

## **Social cognitive development: The intergroup context**

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### **Social cognitive development: The intergroup context**

Throughout human history and across all human cultures, civilizations have organized themselves into social collectives, to the extent that it seems fair to say that social groups are the natural ecology of our species. In many ways, these groups play the same role as do categories in other domains; after all, the world is an incredibly complex place, and dividing it into categories is a powerful way to simplify this complexity and maximize efficiency in learning. In the social world, this way of working through complexity is especially important, given the extreme range of variability that exists across human individuals and communities. Children must navigate a world full of people with a range of properties that appear to have little in common with one another, posing a particularly difficult learnability problem. Social categorization allows children to work through this complexity by selecting features that denote meaningful differences between people. As a result, social categories become a fundamental lens through which we see the world<sup>1</sup>.

It should thus not surprise that social categorization of some sort exists across all human societies, making it a human universal (Brown, 2004). But, there are important differences across human cultures in how groups are defined, which groups are viewed as important, and what the

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<sup>1</sup> For the purposes of this chapter, we will use the terms “social category” and “social group” interchangeably. Both of these terms are used ubiquitously throughout the literature on intergroup cognition, sometimes denoting the exact same concept, sometimes with slightly different connotations. Here, we use both terms to broadly refer to any collection of individuals that can be linked by some feature, be it a shared physical or psychological property, a common goal, a set of similar obligations, or otherwise.

consequences of group membership are. Thus, it is important to consider how cognitive development unfolds in an intergroup context. In this chapter, we broadly explore how children across development understand social categories and use these categories to navigate the social world. In doing so, we aim to demonstrate where there is diversity across human cultures in how social categorization unfolds, and what aspects of this diversity are grounded in common psychological tendencies and mechanisms.

### **The origins of social categorization in infancy**

Many social category-based tendencies can be documented early in infancy. Studies using visual preference paradigms have shown that infants are sensitive to social distinctions like race and gender by 3 months of age (Bar-Haim, Lamy, & Hodes, 2006; Quinn, Yahr, Kuhn, Slater, & Pascalis, 2002), though the ways in which they understand these groups become refined throughout the first year of life. For example, by 7 months, infants are aware of gender categories and recognize that these categories are broad enough to include individuals of multiple races (e.g., the category “female” can include both Black and White individuals), and by 10-11 months, they make the corresponding inference for racial groups (e.g., the category “White” can include both women and men; Waxman & Grace, 2012). Also by 10-11 months, infants distinguish people based on the languages they speak (Kinzler, Dupoux, & Spelke, 2007, 2012), their food preferences (Lieberman, Kinzler, & Woodward, 2014; Mahajan & Wynn, 2012), and whether they are members of the majority or minority ethnicity in their cultural context (Singarajah et al., 2017). Thus, infants are capable of using social categories to classify individuals from quite early in life, potentially laying the groundwork for much of the social category-based processing that emerges across childhood.

Infants also use social group membership to make inferences about people's behavior. For example, 7-month-old infants expect members of a social group to perform similar actions (Powell & Spelke, 2013), and 9-month-olds expect people who speak the same language to affiliate with one another (Lieberman, Woodward, & Kinzler, 2017). Just a few months later, infants use group membership to predict people's moral behavior, expecting group members to act in ways morally similar to the actions of fellow group members (e.g., they expect members of a "nice" group to act nice, and members of a "mean" group to act mean; Misch & Wynn, in prep), and at 17 months, infants expect people to preferentially help group members who are in need (Jin & Baillargeon, 2017). Furthermore, by 18-20 months, infants expect people to distribute limited resources in favor of ingroup members (Bian, Sloane, & Baillargeon, 2018).

### **Social categorization in preschool and beyond**

#### **What inferences do young children make based on social categories?**

Throughout the preschool years, children further develop their understanding of social categories, using these categories as a base for a wide range of inferences about other people's properties and behaviors. However, doing so poses fundamental challenges: How do children know *which* inferences can be made on the basis of social categories? And how do they know *which* social category to use as the base of an inference, given that any individual belongs to multiple social categories? Research has now shown that children do not make the same types of inferences for all social groupings, suggesting an emerging understanding that different social collectives function in different ways. For example, some social category-based inferences, such as expectations about shared physical and psychological properties, are only evoked by a small subset of social distinctions. Gender is an example of a category that supports these inferences: Preschoolers believe that same-gender children will like the same kinds of toys and activities

(Berndt & Heller, 1986; Biernat, 1991). However, children do not generally hold similar expectations about children who share membership in racial groups (Rhodes & Gelman, 2009).

By contrast, some social groupings evoke inferences about how people will act toward one another. For example, when thinking about novel social categories—groups defined by an arbitrary, previously meaningless characteristic, such as clothing color—children expect that people will act negatively toward outgroup rather than ingroup members (Chalik & Rhodes, under review; Chalik, Rivera, & Rhodes, 2014; Rhodes, 2012). These findings—that different social categories serve different inferential purposes early in development—have lead researchers to conclude that children hold multiple *intuitive theories*—abstract, domain-specific, causal-explanatory frameworks (Wellman & Gelman, 1992; Gopnik & Wellman, 2012)—that guide their understandings of the social groups around them. Because developing in the intergroup context causes children to use social categories as a fundamental lens to view the world, these theories lay the groundwork for how children’s social cognition will unfold for the rest of their lives.

One intuitive theory that appears to shape children’s social category-based inferences as early as the preschool years is the belief that people who are members of the same social group are fundamentally similar to one another. For example, as described above, preschool-aged children use gender as a base for a wide range of inductive inferences (Taylor, 1996; Taylor, Rhodes, & Gelman, 2009), expecting same-gender individuals to share novel properties (Gelman, Collman, & Maccoby, 1986) and predicting that girls and boys will behave in ways consistent with gender stereotypes, even in the presence of contrasting individuating information (e.g., a girl wanting to build airplanes instead of sew buttons will still behave in other stereotype-consistent ways; Berndt & Heller, 1986; Biernat, 1991). Additionally, by age 5, children use a

wide range of social distinctions (e.g., social status, ethnicity, religion, age group, profession) to predict that group members will share novel psychological and behavioral properties (e.g., liking to play a new type of game; Diesendruck & HaLevi, 2006; Waxman, 2010), and will be bound by similar rights and obligations (e.g., being required to help people; Kalish & Lawson, 2008).

Children also use social categories to make another set of inferences about people, using them to guide their predictions of how people will act toward one another. These inferences do not stem from an expectation of fundamental similarity among group members, as described above, but might rather be the result of an early form of coalitional reasoning (Boyd & Richerson, 2009). Thus, they stem from an expectation that group members are obligated to interact cooperatively with one another. For example, as early as age 3 and across childhood, children view harmful behaviors that occur among fellow social category members as serious, moral violations (i.e., these behaviors are wrong no matter what, regardless of the local context in which they occur), whereas they view harmful behaviors that occur between members of different social categories as wrong for more context-dependent reasons (i.e., these behaviors are less wrong if they are permitted in the local context; Rhodes & Chalik, 2013). Thus, children view social group members as morally obligated not to harm one another. This belief supports inferences about how people will behave in intergroup contexts; as early as age 3, children predict that people are more likely to harm outgroup members than ingroup members (Chalik & Rhodes, under review; Chalik & Rhodes, 2014; Chalik et al., 2014; Rhodes, 2012) and are more likely to be friends with ingroup members than outgroup members (Chalik & Rhodes, under review). Furthermore, by age 4, children expect people to preferentially save ingroup members from harmful events (Chalik & Rhodes, under review) and by age 6, children expect people to direct a wide range of prosocial behaviors toward ingroup members rather than toward outgroup

members (DeJesus, Rhodes, & Kinzler, 2013; Rhodes, 2012). These predictions—distinct from the predictions of fundamental similarity that children make for categories like gender—may arise from children’s belief that many social groups arise and are sustained via the collective intentions of their members *to be* members, a form of commitment which plausibly entails moral obligation (Noyes & Dunham, 2017).

### **Which categories do children use for these inferences?**

In addition to learning what types of inferences can be made on the basis of social categories, children also learn, quite early in life, *which* social categories are relevant for those inferences. Although category-based beliefs of some sort can be found in all cultural contexts, exactly *which* social categories evoke which kind of beliefs appears to depend on the cultural input children receive. This process has been described under the framework of Developmental Intergroup Theory (Bigler & Liben, 2006), which posits that children construct their own internal working model of how their social world is structured based on environmental messages they receive, such as perceptually salient attributes of the people around them, or explicit and implicit classification by means of labelling and societal structures. These messages form the basis from which children develop group-based preferences, beliefs, and stereotypes.

In fact, cultural input plays a role in the internalization of social categories as early as the first year of life. For example, Quinn and colleagues (2002) found that 3-month-old infants’ preferences for male and female faces depended on the gender of their primary caregiver—infants reared primarily by a female parent showed a looking preference for female faces, whereas the reverse was true for infants reared primarily by a male parent, suggesting that the way in which young infants view gender is shaped by the people that they are exposed to at the beginning of their lives. Similar findings have been documented with regard to race; infants

show a looking preference for faces of their own race by 3 months, but this preference is not present in the first few days of life (Kelly et al., 2005). Furthermore, race-based preferences depend on the racial environment to which infants are exposed; infants who have not been raised in predominantly own-race environments (for example, Black children raised in White communities in Israel) do not show racial preferences in their looking behavior (Bar-Haim et al., 2006).

One psychological mechanism that fosters children's identification of social groups from which to make inferences is a pervasive cognitive bias known as psychological essentialism. Essentialism is the belief that certain categories have an underlying nature, an "essence," that gives them their identity and makes them fundamentally distinct from other kinds of things (Gelman, 2003; Medin & Ortony, 1989). In the social domain, then, essentialism functions such that individuals tend to represent certain social categories in the same way that they represent animal categories—as natural kinds that are homogeneous, unalterable, and inductively rich (Allport, 1954; Atran, 1990; Haslam, Rothschild, & Ernst, 2000; Rothbart & Taylor, 1992). For example, as early as age 5, children see gender categories as objective, determined at birth, and predictive of gender-stereotypical properties, regardless of environmental input (e.g., a girl will collect dolls instead of tools, even if she was raised in a community of all boys; Rhodes & Gelman, 2009; Taylor et al., 2009). Four-year-old children even apply essentialist beliefs to novel social groups, if they have heard language suggesting that those groups are cohesive entities (Rhodes, Leslie, & Tworek, 2012).

Social essentialism appears to be a universal phenomenon, occurring across cultures, having been documented in various communities around the United States (Hirschfeld, 1996; Rhodes & Gelman, 2009; Taylor et al., 2009), among Israeli children (Birnbaum, Deeb, Segall,

Ben-Eliyahu, & Diesendruck, 2010; Diesendruck & HaLevi, 2006), and in communities in Chile (del Rio & Strasser, 2011), Madagascar (Astuti, Solomon, & Carey, 2004), India (Mahalingam, 2003), and Brazil (Sousa, Atran, & Medin, 2002). However, there is a great deal of variation in how social essentialism plays out across cultures. For example, children from different religious communities in Israel differ in their essentialist beliefs about the stability of social category membership (Diesendruck & Haber, 2009), and in the United States, Black children view race as more stable than White children do (Kinzler & Dautel, 2012). Additionally, social essentialist beliefs change in culture-specific ways across development. Rhodes and Gelman (2009) documented that 5-year-old American children in rural and urban communities showed similar tendencies to essentialize gender but not racial categories, but by age 10, rural children began to show essentialist beliefs associated with race, whereas urban children of the same age did not share these beliefs, but instead began to see gender category boundaries as conventionalized. Furthermore, Chalik, Leslie, and Rhodes (2017) studied American children from a variety of religious backgrounds and found that at age 5, all of the children tested showed similar levels of essentialism when thinking about religious identity, but for 10-year-olds and adults, the degree to which participants held social essentialist beliefs depended on their own religion and level of religiosity. All of these studies, again, show that children use cultural input to identify the social categories that are relevant for the different types of group-based inferences they might make.

### **The consequences of viewing the world through the lens of social categorization**

#### **How social categorization influences children's view of themselves**

Seeing the world through the lens of social categorization deeply influences how we think about ourselves, in the form of what is commonly referred to as the *social identity* (Tajfel & Turner, 1979). The relation between social identity and the self-concept appears to develop

during the elementary school years. For example, Bennett and colleagues (1998) found that when shown instances of unfamiliar ingroup members acting negatively, 7-year-olds, but not 5-year-olds, felt responsible for and embarrassed by these negative actions. Related research found that 5-year-old children already display subtler signs of guilt and responsibility after they observed their ingroup members break someone else's possession (Over, Vaish, & Tomasello, 2016). Furthermore, by age 5, children view themselves as particularly similar to children of the same gender if their gender identity has been made salient (Bennett & Sani, 2008a), and they recall words associated with their own groups (groups based on family, age, and gender) better than unrelated words, and to the same degree that they recall words associated with the self (Bennett & Sani, 2008b). Additionally, by age 5 and increasing across the elementary school years, children make memory errors in which they confuse themselves with ingroup members more than with outgroup members (Sani & Bennett, 2009). Thus, children identify deeply with their ingroups, and process information about the ingroup and the self similarly.

The connection between group identity and beliefs about the self undoubtedly has consequences for development. These consequences are often negative, as children often express and evaluate themselves in accordance with stereotyped beliefs about their own social categories (Witt, 1997). For example, elementary school girls begin to show lower self-confidence than boys in math abilities at the same age at which they begin to endorse the stereotype that boys are better than girls at math (Cvencek, Meltzoff, & Greenwald, 2011; Muzzatti & Agnoli, 2007). Furthermore, by age 6, girls—but not boys—tend to avoid activities that are described as being for intelligent people, consistent with the common stereotype that women are less intelligent than men (Bian, Leslie, & Cimpian, 2017). In many cases, however, identifying as a member of a social group can have a positive influence on children's identity. For example, identifying as a

member of a religious group may actually protect children from the internalization of prejudice: In a study by Dunham and colleagues (2014), Muslim children preferred their own low-status group to higher-status Hindus, in contrast to children's caste-based preferences, where even children of low-status castes preferred the high-status group. These findings suggest that religious beliefs, which often focus on the spiritual goodness of the group, can prevent children from internalizing the negative stereotypes often associated with low-status groups. Furthermore, just being in a group at all, in the absence of stereotypes, can positively influence children's self-perceptions: In a study examining children's engagement in science, children who had been assigned to a novel group before completing a task reported higher self-efficacy in that task (Master, Cheryan, & Metzoff, 2017), and children's enjoyment of and motivation to work on challenging tasks increases when they view those tasks as collaborative (Butler & Walton, 2013) or as related to group membership (Master & Walton, 2013).

### **How social categorization influences children's view of others**

The intergroup context also has powerful—if sometimes problematic—consequences for how we view others. As noted above, children use social categories as the basis of a range of inductive inferences; those inferences often include forms of intergroup bias (most notably prejudice and stereotyping) and can manifest in behavior (discrimination). By the preschool years, children express positive views of ingroup members and negative views of outgroup members across a variety of social distinctions, including race (Aboud, 1988; Rutland, Cameron, Bennett, & Ferrell, 2005), gender (Halim, Ruble, Tamis-LeMonda, Shrout, & Amodio, 2017; Hilliard & Liben, 2010), religion (Heiphetz, Spelke, & Banaji, 2013), and nationality (Barrett, 2007). Ingroup biases have even been documented with regard to groups that have no functional relevance; children who have been assigned to groups that are completely arbitrary and serve no

functional purpose (so-called minimal groups; e.g., clothing color-based groups where assignment is done by a coin toss) report preferences for their ingroup members and make negative assumptions about outgroup members. Recent research has even found that children perceive of outgroup members as less human than their ingroup members (McLoughlin, Tipper, & Over, in press; McLoughlin & Over, 2017). These findings are sometimes interpreted as showing that ingroup favoritism is highly abstract, perhaps even the result of an evolved system for supporting within-group cooperation and between-group conflict (Dunham, in press).

In addition to the explicit forms of bias documented above, some forms of ingroup bias are subtle, perhaps even occurring outside of awareness (Devine, 1989). To investigate this question, research on the development of intergroup attitudes has recently incorporated so-called “implicit” methods. The most commonly used measure to make this case, the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998), uses the structure of semantic memory to assess whether people have positive or negative associations with various social categories. Implicit measures have been commonly used to assess bias with regard to race; this work has shown that White children have a positive view of Whites and a negative view of Blacks as early as age 6 and until at least age 10 (Baron & Banaji, 2006; Dunham, Baron, & Banaji, 2006; reviewed in Olson & Dunham, 2010). Implicit ingroup biases have also been found in children with regard to religious groups (Heiphetz et al., 2013), gender categories (although boys show an increase in positivity toward females over time; Dunham, Baron, & Banaji, 2015), and even with respect to minimal groups (Dunham et al., 2011). Thus, most research suggests that children’s implicit intergroup attitudes seem to develop early and remain stable across age groups (Dunham, Baron, & Banaji, 2008; but for an alternate perspective, see Degner & Wentura, 2010).

Interestingly, children's beliefs about their own social groups also appear to be influenced by social status (Griffiths & Nesdale, 2006). For example, no implicit race-based bias has been found in American children from low-status groups, such as Blacks (Newheiser & Olson, 2012) and Latinos (Dunham, Baron, & Banaji, 2007), and low-status children in racially-divided South Africa (Dunham, Newheiser, Hoosain, Merrill, & Olson, 2014) and in the Hindu caste system (Dunham, Srinivasan, Dostch, & Barner, 2014) actually show implicit preferences in favor of higher status outgroups. Thus, ingroup favoritism is by no means a universal: It can be overridden by exposure to local views concerning the status of the groups involved.

### **Intergroup bias in children's behavior and learning**

Children's preference for ingroup members over outgroup members often manifests in their behavior toward others. Children are more prosocial toward ingroup than outgroup members across a range of group distinctions; for example, they share resources preferentially with ingroup members (Dunham et al., 2011; Kinzler, Dupoux, & Spelke, 2012; Kinzler & Spelke, 2011; Kinzler, Shutts, DeJesus, & Spelke, 2009; Renno & Shutts, 2014; Shutts, 2015), even when it is costly to them (i.e., when sharing requires them to give up some of their own resources; Benozio & Diesendruck, 2015; Fehr, Bernhard, & Rockenbach, 2008). Children also direct negative behavior (e.g., giving aversive objects) toward outgroup members, with this tendency beginning as early as the toddler years (Chalik & Wynn, in prep) and becoming more pronounced later in childhood (Buttelmann & Bohm, 2014).

Ingroup biases in childhood are also importantly *learning biases*, in that children prefer to learn new information from their ingroup members. For example, infants prefer objects and food that have been endorsed by speakers of their native language (Kinzler, Dupoux, & Spelke, 2012), and preferentially imitate actions that are modeled by their ingroup members (Buttelmann, Zmyj,

Daum, and Carpenter; 2013). Similarly, by the preschool years, children prefer to learn new information and actions from speakers of their own language (Corriveau, Kinzler, & Harris, 2013; Howard, Henderson, Carrazza, & Woodward, 2015) and prefer to play with objects that have been endorsed by their gender, age-based, or racial ingroup members (Shutts, Banaji, & Spelke, 2010). Furthermore, the reverse patterns emerge when children are asked to learn from outgroup members; recent work has found that children tend to perform contrasting behaviors from ones that have been modeled by their outgroup members (Oostenbroek & Over, 2015).

The above research documents that children trust ingroup members far more than they trust many others. This selective trust in ingroup members is so strong that it overrides some other tendencies that children usually display; for example, children generally prefer to learn from groups of informants who are in consensus with one another, but they do so far less if the consensus group is made up of racial outgroup members (Chen, Corriveau, & Harris, 2013). Also, children generally avoid antisocial individuals, but are sometimes willing to learn from ingroup members even after they have displayed antisocial behavior (Hetherington, Hendrickson, & Koenig, 2014). Furthermore, children's selective trust in ingroup members is not limited to learning opportunities; children also trust their ingroup members more to keep promises and secrets (Rotenberg & Cerda, 1994).

Social categorization also colors how children internalize new information about groups. For example, Over and colleagues (2017) gave 5-to 6-year old children a choice between hearing a story that favored their ingroup and disfavored their outgroup, or one that favored their outgroup and disfavored their ingroup. Children consistently chose to hear the ingroup-favoring story, showing that they actively sought to learn information that was biased in favor of the ingroup. Children also preferred to teach biased information to others, thus promoting the social

transmission of stereotypes and intergroup bias (Over, Egelston, Bell, & Dunham, 2017). Additionally, children tend to recall more positive actions performed by ingroup than outgroup members (Bigler & Liben, 1993), interpret ambiguous events in ingroup-favoring ways (Dunham et al., 2011; Dunham & Emory, 2014), be more forgiving (and forgetful) of ingroup members' negative behavior (Corenblum, 2003; Dunham et al., 2011), and weigh positive and negative information in ways that favor their ingroup (Baron & Dunham, 2015; Schug, Shusterman, Barth, & Palatano, 2013). All of the processes documented here constitute mechanisms by which children generate support for their initial positive feelings about the ingroup, thus confirming and propagating the biases that they hold. Thus, even if some of the biases characterizing young children's views of groups are relatively modest in magnitude, when coupled with these learning biases their cumulative operation could be profound.

### **Intergroup bias in children's adherence to and enforcement of norms**

While many of the above findings could potentially be explained within the scope of an affective preference for ingroup members, other research shows that in some cases, the opposite is true: In certain circumstances, children are *less* lenient towards their ingroup members. More specifically, children hold harsher standards for ingroup members than for outgroup members when they are enforcing social norms. For example, Schmidt, Rakoczy, and Tomasello (2012) found that 3-year-old children protested more when conventional norms (e.g., the rules of playing a made-up game) were violated by ingroup members compared to outgroup members. These findings suggest two important points: First, from early on, children believe that social-conventional norms are specific to particular social groups and are not binding for outgroup members. Second, children see adherence to social-conventional norms as a crucial component

of successful group functioning and thus take it upon themselves to actively enforce these norms, even when doing so entails directing protest at otherwise positively evaluated ingroup members.

Relatedly, one norm that children view as particularly important in the group context is loyalty. Children show a rudimentary appreciation of group loyalty at about age 4, when they show a preference for *other* children who have played with racial ingroup members rather than children who have played with racial outgroup members (Castelli, De Amicis, & Sherman, 2007). Furthermore, from at least age 5, children evaluate leaving a group to obtain individual benefits as morally wrong (Misch, Over, & Carpenter, 2014) and punish free riders who do not contribute to the common good (Yang, Choi, Misch, Yang, & Dunham, in press). Loyalty in children's own behavior emerges around the same time; for example, by age 5, children keep group secrets (Misch, Over, & Carpenter, 2016) and express commitment to their favorite sports teams even in the face of defeat (James, 2011).

Children also display loyalty in their differential reactions to moral violations that have been performed by ingroup and outgroup members. For example, 6-year-old children are more likely to punish people who allocate resources selfishly if those people are outgroup members, and are more likely to punish selfish allocators if the victims of those allocations are ingroup members (Jordan, McAuliffe, & Warneken, 2014). They also tattle more on outgroup members' severe moral transgressions than ingroup members' similar transgressions (Misch, Over, & Carpenter, 2018). However, these overwhelming concerns for loyalty appear to change and interact with other moral concerns across development; by 8 years of age, children punish unfair resource allocations that disadvantage both in- and out-group members equally (Jordan et al., 2014), and with age, children increasingly allocate resources fairly to both ingroup and outgroup members (McAuliffe & Dunham, 2017).

Children's concern for loyalty is also apparent in their judgments of people who fail to support the ingroup: Research by Abrams and colleagues (2003, 2009) found that school-aged children judge ingroup members who do not preferentially support the ingroup more harshly than outgroup members who perform the same violation, suggesting an early onset of the so-called “black sheep effect” (where people evaluate deviant ingroup members more negatively than comparable outgroup members; Marques, Yzerbyt, & Leyens, 1988). These findings have been elucidated as part of a model of Developmental Subjective Group Dynamics (Abrams & Rutland, 2008), which suggests that with age, children develop an increasingly sophisticated understanding of the complexities of group functioning, as well as an understanding of specific intergroup and intragroup norms and how they constrain behavior across diverse contexts (e.g., Abrams et al., 2003, 2009; Rutland, Killen, & Abrams, 2010).

### **Theories of the developmental trajectory of ingroup bias**

There are several theories explaining the developmental trajectories of children's ingroup bias and prejudice. For example, Developmental Intergroup Theory (Bigler & Liben, 2006), discussed above, focuses on how children use environmental messages to build an understanding of social structure (which includes stereotyping and ingroup bias) across development. Another account is Social-Cognitive Developmental Theory (Aboud, 1988), which states that children start to express negative views about outgroup members in the preschool years, but that these negative views decline after age 7 when children's increasing cognitive skills allow them to consider multiple dimensions of identity at the same time. Indeed, meta-analytic review suggests that children's explicit prejudice decreases with age (Raabe & Beelmann, 2011), though as noted above this may not be the case for implicit forms of bias, something this theoretical approach may have difficulty accounting for (Dunham et al., 2008). Other accounts focus more on

children's own social identity and the idea that children, like adults, want to derive a positive self-identity from being a member of a social group that is comparatively superior to the outgroup (e.g., Nesdale & Flesser, 2001, Social Identity Development Theory). According to this account, once children have acquired an initial understanding of social groups, their desire to be positively distinct from others causes them to evaluate the outgroup negatively.

Another mechanism that might explain the trajectory of children's developing social biases is social essentialism, described above. It is clear that essentialism is associated with prejudice and stereotyping (Haslam et al., 2000; Keller, 2005; Prentice & Miller, 2007; Williams & Eberhardt, 2008); this might be because it leads people to attribute differences between groups to biological causes rather than to contextual factors (e.g., believing that there are more men in STEM fields because men are naturally better than women at science and math, rather than because boys are encouraged more than girls to develop an interest in those subjects; Salomon & Cimpian, 2014). The link between essentialism and prejudice has been documented in work with adults; for example, Keller (2005) demonstrated that people who held more social essentialist beliefs were more likely to stereotype, and that making essentialist information about social categories salient increased both levels of prejudice towards those categories and levels of ingroup bias. A version of this link has also been demonstrated in children; 4- to 6-year-old children withhold resources from members of groups about which they hold essentialist beliefs (Rhodes, Leslie, Saunders, Dunham, & Cimpian, 2017). Thus, children's intergroup biases may develop alongside their developing essentialist beliefs. However, in the same study, children did not discriminate against essentialized group members in activities aside from resource distribution, so the link between essentialism and discrimination in early childhood may not be absolute, or may depend on other features of the categories question.

### **The internal motivations that underlie children's ingroup biases**

The most exhaustive examination of the findings reported above is incomplete without taking a closer look at the underlying motivation that drives much of this behavior. First of all, like adults, children have a strong desire to belong (Baumeister & Leary, 1995), and being a member of a social group might guarantee protection, support, and cooperation when it comes to securing resources. Thus, the threat of being excluded from the group is so existential that it needs to be avoided at every cost; in turn, evidence suggests that affiliative tendencies can be activated even after minimal cues. For example, after being primed to think about the concept of ostracism by watching videos in which an animated shape was ostracized by others, 5-year-old children drew more affiliative pictures (Song, Over, & Carpenter, 2015) and imitated an experimenter's action more closely (Over & Carpenter, 2009) than children who had watched control videos. In another study, children played Cyberball—a virtual ball-tossing game—with either ingroup or outgroup members who either included or excluded them from the game. Children who had been excluded by ingroup members later imitated the actions of another ingroup member more than children who had been included by ingroup members, illustrating their desire to reestablish inclusion in the group. Children who had been included or excluded by outgroup members, on the other hand, did not differ in their later imitative actions (Watson-Jones, Whitehouse, & Legare, 2016).

Children's need to belong also motivates them to present themselves in a favorable light towards their group members: Already by 5 years of age, children share more of their resources when they are being watched by ingroup members than when they are being watched by outgroup members, suggesting a desire to build up a good reputation in the eyes of their group (Engelmann, Over, Herrmann, & Tomasello, 2013). Four-year-old children also publicly

conform to their peers' obviously wrong statements (e.g., identifying a picture of an animal), seemingly for affiliative reasons (Corriveau & Harris, 2010; Haun & Tomasello, 2011).

Children's tendency to align their own behavior to that of their ingroup members is so robust that it sometimes even overrides their moral concerns: After children watched their ingroup members behave antisocially by withholding valuable resources from a third party, children's own tendency to behave prosocially was significantly reduced (Engelmann, Herrmann, Rapp, & Tomasello, 2016; Misch & Dunham, in prep).

### **Can we avoid the negative consequences of social categorization?**

Much of the research reviewed here suggests that intergroup bias is a natural result of the development of social cognition. Yet, this work also provides an opportunity to ask empirical questions about potential ways to improve outcomes for children developing in a world rife with intergroup conflict. How can we decrease ingroup bias and foster intergroup understanding? Because children are sensitive to moral transgressions from early on, some studies have investigated whether hearing about the antisocial behavior of ingroup members or the prosocial behavior of outgroup members can influence children's differential evaluations of them. Some of these studies have shown that being exposed to ingroup members who have performed antisocial behaviors can indeed attenuate children's ingroup bias (Hetherington et al., 2014; Wilks & Nielsen, 2018). Similar results have been found for children who are exposed to outgroup members performing prosocial behaviors, but to a somewhat lesser degree (Schug et al., 2013). Thus, exposing children to the full range of behaviors that people generally perform, rather than simply the positive behaviors that they naturally associate with ingroup members, could serve to reduce the ingroup bias that they would otherwise develop. Other research with adults suggests that inducing empathy for the outgroup might be an effective way to overcome ingroup bias

(Batson et al., 1997; Finlay & Stephan, 2000). Similarly, in children, Sierksma and colleagues (2015) have found that encouraging children to empathize with others who are not members of their peer ingroup diminishes their intentions to perform helpful actions preferentially toward the ingroup.

One particularly fruitful body of research into ways of reducing ingroup bias in children has focused on contact between children who are members of different social groups. Interacting with members of an outgroup, especially in the context of friendship, can improve attitudes toward those outgroup members (Allport, 1954; Pettigrew & Tropp, 2006). For example, a study in the United Kingdom found that 3- to 5-year-old White children in racially mixed classrooms did not show a pro-White bias, whereas children in racially homogenous classrooms did (Rutland, Cameron, Bennett, & Ferrell, 2005). Furthermore, children with more cross-race friendships show lower levels of racial bias (Binder et al., 2009; Rutland & Killen, 2015), and children in ethnically homogenous school settings tend to interpret ambiguous situations in biased ways and attribute negative stereotypes to outgroup members, but children in ethnically heterogeneous schools do not (McGlothlin & Killen, 2010; Rutland, Cameron, Milne, & McGeorge, 2005). Thus, one way to reduce children's bias may be to put them in situations where they are more likely to directly interact with outgroup members.

However, a caveat to the above proposal is that it is not always possible or practical to simply place children in diverse environments. This concern has led researchers to examine the effectiveness of *extended contact* in reducing intergroup bias. In cases of extended contact, children may not themselves have had contact with outgroup members, but are aware of fellow group members who have (Cameron, Rutland, Brown, & Douch, 2006; Wright, Aron, Volpe-McLaughlin, & Ropp, 1997). Interventions to facilitate extended contact in school settings have

successfully reduced prejudice in children. For example, reading illustrated stories about friendships between ingroup and outgroup children has led to more positive attitudes toward the outgroup across a number of studies (Cameron & Rutland, 2006; Cameron, Rutland, & Brown, 2007; Cameron et al., 2006). Additionally, exposure to classroom materials that include images and symbols of diverse groups (e.g., in songs, books, and posters) can reduce the biases that children hold (Gaias, Gal, Abry, Granger, & Taylor, in press).

Finally, another emergent body of work suggests that one reason children (and adults) rely on stereotypes and prejudices is because they have difficulty individuating outgroup members and so rely on category-level knowledge (the Perceptual-Social Linkage Hypothesis: Lee, Quinn, & Pascalis, 2017). Based on this hypothesis, researchers have experimented with cross-race individuation training as a way of reducing bias by reducing reliance on categories, with promising initial results (Qian et al., 2017). In brief, this work relies on the assumption that individual acts of categorization mediate between perception of individuals and the application of category-level beliefs to that individual (Lee et al., 2017; Dunham & Degner, 2013).

### **Conclusion**

In this chapter, we have reviewed a great deal of research on the development of intergroup cognition, from the earliest origins of social categorization to the development and consequences of social category-based processing across childhood. In reviewing this work, we have aimed to highlight ways in which social categorization is deeply embedded in human psychology, shaping some of the most basic ways in which we view the world. The research reviewed here leaves open many interesting questions that will shape much of the work done in developmental psychology over the years to come, but has also already brought us a long way in understanding just how influential social categorization is in shaping human development.

Looking forward, we hope too see the field move toward an even more complete understanding of the development of social cognition that incorporates work across the lifespan, including adolescents and older adults, and that draws from the newest findings and methods across other areas of psychology, including comparative cognition and cognitive neuroscience. We trust that by continuing to ask questions about the roots of social cognition, researchers will uncover the basic psychological tendencies that will not only contribute to a fuller understanding of psychology, but that will allow us to facilitate positive outcomes for children developing in a dizzyingly complex social world.

## References

- About, F.E. (1988). *Children and prejudice*. New York: Blackwell.
- 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: Studies in Crime and Public Policy* (pp. 47-65). Oxford University Press, Oxford.
- Abrams, D., Rutland, A., & Cameron, L. (2003). The development of subjective group dynamics: Children's judgments of normative and deviant in-group and out-group individuals. *Child Development, 74*, 1840-1856.
- Abrams, D., Rutland, A., Pelletier, J., & Ferrell, J.M. (2009). Children's group nous: Understanding and applying peer exclusion within and between groups. *Child Development, 80*, 224-243.
- Allport, G. (1954). *The nature of prejudice*. Cambridge, UK: Addison Wesley.
- Astuti, R., Solomon, G.E., & Carey, S. (2004). Constraints on conceptual development: A case study of the acquisition of folkbiological and folksociological knowledge in Madagascar. *Monographs of the Society for Research in Child Development, 69*, 1-135.
- Atran, S. (1990). *Cognitive foundations of natural history*. New York, NY: Cambridge University Press.
- Bar-Haim, Y., Ziv, T., Lamy, D., & Hodes, R.M. (2006). Nature and nurture in own-race face processing. *Psychological Science, 17*, 159-163.
- Baron, A.S., & Banaji, M.R. (2006). The development of implicit attitudes evidence of race evaluations from ages 6 and 10 and adulthood. *Psychological Science, 17*, 53-58.
- Baron, A.S. & Dunham, Y. (2015). Representing "us" and "them": Building blocks of intergroup cognition. *Journal of Cognition and Development, 16*, 780-801.

- Barrett, M. (2007). *Children's knowledge, beliefs and feelings about nations and national groups*. Hove, England: Psychology Press.
- Batson, C.D., Polycarpou, M.P., Harmon-Jones, E., Imhoff, H.J., Mitchener, E.C., Bednar, L.L., Klein, T.R., & Highberger, L. (1997). Empathy and attitudes: Can feeling for a member of a stigmatized group improve feelings toward the group? *Journal of Personality and Social Psychology*, 72, 105-118.
- Baumeister, R.F. & Leary, M.F. (1995). The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, 117, 497-529.
- Bennett, M., Lyons, E., Sani, F., & Barrett, M. (1998). Children's subjective identification with the group and in-group favoritism. *Developmental Psychology*, 34, 902-909.
- Bennett, M. & Sani, F. (2008). Children's subjective identification with social groups: A self-stereotyping approach. *Developmental Science*, 11, 69-75.
- Bennet, M. & Sani, F. (2008). The effect of comparative context upon stereotype content: Children's judgments of ingroup behavior. *Scandinavian Journal of Psychology*, 49, 141-146.
- Benozio, A. & Diesendruck, G. (2015). From effort to value: Preschool children's alternative to effort justification. *Psychological Science*, 26, 1423-1429.
- Berndt, T.J., & Heller, K.A. (1986). Gender stereotypes and social inferences: A developmental study. *Journal of Personality and Social Psychology*, 50, 889-898.
- Bian, L., Leslie, S.J., & Cimpian, A. (2017). Gender stereotypes about intellectual ability emerge early and influence children's interests. *Science*, 355, 389-391.

- Bian, L., Sloane, S., & Baillargeon, R. (2018). Infants expect ingroup support to override fairness when resources are limited. *Proceedings of the National Academy of Sciences, 115*, 2705-2710.
- Biernat, M. (1991). Gender stereotypes and the relationship between masculinity and femininity: A developmental analysis. *Journal of Personality and Social Psychology, 61*, 351-365.
- Bigler, R.S. & Liben, L.S. (1993). A cognitive-developmental approach to racial stereotyping and reconstructive memory in Euro-American children. *Child Development, 64*, 1507-1518.
- Bigler, R.S., & Liben, L.S. (2006). A developmental intergroup theory of social stereotypes and prejudice. *Advances in Child Development and Behavior, 34*, 39-89.
- Binder, J., Zagefka, H., Brown, R., Funke, F., Kessler, T., Mummendey, A., Maquil, A., Demoulin, S., Leyens, J.P. (2009). Does contact reduce prejudice or does prejudice reduce contact? A longitudinal test of the contact hypothesis among majority and minority groups in three European countries. *Journal of Personality and Social Psychology, 96*, 843–856.
- Birnbaum, D., Deeb, I., Segall, G., Ben-Eliyahu, A., & Diesendruck, G. (2010). The development of social essentialism: The case of Israeli children's inferences about Jews and Arabs. *Child Development, 81*, 757–777.
- Boyd, R., & Richerson, P. J. (2009). Culture and the evolution of human cooperation. *Philosophical Transactions of the Royal Society B: Biological Sciences, 364*, 3281-3288.
- Brown, D.E. (2004). Human Universals, Human Nature & Human Culture. *Daedalus, 133*, 47–54.

- Butler, L.P. & Walton, G.M. (2013). The opportunity to collaborate increases preschoolers' motivation for challenging tasks. *Journal of Experimental Child Psychology, 116*, 953-961.
- Buttelmann, D. & Boehm, R. (2014). The ontogeny of the motivation that underlies in-group bias. *Psychological Science, 25*, 921-927.
- Buttelmann, D., Zmyj, N., Daum, M., & Carpenter, M. (2013). Selective imitation of in-group over out-group members in 14-month-old infants. *Child Development, 64*, 422-428.
- Cameron, L. & Rutland, A. (2006). Extended contact through story reading in school: Reducing children's prejudice toward the disabled. *Journal of Social Issues, 62*, 469-488.
- Cameron, L., Rutland, A., & Brown, R. (2007). Promoting children's positive intergroup attitudes towards stigmatized groups: Extended contact and multiple classification skills training. *International Journal of Behavioral Development, 31*, 454-466.
- Cameron, L., Rutland, A., Brown, R., & Douch, R. (2006). Changing children's intergroup attitudes toward refugees: Testing different models of extended contact. *Child Development, 77*, 1208-1219.
- Castelli, L., De Amicis, L., & Sherman, S.J. (2007). The loyal member effect: On the preference for ingroup members who engage in exclusive relations with the ingroup. *Developmental Psychology, 43*, 1347-1359.
- Chalik, L., Leslie, S.J., & Rhodes, M. (2017). Cultural context shapes essentialist beliefs about religion. *Developmental Psychology, 53*, 1178-1187.
- Chalik, L., & Rhodes, M. (under review). Learning about social category-based obligations.
- Chalik, L., & Rhodes, M. (2014). Preschoolers use social allegiances to predict behavior. *Journal of Cognition and Development, 15*, 136-160.

- Chalik, L., Rivera, C., & Rhodes, M. (2014). Children's use of categories and mental states to predict social behavior. *Developmental Psychology, 50*, 2360-2367.
- Chalik, L. & Wynn, K. (in prep). Ingroup positivity and outgroup negativity differentially motivate social behavior in toddlers.
- Chen, E.E., Corriveau, K.H., & Harris, P.L. (2013). Children trust a consensus composed of outgroup members - but do not retain that trust. *Child Development, 84*, 269-282.
- Corenblum, B. (2003). What children remember about ingroup and outgroup peers: Effects of stereotypes on children's processing of information about group members. *Journal of Experimental Child Psychology, 86*, 32-66.
- Corriveau, K.H. & Harris, P.L. (2010). Preschoolers (sometimes) defer to the majority in making simple perceptual judgments. *Developmental Psychology, 46*, 437-445.
- Corriveau, K.H., Kinzler, K.D., & Harris, P.L. (2013). Accuracy trumps accent in children's endorsement of object labels. *Developmental Psychology, 49*, 470-479.
- Cvencek, D., Meltzoff, A.N., & Greenwald, A.G. (2011). Math-gender stereotypes in elementary school children. *Child Development, 82*, 766-779.
- Degner, J., & Wentura, D. (2010). Automatic prejudice in childhood and early adolescence. *Journal of Personality and Social Psychology, 98*, 356.
- DeJesus, J.M., Rhodes, M., & Kinzler, K.D. (2014). Evaluations versus expectations: Children's divergent beliefs about resource distribution. *Cognitive Science, 38*, 178-193.
- del Río, M.F., & Strasser, K. (2011). Chilean children's essentialist reasoning about poverty. *British Journal of Developmental Psychology, 29*, 722-743.
- Devine, P.G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology, 56*, 5-18.

- Diesendruck, G., & Haber, L. (2009). God's categories: The effect of religiosity on children's teleological and essentialist beliefs about categories. *Cognition, 110*, 100–114.
- Diesendruck, G., & HaLevi, H. (2006). The role of language, appearance, and culture in children's social category-based induction. *Child Development, 77*, 539-553.
- Dunham, Y. (in press). Mere membership. *Trends in Cognitive Sciences*.
- Dunham, Y., Baron, A.S., & Banaji, M.R. (2006). From American city to Japanese village: A cross-cultural investigation of implicit race attitudes. *Child Development, 77*, 1268-1281
- Dunham, