flexibility in Western children's giving behavior but also suggests a baseline bias for self-interest and an equal split as an upper boundary of children's generosity. However, it is possible that these results are specific to populations that value child autonomy. If children are encouraged to think and act for themselves, they may decide to follow models that act in a self-interested manner and deviate from those that give too much. Testing children from a society that values child obedience and conformity more than child autonomy would improve our understanding of how cultural values might affect how children learn altruistic behavior.

Children's altruism in the West and India

The link between the socialization goals of autonomy and obedience and children's prosociality has been explored in several studies comparing populations in the West and India. When parents in Germany and India were asked about the values children should learn, parents in Delhi placed a greater emphasis on child obedience over child autonomy compared with parents in Berlin (Keller, Borke, Chaudhary, Lamm, & Kleis, 2010; Kärtner, Crafa, Chaudhary, & Keller, 2016; Kärtner, Keller, & Chaudhary, 2010). Moreover, the emphasis on obedience was positively correlated with children's helping behavior at 19 months of age (Kärtner et al., 2010). An emphasis on child autonomy in the United States has also been proposed as an explanation for why 4-year-olds share less with peers who are present but have fewer resources compared with samples of Indian and Chinese children (Birch & Billman, 1986; Rao & Stewart, 1999; Stewart & McBride-Chang, 2000). Combined, these studies suggest a link between cultural values and socialization practices that can lead to different effects on children's altruistic behavior.

To examine this possibility more closely, we used an imitation paradigm in which children observed an adult make either a generous or stingy donation in a modified Dictator Game. We tested children in an urban center in the United States, a society that emphasizes child autonomy, and in communities in rural India, a society that emphasizes child obedience over child autonomy

(Callaghan et al., 2011). We randomly assigned children to a generous model, a stingy model, or a control condition. Specifically, we asked parents in both locations to model either a generous or stingy donation in a giving task while their children watched. Children then performed the task with candy, making their donations in private. Donations in the model conditions were compared with a control condition in which children did not see their parents' donations. We tested children from 3 to 8 years of age because previous studies in several societies have demonstrated a developmental increase in sharing behavior, with 3-year-olds giving very little and 8-year-olds often giving half of their resources away (Benenson et al., 2007; Blake & Rand, 2010; Fehr et al., 2008; Rochat et al., 2009; Smith et al., 2013).

Based on the research reviewed above, we predicted that adult models in India would exert a greater influence on children's giving compared with the U.S. sample. More specifically, we predicted that children in India would show increased giving after observing the generous model and decreased giving after observing the stingy model compared with the control condition. In the United States, we predicted that children would give less after observing the stingy model but that the generous model would be less effective in increasing giving and that children would be less likely to give more than half. Given that children in India may be more generous than children in the United States in general, we also compared donations in the control condition in India and the United States.

To gain insight into parent beliefs about children's sharing, we asked parents to complete a short four-question survey specifically targeting their expectations about children's giving and their beliefs about who children learn to share from. Given that this is the first cross-cultural experiment assessing children's imitation of giving behavior, we were interested in both cross-societal comparisons and developmental patterns within societies.

Site information

The goal of this study was to assess whether adults (parents in this case) exert different influences on children's altruistic giving in different cultural communities. To that end, we chose communities in India and the United States where this influence was likely to vary and where the authors had conducted several studies of prosocial development previously (Blake et al., 2015; Callaghan et al., 2005, 2011). In India, families were recruited in villages in the Andhra Pradesh province of Southeast India (villages in the Krishna District with sizes ranging from 1000 to 3000 people). This is a rural region with an agricultural economy and occupations based largely on seasonal farming. Literacy rates among adults are low (60%), and mothers typically average approximately 5 years of formal education. Families typically have two or three children, and many live in a home with both parents and grandparents. For children, formal schooling begins at approximately 6 years of age and continues until approximately 16 years of age. Literacy among children is roughly 90%, and education is highly valued. Wealth is generally low in this region, and children have few personal possessions. Parents tend to value interdependence as a socialization goal in this region, emphasizing obedience to elders over autonomy during childhood (see Table 1).

In the United States, families were recruited in public parks in the Boston area of the U.S. Northeast. This is an urban area with an industrial, technological economy in which occupations range from professional services to skilled and unskilled labor. The population in the Boston area is more than 600,000. Literacy rates are near 100% among adults, and most adults have received at least 12 years of formal education. Most families have one to three children and live in nuclear family arrangements.

Table 1

Descriptive information for the testing locations.

Location	Population	Dominant language	Dominant religion	Typical ages for school (years)	Economy
India: rural villages, Andhra Pradesh	2000	Telugu	Hindu (63%)	6–16	Agriculture Labor
United States: urban setting, Boston	646,000	English	Protestant and Catholic (75%)	3–17	Professional Trade/Service Labor

Children's formal schooling begins as young as 3 years and continues to at least 17 years of age. Literacy among children is 100%, and education is highly valued. This area has high wealth relative to the rest of the United States, and children have dozens of personal possessions. Socialization goals can vary widely within the United States, but the overarching social values tend to emphasize children's autonomy and independence.

Method

Materials and methods

All materials for the United States, including the experimental and consent procedures, were approved by the Harvard University committee on the use of human subjects in research (IRB No. 15023). All materials for India including the experimental and consent procedures were approved by the St. Francis Xavier University research ethics board (IRB No. 21511). Consent was obtained from parents or guardians for all children tested, and adult consent was obtained for the parent questionnaire. In the United States, written consent was obtained. In India, verbal consent was obtained due to lower literacy rates among the adult population. Verbal consent was obtained by local research assistants, who read a consent script to adults and answered any questions. The consent script was approved by the St. Francis Xavier University research ethics board. All instructions and consent materials were composed in English and translated into Telugu, the local language at this site, and then back-translated into English to ensure consistency in the instructions across the sites. Discrepancies between the translations were resolved before testing began. The Indian materials were vetted by local research assistants at the site in Andhra Pradesh to ensure comprehensibility to parents in the rural setting. In addition, the co-author who maintains the field site in India (T.C.C.) met with all mothers on their arrival to the testing site and, with an interpreter, explained the procedure and the general rationale for the study and asked mothers whether they had any questions and whether they would like to proceed with the study.

Participants

Parent–child pairs were tested using a simple allocation task in the United States ($n = 163$ pairs; 52% girls) and rural India ($n = 154$ pairs; 58% girls). In both communities, children between the ages of 37 and 108 months were tested. In each community, three age groups were tested: 3- and 4-year-olds (mean ages: U.S. = 4;2 [years;months], India = 3;11), 5- and 6-year-olds (mean ages: U.S. = 5;11, India = 5;11), and 7- and 8-year-olds (mean ages: U.S. = 7;11, India = 7;10).

Parents in the United States were recruited in public parks in the greater Boston area, and parents in India were recruited in small villages outside of Vijayawada in the province of Andhra Pradesh. See online [supporting information](#) for more details.

Procedure

Parent–child pairs were randomly assigned to one of three conditions: generous, stingy, or control. Depending on the condition, parents were asked in private to assist the experimenters by making either a generous donation (give 9, keep 1) or a stingy donation (give 1, keep 9) while their children watched. These particular donations were selected due to the ease of imitating the parents by tracking where the one item was placed. Children then performed the task behind a privacy screen so that no one could see what they decided (see [supporting information](#) for details). In the control condition, parents performed their allocation behind the privacy screen as well so that children could not see what they decided. The control condition served as a baseline to assess how much children would donate spontaneously without any parental modeling. Children were asked comprehension questions to ensure that they understood (a) that the candies belonged to them, (b) where to put the candies for themselves and the other child, and (c) that no one could see what they did behind the privacy screen. Children could respond to these questions by nodding or pointing and needed to answer all questions

correctly before proceeding to the giving task. For resources, parents and children were given different local candies to allocate. The dependent measure was the number of candies that children donated, ranging from 0 to 10 items.

After the experimental task, parents were asked to complete a brief questionnaire. The questions were designed to elicit parent beliefs about children's sharing behavior. The questions were translated into Telugu and evaluated by native speakers at the research site in India prior to testing to ensure comprehensibility. Four questions were asked: (a) Would your child ever have several pieces of food or candy that they could give to others? (b) Do you think a child of your child's age would actually share in that situation? (c) If your child found food or money, would you want him/her to share with others? (d) Who do children learn to share from? This last question was accompanied by a list of options, and participants were told that they could identify more than one category: parents, other adults, siblings or cousins, and peers.

Results

The key question was whether children who had seen either a generous or stingy parent model would show correspondingly higher versus lower sharing compared with children in the control condition within each community (Figs. 1 and 2). We first compared both samples to determine whether parent influence in the conditions had different effects in the two societies. We then examined each community separately.

