

# Young Children's Ability to Recognize and Challenge Unfair Treatment of Others in Group Contexts

Melanie Killen<sup>a</sup> Laura Elenbaas<sup>b</sup> Michael T. Rizzo<sup>c, d</sup>

<sup>a</sup>University of Maryland, College Park, MD, USA; <sup>b</sup>University of Rochester, Rochester, NY, USA; <sup>c</sup>New York University, New York, NY, USA; <sup>d</sup>Beyond Conflict Innovation Lab, Boston, MA, USA

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## Keywords

Morality · Unfair treatment · Stereotypes · Group processes · Resource allocation · Social exclusion and inclusion · Rectifying inequalities

## Abstract

Although human societies provide protection from harm and enable the construction of collaborative and mutually beneficial social structures, they also pave the way for social hierarchies that deny equal treatment to certain portions of the population. Moral judgments about fairness and equality, as well as stereotypes, biases, and prejudice, emerge as early as 3 and 4 years of age. Investigating young children's responses to the unfair treatment of others reveals that, beginning at 3–4 years of age, children often act on ingroup biases and do not yet challenge exclusion or rectify inequalities. By 5–6 years of age, however, children's knowledge of groups, along with their understanding of others' mental states, enables them to begin to critically evaluate unfair practices, particularly in peer contexts. These factors play a significant role in young children's emerging ability to challenge unfair treatment of others.

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Morality is at the core of human values. It provides a set of prescriptive obligations for how individuals ought to treat one another, particularly concerning issues of fairness, others' welfare, and rights [Turiel, 2015]. Although human societies provide protection from harm and enable the construction of collaborative and mutually beneficial social structures, societal norms and laws also pave the way for social hierarchies that deny equal treatment to certain portions of the population. Conflicting goals exist at many levels of human relationships. Individuals strive to be coop-

erative and also to be competitive, to value egalitarianism as well as meritocracy, to recognize individual entitlements but also to encourage affiliation with and loyalty to the group. Striking a balance between these potentially conflicting goals is necessary for maintaining social harmony in interpersonal relationships, just as it is for creating a fair and just society.

We propose that children's developing conceptions of morality are best understood within the broader context of simultaneously developing individual, social, and group considerations [Killen, Elenbaas, & Rutland, 2015]. In particular, considerations regarding the treatment of others with respect to their group membership explicitly or implicitly factor into moral decisions across the life span. Humans are members of many social groups, including families and friendship networks as well as broad affiliations like gender and ethnicity [Verkuyten & Yogeewaran, 2017]. This means that it is necessary to understand not only how individuals reason about concepts such as equality, but also what they think about others in terms of their group identity and psychological states.

Within psychology, most current developmental theories conceptualize morality as emerging early in social life [Killen & Smetana, 2015]. Accordingly, recent research has documented what morality looks like in the early years, how young children balance moral, group, and individual concerns, what types of behaviors constitute moral action and judgment in development, and the capacities necessary for understanding the prescriptive nature of morality [Dahl, 2014; Hamlin & Wynn, 2011; Killen & Rutland, 2011; Smetana, Jambon, & Ball, 2014; Tomasello & Vaish, 2014]. Investigating moral development in concert with, and in contrast to, development in other domains (e.g., understanding of the conventions that regulate human social functioning but do not bear on moral concerns) has been a major focus of research within social domain theory [Nucci, 2001; Smetana et al., 2014; Turiel, 1983, 2015]. This work has provided extensive evidence for how children weigh different issues when making social decisions.

Our research on early moral development investigates how children make moral judgments in multifaceted contexts involving prejudicial attitudes and understanding of others' mental states [Killen & Rutland, 2011]. By definition, prejudice is a violation of fundamental moral principles regarding the fair and just treatment of others. Importantly, stereotypes, biases, and prejudice emerge early in development [Aboud & Brown, 2013]. Thus, understanding children's developing ability to give priority to fairness in contexts where prejudicial attitudes are present is central to our understanding of the developmental origins of moral judgment.

Likewise, connections between moral development and understanding others' mental states (e.g., beliefs, desires, knowledge) are a central part of our research. Mental state knowledge is important for making mature moral judgments [Lagattuta & Weller, 2014]. Without an accurate understanding of intentionality, children are prone to errors in moral judgment such as attributing negative intentions to well-meaning individuals, attributing blame to accidental transgressors, or expecting that outgroup members have different intentional states than do ingroup members. Mental state attributions that are biased because of stereotypes, for example, can result in social exclusion, unfair assignment of blame, and discrimination.

The overarching aim of our research on early morality is to understand age-related changes regarding children's emerging resistance to unfair rules, norms, and practices. Further, we seek to investigate the conditions under which children judge

that stereotypic decisions are unfair and should change, or that inequalities should be rectified. Change is often difficult to enact, however, even when there is a recognition that it would be morally justified and even when it does not involve significant cost to the self. In many cases, resistance is difficult because there are a number of competing considerations. That is, challenging social inequalities or exclusionary practices at the interpersonal level involves coordinating multiple moral, group, and psychological perspectives, including understanding the potential cost to one's self for standing up to unfair group practices.

In this paper, we identify age-related changes from 3 to 6 years that reflect how knowledge about groups and psychological knowledge contribute to children's rejection of social exclusion based on group membership and actions to rectify inequalities in access to resources. We propose that children's ability to challenge such issues in peer contexts is central to the emergence of morality in early childhood. Beginning at 3–4 years of age, young children often act on ingroup biases and do not yet use group knowledge to challenge exclusion or rectify inequalities in a coordinated manner. By 5–6 years of age, however, children's knowledge about how groups work enables them to *begin* to critically evaluate unfair practices, even with the continued presence of ingroup bias in some contexts. We propose that group identity and group knowledge, as well as psychological awareness of others' mental states, play a significant role in young children's emerging ability to challenge unfair practices.

To guide this research, our social reasoning developmental (SRD) model [Killen & Rutland, 2011; Rutland & Killen, 2017] provides an integrative framework for examining moral development in contexts involving group concerns (e.g., group identity, group norms) and psychological knowledge (e.g., attributions regarding intentions, conflicting perspectives). We have used this model to examine children's reasoning, judgments, and behavior in social interactions that involve the emergence of prejudice, group identity, knowledge about groups, and psychological knowledge. We will first describe our theoretical framework and then provide examples of our research focusing on morality and group identity, as well as the role of psychological knowledge in early moral development.

