

“Stickers” Interpretation Guide

SHARING, ALTRUISM, CURRENCY VALUE AND OWNERSHIP

Background: Researchers from Harvard University (Blake & Rand, 2010) studied whether children 3 to 6 years of age show altruistic, or charitable, behavior. The study was similar to an adult economic exercise known as the “Dictator Game.” In the adult “Dictator Game” the subject is given some type of currency, of which s/he can then choose to give some, all, or none away to an unknown person, who is not present at the time (e.g., in previous experiments, adults were given ten \$1 bills as currency^{1,2}). In these experiments, most adults split the currency 50-50 with an unknown ‘other’. With children, the experimenters use stickers as currency, rather than money.



Researchers found:

1. The age at which children begin to give stickers away varies.
2. With each successive age group, a higher percentage of the children gave stickers away.
3. Of the children who gave stickers away, most gave away around half of their stickers.
4. The value that children attribute to stickers is significant. Children usually gave away more low value stickers than high value stickers.

Why is this important?

There is a common belief that young children are selfish; this study was conducted to determine if this is true, and (if so) at what age children generally start to become more generous. The first idea the study examined was the age at which children begin to share stickers with other children. This informed the researchers of when children begin to recognize “norms of reciprocity” (the idea that you share with others so that others will, in turn, share with you), a valuable and important social norm. The results of the study imply that children’s decision whether or not to share stickers is a separate decision from how much to share. Children don’t gradually share more and more stickers; rather, as soon as children decide to share, they already have in mind the idea that the “fair” split is approximately half of their stickers. The study also examined whether/how the value of the “currency” impacts children’s willingness to share (each child was asked to pick their “favorite” and “least favorite” type of sticker before playing the game). The purpose of this condition was to determine whether children take into account the value of the currency when deciding whether or not to share with other children. The researchers found that children do take into account value, often giving away less of the stickers that are their “favorite” than stickers that are their “least favorite.”

Method

Recruiting Methods:

1. Walk around with the inserts. Show parents the inserts, briefly describe what the study was about, and ask if their child would like to play a game.

¹ Güth, Werner, Rolf Schmittberger, and Bernd Schwarze (1982) “An Experimental Analysis of Ultimatum Bargaining,” *Journal of Economic Behavior and Organization*, 3:4 (December), 367-388.

² R. Forsythe, J. Horowitz, N.E. Savin and M. Sefton, “Fairness in Simple Bargaining Experiments,” *Games and Economic Behavior*, 6, 1994, 347-369.

2. Walk around with stickers, and ask children if they would like to play a game with you that involves stickers.

Activity Instructions (the “study method”):

****Please reference the “Baseline Instructions” in the appendix of Blake & Rand (2010)****

1. Show the child the four types of stickers (e.g., dinosaurs, cats, stars, and hearts); have the child pick their favorite and least favorite type of sticker.
2. Take the type of stickers the child chooses as “least” favorite (Alternatively, you can take the “most” favorite stickers first). Put the rest of the stickers out of sight for now.
 - a. Count out 10 stickers onto the table, with 8 on the outside and 2 on the inside (see photo above). Tell the child, “All of these stickers are your stickers.”
 - b. Lay down an envelope in front of the child; tell the child that this is their envelope. Lay down a second envelope opposite the first envelope, on the other side of the stickers (see photo above). Tell the child that this envelope is for another child of the same gender, who will visit the museum tomorrow (another girl if you are doing the activity with a girl, another boy if you are doing the activity with a boy).
 - c. Tell the child, “Remember, all of these stickers belong to you. Now, you can keep all of the stickers for yourself, or you can give some away to the other boy/girl just like you who will visit the museum tomorrow. Any stickers you want to keep for yourself you are going to put in your envelope [*point to the child’s envelope*], and any stickers you want to give away you are going to put in the other girl/boy’s envelope [*point to the other envelope*]. Remember, you don’t have to give any away; you can put all of the stickers in your envelope [*again point to the child’s envelope*]. But if you want to give some away put them in this other envelope [*again point to the other envelope*].”
 - d. Verify the child understands: “Right now, who do these stickers belong to?” [*If child answers incorrectly, correct the child before moving on*] “And, where are you going to put the stickers you want to keep for yourself? Where are you going to put the stickers you want to give away? [*Correct child if necessary*].” Once you are sure the child understands, tell him/her that you are going to place a barrier over the table so that no one can see what they decide to do. Place the barrier over the table, and tell the child that they can now put the stickers in the envelopes.
 - e. When they tell you they are finished, say, “Great, now we are going to do the same thing with the other stickers!”
3. Repeat steps 2a-2d with the second set of stickers.
4. Talk with the child’s parent about what the original researchers were studying, and about what results the researchers found (if feasible, use graphs to help explain).