We conducted a three-way analysis of variance (ANOVA) of Culture (U.S. or India) \times Condition (control, stingy, or generous) \times Age Group (3- and 4-year-olds, 5- and 6-year-olds, or 7- and 8-year-olds). Bonferroni corrections were used for post hoc tests to adjust for multiple comparisons. The results revealed significant main effects of culture, $F(1, 299) = 11.52, p = .001, \eta_p^2 = .04$, and condition, $F(1, 299) = 20.34, p < .001, \eta_p^2 = .12$, a marginal main effect of age group, $F(2, 299) = 2.69, p = .069, \eta_p^2 = .02$, and a significant Culture \times Condition interaction, $F(2, 299) = 4.62, p = .011, \eta_p^2 = .03$. Tests of the simple effects, Bonferroni corrected, showed that in the United States children who saw the stingy model donated significantly fewer candies, $F(2, 299) = 3.81, p = .023, \eta_p^2 = .03$, compared with children in the control condition ($p = .016$), but children who saw the generous model did not change their donation level. By contrast, in India children were influenced by both models, $F(2, 299) = 21.21, p < .001, \eta_p^2 = .12$. Compared with the control condition, they gave significantly less in the stingy condition ($p = .001$) and significantly more in the generous condition ($p = .005$). In sum, although children in both cultures were influenced by the selfish model, only children in India deviated from the baseline donation level in the control condition to follow the generous model.

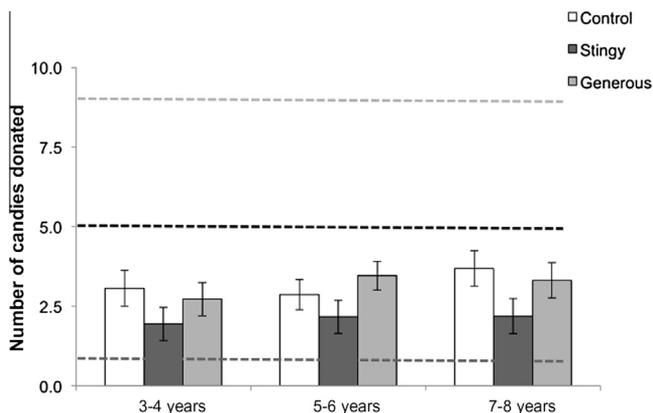


Fig. 1. Children's donations in the United States by age and condition. The dotted lines show key donation levels; the top and bottom lines are the amounts donated by the parent model in the generous (9) and stingy (1) conditions, respectively, whereas the middle line shows the 50% level. All errors are standard errors of the mean.

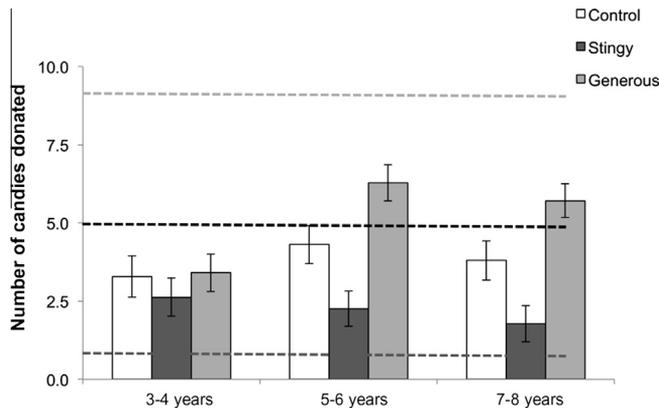


Fig. 2. Children's donations in India by age and condition. The dotted lines show key donation levels; the top and bottom lines are the amounts donated by the parent model in the generous (9) and stingy (1) conditions, respectively, whereas the middle line shows the 50% level. All errors are standard errors of the mean.

In addition to the average amount that children donated in the different conditions, we examined the fidelity with which children copied their parents; how many children gave exactly the amount modeled by their parents? In both the United States and India, children were more likely to donate exactly 1 candy after seeing the Stingy parent (25% and 43%, respectively) compared with the Control (2% and 0%, respectively): United States, $\chi^2 = 12.13$, $df = 1$, $p < .001$; India, $\chi^2 = 29.37$, $df = 1$, $p < .001$. By contrast, only children in India were significantly more likely to give exactly 9 candies after seeing the Generous parent (29%) compared with the Control (2%): United States, $\chi^2 = 1.86$, $df = 1$, ns ; India, $\chi^2 = 12.37$, $df = 1$, $p < .001$. Thus, children in India enacted the altruistic behavior demonstrated by their parents more precisely than children in the United States.

To more closely examine the effect of the generous parent model, we examined how many children gave more than half in each sample. Overall, children in the control condition rarely gave more than half, which is congruent with previous studies showing that children across cultures tend to favor themselves in baseline sharing tasks (Rochat et al., 2009). In the United States, this tendency remained even after children saw the generous model give 9 candies. They rarely gave more than the equal split value of 5 candies (7% in generous condition vs. 8% in control condition). In India, children behaved very differently. After witnessing the generous model, 43% gave more than 5 candies compared with 7% in the control condition, $\chi^2 = 16.68$, $df = 1$, $p < .001$.

One potential concern was that children in India may be generally more generous than children in the United States. To assess this possibility, we compared children's spontaneous donations in the control condition in both cultures. The results revealed no significant differences by culture or age and no Culture \times Age Group interaction (all $ps > .19$).