## SRD Model

Group affiliation provides an important foundation for social life. However, it also has the potential to lead to ingroup biases that can readily turn into outgroup derogation or unfair treatment. Starting early in the preschool period, for instance, children justify peer social exclusion or denial of resources based on group identity, group norms, and group dynamics. These reasons include references to conventions and group functioning, as well as to ingroup preferences and outgroup dislike. Further, young children's limited psychological knowledge often leads to misattributions of others' mental states (e.g., intentions, desires). This can result in a restricted ability to identify and challenge unfair attitudes held by others. Within the moral domain, we examine reasons related to the wrongfulness of discrimination and the importance of equality, equity, fairness, and protecting others' welfare.

The SRD model draws on and integrates two theories: social domain theory [Smetana et al., 2014] and social identity theory [Abrams & Rutland, 2008; Nesdale, 2008; Nesdale, Maass, Durkin, & Griffiths, 2005]. Social domain theory has identified

three domains of knowledge that coexist and emerge early in development: moral (fairness, equality, rights), societal (conventions, traditions, customs), and psychological (personal choice and individual prerogatives). Research using the SRD model examines the emergence of, and change in, social reasoning in the three domains. It has extended social domain theory regarding the specific foci within each domain, including attention to social exclusion, inequalities, and discrimination in the moral domain, group identity and social hierarchies in the societal domain, and mental state knowledge in the psychological domain [see Killen, Mulvey, & Hitti, 2013].

Developmental theories of social identity [Abrams & Rutland, 2008; Nesdale, 2008; Nesdale et al., 2005; Verkuyten & Yogeewaran, 2017] have demonstrated age-related changes regarding group identity, group norms, and group dynamics. This work has provided a basis for examining intergroup attitudes in morally relevant contexts using the SRD model. The SRD model has extended developmental theories of social identity theory by investigating when children differentiate their own view about fair treatment from their group's perspective, when they give priority to group norms over group membership, and the reasoning that they use to make these decisions. Integrative work from the SRD perspective has likewise investigated when children exclude others in intergroup contexts and expect others to demonstrate ingroup preferences. In addition, we have examined the conditions under which stereotypes are activated and when children rectify or perpetuate inequalities regarding access to resources [Killen et al., 2015].

### *SRD Model and Challenging Unfair Treatment*

For young children, challenging unfair practices often means rejecting a rule, disobeying authority, or acting in a nonconforming manner. Examining morality as a set of acts that challenge existing rules or norms contrasts with theories of morality that measure moral behavior in terms of rule compliance, obedience, or conformity [see Thompson, 2014; Kochanska & Aksan, 2004]. Adults often encourage rule-following behavior and rarely explicitly teach children to challenge unfair or unjust actions or conventions. Challenges to unfair practices, then, serve as an important indicator of an autonomous moral perspective in early childhood.

There are often costs of deviating from group norms and expectations, however, and one of these potential costs is resistance and disapproval from the group. Groups exert pressure on members to demonstrate loyalty by conforming to their norms [Abrams & Rutland, 2008]. Strategies for ensuring ingroup loyalty can include forms of exclusion, retribution, and ostracism. At times, peer groups use this influence to pressure individuals to comply with norms that are contrary to moral values (such as to exclude others who do not fit with the group or deny resources to others for personal gain). Importantly, however, peer groups can also encourage members to comply with moral values. Recent research has revealed the ways in which children establish and enforce moral norms in peer contexts [Koymen et al., 2014; Corbit, McAuliffe, Callaghan, Blake, & Warneken, 2017]. Thus, adherence to group norms can be consistent or inconsistent with moral goals of equality, fairness, and respect for others' welfare. The implication of this distinction is that children must acquire an ability to evaluate the moral status of group norms and then determine how to respond. Much of our research has examined the tension between adherence to moral principles and loyalty to groups.

Morality emerges early in development, and so do concerns with group identity and psychological knowledge [Elenbaas & Killen, 2016a; Hamlin, 2014; Killen, Elenbaas, Rizzo, & Rutland, 2017]. Toddlers, and even infants, begin to develop categories of individuals based on gender, race, and ethnicity [Dunham, Stepanova, Dotsch, & Todorov, 2015]. Similarly, psychological knowledge is evident when young children (and infants) anticipate others' actions, social goals, and belief understanding [Sodian, et al., 2016; Woodward, 2009]. To illustrate the application of our theoretical model to understanding early moral development in the context of group and psychological factors, we now turn to the empirical studies on young children's social reasoning and behavior regarding social exclusion and the allocation of resources.

### **Multifaceted Contexts: Social Exclusion and Resource Allocation**

Evidence for young children's challenges of unfair practices is provided by studies from our research program focusing on two types of multifaceted contexts: social inclusion/exclusion, and resource allocation. These contexts reflect moral (e.g., others' welfare, fairness, equality, equity), group (e.g., group identity, group functioning, group norms), and psychological (e.g., mental states, attributions of intentionality) factors. For example, children often view intergroup social exclusion, where a peer is excluded solely because of group membership (e.g., gender, ethnicity), as an act of unfairness, reflecting unequal treatment. Social exclusionary practices, however, are also sometimes justified as being necessary for groups to work. Individuals justify exclusion by referring to considerations of traditions (e.g., boy scouts exclude girls due to traditions), conventions (e.g., exclusion of women from the military), and group identity (e.g., rejecting intercultural marriage due to a desire to maintain cultural identity). Further, psychological concerns play a critical role in how individuals reason in intergroup contexts. For example, concerns for autonomy (e.g., "She can decide who to be friends with") and biased mental state attributions (e.g., "Girls don't like math or science") are often used to justify intergroup exclusion [Killen et al., 2017].

The research detailed below examines how children coordinate their understanding of moral, group, and psychological concerns in these multifaceted contexts – where children must weigh each of these conflicting concerns to come to an informed social decision.

