Preschoolers Reduce Inequality While Favoring Individuals With More

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Inequalities are everywhere, yet little is known about how children respond to people affected by inequalities. This article explores two responses—minimizing inequalities and favoring those who are advantaged by them. In Studies 1a (N = 37) and 1b (N = 38), 4- and 5-year-olds allocated a resource to a disadvantaged recipient, but judged advantaged recipients more positively. In Studies 2 (N = 38) and 3 (N = 74), a delay occurred between seeing the inequality and allocating resources, or stating a preference, during which time participants forgot who was initially more advantaged. Children then favored advantaged recipients on the preference and resource allocation measures, suggesting an implicit “affective tagging” mechanism drives the tendency to favor the advantaged. In contrast, reducing inequalities through resource allocation appears to require explicit reasoning.

Minimizing Inequality

Developmental research on inequality aversion suggests that like adults (Fehr & Schmidt, 1999), young children value equality. Children prefer when other people behave fairly (Shaw, DeScioli, & Olson, 2012). In fact, recent studies suggest that by 12 months of age, infants expect resources to be allocated equally between two recipients (Geraci & Surian, 2011; Schmidt & Sommerville, 2011; Sloane, Baillargeon, & Premack, 2012). By the preschool years, children are visibly upset when they receive fewer resources than a peer (LoBue, Nishida, Chiong, DeLoache, & Haidt, 2011), and their own allocation behavior often involves allocating resources fairly between themselves and others (Fehr, Bernhard, & Rockenbach, 2008; Hook & Cook, 1979).

Even when self-interest is not at stake, such as when children are asked to allocate resources between two other individuals, children as young as 3 years old make equitable distributions when possible (Olson & Spelke, 2008). By 6 years of age, children value fairness so much that they will even destroy resources to avoid creating an inequality (Shaw & Olson, 2012; see also Blake & McAuliffe, 2011). Taken together, these studies suggest that children desire to see equal outcomes and even expect equal outcomes as infants. Interestingly, no study we know of directly asks how children allocate resources in response to existing inequalities. To that end, in the current studies we ask how

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children will allocate resources to two parties who already have unequal resources. Namely, we ask whether preschoolers will allocate a subsequent resource in a way that minimizes the inequality. The study described above predicts that by the preschool years, children notice and dislike inequalities, thereby suggesting that they will allocate a resource to minimize inequality.

Preference for Advantaged Individuals and Groups

Other literature, particularly in the domain of attitudes research, suggests that when faced with people who are unequal in key domains, children tend to favor those who are advantaged. For example, preschool-aged children favor individuals who are wealthier or materially advantaged over those who are less wealthy (Olson & Shutts, 2010). By this same age, children also show systematic preferences for individuals based on arbitrary advantages that cannot be attributed to merit or hard work, for instance, favoring merely lucky individuals (Olson, Banaji, Dweck, & Spelke, 2006; Olson, Dunham, Dweck, Spelke, & Banaji, 2008). Finally, decades of research on racial attitudes shows a general tendency for children to more strongly favor members of advantaged social groups, such as higher status racial groups (e.g., Aboud, 1988; Raabe & Beelmann, 2011). This body of research suggests that children are not unequivocally egalitarian. Rather, children often show systematic preferential treatment as demonstrated by their more favorable attitudes toward more advantaged individuals or groups because of both categorical (e.g., race) and trivial (e.g., luck) differences.

Some previous work has suggested that the tendency to favor more advantaged groups and individuals may be driven by a low-level affective tagging mechanism (Olson et al., 2008), but this mechanism has yet to be tested directly. Affective tagging or evaluative conditioning suggests that people automatically evaluate others based on their associations with positively or negatively valenced events or items. For example, one pair of studies with 7- to 11-year-old children demonstrated that pairing novel cartoon characters with desirable versus undesirable foods resulted in children preferring characters associated with desirable foods more than those associated with less desirable foods (Field, 2006). Applied to the context of inequality, people who are associated with material advantage or having more desirable resources (e.g., rich people)—which most people would see as a positive attribute—are predicted to be evaluated more positively than those associated with fewer resources.

Decades of previous work on the formation of attitudes further suggest that evaluations often occur automatically and unconsciously (e.g., Duckworth, Bargh, García, & Chaiken, 2002; see also Petty, Fazio, & Brinol, 2009, for a review). However, previous work also suggests that adults’ attitudes are evidently shaped over time by their knowledge and experiences such as repeated, behavioral interactions (Fazio & Zanna, 1978) or knowledge of cultural stereotypes (Devine, 1989). Thus, one possibility is that children, who lack such expertise and experience, might not exhibit the same automatic positive evaluations of groups and individuals with more resources. An alternative prediction, based on the previously discussed research on children’s attitudes suggests the possibility that even children may form preferences for those who are advantaged quickly and automatically.

Testing an Affective Tagging Mechanism

Testing whether affective tagging underlies favoring the advantaged can be conducted using methods previously discovered to answer questions about affect more generally. Specifically, research on affect has demonstrated that positive and negative evaluations are “sticky” across time and do not require explicit memory to be retained. In one classic demonstration, Johnson, Kim, and Risse (1985) showed amnesic patients photographs and biographies of two men—one described as morally good and one as morally bad. Later, patients had no explicit memory for having seen their pictures and did not remember having learned about them. Yet, when forced to indicate a preference, patients preferred the good guy to the bad guy, suggesting that an initial affective “tag” had been formed and that the patients were able to implicitly retain this tag (see also Tranel & Damasio, 1993). Even for neurotypical adults, initial affective reactions do not require explicit memory (Lieberman, Ochsner, Gilbert, & Schacter, 2001; Uleman, Blader, & Todorov, 2005). For example, when normal adults were introduced to faces associated with positive or negative descriptors, they later made similar evaluative judgments and showed the same pattern of amygdala activity in response to those faces, even when memory for the specific descriptors could not be explicitly retrieved (Somerville, Wig, Whalen, & Kelley, 2006). These findings support dissociation between
evaluating others based on valenced information and explicit recall of the information on which these affective judgments were based.

Although no studies to date have directly investigated whether initial affective reactions persist in young children, previous research has established that one way in which children develop preferences is through evaluative conditioning—that is, where novel targets are liked or disliked based on the positively or negatively valenced items or events they were paired with (Field, 2006). Moreover, research in neuroscience suggests that both nonhuman primates and adults’ ability to process and retain emotional information about social others is similarly affected by damage to the amygdala (Phelps & Anderson, 1997; Schiller, Freeman, Mitchell, Uleman, & Phelps, 2009), suggesting that similar mechanisms may be at work throughout phylogeny and ontogeny. Early in development, emotion categories are broad and become more specified with age. For instance, children lump emotions of the same valence together and only begin to differentiate more complex states (e.g., pride, embarrassment) with age (Harter & Rumbaugh-Whitesell, 1990; Widen & Russell, 2008). However, 2-year-old children commonly use terms for basic emotions such as happy and sad in reference to their own as well as others’ emotional states (Wellman, Harris, Banerjee, & Sinclair, 1995) and can make general positive and negative evaluations for people and events, further suggesting the feasibility of a process like affective tagging in preschoolers.

To test this prediction, the current studies take advantage of the memory manipulations described above to explore whether children make rapid evaluations that guide their preference for the materially advantaged. If affective tagging plays a similar role in children’s preference for the materially advantaged (as it did with morally good vs. bad people in amnesic patients), then eliminating explicit memory for wealth information should result in the same reported preference—children should report liking the more advantaged recipient even though they cannot recall who was advantaged. However, insofar as affective tagging cannot explain why children minimize inequality, failure of explicit memory should also alter children’s allocation behavior. Instead of allocating resources to the disadvantaged as we predict children will do, affective tagging would predict that children would instead allocate resources to the advantaged when preceded by a memory delay, because the affective tag is the only information children will have retained. This leads to the counterintuitive prediction that despite children’s strong preference for equality, if they forget who is advantaged and who is not, children will behave in a way that exacerbates, rather than attenuates, the inequality.

In the current studies we first establish the presence of both the tendency to allocate resources to minimize equality and prefer the advantaged under typical (no memory delay) conditions. Then, using a memory delay, we test whether affective tagging is a mechanism that specifically explains the tendency to favor the advantaged, potentially leading children to both prefer and allocate more resources to the already advantaged. Specifically, we test 4- and 5-year-old children because previous study suggests that children first attend to social class cues around this age. For example, 4-year-olds recognize that some groups have more resources than others (Olson, Shutts, Kinzler, & Weisman, 2012) and favor individuals that are wealthier to those are less wealthy (Olson & Shutts, 2010). Four years of age is also the earliest we know of children forming implicit attitudes (Cvenek, Greenwald, & Meltzoff, 2011)—a concept likely related to affective tagging. These findings suggest 4- and 5-year-olds would not only be sensitive to the unequal distribution of resources in the following studies, but might be likely to positively evaluate already advantaged individuals.

Study 1a

Method

In Study 1a we sought to conduct the first direct test of whether preschoolers will allocate a resource to minimize an existing inequality between two parties, and whether preschoolers judge individuals with more resources more favorably than those with fewer resources. To first establish whether these phenomena coexist under typical conditions, we presented 4- and 5-year-olds with a video in which two people distribute resources to two puppets, such that one puppet ends up with more resources than the other. Children were given one resource to distribute and were asked to indicate which recipient was “nicer”—a common evaluative measure (McCrink, Bloom, & Santos, 2010).

Participants

Thirty-seven 4- and 5-year-old children (19 females; $M = 60.0$ months, $SD = 6.7$ months) were recruited at preschools, a local museum, and through a database of families interested in participating in research. Two additional participants did
not complete the study as planned (one did not speak English, one did not watch the whole video) and were excluded from the analyses. Children who participated in this study were 87% White, 8% Black, and 5% Hispanic.

Procedure

Participants completed three primary tasks: watching a video, distributing a resource, and indicating who was nicer. Participants first watched a video on a laptop while listening to the dialogue with headphones. The video featured three adults—one experimenter (male) and two distributors (female)—as well as two puppet recipients. In the video, the experimenter said to the distributors, “Today we’re going to play a game. Each of you will give out some prizes.” The experimenter tells one distributor “Here are 4 jars of play-dough. Can you share them with Stacey and Amy (the two puppets)?” The distributor then counts out the jars of play-dough she gives out (i.e., “One for Stacey, one for Amy, two for Stacey …”). The experimenter tells the other distributor, “Here are 4 more jars of play-dough. Can you share them with Amy and Stacey?” and the distributor also counts out the jars of play-dough as she places them in front of the recipients.

Both distributors had four jars of play-dough to distribute. One provided two jars to each of the puppets (equal distributor). The other gave one jar to one puppet and three jars to the other puppet (unequal distributor). The video ended with a still picture of the final scene: the puppets with their play-dough jars in front of them, surrounded by the two distributors and the experimenter. This final shot remained on screen until the experiment was finished. In the video, each recipient had a colored bowl next to her. During the allocation phase, these bowls were correspondingly placed on either side of the laptop. The experimenter told children he or she had a chance to share a play-dough with a recipient by placing it in one of the bowls. Then participants were asked to point to which of the recipients was “nicer.” We counterbalanced all relevant features of the video, including the side of the screen each distributor sat on, the order of distribution, which doll received more resources, and which distributor was the unequal sharer.

Results

We conducted McNemar tests on the within-participant responses to the preference and allocation measures comparing children who: allocated to the disadvantaged and rated them as nicer (n = 9), allocated to the disadvantaged but rated the advantaged nicer (n = 16), allocated to the advantaged but rated the disadvantaged nicer (n = 3), and allocated to the advantaged and rated them nicer (n = 9). The McNemar test revealed that the allocation and preference measures differed from one another, p = .004. Consistent with inequality aversion, children were more likely to give the jar of play-dough to the disadvantaged recipient (n = 26, 68%) than to the advantaged recipient (n = 12), sign test, p = .034. However, children said that the advantaged recipient was nicer (n = 25, 66%) than the disadvantaged recipient (n = 13), p = .047.