We next examined developmental changes within each community. We computed separate Condition \times Age Group ANOVAs for the United States and India (Figs. 1 and 2). In the United States, there was a significant main effect of condition, $F(2, 154) = 4.25$, $p = .016$, $\eta_p^2 = .05$. At all ages, children donated less in the stingy condition than in the control condition ($p = .012$). In India, there was a significant main effect of condition, $F(2, 145) = 19.12$, $p < .001$, $\eta_p^2 = .21$, a marginal main effect of age group, $F(2, 145) = 2.86$, $p = .061$, $\eta_p^2 = .04$, and a significant Condition \times Age Group interaction, $F(4, 145) = 2.45$, $p < .05$, $\eta_p^2 = .06$. Tests of the simple effects of the interaction, Bonferroni corrected, revealed that there were no differences between conditions for the 3- and 4-year-olds. For the 5- and 6-year-olds and 7- and 8-year-olds, both the stingy and generous conditions were significantly different from the control condition ($ps < .05$). In sum, at all ages tested, children in the United States were influenced only by the stingy parent model; the generous model had no effect. By contrast, in India the effects for both the stingy and generous models emerged developmentally for children age 5 years and older.

We next examined the effect of the generous model more closely to assess whether the influence of the model changed with age in each community (Fig. 3). We focused on the percentage of children who gave more than half of their candies in the generous and control conditions. In the United States, there were no significant effects of age. By contrast, in India, the effect of the generous model emerged with age: 3- and 4-year-olds, $\chi^2 = 1.52$, $df = 1$, ns , 5- and 6-year-olds, $\chi^2 = 11.16$, $df = 1$, $p < .001$, and 7- and 8-year-olds, $\chi^2 = 8.23$, $df = 1$, $p < .01$. In summary, the effect of the generous model followed different developmental trajectories in the two societies. In the United States, few children gave more than half and there were no significant trends with age. By contrast, in India, older children were more likely to give more than half after seeing the generous model, and this effect emerged with age.

In summary, our results demonstrate that in two very different societies, adult models influenced children's altruistic behavior in distinct ways. Most notably, in rural India a generous model strongly influenced children's altruistic giving, an effect not evident in the United States. In addition, the strength of the generous model's influence increased with age in India, whereas no significant effects of age were found in the United States.

Parent questionnaire

To assess parent beliefs and expectations about children's altruistic behavior, we asked parents four questions at the end of the session (U.S.: $n = 155$, with 8 parents opting not to complete the questionnaire; in India, a subset of parents were randomly selected for this questionnaire due to time constraints, $n = 62$). One potential concern with the current study was that children in India might not normally control valuable resources and so would be more likely to defer to their parents' model. To address this concern, parents were asked whether their children would ever control several pieces of food or candy that they could give to others. Parents in both cultures were virtually unanimous in responding "yes" (U.S.: 92% of respondents; India: 98%). However, when asked whether they believed that children would actually share in such a situation, parents in the United States were more optimistic, with 76% saying "yes" compared with 52% of Indian parents, $\chi^2 = 12.60$, $df = 1$, $p < .001$. Although sharing was not defined explicitly for this question, it is reasonable to conclude that parents in both locations understood this question to mean giving something to the other child. For the third question, parents were asked whether they would want their children to share with others if they found resources. This question was more ambiguous than the others, and there may be societal differences in how one should handle food that is found, particularly concerns with safety. Parents in India were less likely to say yes compared with parents in the United States (U.S.: 93%; India: 60%), $\chi^2 = 31.62$, $df = 1$, $p < .001$; however, this result is not easily interpreted.

One key question was whether parents believed that children learn to share from them or from others. Parents were asked, "Who do children learn to share from?" and were allowed to select multiple options (parents, other adults, siblings or cousins, and peers) (Fig. 4). Parents in both communities believed that children learned to share primarily from parents (U.S.: 83%; India: 73%). However,

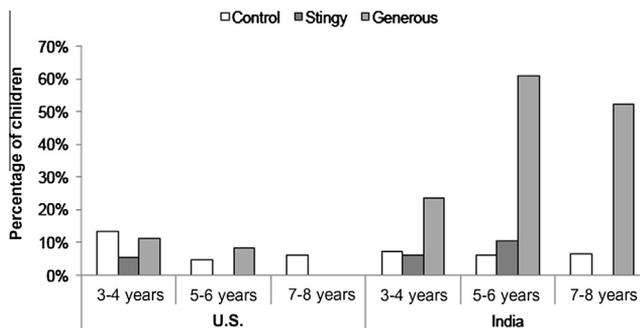


Fig. 3. Generous donations. Percentages of children donating more than half of their candies by age, culture, and condition are shown: generous (9) and control only.

parents in the United States were more likely to identify other children (siblings/cousins: 23%; peers: 21%) as another source from whom children learn to share. This belief was much less common among Indian parents (siblings/cousins: 8%; peers: 6%). Overall, the questionnaire results highlight two key similarities between these two societies, namely that (a) children in both societies do have opportunities to share resources with other children and (b) parents in both societies believe that children learn how to share mainly from them.

Discussion

The current study demonstrates that adult influence on children's altruistic behavior varies considerably in two populations. In rural India, children imitated both the generous and stingy adult models and did so with high fidelity. By contrast, children in the United States gave less compared with a control condition after observing a stingy model but were not influenced by a generous model. Moreover, the effects of the adult models appeared at different points in development in the two societies. In India, the youngest children tested (3- and 4-year-olds) were not influenced by the adult models, but children age 5 years and older were influenced by both types of models. In the United States, the influence of the stingy model was evident as early as 3 or 4 years of age.

These results add to a growing body of evidence documenting differences in children's imitation of adult behavior in different cultural settings. Although we cannot identify the specific reasons for these cultural differences at this point, we consider two broad explanations. First, there may be a general cultural orientation that guides children's imitation of adults. Two recent studies found higher levels of imitation among children in collectivist societies compared with individualist societies for instrumental tasks (Berl & Hewlett, 2015; Clegg & Legare, *in press*). The collectivist/individualist characterization, although perhaps too simplistic, can be applied to the sites in the current study as well (Callaghan et al., 2011). Collectivist societies, such as the Indian villages in the current study, tend to emphasize obedience to elders and conformity, whereas individualist Western societies, such as the urban American sample in the current study, tend to emphasize child autonomy and independence (Greenfield, Keller, Fuligni, & Maynard, 2003). Thus, the higher levels of imitative altruism in rural India for both the generous and selfish models may reflect children's desire to conform to the behaviors demonstrated by their elders. In the United States, children may believe that they have more liberty to select which behaviors they will imitate. If the current results reflect these high-level cultural orientations, then we should also find higher fidelity imitation among Indian children for many kinds of tasks, not just altruistic giving.

General cultural expectations for children's behavior may have been amplified by the particular adult models used in this study. Parents hold beliefs about socialization goals for children that reflect

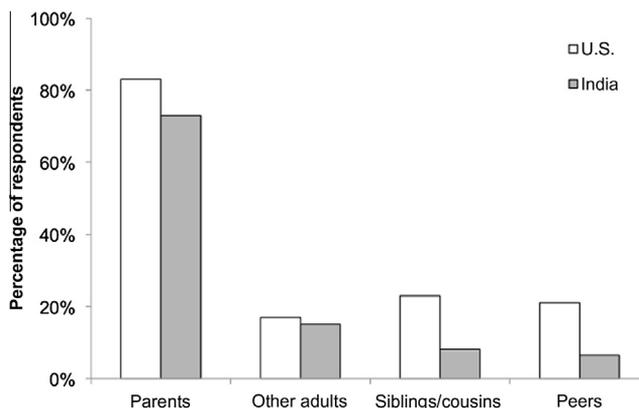


Fig. 4. Parent beliefs about learning to share. Percentages of responses in each category to the question “Who do children learn to share from?” are shown. Respondents could check multiple categories. United States: $n = 154$; India: $n = 62$.

cultural orientations of collectivism and individualism, and young children are undoubtedly aware of what their parents expect of their behavior (Greenfield et al., 2003). Comparing the effectiveness of different adult models in these cultures would offer insight into the extent to which children have a general propensity for imitating adults and which adults are particularly potent models. These effects might vary in both India and the United States. For example, children in India may imitate a generous parent but not a different familiar adult such as a teacher. In the United States, children may be more willing to imitate a familiar teacher than a parent. Comparing adult models in these societies would also offer insight into whether parent beliefs about who children learn to share from are truly inaccurate in the United States.

Children may also interpret the behavior of certain adults as demonstrations of either conventional or instrumental action, which itself could depend on the society and the context. In other words, children in India may view any action by a parent as conventional by default—this is how we do this task. This possibility could explain why children in India imitated both the generous and stingy models with such high fidelity compared with children in the United States. By contrast, American children may have viewed the parental behavior in a more instrumental fashion—here is one way to give to others, but you are not bound to it. This possibility gains some support from one prior study with U.S. children in which a generous model repeatedly told children that they really “should” give when it was their turn to do a task (Midlarsky et al., 1973). In this condition, children gave more than half, similar to what the model had done, whereas in several other studies without this prompt children did not give more than half when the model had done so (Bryan, 1971; Bryan & Walbeck, 1970; Elliott & Vasta, 1970).

