

Do Children Distinguish Between Resource Inequalities With Individual Versus Structural Origins?

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This study investigated children's ability to distinguish between resource inequalities with individual versus structural origins. Children (3- to 8-years-old; $N = 93$) were presented with resource inequalities based on either recipients' merit (individual factor) or gender (structural factor). Children were assessed on their expectations for others' allocations, own allocations, reasoning, and evaluations of others' allocations. Children perpetuated merit-based inequalities and either rectified or allocated equally in response to gender-based inequalities. Older, but not younger, children expected others to perpetuate both types of inequalities and differed in their evaluations and reasoning. Links between children's allocations and judgments were also found. Results reveal novel insights into children's developing consideration of the structural and individual factors leading to resource inequalities.

Decisions regarding how resources are distributed have a profound impact on the structure and organization of many societies. On a national level, economic and public policy decisions influence the socioeconomic landscape, bringing about different health and well-being outcomes for children of different economic backgrounds (Duncan, Magnuson, & Votruba-Drzal, 2015; McLoyd, Mistry, & Hardaway, 2014). On an interpersonal level, children use resource allocation decisions to establish and maintain relationships, as well as to ensure the fair treatment of others (Corsaro, 2017; Damon, 1977; Killen, Elenbaas, & Rizzo, in press). These early experiences with resource distributions in turn play an important role in children's developing conceptions of fairness (Killen & Smetana, 2015). Thus, determining how resources ought to be distributed is a major concern throughout the lifespan, with a range of immediate and long-term developmental outcomes.

A particularly important context for understanding fair resource allocation concerns preexisting resource inequalities—when recipients vary in their current possession of resources. In these contexts, several factors influence whether children decide to rectify the inequality (by allocating more resources to a disadvantaged recipient), perpetuate the inequality (by allocating more resources to an advantaged recipient), or allocate the resources equally regardless of the existing disparity. From early in development, children consider a range of factors when making decisions in these contexts, including the identity of the resource recipients (Dunham, Baron, & Carey, 2011; Elenbaas, Rizzo, Cooley, & Killen, 2016; Paulus & Moore, 2014; Renno & Shutts, 2015; Rizzo & Killen, 2018a; Shaw, DeScioli, & Olson, 2012), the type of resources being allocated (Blake & Rand, 2010; Chernyak & Sobel, 2015; Rizzo, Elenbaas, Cooley, & Killen, 2016), and the merits and needs of the recipients (Baumard, Mascaro, & Chevallier, 2012; Li, Rizzo, Burkholder, & Killen, 2017; Li, Spitzer, & Olson, 2014; Paulus, 2014; Rizzo & Killen, 2016; Rizzo, Li, Burkholder, & Killen, in press; Schmidt, Svetlova, Johe, & Tomasello, 2016).

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It is less clear, however, whether children consider the origin of an inequality (i.e., the factors underlying the establishment of the inequality) when deciding how to allocate resources. In many cases, the existence of a resource inequality between individuals is not in itself unfair. Rather, the fairness or unfairness of an inequality often hinges on how that inequality was brought about. It remains unknown whether children distinguish between resource inequalities that were brought about by fair factors (e.g., differences in recipients' levels of merit) versus unfair factors (e.g., intergroup bias and discrimination).

Although many societies aim to ensure that resource disparities are the result of individuals' competence, productivity, and effort (i.e., individual factors), structural factors often skew the allocation of important resources and opportunities in favor of historically advantaged groups. For instance, structural biases within many social systems link access to resources with gender, racial, religious, or cultural group membership (Ridgeway, 2011). Thus, an important developmental question concerns if (and how) children begin to distinguish between resource inequalities with individual and structural origins.

This distinction may be especially difficult given the range of individual and structural factors that contribute to resource inequalities. Structural factors, in particular, are often embedded within complex sociohistorical contexts, making them less apparent to those who are advantaged by them (Knowles, Lowery, Chow, & Unzueta, 2014). Because this study was designed to investigate children's recognition of these issues in early development, we operationalized *individual* inequalities as unequal allocations of resources explicitly based on differences in recipients' effort and performance (i.e., recipients' merit), and *structural* inequalities as unequal allocations of resources explicitly based on a group factor (i.e., recipients' gender). Previous research indicates that children are generally averse to unequal distributions of resources, yet no research to date has directly examined whether children distinguish between inequalities with individual versus structural origins. This study addressed this question by investigating children's developing evaluations of, and responses to, resource inequalities based on selected individual and structural factors relevant to young children's everyday lives.

Developing Conceptions of Fairness

Recent research on children's developing conceptions of fairness has investigated children's resource

allocation decisions with an emphasis on early understanding of strict equality (i.e., allocating the same number of resources to all recipients), equity (i.e., ensuring that recipients have the same number of resources overall, taking into account the current distribution), and merit (i.e., allocating resources to recipients based on their effort, production, or deservedness). Young children, and even toddlers, demonstrate an early understanding of the moral concern for strict equality (Blake et al., 2015; Cooley & Killen, 2015; Fehr, Bernhard, & Rockenbach, 2008; Shaw & Olson, 2012; Sommerville, Schmidt, Yun, & Burns, 2013; Warneken, Lohse, Melis, & Tomasello, 2011). In some contexts, children will even go so far as to discard a resource rather than enact an unjustified, unequal allocation (Blake et al., 2015; Shaw & Olson, 2012).

By middle childhood, concerns for strict equality slowly give way to a broader understanding of equity, especially in contexts with preexisting inequalities between recipients (Li et al., 2017; Rizzo & Killen, 2016; Schmidt et al., 2016; Wörle & Paulus, 2018). This developmental shift reflects changes in children's developing moral reasoning and cognitive capacities (Chernyak, Sandham, Harris, & Cordes, 2016; Ng, Heyman, & Barner, 2011; Rizzo & Killen, 2016, 2018a). For example, when allocating resources in a context with a preexisting inequality, 3- to 4-year-olds prioritize strictly equal allocations, 5- to 6-year-olds begin to coordinate equality and equity in their decision making, and 7- to 8-year-olds evaluate equal allocations to be unfair (Rizzo & Killen, 2016). Thus, children's ability to simultaneously weigh and prioritize multiple moral concerns (e.g., equality and equity) plays an integral role in their developing conceptions of fairness and resource allocation decisions.

Most of the research on children's developing understanding of social inequalities to date has examined children's responses to windfall or preexisting inequalities (e.g., Blake et al., 2015; Elenbaas et al., 2016; Li et al., 2014; Olson, Dweck, Spelke, & Banaji, 2011; Paulus, 2014; Rizzo & Killen, 2016; Schmidt et al., 2016), leaving open the question of *how* the unequal distribution of resources came about. While these studies have undoubtedly provided important insights into the development of equity concerns, it is also important to understand how children *apply* their developing concern for equity in contexts where the cause of the inequality is known. In particular, inequalities that arise through differences in individuals' effort or accomplishments reflect very different types of disparities, and warrant different responses, than inequalities

rooted in structural biases and discrimination. Whether and when children make this distinction in their own responses to familiar inequalities with *individual* (e.g., merit-based) and *structural* (e.g., gender-based) origins was a key question for this study.