### **Morality and Group Processes**

Much of the research on intergroup attitudes in childhood focuses on the negative aspects of group identity, that is, when stereotypes, biases, and prejudice (implicit and explicit) contribute to peer-based discrimination. Yet, recent research has also demonstrated certain ways in which specific knowledge about groups can enable children to reject social exclusion and resource disparities [Elenbaas & Killen, 2016b, c]. Moreover, with age, children understand the difference between group norms (values, traditions) and group membership [gender, race, ethnicity; Abrams & Rut-

land, 2008]. For instance, when an ingroup member rejects the conventional norms of the group, children are more willing to include an outgroup member who supports the norms than the ingroup member who does not [Mulvey, Hitti, Rutland, Abrams, & Killen, 2014]. An important question concerns how early children acquire the ability to critically evaluate group norms from a moral viewpoint.

We have documented a number of significant shifts between 3 and 6 years of age in the likelihood that young children will resist unfair actions towards others. For instance, during this period, children become less likely to use stereotypes or adhere to ingroup biases when making inclusion decisions, allocating resources, and deciding whether to comply with unfair group norms. Below we describe what accounts for these significant changes, including increases in children's understanding of group dynamics, capacity to differentiate their own view from the group's perspective, and ability to reason about moral issues.

### *Children's Concerns for Fairness*

When young children have the opportunity to allocate resources like stickers or snacks between peers, they often prefer to divide items equally. With age, however, children begin to consider a range of moral concerns for fairness, such as merit [Baumard, Mascaro, & Chevallier, 2012; Rizzo, Elenbaas, Cooley, & Killen, 2016; Schmidt, Svetlova, Johe, & Tomasello, 2016] and equity [Elenbaas, Rizzo, Cooley, & Killen, 2016; Elenbaas & Killen, 2016b; Paulus, Gillis, Li, & Moore, 2013; Rizzo & Killen, 2016].

Recent research has also examined the types of resources that are being distributed and how this concern is coordinated with children's other moral concerns for fairness. For example, resources that are necessary (needed to avoid harm) are more directly related to others' welfare than are resources that are luxuries (enjoyable to have), and thus allocations of necessary resources may hold more moral weight than allocations of luxury resources. For instance, Rizzo et al. [2016] examined how children coordinated the type of resource (luxury vs. necessary) with their developing concern for merit. They found that younger children (3- to 5-year-olds) did not distinguish between the two resources, allocating both types of resources meritoriously. By contrast, 6- to 8-year-old children differed in their allocations of luxury and necessary resources – allocating luxury resources meritoriously and necessary resources equally. Further, 6- to 8-year-olds explained their allocation of necessary resources in terms of the threat to the recipients' welfare (e.g., harm). Thus, whereas younger children focused exclusively on the concern for merit, older children were better able to incorporate their concern for others' welfare into their allocation decisions, demonstrating a more multifaceted understanding of fair treatment.

In another study, 3- to 8-year-olds were asked to allocate resources between a character with few resources and a character with many resources [Rizzo & Killen, 2016]. This study introduced the concept of inequalities, contrasting characters with and without adequate resources. Children aged 3–4 years allocated resources equally (the same number to both characters), whereas children aged 5–6 years distributed equitably (more to the under-resourced character). Interestingly, although 3- to 4-year-olds allocated equally, they evaluated another child's decision to allocate equitably as fair, suggesting that children may recognize the moral concern for equity

before they are willing to act on that concern. Together these findings shed light on the early development of children's concerns for merit, equity, and others' welfare when making decisions about resource allocation in situations of inequalities.

### *Fairness in Intergroup Contexts*

Related work in intergroup contexts, however, suggests that when stereotypes are salient, young children struggle to apply these moral principles about fair treatment. For example, gender-identified activities are very common in the preschool period (e.g., boys playing with trucks and girls playing with dolls). Nonetheless, Killen, Pisacane, Lee-Kim, and Ardila-Rey [2001] found that the majority of preschoolers (87%) viewed it as unfair to exclude a child who did not fit the stereotypic expectations of a play activity (e.g., excluding a boy from playing with dolls or a girl from playing with trucks). However, when informed that there was "only room for one more," 3- to 4-year-olds chose the stereotypic child to join the activity. Not until 5–6 years of age did children choose the child who did not fit the stereotype. Younger children cited conventional reasons and stereotypes, whereas older children referenced concern for fairness ("Give him/her a chance to play"). Thus, younger children were more likely to rely on general group norms and stereotypes to justify implicit social exclusion.

Yet, when fairness concerns are made salient, even 3- to 4-year-olds can change their initial judgments. For instance, when Theimer, Killen, and Stangor [2001] asked 4.5-year-olds about a stereotypically motivated action (e.g., "Is it alright to exclude the girl because she does not have any experience with truck-playing?"), the majority of children determined that it was wrong. Turn taking was viewed as more important than the stereotype match to the activity. Taken together, these findings highlight the influence of dialogue and discussion on young children's gender stereotypes. Even young preschoolers can view inclusion as an opportunity for fair treatment if the issue is framed in a developmentally relevant way.

Without this careful framing, however, older preschoolers often fall back on ingroup biases. For instance, a recent study asked African-American and European-American 5- to 6-year-olds to distribute familiar educational supplies (e.g., books, art supplies) to schools serving racial ingroup and outgroup peers in an experimental context where one group had consistently received more supplies in the past [Elenbaas et al., 2016]. Children who observed their racial ingroup receiving fewer supplies distributed more resources to ingroup members, effectively rectifying the inequality by reversing the pattern they had observed. Children who observed their racial outgroup receiving fewer supplies, however, did not seek to reverse the pattern. It was not until 10–11 years of age that most children rectified an inequality regardless of whether it affected their racial ingroup or an outgroup.

These findings point to some limits on the application of moral principles like equity in early childhood. While young children demonstrate relatively sophisticated reasoning about others' welfare and correcting inequalities in straightforward contexts, they do not always do so in more complex intergroup contexts. At the same time, these and similar findings highlight the relative autonomy of young children's moral decision-making. Young children clearly weigh mixed messages about what one should do when things like toys, treats, activities, or play opportunities are lim-

ited. Further, in addition to concerns about ingroup loyalty, young children consider what individuals from other social groups would do in the same situation. This question has been another recent focus of our work in this area.

### *Do Children Expect Others to Be Fair?*

During the preschool period, the emergence of group knowledge enables children to make predictions about what others will do in intergroup contexts. Interestingly, we find that the answer to the question of whether children expect others to be fair is often “no.” With age, for instance, young children expect that well-resourced groups are more likely than under-resourced groups to prefer their group and to perpetuate intergroup resource inequality [Elenbaas & Killen, 2016b].