A second broad interpretation of the results, not necessarily in conflict with the first one, focuses on the content of this particular study—altruistic behavior. Children and adults may possess biases that influence or constrain the learning of specific kinds of content (Richerson & Boyd, 2008). For altruistic giving, a self-interested bias has been found for children in diverse societies such that although children will give to other children in tasks like the Dictator Game, they keep more for themselves (Cowell et al., 2016; Rochat et al., 2009). This particular bias may be part of our evolved psychology, but other biases can be learned and vary by culture. Following this logic, a cultural emphasis on generosity may make it easier for children in India to adopt generous behavior modeled by an adult. Some support for this proposal comes from research in other areas of India that has found that helping and other altruistic acts are viewed as moral obligations by both children and adults, more so than in the United States (Miller, Bersoff, & Harwood, 1990; Shweder, Mahapatra, & Miller, 1987). By contrast, in the United States norms of equality may play a stronger role in children's learning. American children as young as 3 years recognize an equal split as a norm in giving tasks, and this seems to act as a ceiling on giving (Blake, Piovesan, Montinari, Warneken, & Gino, 2015; Blake & Rand, 2010; Smith et al., 2013). Thus, content biases could explain both the common willingness to give less after seeing the stingy model in the United States and India and the different effects of the generous models in these societies.

The developmental differences in the current study may offer a clue to how content biases related to altruistic giving are acquired. Children in the United States typically attend preschools starting at 3 years of age. The combined effect of early interactions with peers in these settings and the rules of the school may result in a learned limit of an equal split when giving to others. Indeed, at this age children expect peers to abide by an equal split rule even when they are the recipients (Smith et al., 2013). In India, children begin attending school at around 5 or 6 years of age, the time when both the generous and stingy models affected giving in the current study. Teachers in the rural villages of the current study may play a primary role in socializing certain values such as being generous. Although anthropologists have suggested that peers play a greater role than adults in the socialization of non-Western children (Harkness & Super, 2002; Lancy & Grove, 2010; Weisner et al., 1977), that might apply only to certain kinds of knowledge and behavior. In fact, survey studies in small-scale societies have found strong adult influence for a range of beliefs and practices in Fiji (Henrich & Henrich, 2010) and among hunter-gatherers and farmers in the Central African Republic (Hewlett & Cavalli-Sforza, 1986; Hewlett et al., 2011). Although systematic studies are needed, it is possible that introduction to a school setting may affect children's giving in different ways depending on the society studied.

Although the influence of an adult model was the focus of the current study, there are many other socioecological differences between the testing sites that could impact the results. One key difference is the relative affluence of the two communities tested. Children from the India site have few individual possessions, and adults have little disposable income (Callaghan et al., 2011). By contrast, children in the U.S. city of Boston tend to have many possessions, and adults tend to have much more disposable income. However, these differences in resource availability would likely lead children in India to be more self-interested as opposed to more generous. The size of the communities tested may also affect children's behavior. Experiments conducted with adults across a range of different cultures have found that community size does predict certain behaviors that sustain cooperation (i.e., larger populations are more likely to punish norm violations) but not altruism more generally (Henrich et al., 2010). From the same cross-cultural study, a greater dependence on market institutions predicted higher altruistic giving among adults. This would suggest that children in the United States should be more generous than was found in our study. However, it remains possible that earlier exposure to marketplaces has the opposite effect on children, engendering competitive behaviors that shift toward more generous behavior with age.

In conclusion, we found clear differences in how adults can influence children's altruistic giving in two different cultural communities. Specifically, a generous model increased children's giving in an Indian sample but did not affect children's giving in a U.S. sample. In contrast, a stingy model decreased children's giving in both communities. Future studies are needed to determine the precise cultural differences that underlie these patterns of adult influence.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at <http://dx.doi.org/10.1016/j.jecp.2016.07.010>.