Children's Perceptions of Individually Based Inequalities

A growing body of literature provides some evidence that children may evaluate individually based inequalities to be fair, particularly when the inequality was established through differences in the recipients' merit. By 3- to 5-year-olds, children allocate more resources to a recipient who worked harder and produced more than another recipient, and evaluate meritorious allocations to be fair (Baumard et al., 2012; Hamann, Bender, & Tomasello, 2014; Kanniesser & Warneken, 2012; Rizzo et al., 2016; Schmidt et al., 2016). Furthermore, children's understanding of merit becomes more nuanced with age, incorporating concerns for the type of resource being allocated and the specific interests and abilities of the recipients (Rizzo & Killen, 2018a; Rizzo et al., 2016).

Interestingly, less is known regarding how children evaluate the inequalities that result from meritorious allocations. That is, while children themselves allocate more resources to recipients who work harder or produce more, young children generally evaluate inequalities to be unfair (Almås, Cappelen, Sørensen, & Tungodden, 2010; Shaw & Olson, 2012). Thus, it remains unknown how, with age, children prioritize their concerns for merit and equality when evaluating resource inequalities rooted in individuals' differing levels of merit.

Children's Perceptions of Structurally Based Inequalities

In a separate body of literature, several studies have documented that, particularly in early childhood, in-group biases can influence how children interact with their peers. In regard to gender, in particular, 3- to 5-year-old children self-segregate into gender groups (Mehta & Strough, 2009; Ruble, Martin, & Berenbaum, 2006) and preferentially allocate resources to gender in-group over out-group peers (Dunham et al., 2011; Renno & Shutts, 2015). Thus, at least in early childhood, it is plausible that children fail to recognize the wrongfulness of gender-based inequalities (a form of structural inequality), particularly when they can be rationalized by concerns for in-group preference, loyalty, or stereotypes about groups (Bigler & Liben, 2006; Mulvey

& Killen, 2015; Mulvey, Rizzo, & Killen, 2015; Rizzo & Killen, 2018a; Ruble et al., 2006).

Older children, however, are more likely to rectify group-based inequalities by distributing more resources to members of a social group that is depicted as disadvantaged relative to another group (Elenbaas & Killen, 2016a; Elenbaas et al., 2016; Jordan, McAuliffe, & Warneken, 2014; Olson et al., 2011), providing tentative evidence that an understanding of the wrongfulness of structurally based inequalities develops in middle to late childhood. For example, while 5- to 6-year-old children rectify *implicit* racially biased resource inequalities when their racial in-group is disadvantaged, 10- to 11-year-olds rectify such inequalities both when their in-group and another group are disadvantaged (Elenbaas et al., 2016). Thus, older children demonstrate an emerging awareness of the wrongfulness of structurally based inequalities affecting out-group, as well as in-group, members (see Conry-Murray, 2015 for related findings regarding gender).

It remains unknown, however, how younger children evaluate and respond to *explicit* instances of such inequalities. When the cause of the resource inequality is more clearly identified, younger children, too, may view disparities based on group membership, like gender or ethnicity, as unfair. Determining whether children evaluate these types of disparities differently from individually based inequalities has the potential to reveal novel and important insights into the emergence and development of children's conceptions of fairness.

Allocations, Evaluations, Reasoning, and Expectations

To gain an understanding of several of the relevant developmental processes at play in contexts like these, we employed a range of assessments in this study. Behavioral assessments (i.e., children's own allocations of resources) were used to provide insight into the final decision that children came to regarding how resources should be allocated, as an indication of what children do in their daily lives, and in turn, what other children are likely to experience. Behavioral allocations alone, however, do not fully illustrate children's social cognitive inferences and understanding. Thus, we also assessed children's reasoning about their allocation decisions and their evaluations of alternative allocations. The inclusion of these assessments provided insight into the underlying cognitive processes involved in children's reasoning in this context and, together, these measures represent a comprehensive assessment of

children's developing conceptions of fairness in response to individually and structurally based inequalities.

This study also examined children's expectations for how others will allocate resources. Understanding children's expectations for how others will allocate resources provides a novel and important insight into children's perceptions of the social norms surrounding resource allocations as well as how children expect others to respond to inequalities (Elenbaas & Killen, 2016b; Paulus & Moore, 2014). For example, investigating this issue in the context of a preexisting inequality, Elenbaas and Killen (2016b) found that, with age, 3- to 6-year-olds' expectations for how others would allocate resources were linked to their perceptions of how that individual would evaluate the inequality. That is, 5–6 year-olds who expected an allocator to positively evaluate an inequality also expected them to perpetuate it, whereas those who expected the allocator to evaluate the inequality negatively expected them to rectify it. Consistent with past research on young children's preference for equality, however, 3- to 4-year-olds in this study primarily expected equal allocations, regardless of an existing disparity. Expanding on work in this area, the present study examined how children's expectations of others' allocations differ in contexts with structurally and individually based inequalities.

Present Study

The present study examined 3- to 8-year-old children's responses to individually and structurally based inequalities of familiar resources. Participants were told a short vignette about a boy and a girl who were attending a camp together. Participants were randomly assigned to an *individual* or *structural* condition. In the *individual* condition, participants were explicitly told that the group leader in charge of allocating the camp resources gave one of the characters more resources than the other *because they did a better job at the camp activities*, whereas participants assigned to the *structural* condition were explicitly told that the group leader gave one of the characters more resources than the other *because of their shared gender with the group leader*. Participants were then told that there was a new set of resources to be distributed, and were assessed on their (1) expectation for how the group leader would allocate the new set of resources (expected allocation: H1), (2) own allocation of new resources (own allocation: H2), (3) reasoning for their allocation (reasoning for own allocation: H3), and (4)

their judgments of a hypothetical third party's decision to rectify the inequality, allocate equally, and perpetuate the inequality with the new set of resources (judgments of alternative allocations: H4).

Hypotheses

Our hypotheses for each of the assessments are outlined next, in the order that the measures were presented to participants.

Expected allocation (H1). We hypothesized that, with age, children would expect the group leader to perpetuate both types of inequality. Specifically, we hypothesized that younger children would expect the group leader to perpetuate the *individually* based inequality, given their positive evaluations of merit-based allocations (Baumard et al., 2012; Rizzo et al., 2016; Schmidt et al., 2016), but allocate equally in response to the *structurally* based inequality, given their negative evaluations of gender-based allocations (Conry-Murray, 2015), and expectations that others will allocate equally in intergroup contexts (Elenbaas & Killen, 2016b). Older children, by contrast, were hypothesized to expect the group leader to perpetuate both forms of inequality, reflecting an understanding that others may hold different evaluations of the inequalities than they do (Cooley & Killen, 2015; Elenbaas & Killen, 2016b).

Own allocation (H2). We hypothesized that, with age, children would differ in their allocations in the individual and structural contexts. Specifically, we hypothesized that *younger* children would allocate equally in both contexts, but that *older* children would be more likely to rectify the inequality in the structural context (by giving more resources to the character who had received fewer because of their gender) and perpetuate the inequality in the individual context (by giving more resources to the character who had received more because of their merit).

Reasoning for own allocation (H3). We hypothesized that, with age, children's justifications would reflect a more mature understanding of the context. Specifically, we hypothesized that, with age, children would be more likely to reference the concern for *merit* in the individual than in the structural context and would be more likely to reference *equality* in the structural than in the individual context.

Judgments of alternative allocations (H4). We hypothesized that, with age, children would differ in their judgments of rectifying, equal, and perpetuating allocations, reflecting a more mature

understanding of individually and structurally based inequalities. Specifically, we hypothesized that *younger* children would not distinguish between individually and structurally based inequalities in their judgments of any of the allocations. However, we expected that *older* children would evaluate perpetuating allocations to be more fair in the individual than structural context, and would evaluate rectifying allocations to be more fair in the structural than individual context. We did not hypothesize a difference in either direction for older children's judgments of equal allocations.

Another interesting question concerns how children's judgments of alternative allocations relate to their own allocation behavior. Although some researchers have argued that children's judgments, reasoning, and behavior in moral contexts reflect increasingly coordinated processes throughout development (Killen & Smetana, 2015; Turiel, 1983, 2015), other research has found disparities between children's judgments of what they *should* do, and what they *actually* do in morally relevant contexts (Smith, Blake, & Harris, 2013). Thus, we investigated this as an open question regarding the relation between children's judgments and behavior in this context.

Method

Participants

Participants were 3- to 8-year-old children ($N = 93$; 56 females; range = 3.30–8.89 years; $M = 5.89$, $SD = 1.55$) recruited from a public museum in southern California serving low- to middle-income families. Specifically, participants included fourteen 3-year-olds (8 females), sixteen 4-year-olds (8 females), twenty-one 5-year-olds (11 females), sixteen 6-year-olds (13 females), fourteen 7-year-olds (7 females), and twelve 8-year-olds (9 females). To allow for comparison with other studies in the literature (e.g., Paulus & Moore, 2014; Rizzo et al., 2016; Schmidt et al., 2016), we divided participants into younger (3- to 5-year-olds; $n = 51$) and older (6- to 8-year-olds; $n = 42$) age groups for analyses. These age groupings allow for an analysis of age-related differences across early and middle childhood, and are commonly used within the literature on children's developing conceptions of fairness.

All children in the target age range were invited to participate. Written parental consent and children's assent were obtained for all participants. Participant race and ethnicity was obtained by parent report, and was representative of the sampling

population: 44% of participants were European-American, 9.7% were Latina(o), 8% were multiracial or multiethnic, 4.3% were other races or ethnicities, 3.2% were Asian American or Pacific Islander, 2.2% were African American, and 29% of participants' parents declined to specify their child's race or ethnicity.

Procedure and Assessments

Procedure

Trained research assistants individually interviewed participants in a quiet space in the museum. Participants were seated at a table and were asked if they would like to hear some stories on a tablet computer. The study was administered using Microsoft Office PowerPoint 2013 to present stimuli. Gold star stickers were used for allocation decisions. At the start of the interview research assistants introduced participants to a 6-point smiley face Likert scale (presented on screen) ranging from "*really not okay*" to "*really okay*," and participants received a short training in the use of the scale (see Supporting Information for a full description of the Likert scale training). All children demonstrated an understanding and correct use of the scale before moving on to the study questions. During the study, participants' responses to all assessments were recorded on paper protocols. Each interview took approximately 5–10 min to complete.

Vignettes

Participants were randomly assigned to one of two conditions, both of which consisted of a vignette about a boy and a girl who are attending a camp where a group leader gives out prizes on two separate days. In the *individual* condition, the group leader allocated the prizes based on the recipients' performance on the activities for each day, whereas in the *structural* condition, the group leader allocated the prizes based on the recipients' gender. In both conditions, the gender of the recipient who received more resources was counterbalanced, such that half of the participants witnessed their gender in-group member receiving more resources and the other half witnessed their gender out-group member receiving more resources. The gender of the group leader was matched to the recipient who received more resources in both conditions. Thus, the only differences between the two conditions were the

descriptions of characters' merit (as indicated by performance on camp activities in the *individual* condition) and the explicit rationale given by the group leader for their allocation (either merit or gender).

To ensure that participants understood that the group leader's allocations were systematic, participants heard about two identical allocations (one on "Day 1" of the camp and one on "Day 2" of the camp). Two memory checks were administered to ensure that participants understood the premises of the stories ("Can you tell me who [the group leader] thinks should get the prizes?" and "Can you tell me who has more prizes: Sam, Jessie, or do they have the same amount?"). All participants passed both of the memory checks.

Individual condition. In the *individual* condition, the group leader allocated the prizes based on the recipients' performance on the camp activities on both days. Specifically, participants were told,

This is Alex. Alex is the group leader for Sam and Jessie, and is in charge of giving out these cool prizes! Alex says that [she or he] thinks the prizes should go to those who work hard and do a good job with their camp activities.

Participants were then told that the group leader was aware of the recipients' performance on the camp activities;

Alex sees that Sam worked really hard and did a really good job with all of [her or his] camp activities; [she or he] made a lot of macaroni necklaces, finger paintings, and [she or he] even did a great job cleaning up [her or his] station. Alex also sees that Jessie did not work hard at all and did not do a good job with [her or his] camp activities; [she or he] did not make any macaroni necklaces or finger paintings, and left a big mess at [her or his] station.

Finally, participants were told about how the group leader actually allocated the prizes; "Alex sees that Sam did a good job and that Jessie didn't do a good job, so [she or he] decides to give 3 prizes to Sam and 1 prize to Jessie." After both allocations, participants were told, "Now, Sam has 6 prizes and Jessie has 2."

Structural condition. In the *structural* condition, the group leader allocated the prizes based on the recipients' gender on both days. Specifically, participants were told,

This is Alex. Alex is the group leader for Sam and Jessie, and is in charge of giving out these cool prizes! Alex says that [she or he] likes [girls or boys] better, and so [she or he] thinks the prizes should go to the [girls or boys].

Participants were then told that the group leader was aware of the recipients' gender and were told how the group leader actually allocated the prizes; "Alex sees that Sam is a [girl or boy] and that Jessie is a [girl or boy], so [she or he] decides to give 3 prizes to Sam and 1 prize to Jessie." After both allocations, participants were told, "Now, Sam has 6 prizes and Jessie has 2."

Assessments

Following the vignettes, participants were told that on the last day of camp everyone was going to get together to give out the last 8 prizes. Participants were then assessed on six measures. First, (1) *Expected Group Leader Allocation* assessed how children expected the group leader to allocate the resources ("How do you think Alex would give out the 8 prizes?"). Next, (2) *Own Allocation* assessed how children wanted to allocate the resources themselves ("How do you think these 8 prizes should be given out?") and (3) *Reasoning for Own Allocation* assessed children's verbal reasoning for their allocation ("Why did you give X to Sam and Y to Jessie?"). For these assessments, research assistants counted and handed the eight gold star stickers to the participants prior to each assessment.

Next, children's judgments of a hypothetical child's decision to allocate the resources in different ways were assessed. Specifically, (4a) *Judgment of Rectifying Allocation* assessed participants' judgments of a hypothetical child's allocation of more resources to the recipient who had previously received fewer resources ("Let's say that [another child] said that Sam should get 2 prizes, and Jessie should get 6 prizes. How OK or not OK do you think it is to give 2 prizes to Sam and 6 prizes to Jessie?"), (4b) *Judgment of Equal Allocation* assessed children's judgments of a hypothetical child's equal allocation to the two recipients ("Let's say that [another child] said that Sam should get 4 prizes and Jessie should get 4. How OK or not OK do you think it is to give 4 prizes to Sam and 4 prizes to Jessie?"), and (4c) *Judgment of Perpetuating Allocation* assessed children's judgments of a hypothetical child's allocation of more resources to the recipient who had previously received more ("Let's say that [another child] said that Sam should get 6 prizes,

and Jessie should get 2 prizes. How OK or not OK do you think it is to give 6 prizes to Sam and 2 prizes to Jessie?”).

Data Coding and Reliability

Participants' responses for *Expected Group Leader Allocation* and *Own Allocation* were recorded on a scale from 0 to 8 based on the number of resources allocated to the recipient who had previously received fewer resources. *Judgment of Rectifying Allocation*, *Judgment of Equal Allocation*, and *Judgment of Perpetuating Allocation* were recorded on the 6-point Likert-type scale (from 1 = *really not ok* to 6 = *really ok*).

Participants' verbal reasoning (*Reasoning for Allocation*) was coded for quantitative analyses into one of four conceptual categories drawn from past research (Elenbaas et al., 2016; Killen & Smetana, 2015; Rizzo et al., 2016; Schmidt et al., 2016). (a) *Equality* (references to the equal treatment of individuals; e.g., “They should get the same number”), (b) *Rectifying Inequalities* (references to the importance of rectifying the inequality between the characters; e.g., “She should get more because he got more before”), (c) *Merit* (references to the merit, deservedness, or relative work of the characters; e.g., “She did a better job at the camp activities”), and (d) *Other* (undifferentiated or global statements; e.g., “Because I wanted to”). No participant referenced more than one category in their reasoning.

Two coders, blind to the conditions and ages of the participants, conducted the coding. Inter-rater reliability was established on the basis of 25% of the interviews ($n = 23$), which both coders independently coded, yielding Cohen's $\kappa = .91$ for inter-rater reliability. The remaining 75% of the interviews ($n = 70$) were split among the two coders.

Data Analytic Plan

To test our hypotheses regarding *Expected Group Leader Allocation* (H1) and *Own Allocation* (H2), we conducted 2 (age: younger, older) \times 2 (condition: individual, structural) univariate analyses of variance (ANOVAs) for the number of resources allocated to the recipient who had initially received fewer resources. One-sample *t*-tests were also used to determine if allocations significantly deviated from an equal allocation (four resources to each recipient).

To test our hypotheses regarding *Reasoning for Own Allocation* (H3), we conducted a series of

generalized linear models with a binomial probability distribution and logit link function. For each model, we tested for main effects of age and condition, and then examined whether including the interaction term resulted in an improved model fit. If model fit improved the interaction term was retained, otherwise it was dropped. Wald χ^2 values are reported for significant effects. Age was coded as 0 = younger and 1 = older, and condition was coded as 0 = structural and 1 = individual.

To test hypotheses regarding children's *Judgment of Rectifying Allocation*, *Judgment of Equal Allocation*, and *Judgment of Perpetuating Allocation* (H4), we conducted a 2 (age: younger, older) \times 2 (condition: individual, structural) \times 3 (judgment: rectifying, equal, perpetuating) analysis of variance (ANOVA) with repeated measures on the last factor.

To test the open question regarding how children's own allocations (i.e., whether they rectified, allocated equally, or perpetuated) related to their judgments of the allocations, participants were first divided into three groups based on how they allocated the resources (*rectifiers*, *equal allocators*, *perpetuators*). Then, we conducted a 3 (allocation strategy: rectifiers, equal allocators, perpetuators) \times 3 (allocations: rectifying, equal, perpetuating) analysis of covariance (ANCOVA) with repeated measures on the last factor with age and condition as control variables.

Preliminary analyses revealed no differences on any dependent variable by participant gender, the gender of the recipient who received more resources, or whether participants' gender in-group or out-group member had received more resources. Thus, these variables were collapsed for the main analyses reported next.

Results

Expectations for the Group Leader's Allocation (H1)

The 2 (age) \times 2 (condition) ANOVA revealed a main effect for condition, $F(1, 86) = 5.06$, $p = .027$, $\eta_p^2 = .056$, and an Age \times Condition interaction, $F(1, 86) = 4.15$, $p = .045$, $\eta_p^2 = .046$ (see Figure 1). Although older children did not differ in their expectations of the group leader's allocation in the *individual* ($M = 2.84$, $SD = 1.26$) and *structural* ($M = 2.91$, $SD = 1.41$) conditions ($p = .87$), younger children were more likely to expect the group leader to give more resources to the recipient who previously received fewer resources in the *structural* ($M = 3.81$, $SD = 1.86$) than in the *individual* ($M = 2.45$, $SD = 1.22$) condition ($p = .005$).

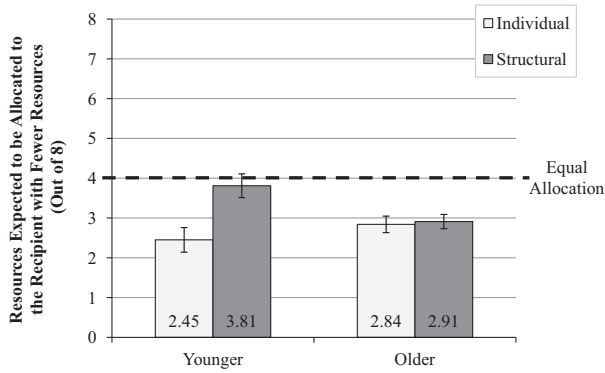


Figure 1. Mean number of resources that participants expected the group leader to allocate to the recipient who had previously received fewer resources (out of eight) by age (younger, older), and condition (individual, structural). Bars represent the standard error of the mean.

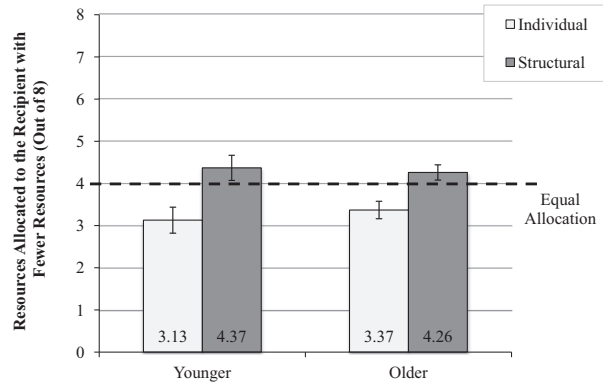


Figure 2. Mean number of resources that participants allocated to the recipient who had previously received fewer resources (out of eight) by age (younger, older) and condition (individual, structural). Bars represent the standard error of the mean.

Additional one-sample *t*-tests revealed that older children’s expectations significantly deviated from an equal allocation, expecting the group leader to give more resources to the recipient who had previously received more in both the *individual*, $t(18) = 4.01, p = .001, d = 1.89$, and the *structural*, $t(21) = 3.63, p = .002, d = 1.58$, conditions. Younger children’s expectations, however, significantly deviated from an equal allocation in the *individual*, $t(21) = 5.92, p < .001, d = 2.59$, but not the *structural*, $t(26) = 0.52, p = .61, d = 0.20$ condition (see Table 1 for the proportion of children expecting the group leader to use each of the possible allocation ratios).

Thus, H1 was confirmed; older children expected the group leader to perpetuate the inequality regardless of condition, reflecting a more mature understanding that individuals are likely to

continue to allocate resources in the same way that they have in the past. Younger children, however, only expected the group leader to perpetuate the individually based inequality, expecting them to allocate equally following a structurally based inequality.

Own Allocations (H2)

The 2 (age) × 2 (condition) ANOVA revealed a significant main effect for condition, $F(1, 89) = 17.93, p < .001, \eta_p^2 = .17$ (see Figure 2). Participants in the *structural* condition ($M = 4.32, SD = 0.98$) allocated more resources to the recipient who had previously received fewer resources than did participants in the *individual* condition ($M = 3.23, SD = 1.41$). A main effect of age was not

Table 1
Proportion of Children Expecting the Group Leader to Use Each of the Possible Allocation Ratios When Allocating Resources

Condition by age	n	Participants’ group leader expected allocation ratios (recipient receiving fewer resources: recipient receiving more resources)								
		(0:8)	(1:7)	(2:6)	(3:5)	(4:4)	(5:3)	(6:2)	(7:1)	(8:0)
Individual										
Younger	24	.04	.09	.55	.05	.23	.04	.00	.00	.00
Older	19	.00	.16	.32	.10	.37	.05	.00	.00	.00
Structural										
Younger	27	.04	.04	.18	.15	.33	.04	.15	.04	.04
Older	23	.00	.05	.54	.09	.18	.05	.09	.00	.00

Note. The 0:8 ratio column (left) indicates the proportion of children who expected the group leader to allocate all of the resources to the recipient who received more resources (perpetuating), whereas the 8:0 ratio column (right) indicates the proportion of children who expected the group leader to allocate all of the resources to the recipient who received fewer resources (rectifying). *p* values are reported in the text.

Table 2
Proportion of Children Using Each of the Possible Allocation Ratios When Allocating Resources

Condition	n	Participants' own allocation ratios (recipient receiving fewer resources: recipient receiving more resources)								
		(0:8)	(1:7)	(2:6)	(3:5)	(4:4)	(5:3)	(6:2)	(7:1)	(8:0)
Individual	43	.00	.09	.26	.16	.40	.05	.02	.00	.02
Structural	50	.00	.00	.02	.04	.74	.04	.14	.00	.02

Note. The 0:8 ratio column (left) indicates the proportion of children who allocated all of the resources to the recipient who received more resources (perpetuating), whereas the 8:0 ratio column (right) indicates the proportion of children who allocated all the resources to the recipient who received fewer resources (rectifying). *p* values are reported in the text.

found ($p = .79$), nor was an Age \times Condition interaction ($p = .49$).

Additional one-sample *t*-tests revealed that children's resource allocations significantly deviated from an equal allocation in both conditions, in the direction of rectifying the Structurally based inequality, $t(49) = 2.31$, $p = .025$, $d = 0.66$, and in the direction of perpetuating the individually based inequality, $t(42) = -3.57$, $p = .001$, $d = 1.10$ (see Table 2 for the proportion of children using each of the possible allocation ratios).

Thus, H2 was partially confirmed. Although we hypothesized that older, but not younger, children would rectify structurally based inequalities and perpetuate individually based inequalities, the results did not reveal an interaction with age, but found that participants overall differed in their allocations in the two contexts.

Reasoning for Own Allocation (H3)

Children's references to equality, merit, and rectifying inequalities differed by age and condition (see Figure 3).

Equality

The overall model was significant, likelihood ratio (LR) $\chi^2(2, N = 93) = 12.75$, $p = .002$. The effects for age (Wald $\chi^2 = 8.04$, $df = 1$, $p = .005$; $\beta = 1.32$; 95% CI [0.41, 2.24]) and condition (Wald $\chi^2 = 4.21$, $df = 1$, $p = .04$; $\beta = -0.97$; 95% CI [-1.91, -0.04]) were significant. Older children were more likely than younger children to reference equality, and children were more likely to reference equality in the individual than in the structural condition. An interaction between age and condition was not found.

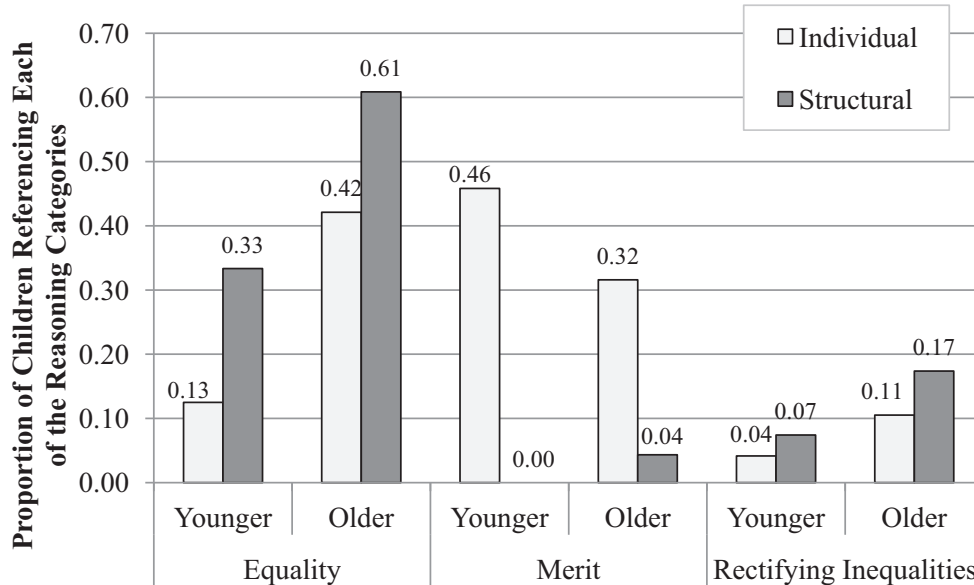


Figure 3. Proportion of children referencing equality, merit, and rectifying inequalities by age (younger, older) and condition (individual, structural).

Merit

The overall model was significant, LR $\chi^2(2, N = 93) = 24.21, p < .001$. Results indicated a significant main effect for condition (Wald $\chi^2 = 10.77, df = 1, p = .001; \beta = 3.47; 95\% \text{ CI } [1.40, 5.55]$). Children were more likely to reference merit in the individual than in the *structural* condition. No effect for age nor an age by condition interaction were found.

Rectifying Inequalities

The overall model was not significant, LR $\chi^2(2, N = 93) = 2.52, p = .28$.

Thus, H3 was partially confirmed. We hypothesized that, with age, children would be more likely to reference merit in the individual than *structural* condition, and would be more likely to reference the importance of rectifying the inequality in the *structural* than *individual* condition. The results revealed that, while children did reference merit more in the individual than *structural* condition, children were more likely to reference equality—not the importance of rectifying the inequality—in the *structural* condition than the individual condition.

Judgments of Alternative Allocations (H4)

The 2 (age) \times 2 (condition) \times 3 (judgment: rectifying, equal, perpetuating) repeated measures

ANOVA revealed a significant main effect for Judgment, $F(2, 174) = 64.90, p < .001, \eta_p^2 = .43$, which was explained by a Condition \times Judgment interaction, $F(2, 174) = 10.60, p < .001, \eta_p^2 = .11$ (see Figure 4). A three-way Age \times Condition \times Judgment interaction was marginal, $F(2, 174) = 2.96, p = .054, \eta_p^2 = .03$. To follow-up on the Condition \times Judgment interaction, and to test specific age-related hypotheses regarding this interaction, we examined younger and older children's patterns of judgments using two separate 2 (condition) \times 3 (allocation) ANOVAs.

For younger children, a main effect of Judgment was found, $F(2, 96) = 33.98, p < .001, \eta_p^2 = .41$. Specifically, younger children judged equal allocations more positively than rectifying allocations and perpetuating allocations ($ps < .001$), but did not distinguish between rectifying and perpetuating allocations ($p = .99$). No effect for condition or Judgment \times Condition interaction was found.

For older children, a main effect of Judgment was found, $F(2, 78) = 32.66, p < .001, \eta_p^2 = .46$, which was explained by a Judgment \times Condition interaction, $F(2, 78) = 12.71, p < .001, \eta_p^2 = .25$. Specifically, when considering individually based inequalities, older children judged equal allocations ($p < .001$) and perpetuating ($p = .023$) allocations to be more fair than rectifying allocations. No difference was found for children's judgments of equal

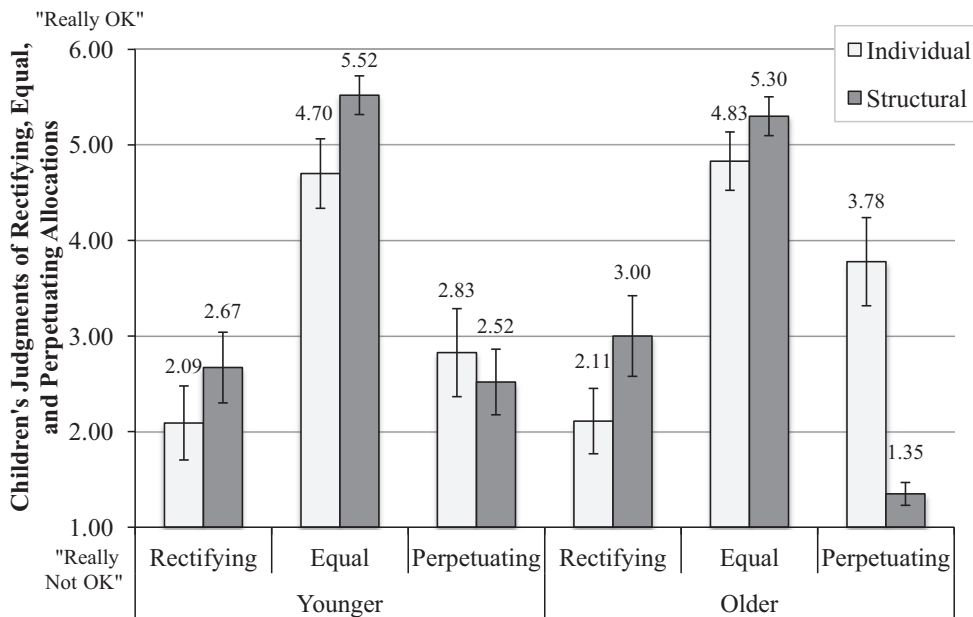


Figure 4. Children's judgments of rectifying, equal, and perpetuating allocations by age (younger, older) and condition (individual structural). Bars represent the standard error of the mean.

and perpetuating allocations ($p = .13$). When considering structurally based inequalities, however, older children judged equal allocations to be more fair than rectifying ($p < .001$) and perpetuating ($p < .001$) allocations, and judged rectifying allocations to be more fair than perpetuating allocations ($p = .009$).

Thus, as illustrated in Figure 4, H4 was partially confirmed. Children differed in their judgments of rectifying, perpetuating, and equal allocations in the individual and *structural* conditions. Overall, children based their judgments about the acceptability of different resource allocations on information about how the inequality originally came about. Children judged perpetuating allocations to be more fair than rectifying allocations in response to individually based inequalities and equal and rectifying allocations to be more fair than perpetuating allocations in response to structurally based inequalities. Although we hypothesized age-related differences, a significant effect for age was not found.

Relation Between Children's Allocations and Their Judgments of Alternative Allocations

To test the open question regarding whether children's own allocation strategies would relate to their judgments of the alternative allocations proposed by

others, a 3 (allocation Strategy: rectifiers, equal allocators, perpetrators) \times 3 (judgment of allocation: rectifying, equal, perpetuating) repeated measures ANCOVA was conducted with age and condition as control variables. Fourteen children were classified as *rectifiers*; 54 were classified as *equal allocators*; and 23 were classified as *perpetuators*.

This analysis revealed a main effect for Judgment of Allocations, $F(2, 172) = 12.80, p = .008, \eta_p^2 = .06$. Importantly, an Allocation Strategy \times Judgment of Allocations interaction was also found, $F(4, 172) = 9.48, p < .001, \eta_p^2 = .18$ (see Figure 5). Equal allocators judged equal allocations more positively than rectifying and perpetuating allocations ($ps < .001$), and did not differ in their judgments of rectifying and perpetuating allocations ($p > .99$). Rectifiers, however, judged both equal ($p < .001$) and rectifying ($p = .001$) allocations to be more fair than perpetuating allocations, and did not differ in their judgments of equal and rectifying allocations ($p > .99$). Similarly, perpetrators judged both equal ($p < .001$) and perpetuating ($p = .005$) allocations to be more fair than rectifying allocations, and did not differ in their judgments of equal and perpetuating allocations ($p = .31$). Thus, although children's judgments of rectifying and perpetuating allocations generally matched their own allocation strategy, children judged equal allocations positively regardless of their own allocation.

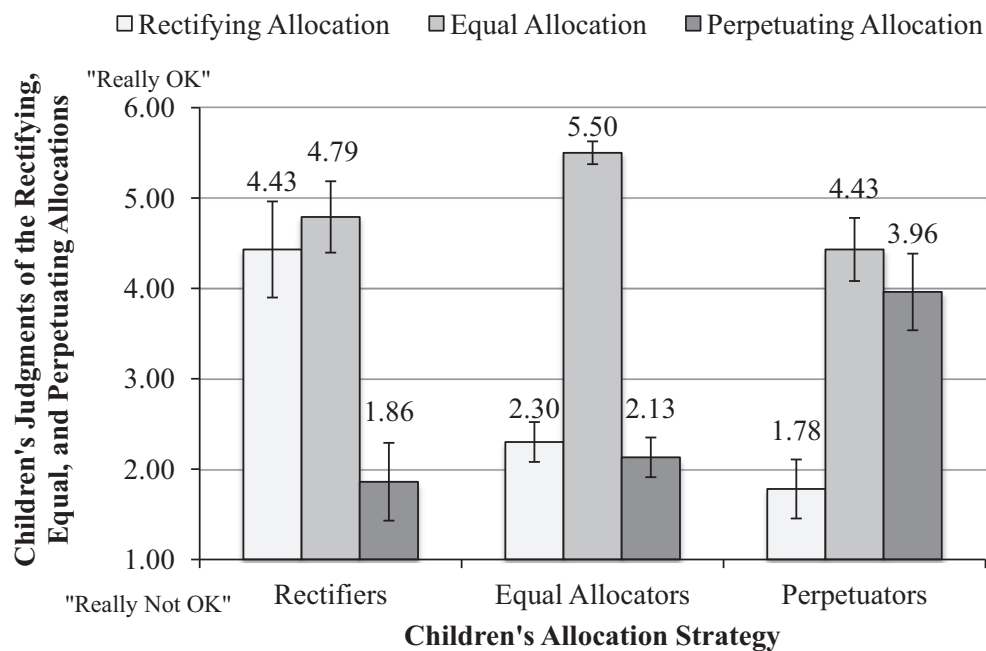


Figure 5. Children's judgments of the rectifying, equal, and perpetuating allocations by their own allocation strategy (rectifiers, equal allocators, and perpetrators). Bars represent the standard error of the mean.

Discussion

This study yielded several novel findings regarding the emergence and development of children's ability to distinguish between individually and structurally based resource inequalities. Age-related changes were found in children's expectations of the group leader's allocation of new resources (H1). Specifically, younger children expected the group leader to perpetuate individually—but not structurally—based inequalities, whereas older children expected that the group leader would perpetuate resource inequalities regardless of whether they were based on individual (i.e., merit) or structural (i.e., gender) factors.

In contrast to their expectations regarding others' actions, no age differences were found for participants' own decisions about how to distribute the resources. Participants, on average, allocated more resources to the recipient who had previously received fewer resources in response to structurally based inequalities (based on gender) and allocated more resources to the recipient who had previously received more resources in response to the individually based inequality (based on merit; H2). Importantly, however, given that a majority of children (74%) opted to allocate equally in response to the structural inequality, whereas a smaller proportion of children (40%) allocated equally in response to the individual inequality, these results may be better interpreted as an indication of children's aversion to perpetuating structurally based inequalities, rather than their desire to actively rectify them.

Furthermore, differences by condition emerged in children's judgments of others' allocations in response to the inequality (i.e., alternative allocations, H4). When considering individually based inequalities, children judged perpetuating to be more fair than rectifying. When considering structurally based inequalities, however, children judged rectifying to be more fair than perpetuating. Although age-related changes were hypothesized for children's judgments, similar to the findings on children's own allocations, a significant effect for age was not found. Follow-up analyses did yield different patterns in younger and older children's judgments, but these results should be interpreted with caution in the absence of a significant effect for age or interaction between age and judgment in our main models.

Links were also found between children's own allocations and their judgments of alternative allocations. Children judged their own allocation strategy more positively than they judged a

contradictory allocation strategy (i.e., rectifiers judged rectifying the inequality to be more okay than perpetuating it, and vice versa for perpetuators). Interestingly, regardless of their chosen allocation strategy, children also judged equal allocations positively. These results indicate an interesting nuance in the relationship between children's judgments and behaviors in morally relevant contexts (see Killen & Smetana, 2015; Smith, Blake, & Harris, 2013); while children's judgments in this context were consistent with their own allocations, children were also capable of acknowledging that an alternative allocation strategy—equality—would also be fair. It is thus likely that the early emerging concern for equality (Geraci & Surian, 2011; Lucca, Pospisil, & Sommerville, 2018; Sloane, Baillargeon, & Premack, 2012) holds a unique status in children's developing conceptions of fairness.

Taken together, these findings suggest that children's ability to distinguish between individually and structurally based inequalities emerges during early childhood, as reflected in children's resource allocations, and continues to develop throughout middle childhood, as reflected in children's expectations regarding others' allocations. These results particularly speak to young children's early emerging competencies in evaluating inequalities. The finding that 3- to 5-year-olds in this study differed in their allocations, expectations, and judgments of alternative allocations in response to individual and structural inequalities provides strong evidence that children are actively thinking and reasoning about the fairness of resource allocations.

Distinguishing Between Individual and Structural Inequalities

The primary aim of this study was to examine if and how children distinguish between resource inequalities with individual and structural origins throughout early and middle childhood. As reviewed earlier, evidence was found for an early emerging ability to distinguish between these inequality contexts in children's allocations and reasoning. In particular, while children's perpetuation of individually based inequalities is consistent with research documenting an early emerging concern for merit (Baumard et al., 2012; Hamann et al., 2014; Kanngiesser & Warneken, 2012; Rizzo et al., 2016; Schmidt et al., 2016), the finding that children, on average, gave more resources to the recipient who previously received fewer in the context of structurally based inequalities provides an

important and novel insight to children's developing responses to structural inequalities.

Previous research on children's responses to structural inequalities has primarily focused on older children's capacity to detect and counteract implicitly biased disparities in groups' access to resources (Elenbaas & Killen, 2016a; Elenbaas et al., 2016; Jordan et al., 2014; Olson et al., 2011) and younger children's tendency to allocate more resources to in-group than out-group members (Dunham et al., 2011; Renno & Shutts, 2015). In light of prior work in this area, one explanation for why children, on average, were more likely to rectify than perpetuate gender-based inequalities in this study is because they were made explicitly aware of the structural origin of the inequality (i.e., it was directly stated). This suggests that, when the cause of a resource inequality is known, and does not need to be inferred, even young children are able to distinguish between different types of resource inequalities and adjust their responses accordingly. Critically, these results speak to the importance of providing and explaining explicit rationales for social inequalities to children beginning early in childhood. If done using developmentally adaptive language (see Foster-Hanson, Cimpian, Leshin, & Rhodes, in press), such explanations may help children to accurately identify and evaluate the structural inequalities that they witness and experience in their daily lives.

Supporting this explanation, children in this study were also more likely to reason about merit in the individual than structural inequality context. This suggests that, by the preschool years, children are sensitive to the explanations that individuals give for their actions (e.g., the group leader "think [s] the prizes should go to those who work hard and do a good job with their camp activities"), and incorporate these explanations into their reasoning about how to respond to the inequality. Interestingly, although we hypothesized that children would be more likely to reference *equity* in the structural than individual inequality condition, in fact, children were more likely to reference *equality* in this context. It is possible that more explanation regarding the biased nature of structural inequalities and their implications for others' well-being may be needed in order for children to fully prioritize the concern for equity over the concern for strict equality in these contexts. We return to this point in the following section (Children's Concern for Equality in Contexts of Inequality).

Importantly, differences were also found in children's judgments of others' allocation decisions.

These results extend past literature examining children's judgments of equal, equitable, and meritorious allocations (Rizzo et al., 2016; Schmidt et al., 2016; Wörle & Paulus, 2018) by documenting children's early ability to distinguish between the fairness or unfairness of these allocation strategies in response to explicitly individually and structurally based inequalities. Given children's early preference for strict equality, it is important to know when children begin to differentiate between different forms of unequal allocations. In contexts of structural inequalities, for example, it is critical to know both when children begin to positively evaluate equitable allocations *and* when children are able to distinguish between unequal allocations that rectify and perpetuate the inequality (Li et al., 2017; Rizzo & Killen, 2016). In regard to this question, the results of this study indicate that, by at least 6- to 8-years-old, children recognize that these two deviations from an equal allocation result in different moral outcomes in contexts of both individually and structurally based inequalities.

A limitation of this study, however, was a relatively small sample size for detecting a three-way interaction for children's judgments of the alternative allocation strategies (resulting in a nonsignificant Age \times Condition \times Judgment interaction), making it difficult to draw specific age-related conclusions. Future research should continue to investigate these issues using larger samples to allow for an in-depth analysis of the complexities involved in children's developing responses to individual and structural inequalities.

Finally, this study also documented age-related changes in children's expectations for the group leader's allocation. Older children were more likely to expect the group leader to perpetuate a structural inequality that benefitted their in-group, whereas younger children were more likely to expect them to allocate equally. These results suggest that, with age, children begin to expect consistency in others' resource allocation behavior, even in contexts where they themselves may disagree with others' choices (also see Elenbaas & Killen, 2016b; Paulus & Moore, 2014).

Children's Concern for Equality in Contexts of Inequality

Some of the most striking findings of this study were those demonstrating the juxtaposition of children's emerging concerns for merit and equity with their pervasive concern for equality. For example, despite the fact that children, on average, rectified

the structural inequality (i.e., significantly deviated from an equal allocation in favor of the recipient who had received fewer resources initially), a substantial majority of children (74%) opted to allocate equally in this context. This proportion is notably different from the proportion of children (40%) who allocated equally in the individual inequality context. These results, paired with the findings that children judged equal allocations positively—regardless of their own allocation strategy, age, and condition—highlight the complexity of young children’s burgeoning conceptions of fairness. Specifically, it is clear that, although the concern for equality appears to be pervasive in children’s minds when allocating and evaluating resource allocations, children are also capable of deviating from this approach under certain circumstances, such as when competing concerns for merit and equity challenge their notion of equality as a universally fair allocation norm.

Furthermore, the finding that a larger proportion of children deviated from an equal allocation to perpetuate the inequality in the *individual* condition (51%) than to rectify the inequality in the *structural* (20%) condition suggests that children may begin to prioritize merit over equality at an earlier age than they begin to prioritize equity over equality. These results support past research documenting developmental change in children’s willingness to rectify inequalities later in childhood (Elenbaas & Killen, 2016a; Elenbaas et al., 2016; Jordan et al., 2014; Olson et al., 2011), yet more work is needed to identify the developmental processes implicated in children’s prioritization of equality, equity, and merit.

Limitations and Future Directions

It is important to note that, although this study provides an important first step into understanding the emergence and development of children’s understanding of individually based and structurally based resource inequalities, many of the inequalities that children experience in their daily lives are not so explicitly based in either individual or structural factors. Research on stereotype threat, for example, illuminates how structural stereotypes and biases can influence individuals’ performance in a given context (Galdi, Cadinu, & Tomasetto, 2014). Thus, while this study documented children’s ability to distinguish between individually and structurally based inequalities when their causes were stated explicitly, a fruitful direction for future research would be to explore children’s responses

to inequalities that where both structural and individual factors intersect. Future research on these more complex inequalities should assess these concerns using a wider participant age range—assessing how responses to these complex inequalities develop throughout childhood, adolescence, and adulthood—to best detect developmental shifts in individuals’ understanding of complex inequalities.

Importantly more research is also needed to determine the specific direction of the effects documented in this study. It remains unknown from the present results whether children are evaluating individual inequalities positively, or structurally inequalities negatively, compared to an inequality with ambiguous origins. A direct comparison of the present results to a “No Explanation” condition—in which participants are not provided with an explanation for why an inequality was brought about—would yield important insights into this question. One potential hypothesis is that young children’s distinction between individually and structurally based inequalities is primarily driven by an early emerging recognition of merit as a legitimate reason for distributing more rewards to one individual over another. Children’s aversion to perpetuating structurally based inequalities, by contrast, may reflect a combination of their general proclivity toward equal allocations and their recognition of the difficulties associated with challenging status quo disparities based on group factors like gender or ethnicity.

In addressing this important question, it is important for future research to be careful to distinguish between an inequality that is *ambiguous* regarding its individual or structural origins (i.e., an inequality presented without information regarding the origins) from an inequality that is truly free from either factor (if such an inequality is possible). In either case, it is possible that young children, especially, may have difficulty conceptualizing an abstract inequality devoid of an origin or reason. As such, children’s responses may be driven by whether they *infer* that the inequality is due to individual, structural, or other factors such as luck (Olson, Banaji, Dweck, & Spelke, 2006).

Furthermore, future research should continue to explore the influence of children’s in-group biases on their allocations of resources. Although a growing body of literature has documented young children’s gender in-group biases when allocating resources (Dunham et al., 2011; Renno & Shutts, 2015), other research has not yielded gender differences in children’s allocation decisions and evaluations (Conry-Murray, 2015; Rizzo & Killen, 2018a).

In this study, preliminary analyses did not reveal differences based on whether participants saw their gender in-group or out-group members receiving fewer resources as a result of the group leader's actions or a main effect for participant gender. Future research should, however, continue to investigate how children's gender interacts with their in-group biases to influence their resource allocation decisions in various inequality contexts.

Relatedly, recent work in social psychology has identified how members of advantaged groups avoid recognizing the structural factors that have benefitted them (Knowles et al., 2014). Although this study did not find differences based on whether participants' in-group or out-group was being advantaged, an important question for future research is whether children are able to distinguish between structurally and individually based inequalities when they themselves are being advantaged or disadvantaged by them. Some recent research in developmental science has examined how children's first-person experiences with individually and structurally based inequalities relates to their ability to accurately identify others' mental states (Rizzo & Killen, 2018b), finding that children who were advantaged by structural inequalities performed worse on subsequent theory of mind assessments. Yet, it remains unknown whether this relates to their ability to identify the wrongfulness of the structural bias that has advantaged them.

Finally, this study utilized specific, familiar definitions of individual and structural inequalities that children were likely to fully understand. Structural inequalities on a societal level, however, constitute much more complex constructs than in-group biases on the basis of a single group membership. This study provides an important first step in understanding how children interpret this broader construct, but future research should continue to investigate children's, adolescents', and adults' understanding of structural inequalities in more complex and historically embedded contexts. One particularly interesting avenue for future research would be to examine children's perceptions of structural inequalities that are consistent or inconsistent with status hierarchies present within society today. This study also operationalized the concern for "equity" as specifically referring to the concern for rectifying the inequality, however, other psychological research, as well as philosophical writings on distributive justice, has identified merit as an important component of, rather than a distinct concern from, equity (Damon, 1977; Sen, 2009).

Implications and Conclusions

Given that perceptions of resource inequalities do not spontaneously emerge in adulthood, understanding the developmental emergence of individuals' perceptions of structurally and individually based inequalities provides an important insight into how these perceptions are formed. Inequalities of both types pervade aspects of social life throughout the life span, with a range of societal implications. For instance, in many contexts, children preferentially include, affiliate, and share with same-gender peers (Dunham et al., 2011; Mehta & Strough, 2009; Mulvey & Killen, 2015; Mulvey et al., 2015; Renno & Shutts, 2015). Thus, these issues are both familiar to children and important for them to understand when navigating their daily social contexts.

In summary, the ability to distinguish between individually and structurally based inequalities emerges early in childhood, and children's evaluations of, and responses to, these inequality contexts become increasingly differentiated with age. While children from 3- to 8-years-old frequently perpetuate individually based inequalities and are averse to perpetuating structurally based inequalities, it is not until 6- to 8-years-old that children come to expect others to perpetuate both forms of inequality, reason about their allocations in these contexts differently, and evaluate others' responses to the inequalities consistent with their own decisions. Thus, children's developing social and social-cognitive capacities play an important role in how they evaluate and respond to resource inequalities based on their specific individual and structural origins.

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's website:

Appendix S1. Online supplemental materials include full details for the Likert-scale training, additional participant-breakdown descriptives, and supplemental analyses