Activity Tips (e.g. what to observe as the child plays, discussions to have with parents)

Help parents observe:

- Does the child take all of the stickers? Some of the stickers? None of the stickers?
- If the child gives away stickers, do they give away the same amount of the high value and low value stickers?
- If you perform the activity with more than one child from the same family, how does the generosity of an older child differ from that of a younger child?

Keeping kids interested:

- Remind children that they will be able to take their stickers home at the end of the activity!

- Younger children sometimes have trouble understanding the meaning of the word “least.” For these children, asking them to pick the sticker they don’t like very much or asking them to rank the stickers (which one is their favorite, their next favorite…) might help them understand what you are asking of them.
- For older children, go through the activity as stated above with one set of stickers, then with the second set of stickers ask the child to imagine what they would do if each of the stickers was really a dollar bill. See if this has an effect on how much children will give away. While you might think that children’s imagined behavior would not reflect their actual behavior, researchers performing a study looking at this (Smith, Blake, & Harris, under review) found that when children were asked to imagine how they would divide stickers between themselves and another child, their beliefs about how they would behave matched closely with how they behave in reality.

Results of the Original Study

This study found that children do not seem to gradually give more stickers as they grow older; instead, children simply change from not giving any of their stickers away to giving close to half of their stickers away (see figure B: for children who did give stickers away, there is no significant increase/decrease of donations as age increases, for either type of sticker). The change from “not giving” to “giving” does not happen at a certain age, but rather varies with each individual child, with an increasing proportion of children in each age group donating stickers as age increases (see figure A).

The “value” of the currency does seem to matter to children: they are more likely to give away stickers they indicate as “least favorite” than stickers they indicate as “most favorite” (in both figures, note the taller gray/low value bars as compared with the shorter white/high value bars). They also found that, while average donation is stable over time, the frequency of children who display an exact 50-50 split is influenced by the value of the currency, most clearly seen when looking at 6-year-olds, where almost 50% of 6-year-old participants gave away exactly 5 low value stickers, while only about 20% of them gave away exactly 5 high value stickers.

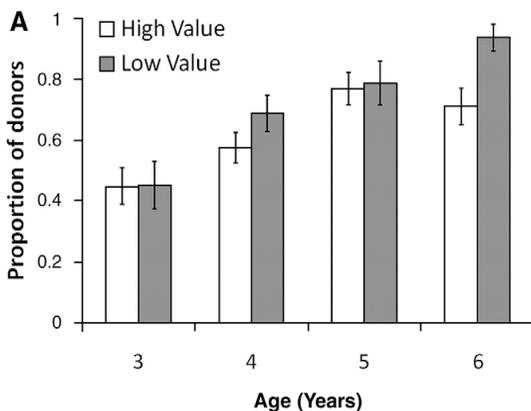


Figure A: The proportion of children of each age who donated, where white represents the high value stickers and gray represents the low value stickers

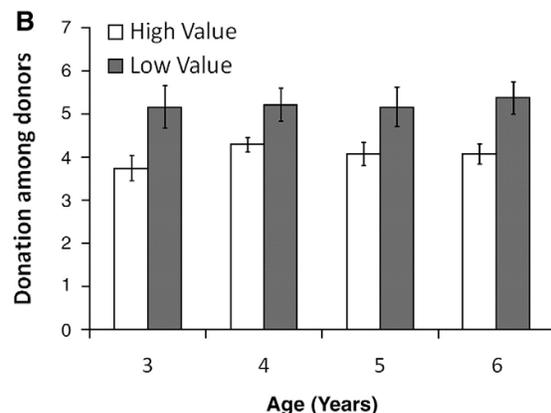


Figure B: The average donations of subjects who gave more than zero stickers, where white represents the high value stickers and gray represents the low value stickers

Questions Parents May Ask

Q: *What were the results from the study?*

A: The results show that children are more likely to give away stickers as they get older, with an increasing proportion of children giving away around half their stickers the closer they get to six years of age. When they chose to give, children of all ages gave away more of their “least favorite” stickers than of their “most favorite” stickers.

Q: *Does having a sibling effect my child’s ability to share?*

A: There are many outside factors, like having a sibling, which could affect an individual child’s development. Although the researchers in this study did not find a sibling effect in this or other studies that they conducted, another study found that children without siblings were more likely to share than children with siblings (Fehr, 2008)

Q: *Where can I get more information on this study?*

A: Give parents the insert for this study. References for this study, and additional research conducted on this topic, can be found below. The original researcher, Peter Blake, can be reached via e-mail at blakepe@gmail.com.

Activities for Parents to Try at the Museum:

- *In the Children’s Gallery:* Watch your child playing with the balls. Is s/he willing to share with others? How many balls is s/he willing to share? What conditions change this willingness (e.g. number of balls available, color of balls, etc.)?
- *In the Children’s Gallery:* Ask a Discovery Center interpreter for help making and storing some “honey” in the Discovery Center’s Beehive! How does a whole hive of bees share their honey with one another? Gather up all the honey with your child, and ask her to share some honey with one of the bee puppets. How much does she decide to give? What if another bee has all of the honey and offers to share some, how much does she take for herself?
- *In the Physical Science Area:* Watch your child build circuits using different pieces as loads. Does your child favor (or value) some loads more than others? Which load is their favorite? If asked to share one load with another child, which one do you think they would pick?

Activities for Parents to Try At Home:

- Put two dolls side by side and place eight stickers or checkers in front of one doll and two stickers or checkers in front of the other. Ask your child who they think is nicer. Does your child favor the “wealthier” doll? What reasons do they give for thinking one doll is nicer than the other?
- Create three stories with your child using six stickers and two dolls as props. Tell your child that the stickers belong to one doll and that the doll is going to share its stickers with the other doll. In one story have the two dolls be strangers, in another story say they are siblings, and in a third story say the dolls are friends. Have your child decide how many stickers the doll will share in each case. Does your child have the doll share the same amount of stickers in each story? How does the type of relationship between the dolls affect your child’s generosity?

Sources & Resources

Blake, P.R. & Rand, D.G. (2010). Currency value moderates equity preference among young children. *Evolution and Human Behavior*, 31, 210-218. doi: 10.1016/j.evolhumbehav.2009.06.012

Blake, P.R., & McAuliffe, K. (2011). “ I had so much it didn’t seem fair”: Eight- year-olds reject two forms of inequity. *Cognition*, 120, 215-254. doi:10.1016/j.cognition.2011.04.006.

Fehr, E., Bernhard, H. and Rockenbach, B. (2008). Egalitarianism in young children. *Nature*, 454, 1079-1083. doi: 10.1038/nature07155

Smith, C., Blake, P.R., & Harris, P.L. I should but I won’t: Children endorse norms of fair sharing before following them. (Under Review).

NECN broadcast featuring Dr. Peter Blake:

http://www.mos.org/media_player_pop.php?player_media_type=video&d=3855&n=0

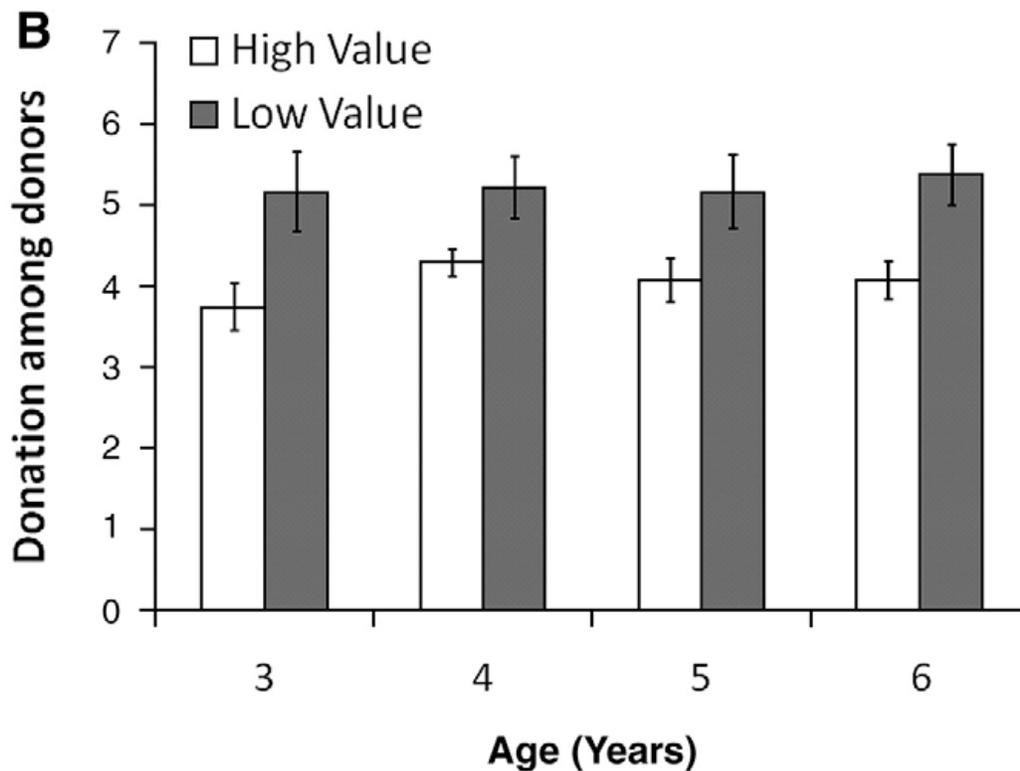
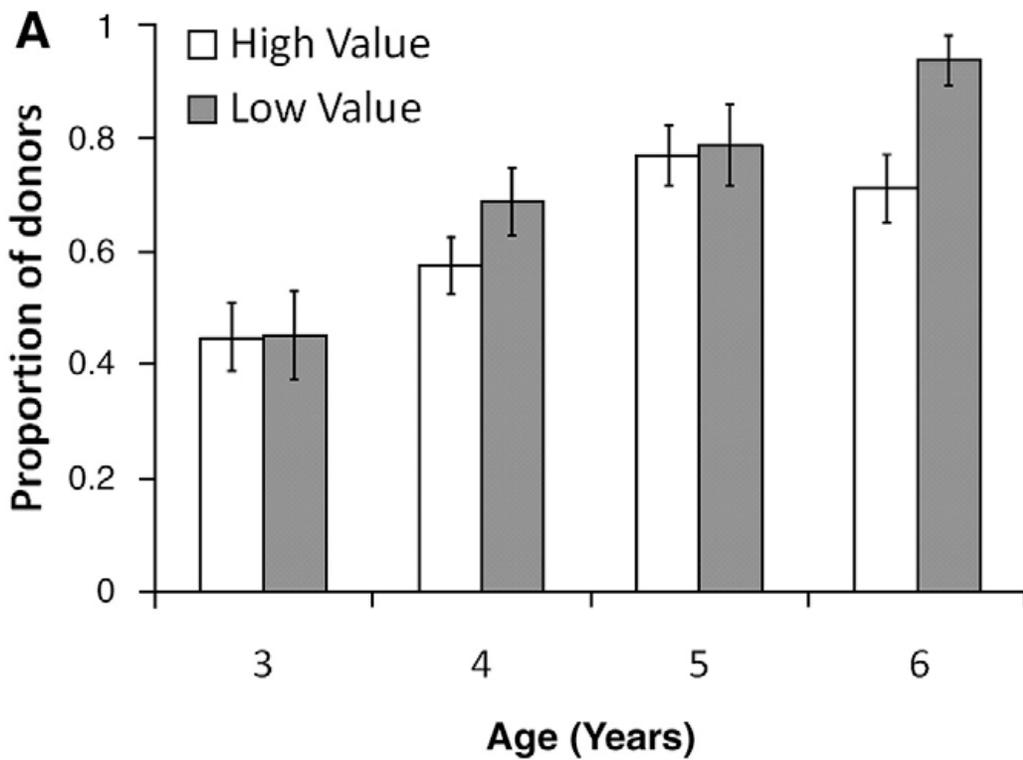


Fig. 1. The proportion of children that give at least one sticker increases with age, but the average amount donated does not. (A) Proportion of children donating High and low-value stickers at each age. (B) Average donations among children who gave at least 1 sticker for High and low-value stickers at each age. Error bars indicate standard error of the mean. All conditions aggregated.

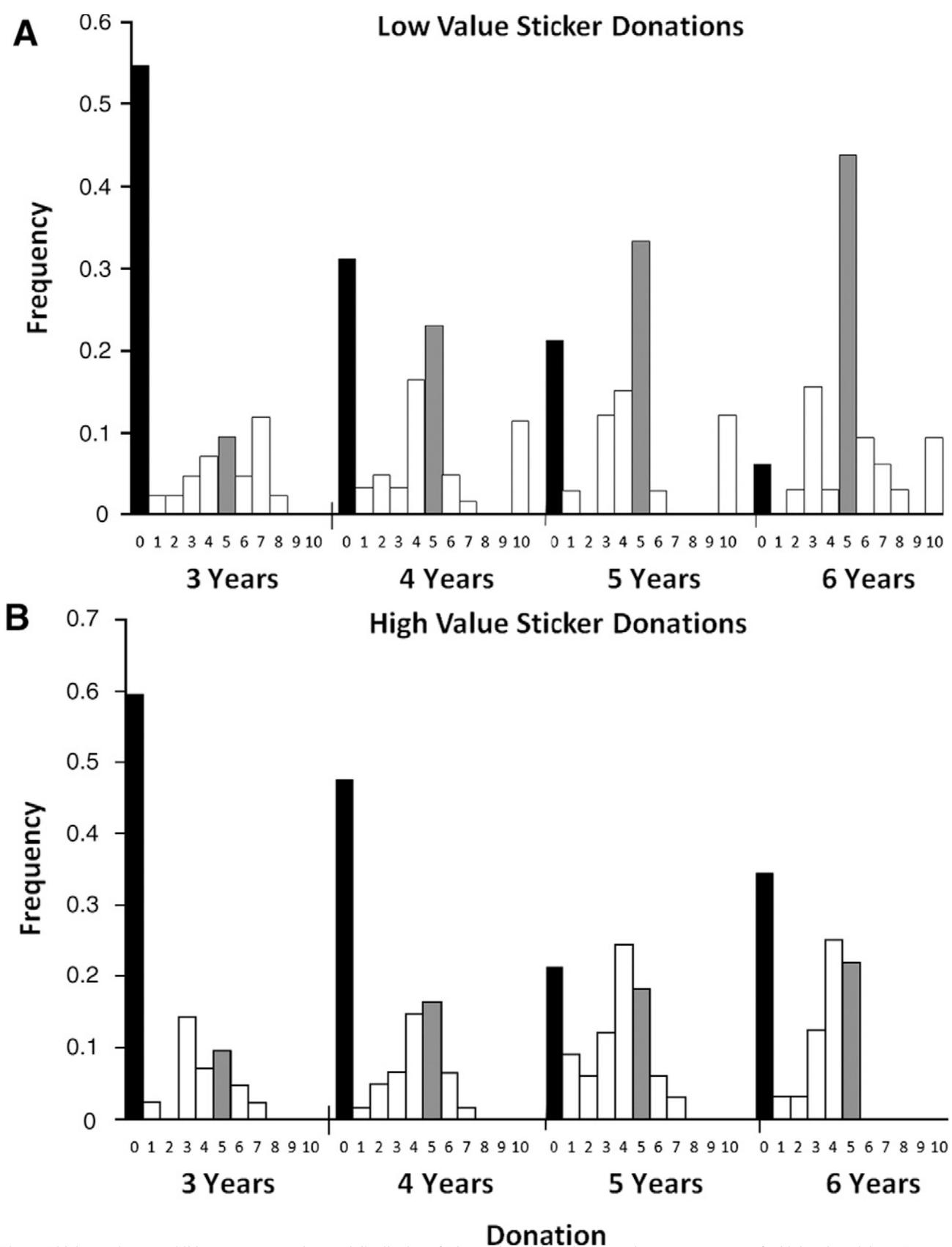


Fig. 2. With increasing age, children converge on the equal distribution of 5 low-value stickers, but no such consensus appears for high-value stickers. Frequency of each donation by age are shown, using data from two round games. For clarity, zero donations are colored black and equitable donations of 5 are colored grey. (A) low-value stickers. (B) high-value stickers.