References

- Bandura, A. (1977). *Social learning theory*. Oxford, UK: Prentice Hall.
- Benenson, J. F., Pascoe, J., & Radmore, N. (2007). Children's altruistic behavior in the dictator game. *Evolution and Human Behavior, 28*, 168–175.
- Berl, R. E., & Hewlett, B. S. (2015). Cultural variation in the use of overimitation by the Aka and Ngandu of the Congo Basin. *PLoS One, 10*(3), e0120180.
- Birch, L. L., & Billman, J. (1986). Preschool children's food sharing with friends and acquaintances. *Child Development, 57*, 387–395.
- Blake, P. R., McAuliffe, K., Corbit, J., Callaghan, T. C., Barry, O., Bowie, A., ... Warneken, F. (2015). The ontogeny of fairness in seven societies. *Nature, 528*, 258–261.
- Blake, P. R., Piovesan, M., Montinari, N., Warneken, F., & Gino, F. (2015). Prosocial norms in the classroom: The role of self-regulation in following norms of giving. *Journal of Economic Behavior & Organization, 115*, 18–29.
- Blake, P. R., & Rand, D. G. (2010). Currency value moderates equity preference among young children. *Evolution and Human Behavior, 31*, 210–218.
- Bryan, J. H. (1971). Model affect and children's imitative altruism. *Child Development, 42*, 2061–2065.
- Bryan, J. H., & Walbeck, N. H. (1970). The impact of words and deeds concerning altruism upon children. *Child Development, 41*, 747–757.
- Callaghan, T., Moll, H., Rakoczy, H., Warneken, F., Liszkowski, U., Behne, T., et al (2011). Early social cognition in three cultural contexts. *Monographs of the Society for Research in Child Development, 76* (2 Serial No. 299).
- Callaghan, T., Rochat, P., Lillard, A., Claux, M. L., Odden, H., Itakura, S., ... Singh, S. (2005). Synchrony in the onset of mental-state reasoning: Evidence from five cultures. *Psychological Science, 16*, 378–384.
- Clegg, J. M., & Legare, C. H. (2016). Instrumental and conventional interpretations of behavior are associated with distinct outcomes in early childhood. *Child Development, 87*, 527–542.
- Clegg, J. M., & Legare, C. H. (in press). A cross-cultural comparison of children's imitative flexibility. *Developmental Psychology*.
- Correa-Chavez, M., & Rogoff, B. (2009). Children's attention to interactions directed to others: Guatemalan Mayan and European American patterns. *Developmental Psychology, 45*, 630–641.
- Cowell, J. M., Lee, K., Malcolm-Smith, S., Selcuk, B., Zhou, X., & Decety, J. (2016). The development of generosity and moral cognition across five cultures. *Developmental Science*. <http://dx.doi.org/10.1111/desc.12403>.
- Eisenberg, N., & Fabes, R. A. (1998). Prosocial development. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology: Social, emotional and personality development* (pp. 701–778). New York: Wiley & Sons.
- Elliott, R., & Vasta, R. (1970). The modeling of sharing: Effects associated with vicarious reinforcement, symbolization, age, and generalization. *Journal of Experimental Child Psychology, 10*, 8–15.
- Fehr, E., Bernhard, H., & Rockenbach, B. (2008). Egalitarianism in young children. *Nature, 454*, 1079–1083.