Discussion

As we predicted, children both distributed play-dough to the recipient who had received less play-dough, indicating a desire to minimize the inequality, and favored the advantaged by judging the advantaged recipient as nicer. These results provide preliminary evidence for these two tendencies in preschool-aged children, elicited only seconds apart in response to an inequality.

Study 1b

One possible concern with Study 1a is that children were always asked to allocate the resource before indicating who was nicer. Perhaps children had a desire to give their resource to the disadvantaged recipient to increase equality, but unsure of who to say was nicer, decided simply to switch to the other recipient. To address this concern, we conducted a conceptual replication of Study 1a using a similar scenario, but with the order of the dependent measures counterbalanced such that half the participants were asked to evaluate their preferences before allocating a resource, whereas the other half allocated a resource before stating a preference. As in Study 1a, Study 1b again tested whether children would allocate resources to minimize inequality while preferring the advantaged, but with several key changes. To assess the generalizability of the results from Study 1a and to ensure results were not limited to those specific stimuli, we employed a slightly different evaluation measure (i.e., we asked children which recipient they would be friends with instead of which recipient was nicer), switched the type of resource used in the allocation task (from play-dough to a stuffed animal), and used (photographs of) human children rather than puppet recipients.
In Study 1b, we again showed children an initial inequality involving two recipients. We asked children which recipient they would prefer to be friends with, and we had children allocate a different resource in the allocation task than the one present in the stimuli. Finally, to mimic the real world in which children seldom see the process of resource allocation, children in Study 1b only saw the results of an allocation in which one recipient had more resources than another, but did not observe the inequality happen.

Method

Participants

Thirty-six 4- and 5-year-old children (21 female; \( M = 57.69 \) months, \( SD = 6.73 \) months) participated in this study. Children were recruited while visiting a local museum or a child development laboratory. Participants were 70% White, 8% Black, 11% Hispanic, and 11% Asian.

Procedure

Participants were seated in front of a computer screen and saw photographs of two children placed side by side. One child was seen with one jar of play-dough and the other with three jars of play-dough. The experimenter directed the participant’s attention to the screen and said, “See these kids? This is John. John has 3 jars of play-dough. This is Andy. Andy has 1 jar of play-dough,” introducing each child, and pointing out how many jars of play-dough each of them had. This screen remained until the end of the experiment.

The experimenter then asked the participant “Which of these two kids would you like to be friends with?” to indicate preference. Children were asked to point to indicate their choice. The experimenter then said “Now it’s your turn to share this stuffed toy with one of these kids. Who will you share it with?” The children were given a small stuffed animal and told to place it in front of the picture of the child they wanted to share with. All relevant aspects were counterbalanced including the side of the screen a child was on, which child had more jars of play-dough, and which dependent measure was asked first. Children’s first responses were recorded. The gender of the children in the stimuli matched that of the participant. Experimenters were blind to hypotheses and had no experience in developmental psychology prior to running this study.

Results

Despite several changes to the method, the results of Study 1b mimicked those of Study 1a (see Figure 1). We conducted a McNemar Test comparing children who: allocated to and preferred the disadvantaged \((n = 7)\), allocated to the disadvantaged but preferred the advantaged \((n = 18)\), allocated to the advantaged but preferred the disadvantaged \((n = 5)\), and allocated to and preferred the advantaged \((n = 6)\). This revealed that the preference and allocation measures differed significantly, \( p = .011 \). Specifically, children tended to allocate the stuffed animal to the disadvantaged recipient \((69\%, n = 25)\) over the advantaged recipient \((31\%, n = 11)\), sign test, \( p = .032 \). In contrast, children were more likely to state they wanted to be friends with the child with more play-dough \((67\%, n = 24)\) than with the disadvantaged recipient \((33\%, n = 12)\), sign test, \( p = .064 \). We performed additional chi-squares comparing children’s responses on the preference and allocation measures depending on which dependent measure they were asked first, which showed no significant order effects, all \( ps > .191 \).

Discussion

Consistent with the results obtained in Study 1a, these findings provide converging evidence for two distinct responses to inequality in preschoolers. When asked to make separate judgments of preference and to allocate a resource, children could have provided consistent responses. For instance, having just stated they would like to be friends with the more fortunate child, children could have allocated a resource to that same target. Instead, these findings strikingly demonstrate that children...
minimized inequality while almost simultaneously stating a preference for the advantaged individual in two different contexts (niceness and friendship).

Study 2

Studies 1a and 1b provide evidence that under typical conditions, preschoolers will allocate resources to minimize inequality while favoring the advantaged. In Study 2 we investigate whether a memory delay can be used to address why children might favor advantaged individuals. Building upon results from Study 1a and 1b, we ask whether an affective tagging mechanism may explain children’s systematic preference for the advantaged.

Affective tagging or evaluative conditioning could be driving the tendency to favor those who are advantaged and explain children’s preferences in Studies 1a and 1b. That is, after seeing recipients with unequal resources, children may have automatically evaluated the more fortunate recipient more positively. If this is the process by which these positive evaluations were formed, we can use previous research on affect to make additional predictions. As evaluations persist over time, even without explicit recall of how that evaluation was made (Johnson et al., 1985), we can test for whether children formed these initial affective tags by employing a memory manipulation in Study 2.

Specifically, we again showed preschoolers pairs of children with an unequal distribution of resources, similar to Study 1b. Importantly, before our dependent measures, we introduced a filler task designed to hinder children’s explicit memory of which child was the advantaged recipient, and then, after explicit memory had faded, showed children the same pair of children they had previously seen, but without their respective resources. Children were asked to indicate which recipient they would like to be friends with. If children initially evaluated the advantaged recipient positively, and this emotional valence lingers, children’s evaluations should reflect this affective tagging. Critically, they should systematically favor the more fortunate recipient, despite having no explicit memory for which recipient was more fortunate.

A different possibility is that children’s evaluations about niceness (Study 1a) and friendship (Study 1b) require them to be explicitly aware of the inequality. Under this view, if children have forgotten which recipient has more resources, they should not exhibit a systematic preference for either recipient. If this is the underlying process, then explicit awareness of inequality is indeed required to arrive at the resulting evaluations, which would predict that when children have no explicit memory for which was the more fortunate recipient, they should exhibit no systematic preference for either recipient.

Method

Participants

Thirty-eight 4- and 5-year-old children (13 female; \( M = 58.3 \) months, \( SD = 8.6 \) months) participated in this study. The children who participated in this study were 92% White, 3% Asian, and 5% Hispanic, and were recruited while visiting a local museum or a child development laboratory.

Procedure

The task had two phases: an exposure phase and a test phase. The exposure phase included stimuli similar to Study 1b. Participants were seated in front of a computer screen featuring photographs of two children placed side by side, with either one or three jars of play-dough. The experimenter said, “See these kids? This is John. John has 3 jars of play-dough. This is Andy. Andy has 1 jar of play-dough,” introducing each child and pointing out how many jars of play-dough each of them had. Participants saw six pairs of children (three male pairs and three female pairs), counterbalanced for which side of the screen the children were on, and which child had more play-dough. Each slide was presented for approximately 10 s. To distract the participants so that they could not mentally rehearse what they had seen, participants played Where’s Waldo for 2 min.

Next, children participated in the test phase, where the experimenter then showed participants another slide, featuring the pair of faces previously presented on the third slide. To reduce recency and primacy effects children were only tested using the third slide from the exposure phase to ensure they would be most likely to forget each target in this pair and their respective resources. On the test slide, photographs were vertically aligned (counterbalanced for top–bottom placement) rather than positioned side by side to further reduce explicit memory, and there were no jars of play-dough on the screen to indicate which recipient had more. The experimenter asked the child, “Which of these kids would you like to be friends with?” The experimenter then asked, “Before, when I showed you these kids, which kid had more play-dough?”
as a memory check to assess whether children remembered which child had more play-dough in the exposure phase.

Results

Children were more likely to state that they would be friends with the advantaged recipient ($n = 27, 71\%$) than the disadvantaged recipient ($n = 11, 29\%$), $p = .013$. Importantly, when asked to indicate which child had more play-dough in the exposure phase, children only correctly remembered which child was the advantaged recipient 44% of the time ($n = 17$), which was not significantly different from chance (50%), sign test, $p = .671$. This result suggests that children systematically preferred the more advantaged target despite having no explicit memory for whether that target was previously more advantaged.

However, because 44% of children correctly identified which target had more play-dough in the exposure phase, one concern might be that these children actually did remember and that they drove the overall tendency to favor the advantaged. However, close inspection of the data suggests that there was no difference in the overall tendency to favor the advantaged depending on whether children were correct or not on the memory trial, $\chi^2(1, N = 38) = 0.60, p = .443$. If anything, the children who got the memory trial correct actually demonstrated a smaller tendency to favor the advantaged (65% vs. 76%).

Discussion

In Study 2, we find that children evaluated the advantaged recipient more favorably, even though they had no explicit knowledge of which child was the advantaged recipient. Consistent with 4- and 5-year olds’ evaluative responses in Studies 1a and 1b, children were more likely to state they would be friends with the more advantaged recipient. These findings suggest that children did positively evaluate the more advantaged recipient upon first seeing them with more resources, and are consistent with the claim that this affective “tag” was the basis of their subsequent preference.

Study 3

Study 2 provides an intriguing demonstration of affective tagging driving children’s subsequent evaluations of advantaged recipients even when they were unable to remember which target was the advantaged recipient. In Study 3, we address children’s tendency to minimize inequality by asking if affective tagging can similarly influence children’s behavioral responses on an allocation task and, ironically, lead children to instead maximize inequality. If we removed children’s ability to remember how many resources each recipient has as we did in Study 2, but instead ask children to distribute a resource, the only potential influence on their behavior, we argue, would be their existing affective tags. As a result, after explicit memory is compromised, we predict children would allocate resources in favor of the more advantaged rather than the less advantaged recipient, as they did when they had explicit knowledge of who had more resources.

To that end, using the method from Study 2, we employed a memory manipulation such that half of the participants could not see (and therefore were unlikely to remember) how many resources each recipient had during the test trial. The other half of participants could see the resources. Because of the added delay before the test trial, we predicted that children in the former condition would forget who had more resources and would have to rely on their existing affective tags to determine their allocation decisions. In this way, children who have no explicit memory for who had more resources might ironically allocate a resource to the already advantaged recipient, functionally perpetuating inequality. In contrast, children who could see the allocation inequality should, consistent with the pattern obtained in Study 1b, allocate a resource to the less advantaged recipient, functionally reducing inequality.

Method

Participants

Seventy-four 4- and 5-year-olds participated in this study—38 participants (21 female; $M = 59.56$ months, $SD = 7.65$) in the inequality hidden condition and 36 participants (18 female; $M = 59.00$ months, $SD = 7.57$) in the inequality visible condition (a conceptual replication of the allocation decisions from Studies 1a and 1b). Children were recruited from elementary schools, at a child development lab, or while visiting a local museum. One child was excluded due to refusal to participate. Children in this study were 86% White, 8% Black, 5% Asian, and 1% Hispanic.

Procedure

The procedure was identical to Study 2, except that instead of indicating which child they would
prefer to be friends with, children were asked to allocate a jar of play-dough. At the time of test, one group of participants (inequality hidden) could not see the number of resources the recipients had. A second group of participants (inequality visible) saw the same faces side by side with either one or three jars of play-dough underneath them (as in Study 1b) to indicate which recipient had more. A memory check was again performed for participants in the inequality hidden condition to assess whether children remembered which child had more play-dough in the exposure phase.

**Results**

A chi-square goodness-of-fit test revealed that children’s resource allocations differed based on whether the memory cue of the inequality was present or absent, $\chi^2(1, N = 74) = 22.58, p < .001$ (see Figure 2). Specifically, in the inequality visible condition, when children were presented with the exact slide they saw in the test phase showing which recipient had more play-dough, children were more likely to allocate their resource to the disadvantaged recipient ($n = 31, 86\%$) than the advantaged recipient ($n = 5, 14\%$), sign test, $p < .001$, conceptually replicating the results of Studies 1a and 1b.

In contrast, children in the inequality hidden condition, who only saw the faces they had previously seen with no indication of which was the advantaged recipient, demonstrated the opposite pattern. Children were more likely to allocate a resource to the already advantaged recipient ($n = 26, 68\%$) rather than the disadvantaged recipient ($n = 12, 32\%$), sign test, $p = .034$. Children only correctly identified which child had more play-dough in the previous phase $39\%$ of the time, which does not differ from chance ($50\%$), $p = .256$. This finding confirms that children allocated resources without explicit memory for which recipient was seen with more resources in the exposure phase.

As with Study 2, one might be concerned that children who answered correctly on the memory trial were skewing the results. Importantly, in contrast to Study 2, if they did remember who had more resources, we would predict that this subset of children would favor the advantaged. That is, if these children remembered who had more resources, on the basis of the inequality visible condition, we would expect children would give the extra resource to the disadvantaged recipient. Instead, in the inequality hidden condition, we found that children gave more to the advantaged recipient, further suggesting that participants really did not remember who had more resources.

**Discussion**

Study 3 demonstrated that with conscious awareness of an inequality, children tend to allocate resources to minimize inequality as they had in Studies 1a and 1b. Most strikingly, the opposite pattern of results emerged when children did not have explicit memory for which recipient had more resources. That is, rather than forgetting and resorting to chance performance, children’s responses completely flipped—they systematically allocated their resource in favor of the already advantaged recipient. These results are consistent with the claim that upon seeing an unequal allocation in the first place, children evaluated the advantaged recipient more positively compared to the disadvantaged recipient. When children cannot explicitly remember who had more resources, children appear to use their stored affective tag to guide their allocation.

**General Discussion**

In three studies, we established that preschool-aged children both favor the advantaged and allocate a resource to minimize inequality when they were explicitly aware of the inequality. By 4 years of age, children tended to explicitly want to affiliate with more advantaged recipients—a preference that
remained even when children lost conscious awareness of the inequality. Moreover, while children explicitly preferred to share a resource with a disadvantaged recipient, they instead allocated resources in favor of the more advantaged recipient when they lost conscious awareness of the inequality—directly undermining their intentional behavior.

Our findings provide the first evidence for a mechanism driving the preference for the advantaged. Studies 2 and 3 suggest that an affective tagging mechanism—a system that simply tags people as good or bad based on affective information—could explain why children favor those who are advantaged. Specifically, our results showed that adding a delay between the demonstration of the inequality and evaluative judgments (Study 2) or resource allocation (Study 3) led children to systematically favor fortunate recipients on both of these measures, presumably because they had to rely on their previous evaluations when they had no explicit awareness of the inequality.

These findings are consistent with a body of knowledge suggesting that adults also generate affective responses automatically without conscious attention toward or evaluation of a target (LeDoux, 1998). For instance, looking at pictures, words, or novel stimuli for even a fraction of a second can elicit automatic evaluations (Bargh, Chaiken, Govender, & Pratto, 1992; Duckworth et al., 2002). Additional research has shown that affective evaluations are “sticky” in that people can rely on them to evaluate people and objects even when they do not recall the information that lead to those initial evaluations (Johnson et al., 1985; Sherman & Kim, 2002). Consistent with this logic, when children’s evaluative judgments were delayed such that they explicitly forgot who had more resources, children still evaluated the advantaged recipient more favorably—suggesting that children made an initial valenced evaluation that was retained until the subsequent evaluation. The present studies are the first to use this memory manipulation to investigate preschoolers’ automatic evaluations, and these results extend our knowledge of the development of processing of valenced information. Children retained the rapid evaluations they made based on a target’s resources even after a delay, which is consistent with the adult literature concerning affective persistence (Johnson et al., 1985). These results provide evidence that a low-level affective tagging mechanism is already at work by the preschool years (see also Field, 2006).

Furthermore, consistent with this affective persistence interpretation, we found that the same delay not only maintained children’s evaluative judgments (Study 2), but also made their resource allocation decisions align with their affective tags (Study 3). That is, after a delay during which participants forgot who had received more resources, children then provided an additional resource to a more advantaged recipient. The latter finding suggests one set of conditions under which children’s affective reactions might ironically undermine their explicit intentions. That is, although children are explicitly interested in reducing inequality as evidenced by their tendency to allocate to the less fortunate recipient in Study 1a, Study 1b, and the inequality visible condition of Study 3, losing access to explicit knowledge of the inequality resulted in their reliance on their initial affective tags, which betrayed their best intentions.

One potential limitation of this study is that our allocation task bears no cost to the participant and thus does not speak directly to some previous findings concerning inequity aversion (i.e., Fehr et al., 2008). That said, we did find that in this third-party no-cost task, children aimed to reduce inequality. These studies further uniquely suggest that reducing inequalities through resource allocation seems to require conscious or explicit reasoning—when children’s explicit memory is lost in Study 3, their allocation behavior favors the already advantaged, exactly opposite of what they intended in Study 1. Future research could investigate how allocation decisions might differ both with and without explicit memory for the inequality, if costly sharing is the only means for allocating additional resources. Previous work has both suggested that by this age children have competing interests related to maintaining resources for themselves but also allocating resources fairly (e.g., Blake & McAuliffe, 2011; Olson & Spelke, 2008).

One other limitation of the design in Studies 2 and 3 (as well as others using similar memory manipulations; e.g., Johnson et al., 1985) is the use of a one-trial memory test. Evidence from a more thorough battery of trials would more conclusively demonstrate whether children had explicit memory for the inequality. Reducing this worry, however, is our finding that in the inequality hidden condition of Study 3, children actually allocated resources in exactly the opposite way they had in the inequality visible conditions where there is no delay. This is hard to explain unless one acknowledges that children had poor memory for which recipient was more or less advantaged.

Although in the present studies we investigated children’s evaluations of individuals based on differ-
orations in material wealth, society is replete with inequalities in other domains (i.e., strength, beauty, intelligence), but it remains unclear based on our current results what activates the affective tagging response. For instance, children may have more positively rated and desired affiliation with more advantaged recipients because they inferred that the recipient with more resources had more to offer, with self-interest underlying their positive tags for advantaged individuals. It is possible that affective tagging is activated in response to any perceived inequalities and that any of these characteristics drive global evaluations, such as in the well-known halo effect (Dion, Berscheid, & Walster, 1972), where adults rate attractive individuals more desirably even on unrelated attributes. Previous studies suggest 4- and 5-year-olds make similar global evaluations, for instance, judging that a nice child would also be smarter and more athletic (Cain, Heyman, & Walker, 1997) and rating a more competent child to also be more prosocial (Brosseau-Liard & Birch, 2010). These effects may have their roots in an overall positive valence that an individual is tagged with at the time of initial impression formation that is forgotten, but that this general positivity leads children to mistakenly apply a variety of positive traits. More research is needed to determine what other mechanisms contribute to people’s preference for the advantaged, the extent to which these mechanisms are activated and developed in response to culture and experience, and the role of affective tagging in what is likely to be a lifelong preference for those who are more fortunate.

In addition to the potential theoretical contribution of this work, these findings have important implications for understanding the maintenance of inequality. While people often endorse and truly value equality, in the real world we are also often under cognitive load that may be more similar in effect to our final two studies. Namely, being under constant load may make it difficult to discount affective information that is automatically stored when we meet or even just see new people. Simply seeing someone with more or better things or experiencing a more or less fortunate event is likely enough for a positive evaluation to be formed. In many cases we may not even know that we have done this, but later when we remeet the same person we may have a gut feeling that is good or bad about this person. Our findings suggest that having these persistent affective reactions and poor source memory about how we acquired these evaluations could have damaging consequences that could run contrary to our explicit intentions, resulting in perpetuating inequality, even when we mean to be reducing it.

References


Olson, K. R., & Shutts, K. (2010). *The emergence of social class attitudes*. Presented at the Association of Psychological Science, Boston, MA.