More generally, young children have an emerging understanding of group dynamics, defined in part as the differentiating of group norms (values and traditions) from group membership (ingroup and outgroup affiliations). In particular, children quickly recognize that group loyalty is important to maintain group identity. When an individual rejects the norms of the group, ostracism and exclusion are likely [Abrams & Rutland, 2008]. However, if the norms of the group conflict with moral codes (e.g., a norm of treating others unequally), then children may like ingroup members who reject these norms (e.g., an ingroup member who advocates equality).

For instance, one recent study introduced 3- to 6-year-olds to groups that either: (a) always shared toys equally between themselves and another group or (b) always tried to get more toys for their own group [Cooley & Killen, 2015]. Then, children were introduced to a member of the “equal group” who advocated for more toys for their group and a member of the “unequal group” who advocated for equality. Children were asked to evaluate each individual from their own perspective, and to indicate how they thought the respective groups would evaluate these individuals. Three- to 4-year-olds liked the individual who advocated for equality and expected the groups to like them as well. By contrast, 5- to 6-year-olds liked the child who advocated for equality but recognized that the “unequal group” would not like an individual member who was seeking to change the norm that benefitted their group. Thus, between 3 and 6 years of age, children began to recognize that groups that benefit from resource inequality are unlikely to support a change to the status quo. Later in development, this awareness bears on whether children themselves are willing to challenge group norms that support exclusion [Mulvey, 2016].

Following up on these findings, Rizzo, Cooley, Elenbaas, and Killen [2018] examined whether 3- to 6-year-olds’ perceptions of individuals who went against group norms differed when the norm was a moral one (the distributive norm described above) versus a conventional one (a group tradition of wearing or not wearing a group sticker). Children were asked to determine whom different groups should include in their activities. Similar to the findings outlined above, between 3 and 6 years of age, children were increasingly likely to say that either group should include a peer who advocated for equality. Conventional norms were different, however. With age, children were more likely to indicate that their ingroup should include others, even outgroup members, who adhered to their group norm of wearing a sticker. Thus, as with the Cooley and Killen [2015] study, with age, children included a member of an outgroup in order to maintain a group norm of sharing resources equally.

Thus, there are several significant shifts in early childhood regarding group identity and group knowledge pertaining to rejecting peer social exclusion and rectifying familiar resource inequalities. These include changes in children's use of stereotypes and adherence to ingroup biases and unfair group norms. As noted, these changes are related to increases in the complexity of children's moral reasoning and understanding of group dynamics. In a closely related line of work, we have examined another social-cognitive process that is crucial to early moral development: mental state understanding. The following section provides an overview of our recent work on how understanding others' intentions, goals, knowledge, and beliefs contributes to young children's decisions when they have the opportunity to challenge the unfair treatment of others.

### **Morality and Mental State Understanding**

Research in developmental science has revealed the intricate relations between children's understanding of others' mental states and their moral development [Killen, Mulvey, Richardson, Jampol, & Woodward, 2011; Lagattuta & Weller, 2014; Smetana, Jambon, Conry-Murray, & Sturge-Apple, 2012]. This social-cognitive ability is crucial for identifying threats to others' welfare (understanding the mental states of victims), as well as for recognizing when seemingly intentional transgressions are in fact accidents (understanding the mental states of potential moral transgressors). In social inclusion and resource allocation contexts, in particular, an understanding of others' mental states is important for recognizing how an individual might feel as a result of exclusion or discrimination, as well as for identifying who might fit with a group's norms or beliefs.

For example, in one recent study, young children who understood that others can hold false beliefs (i.e., young children with false-belief theory of mind, FB ToM) were more likely to evaluate resource inequalities between peers as unacceptable than were children without this ability to interpret others' mental states [Mulvey, Buchheister, & McGrath, 2016]. Further, children without FB ToM evaluated unequal allocations to outgroup members as more okay than did children with FB ToM. Similarly, Li, Rizzo, Burkholder, & Killen [2017] found that children's FB ToM competence was related to their evaluations of an individual's attempts to rectify a hidden resource inequality (a context in which one recipient unknowingly has more resources than another), as well as their attributions of intentions to the individuals involved. Taken together, these findings demonstrate the role of early mental state understanding, including comprehension and evaluation of others' beliefs and intentions, in young children's evaluations of resource disparities.

### *Psychological Knowledge and Challenging Unfair Treatment*

It is also important to consider how mental state understanding can be applied to understand children's developing intergroup attitudes, biases, and prejudices. For example, holding a stereotype about an individual based on their group membership entails the application of category-level information about traits, abilities, and desires (e.g., "girls don't like trucks") to individuals within that category (e.g., "this girl

doesn't like trucks"). While research has documented how children's understanding of social categories informs their expectations about individual cases within that category [Rhodes & Mandalaywala, 2017], less is known regarding how children's ToM competencies relate to their ability to resist this temptation, and to identify when individuals do not conform to stereotypes about their groups.

For instance, in one recent study, 3- to 6-year-olds who passed an FB ToM assessment were more likely than children who failed the assessment to expect others to challenge gender stereotypes about what toy to play with (race cars or tea sets), and were more supportive of peers who challenged these norms [Mulvey, Rizzo, & Killen, 2015]. In this study, children were presented with a scenario in which a peer directly told their group that he or she wanted to do a different activity from the gender-stereotypic one that the group typically engaged in (e.g., "Frank wants to be different. He says 'People think tea sets are only for girls. Let's play with the tea set'"). Participants without FB ToM were more likely to say that they would not support the individual's challenge to the group and did not differentiate between their own and the group's evaluation in this scenario. Children with FB ToM, however, were more likely to assert that they would be supportive of challenging the group norm, even though they recognized that the peer group would not be supportive.

To examine how children's ToM competence was related to their resource allocation decisions in gender-stereotypic contexts, Rizzo and Killen [2018b] presented 4- to 6-year-old children with vignettes about male and female characters completing gender-stereotyped activities (e.g., making pink princess dolls or blue monster trucks). Most children held gender-stereotypic expectations regarding their peers' abilities (i.e., who would be "good at" the activities). However, children's ToM competence – assessed via a scale of multiple ToM assessments – was related to their ability to challenge these stereotypes. Specifically, with increasing ToM competencies, children allocated based on actual merit (i.e., gave more resources to the peer who made the most dolls or trucks) rather than gender-stereotypic assumptions about competence in these tasks. These findings were consistent with those of Mulvey et al. [2015] regarding the role of children's ToM in their willingness to support peers who do not want to conform to gender stereotypes in play activities.

As these findings demonstrate, children's mental state understanding plays an important role in their evaluations of, and responses to, instances of intergroup inclusion and exclusion as well as resource inequalities. In particular, children's ToM influences their understanding of others in two main ways. First, children's ToM competence enables them to represent others' mental states as distinct from their own (i.e., others have their own thoughts, desires, beliefs, and intentions), which is necessary for identifying threats to others' welfare and recognizing the accidental nature of potential transgressions. Second, children's ToM enables them to recognize when others' mental states differ from stereotypic expectations. That is, with increasing ToM competence, children are better able to view individuals in terms of their own, specific, mental states, rather than basing their expectations about others on stereotypes about group membership [Chalik, Rivera, & Rhodes, 2014; Rizzo & Killen, 2018a, b]. These experiments constitute important first steps in understanding the social-cognitive factors implicated in children's ability to resist harmful intergroup prejudices, biases, and forms of social inequality.

## *Understanding Others' Perspectives in the Context of Inequalities*

In order to fully understand children's developing perceptions of, and responses to, social inequalities, it is important to recognize the range of perspectives present within these contexts and how individuals' perceptions of a given context are related to their perspective. For example, children who are advantaged by an inequality are more likely to accept the inequality than are children who are disadvantaged by it [Blake & McAuliffe, 2011; Rizzo, Vanderbilt, & Killen, 2018]. While children's personal desire for more resources undoubtedly plays an important role in these findings, recent studies have begun to provide evidence suggesting that children's perspective within a context may also relate to coordination of moral, group, and psychological concerns [Rizzo et al., 2018].

In contexts of intergroup discrimination, there are numerous perspectives to consider (e.g., a victim, a beneficiary, or a witness to a discriminatory action [Rizzo et al., 2018]). Recent research has identified how children's contextualized perspective (e.g., their relative social status within a given context) influences their consideration of others' mental states. Rizzo and Killen [2018a] manipulated children's perspective within an inequality using a resource allocation task. Children were assigned to hold either an advantaged (receiving more resources than did their peers) or disadvantaged (receiving fewer resources than did their peers) status and were assessed on a series of standard contents FB and belief emotion ToM assessments. Results revealed that children who were assigned to hold the disadvantaged status were more likely to pass the ToM assessments than were children assigned to hold the advantaged status. These findings suggest that the perspective that children hold within a given context may influence their perceptions of, and responses to, intergroup inequalities.

### **Experiences Related to Challenging Unfair Practices**

Our research has documented age-related changes from 3 to 6 years of age regarding children's emerging concern for challenging practices that perpetuate stereotypes or social inequalities. We point to two types of social experiences that we predict contribute to age-related changes in this area: positive intergroup contact and the promotion of mental state understanding and recognition of third-party perspectives.

Stemming from Allport's contact hypothesis [Hewstone & Brown, 2005; Turner & Cameron, 2016; Tropp & Prenovost, 2008], developmental and social psychological evidence has demonstrated that cross-group contact, particularly in the form of friendships in childhood, significantly reduces prejudice and bias [McKeown, Williams, & Pauker, 2017; Rutland, Cameron, Bennett, & Ferrell, 2005; Turner & Cameron, 2016]. Further, a recent review of the literature on intergroup contact with young children (3–8 years of age) has shown that children from ethnic majority groups often benefit from programs aimed at reducing prejudice and discrimination, given that by 4 years of age, children already display forms of bias [About & Brown, 2013]. While we propose that programs are needed to enable children to challenge unfair treatment of others and to recognize when inequalities and social exclusionary practices warrant intervention and change, current research on intergroup contact with young children focuses on reducing prejudice, with some promising results.

For example, Rutland et al. [2005] conducted a study with Anglo-British children, aged 3–5 years, who had different levels of interracial contact and who were asked to make attributions about outgroups. Children showed more racial bias towards African Caribbean-British compared to Asian-British or East Asian-British outgroups, and children in racially homogenous areas displayed a White ingroup bias more than did children in racially mixed areas (who did not display biases). Thus, more intergroup contact was related to less bias.

In another study, using a storybook method in which diverse friendships were valued, McKeown et al. [2017] demonstrated that young children's (4–6 years old) seating choices in racially diverse schools changed from same-race preferences to interracial preferences. This preference was maintained for up to 48 h after exposure to the diverse story content, but the findings were not maintained 1 week later. The researchers suggest that the story content has potential to influence behavioral change, but that the message needs to be reinforced by teacher-led discussions over time. This technique provides another paradigm to explore regarding challenging peers to reject segregated behavioral choices in school contexts.

Further, research on improving intergroup relations using extended contact techniques has shown positive effects [Vezzali, Hewstone, Capozza, Trifiletti, & Di Bernardo, 2017]. In contrast to *direct* contact such as friendships, extended (or *indirect*) contact [Turner, Hewstone, Voci, Paolini, & Christ, 2007] involves opportunities that promote thinking about friendships among peers from different backgrounds. Examples include reading books about peers from the ingroup and the outgroup as friends and engaging in perspective-taking tasks [Turner et al., 2007].

For instance, in a study by Vezzali et al. [2017], young children were prompted to think about the emotions experienced by immigrant children as well as their own emotions. Outgroup stereotypes were measured by trait assignments of immigrant children. Empathy for an outgroup member was tested as a mediator, and direct contact (i.e., cross-group friendship) was tested as a moderator of extended contact. The findings revealed that higher empathy was associated with more positive outgroup attitudes and fewer stereotypes. The methodology in this study combined both intergroup contact and one form of mental state knowledge, thinking about how another person feels in a particular context. Whether intergroup contact is related to rejecting exclusionary practices that reflect stereotypic associations has not been investigated and is warranted given the evidence that challenging stereotypes in inequalities emerges during this period of development.

Given that prejudice and bias emerge during the early childhood years, we theorize that positive intergroup friendships (those that occur across group membership categories such as gender, race, and culture) contribute to young children's motivations to challenge exclusionary practices. Young children's friendships with peers from different backgrounds have the potential to enable them to directly challenge stereotypic expectations based on their own interpersonal experiences (i.e., "My friend is not like that").

These experiences may also enable children to infer what it means to be disadvantaged when they observe peers in situations in which they are excluded from groups or denied resources. Recognizing what it means to lack resources may be related to judgments about correcting disparities. Studies examining the relationship between intergroup contact and moral judgments in early childhood will provide a valuable basis for understanding the social experiences that enable children to give priority to fairness in multifaceted social contexts.

## Conclusions

Morality in childhood and adulthood is about the fair treatment of others. Indications of an obligation to treat others fairly emerge early in development and are especially evident when young children challenge unfair rules, group norms, or expectations from authority. Challenging unfair rules provides unique and robust evidence of an autonomous moral orientation. Observing this capacity in early childhood demonstrates the centrality of this ability for the development of morality. Moreover, methodologies such as those generated by our SRD model provide a means for documenting the explanations that children provide for rejecting stereotypic expectations, as well as their correction of resource inequalities in individual and group contexts.

Socialization messages are powerful, and resistance to stereotypic and discriminatory practices can be difficult. Not only is there a likely cost of social exclusion and ostracism, but the strength of the message can lead children to question their own moral position. Thus, in our research [as well as in studies of intergroup attitudes in adulthood; see Dovidio & Gaertner, 2004], we find that the contexts in which children struggle to give priority to morality over competing considerations are often contexts that reflect ambiguity and complexity. Ambiguity can take the form of a lack of certainty about one's intentions towards another. Complexity often entails a number of competing variables or considerations that have to be weighed and factored into one's decision. The evidence from our research in this area is both concerning and hopeful. Young children aged 3–4 years often rely on stereotypes, ingroup biases, and compliance with unfair norms to make decisions. By 5–6 years of age, children can begin to consider disadvantaged status, reject stereotypic expectations, and rectify resource inequalities in certain contexts.

The judgments and behaviors that we have discussed in this paper are familiar to young children's everyday lives. As children get older, their social environments expand dramatically. This expansion requires social-cognitive work to consider multiple variables, such as group knowledge and psychological knowledge, when making complex moral decisions. Age-related patterns are not always linear. Over the course of childhood, and continuing to adulthood, individuals encounter situations that are more complex and grapple with a reliance on stereotypes versus an orientation to challenge unfair treatment of others.

As reviewed here, morality emerges early in development and enables children to recognize prejudicial attitudes as wrong and unfair. Children's moral concerns propel them to reject exclusionary practices and resource disparities. The fact that children also espouse stereotypic attitudes does not necessarily mean that they always act on such beliefs. As evidenced in the studies described above, children often fail to recognize that ingroup preferences can result in members of outgroups feeling excluded or that their own attributions of intentions of others may reflect an ingroup bias. Not until the ages of 6–8 years, however, do children understand the distinction between their own evaluation of an act and a group's evaluation. This distinction is important because it enables one to reflect on the goals of one's ingroup norms and expectations of how to treat others.

Experiencing discrimination can be severe, affecting both psychological and physical health [Marks, Ejesi, McCullough, & Garcia-Coll, 2015]. Because children are both the victims and the perpetrators of exclusion, it is important to determine

how best to reduce prejudice in childhood [Rutland & Killen, 2015]. Stereotypes and biases are deeply entrenched by adulthood; the time for intervention is childhood. Understanding the emergence of moral concerns in early childhood provides evidence for creating social environments to reduce prejudice and bias and facilitate the development of conceptions of fairness, equality, and justice.

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## References

- Aboud, F.E., & Brown, C.B. (2013). Positive and negative intergroup contact among children and its effect on attitudes. In G. Hodson & M. Hewstone (Eds.), *Advances in intergroup contact* (pp. 176–199). New York, NY: Psychology Press.
- Abrams, D., & Rutland, A. (2008). The development of subjective group dynamics. In S.R. Levy & M. Killen (Eds.), *Intergroup attitudes and relations in childhood through adulthood* (pp. 47–65). New York, NY: Oxford University Press.
- Baumard, N., Mascaro, O., & Chevallier, C. (2012). Preschoolers are able to take merit into account when distributing goods. *Developmental Psychology, 48*, 492–498. doi:10.1037/a0026598
- Blake, P.R., & McAuliffe, K. (2011). “I had so much it didn’t seem fair”: Eight-year-olds reject two forms of inequity. *Cognition, 120*, 215–224. doi:10.1016/j.cognition.2011.04.006
- Chalik, L., Rivera, C., & Rhodes, M. (2014). Children’s use of categories and mental states to predict social behavior. *Developmental Psychology, 50*, 2360–2367. doi:10.1037/a0037729
- Cooley, S., & Killen, M. (2015). Children’s evaluations of resource allocation in the context of group norms. *Developmental Psychology, 51*, 554–563. doi:10.1037/a0038796
- Corbit, J., McAuliffe, K., Callaghan, T., Blake, P. & Warneken, F. (2017). Children’s collaboration induces fairness rather than generosity. *Cognition, 168*, 344–356. doi:10.1012/j.cognition.2017.07.006
- Dahl, A. (2014). Definitions and developmental processes in research on infant morality. *Human Development, 57*, 241–249. doi:10.1159/000364919
- Dahl, A. (2016). Infants’ unprovoked acts of force toward others. *Developmental Science, 19*, 1049–1057. doi:10.1111/desc.12342
- Dovidio, J.F., & Gaertner, S.L. (2004). Aversive racism. In M.P. Zanna (Ed.), *Advances in experimental social psychology. Vol. 36* (pp. 1–51). San Diego, CA: Academic Press. doi:10.1016/S0065-2601(04)36001-6
- Dunham, Y., Stepanova, E.V., Dotsch, R., & Todorov, A. The development of race-based perceptual categorization: Skin color dominates early category judgments. *Developmental Science, 18*, 469–483. doi:10.1111/desc.12228
- Elenbaas, L., & Killen, M. (2016a). Research in developmental psychology: Social exclusion among children and adolescents. In P. Riva & J. Eck (Eds.), *Social exclusion: Psychological approaches to understanding and reducing its impact* (pp. 89–108). New York, NY: Springer. doi:10.1007/978-3-319-33033
- Elenbaas, L., & Killen, M. (2016b). How do young children expect others to address resource inequalities between groups? *Journal of Experimental Child Psychology, 150*, 72–86. doi:10.1016/j.jecp.2016.05.002
- Elenbaas, L., & Killen, M. (2016c). Age-related changes in children’s associations of economic resources and race. *Frontiers in Psychology, 7*, PMID: 27378981.
- Elenbaas, L., Rizzo, M.T., Cooley, S., & Killen, M. (2016). Rectifying or perpetuating resource disparities: Children’s responses to social inequalities based on race. *Cognition, 155*, 176–187. doi:10.1016/j.cognition.2016.07.002
- Hamlin, J.K. (2014). The origins of human morality: complex socio-moral evaluations by preverbal infants. In J. Decety & Y. Christen (Eds.), *New frontiers in social neuroscience. Vol. 21* (pp. 165–188). Basel: Springer International. doi:10.1007/978-3-319-02904-7\_10

- Hamlin, J.K., & Wynn, K. (2011). Young infants prefer prosocial to antisocial others. *Cognitive Development*, 26, 30–39. doi:10.1016/j.cogdev.2010.09.001
- Hewstone, M., & Brown, R. (2005). An integrative theory of intergroup contact. *Advances in Experimental Social Psychology*, 37, 255–343. doi:10.1016/S0065-2601(05)37005-5
- Killen, M., Elenbaas, L., Rizzo, M.T., & Rutland, A. (2017). The role of group processes in social exclusion and resource allocation decisions. In A. Rutland, D. Nesdale, & C. Spears Brown (Eds.), *Handbook of group processes in children and adolescents* (pp. 101–123). New York, NY: Wiley. doi:10.1002/9781118773123.ch5
- Killen, M., Elenbaas, L., & Rutland, A. (2015). Balancing the fair treatment of others while preserving group identity and autonomy. *Human Development*, 58, 253–272. doi:10.1159/000444151
- Killen, M., Mulvey, K.L., & Hitti, A. (2013). Social exclusion: A developmental intergroup perspective. *Child Development*, 84, 772–790. doi:10.1111/cdev.12012
- Killen, M., Mulvey, K.L., Richardson, C.B., Jampol, N., & Woodward, A. (2011). The “accidental transgressor”: Morally relevant theory of mind. *Cognition*, 119, 197–215. doi:10.1016/j.cognition.2011.01.006
- Killen, M., Pisacane, K., Lee-Kim, J., & Ardila-Rey, A. (2001). Fairness or stereotypes? Young children’s priorities when evaluating group exclusion and inclusion. *Developmental Psychology*, 37, 587–596. doi:10.1037/0012-1649.37.5.587
- Killen, M., & Rutland, A. (2011). *Children and social exclusion: Morality, prejudice, and group identity*. Malden, MA: Wiley/Blackwell.
- Killen, M., & Smetana, J.G. (2015). Origins and development of morality. In R.M. Lerner (Editor-in-Chief) & M.E. Lamb (Ed.), *Handbook of child psychology and developmental science*. Vol. 3 (7th ed., pp. 701–749). New York, NY: Wiley-Blackwell. doi:10.1002/9781118963418.childpsy317
- Kochanska, G., & Aksan, N. (2004). Conscience in childhood: Past, present, and future. *Merrill-Palmer Quarterly*, 50, 299–310. doi:10.1353/mpq.2004.0020
- Koymen, B., Lieven, E., Engemann, D.A., Rakoczy, H., Warneken, F., & Tomasello, M. (2014). Children’s norm enforcement in their interactions with peers. *Child Development*, 85, 1108–1122. doi:10.1111/cdev.12178
- Lagattuta, K., & Weller, D. (2014). Interrelations between theory of mind and morality: A developmental perspective. In M. Killen & J.G. Smetana (Eds.), *Handbook of moral development* (pp. 385–407). New York, NY: Psychology Press. doi:10.4324/9780203581957.ch18
- Li, L., Rizzo, M.T., Burkholder, A., & Killen, M. (2017). Theory of mind and resource allocation in the context of hidden inequality. *Cognitive Development*, 43, 25–36. doi:10.1016/j.cogdev.2017.02.001
- Marks, A.K., Ejesi, K., McCullough, M., & Garcia Coll, C. (2015). The development and implications of racism and discrimination. In M. Lamb, C. Garcia Coll, & R. Lerner (Eds.), *Handbook of child psychology and developmental science*. Vol. 3: *Socioemotional processes*. Hoboken, NJ: Wiley & Sons.
- McKeown, S., Williams, A., & Pauker, K. (2017). Stories that move them: Changing children’s behavior toward diverse peers. *Journal of Community and Applied Social Psychology*, 27, 381–387. doi:10.1002/casp.2316
- Mulvey, K.L. (2016). Children’s reasoning about social exclusion: Balancing many factors. *Child Development Perspectives*, 10, 22–27. doi:10.1111/cdep.12157
- Mulvey, K.L., Buchheister, K., & McGrath, K. (2016). Evaluations of intergroup resource allocations: The role of theory of mind. *Journal of Experimental Child Psychology*, 142, 203–211. doi:10.1016/j.jecp.2015.10.002
- Mulvey, K.L., Hitti, A., Rutland, A., Abrams, D., & Killen, M. (2014). When do children dislike ingroup members? Resource allocation from individual and group perspectives. *Journal of Social Issues*, 70, 29–46. doi:10.1111/josi.12045
- Mulvey, K.L., Rizzo, M.T., & Killen, M. (2015). Challenging gender stereotypes: Theory of mind and peer group dynamics. *Developmental Science*, 19, 999–1010. doi:10.1111/desc.12345
- Nesdale, D. (2008). Peer group rejection and children’s intergroup prejudice. In S. Levy & M. Killen (Eds.), *Intergroup attitudes and relations in childhood through adulthood* (pp. 32–46). Oxford: Oxford University Press.
- Nesdale, D., Maass, A., Durkin, K., & Griffiths, J. (2005). Group norms, threat, and children’s racial prejudice. *Child Development*, 76, 652–663. doi:10.1111/j.1467-8624.2005.00869.x
- Nucci, L.P. (2001). *Education in the moral domain*. Cambridge: Cambridge University Press. doi:10.1017/CBO9780511605987
- Paulus, M., Gillis, S., Li, J., & Moore, C. (2013). Preschool children involve a third party in a dyad sharing situation based on fairness. *Journal of Experimental Child Psychology*, 116, 78–85. doi.org/10.1016/j.jecp.2012.12.014
- Rhodes, M., & Mandalaywala, T.M. (2017). The development and developmental consequences of social essentialism. *Wiley Interdisciplinary Reviews: Cognitive Science*, 8, e1437. doi:10.1002/wcs.1437
- Rizzo, M.T., Cooley, S., Elenbaas, L., & Killen, M. (2018). Young children’s inclusion decisions in moral and social-conventional group norm contexts. *Journal of Experimental Child Psychology*, 165, 19–36. doi:10.1016/j.jecp.2017.05.006.

- Rizzo, M.T., Elenbaas, L., Cooley, S., & Killen, M. (2016). Children's recognition of fairness and others' welfare in a resource allocation task: Age related changes. *Developmental Psychology, 52*, 1307–1317. doi:10.1037/dev0000134
- Rizzo, M.T., & Killen, M. (2016). Children's understanding of equity in the context of inequality. *British Journal of Developmental Psychology, 34*, 569–581. doi:10.1111/bjdp.12150
- Rizzo, M.T., & Killen, M. (2018a). How social status influences our understanding of others' mental states. *Journal of Experimental Child Psychology, 169*, 30–41. doi:10.1016/j.jecp.2017.12.008
- Rizzo, M.T., & Killen, M. (2018b). Theory of mind is related to children's resource allocations in gender stereotypic contexts. *Developmental Psychology, 54*, 510–520. doi:10.1037/dev0000439
- Rizzo, M.T., Vanderbilt, K.E., & Killen, M. (2018). How children's perspective relates to their evaluations of merit- and gender-based inequalities. Paper to be presented at the International Society for the Study of Behavioral Development, Gold Coast, QLD, Australia.
- Rutland, A., Cameron, L., Bennett, L., & Ferrell, J. (2005). Interracial contact and racial constancy: A multi-site study of racial intergroup bias in 3- to 5-year-old Anglo-British children. *Journal of Applied Developmental Psychology, 26*, 699–713. doi:10.1016/j.appdev.2005.08.005
- Rutland, A., & Killen, M. (2015). A developmental science approach to reducing prejudice and social exclusion: Intergroup processes, social-cognitive development, and moral reasoning. *Social Issues and Policy Review, 9*, 121–154. doi:10.1111/sipr.12012
- Rutland, A., & Killen, M. (2017). Fair resource allocation among children and adolescents: The role of group and developmental processes. *Child Development Perspectives, 11*, 56–62. doi:10.1111/cdep.12211
- Schmidt, M.F.H., Svetlova, M., Johe, J., & Tomasello, M. (2016). Children's developing understanding of legitimate reasons for allocating resources unequally. *Cognitive Development, 37*, 42–52. doi:10.1016/j.cogdev.2015.11.001
- Smetana, J.G., Jambon, M., & Ball, C. (2014). The social domain approach to children's moral and social judgments. In M. Killen & J.G. Smetana (Eds.), *Handbook of moral development* (2nd ed., pp. 23–45). New York, NY: Taylor & Francis. doi:10.4324/9780203581957.ch2
- Smetana, J.G., Jambon, M., Conry-Murray, C., & Sturge-Apple, M. (2012). Reciprocal associations between young children's developing moral judgments and theory of mind. *Developmental Psychology, 48*, 1144–1155. doi:10.1037/a0025891
- Sodian, B., Licata, M., Kristen, S., Paulus, M., Killen, M., & Woodward, A. (2016). Understanding of goals, beliefs, and desires predicts morally relevant theory of mind: A longitudinal investigation. *Child Development, 87*, 1221–1232. doi:10.1111/cdev.12533
- Theimer, C.E., Killen, M., & Stangor, C. (2001). Young children's evaluations of exclusion in gender-stereotypic peer contexts. *Developmental Psychology, 37*, 18–27. doi:10.1037/0012-1649.37.1.18
- Thompson, R. (2014). Conscience development in early childhood. In M. Killen & J.G. Smetana (Eds.), *Handbook of moral development* (2nd ed., pp. 73–92). New York, NY: Psychology Press. doi:10.4324/9780203581957.ch4
- Tomasello, M., & Vaish, A. (2014). Origins of cooperation and morality. *Annual Review of Psychology, 64*, 231–235. doi:10.1146/annurev-psych-113011-143812
- Tropp, L.R., & Prenovost, M.A. (2008). The role of intergroup contact in predicting children's inter-ethnic attitudes: evidence from meta-analytic and field studies. In S. Levy & M. Killen (Eds.), *Intergroup attitudes and relations in childhood through adulthood* (pp. 236–248). Oxford: Oxford University Press.
- Turiel, E. (1983). *The development of social knowledge: Morality and convention*. Cambridge: Cambridge University Press.
- Turiel, E. (2015). Morality and prosocial judgments and behavior. In D.A. Schroeder & W. Graziano (Eds.), *The Oxford handbook of prosocial behavior* (pp. 137–152). New York, NY: Oxford University Press.
- Turner, R.N., & Cameron, L. (2016). Confidence in contact: A new perspective on promoting cross-group friendship among children and adolescents. *Social Issues and Policy Review, 10*, 212–246. doi:10.1111/sipr.12023
- Turner, R.N., Hewstone, M., Voci, A., Paolini, S., & Christ, O. (2007). Reducing prejudice via direct and extended cross-group friendship. In W. Stroebe & M. Hewstone (Eds.), *European review of social psychology. Vol. 18* (pp. 212–255). Hove: Psychology Press. doi:10.1080/10463280701680297
- Verkuyten, M., & Yogeeswaran, K. (2017). The social psychology of intergroup toleration: A roadmap for theory and research. *Personality and Social Psychology Review, 21*, 72–96. doi:10.1177/1088868316640974
- Vezzali, L., Hewstone, M., Capozza, D., Trifiletti, E., & Di Bernardo, G.A. (2017). Improving intergroup relations with extended contact among young children: Mediation by intergroup empathy and moderation by direct intergroup contact. *Journal of Community and Applied Social Psychology, 27*, 35–49. doi:10.1002/casp.2292
- Woodward, A.L. (2009). Infants' grasp of others' intentions. *Current Directions in Psychological Science, 18*, 53–57. doi:10.1111/j.1467-8721.2009.01605.x