- Greenfield, P. M., Keller, H., Fuligni, A., & Maynard, A. (2003). Cultural pathways through universal development. *Annual Review of Psychology*, 54, 461–490.
- Harkness, S., & Super, C. M. (2002). Culture and parenting. In M. H. Bornstein (Ed.), *Handbook of parenting: Biology and ecology of parenting* (Vol. 2, pp. 253–280). Mahwah, NJ: Lawrence Erlbaum.
- Henrich, J., Ensminger, J., McElreath, R., Barr, A., Barrett, C., Bolyanatz, A., ... Ziker, J. (2010). Markets, religion, community size, and the evolution of fairness and punishment. *Science*, 327, 1480–1484.
- Henrich, J., & Henrich, N. (2010). The evolution of cultural adaptations: Fijian food taboos protect against dangerous marine toxins. *Proceedings of the Royal Society B: Biological Sciences*, 277, 3715–3724.
- Hewlett, B. S., & Cavalli-Sforza, L. L. (1986). Cultural transmission among Aka pygmies. *American Anthropologist*, 88, 922–934.
- Hewlett, B. S., Fouts, H. N., Boyette, A. H., & Hewlett, B. L. (2011). Social learning among Congo Basin hunter-gatherers. *Philosophical Transactions of the Royal Society of London B: Biological Sciences*, 366, 1168–1178.
- Horner, V., & Whiten, A. (2005). Causal knowledge and imitation/emulation switching in chimpanzees (*Pan troglodytes*) and children (*Homo sapiens*). *Animal Cognition*, 8, 164–181.
- House, B. R., Silk, J. B., Henrich, J., Barrett, H. C., Scelza, B. A., Boyette, A. H., ... Laurence, S. (2013). Ontogeny of prosocial behavior across diverse societies. *Proceedings of the National Academy of Sciences of the United States of America*, 110, 14586–14591.
- Kärtner, J., Crafa, D., Chaudhary, N., & Keller, H. (2016). Reactions to receiving a gift: Maternal scaffolding and cultural learning in Berlin and Delhi. *Child Development*, 87, 712–722.
- Kärtner, J., Keller, H., & Chaudhary, N. (2010). Cognitive and social influences on early prosocial behavior in two sociocultural contexts. *Developmental Psychology*, 46, 905–914.
- Keller, H., Borke, J., Chaudhary, N., Lamm, B., & Kleis, A. (2010). Continuity in parenting strategies: A cross-cultural comparison. *Journal of Cross-Cultural Psychology*, 41, 391–409.
- Lancy, D. F., & Grove, A. (2010). The role of adults in children's learning. In D. F. Lancy, J. C. Bock, & S. Gaskins (Eds.), *The anthropology of learning in childhood* (pp. 145–179). Lanham, MD: Rowman & Littlefield.
- Legare, C. H., & Harris, P. L. (2016). The ontogeny of cultural learning. *Child Development*, 87, 633–642.
- Legare, C. H., & Nielsen, M. (2015). Imitation and innovation: The dual engines of cultural learning. *Trends in Cognitive Sciences*, 19, 688–699.
- Legare, C. H., Wen, N. J., Herrmann, P. A., & Whitehouse, H. (2015). Imitative flexibility and the development of cultural learning. *Cognition*, 142, 351–361.
- Lyons, D. E., Young, A. G., & Keil, F. C. (2007). The hidden structure of overimitation. *Proceedings of the National Academy of Sciences of the United States of America*, 104, 19751–19756.
- McGuigan, N., Makinson, J., & Whiten, A. (2011). From over-imitation to super-copying: Adults imitate causally irrelevant aspects of tool use with higher fidelity than young children. *British Journal of Psychology*, 102, 1–18.
- Midlarsky, E., Bryan, J. H., & Brickman, P. (1973). Aversive approval: Interactive effects of modeling and reinforcement on altruistic behavior. *Child Development*, 44, 321–328.
- Miller, J. G., Bersoff, D. M., & Harwood, R. L. (1990). Perceptions of social responsibilities in India and in the United States: Moral imperatives or personal decisions? *Journal of Personality and Social Psychology*, 58, 33–47.
- Nielsen, M., Mushin, I., Tomaselli, K., & Whiten, A. (2014). Where culture takes hold: "Overimitation" and its flexible deployment in Western, Aboriginal, and Bushmen children. *Child Development*, 85, 2169–2184.
- Nielsen, M., & Tomaselli, K. (2010). Overimitation in Kalahari Bushman children and the origins of human cultural cognition. *Psychological Science*, 21, 729–736.
- Over, H., & Carpenter, M. (2013). The social side of imitation. *Child Development Perspectives*, 7(1), 6–11.
- Presbie, R. J., & Coiteux, P. F. (1971). Learning to be generous or stingy: Imitation of sharing behavior as a function of model generosity and vicarious reinforcement. *Child Development*, 42, 1033–1038.
- Rao, N., & Stewart, S. M. (1999). Cultural influences on sharer and recipient behavior: Sharing in Chinese and Indian preschool children. *Journal of Cross-Cultural Psychology*, 30, 219–241.
- Richerson, P. J., & Boyd, R. (2008). *Not by genes alone: How culture transformed human evolution*. Chicago: University of Chicago Press.
- Rochat, P., Dias, M. D. G., Guo, L., Broesch, T., Passos-Ferreira, C., Winning, A., et al (2009). Fairness in distributive justice by 3- and 5-year-olds across seven cultures. *Journal of Cross-Cultural Psychology*, 40, 416–442.
- Rogoff, B., Mistry, J., Göncü, A., Mosier, C., Chavajay, P., & Heath, S. B. (1993). Guided participation in cultural activity by toddlers and caregivers. *Monographs of the Society for Research in Child Development*, 58 (8, Serial No. 236).
- Rushton, J. P. (1975). Generosity in children: Immediate and long-term effects of modeling, preaching, and moral judgment. *Journal of Personality and Social Psychology*, 31, 459–466.
- Rushton, J. P. (1976). Socialization and the altruistic behavior of children. *Psychological Bulletin*, 83, 898–913.
- Shweder, R. A., Mahapatra, M., & Miller, J. G. (1987). Culture and moral development. In J. Kagan & S. Lamb (Eds.), *The emergence of morality in young children* (pp. 1–89). Chicago: University of Chicago Press.
- Smith, C. E., Blake, P. R., & Harris, P. L. (2013). I should but I won't: Why young children endorse norms of fair sharing but do not follow them. *PLoS One*, 8(3) e59510.
- Stewart, S. M., & McBride-Chang, C. (2000). Influences on children's sharing in a multicultural setting. *Journal of Cross-Cultural Psychology*, 31, 333–348.
- Tomasello, M. (2016). Cultural learning redux. *Child Development*, 87, 643–653.
- Weisner, T. S., Gallimore, R., Bacon, M. K., Barry, H., Bell, C., Novaes, S. C., ... Williams, T. R. (1977). My brother's keeper: Child and sibling caretaking [and comments and reply]. *Current Anthropology*, 18, 169–190.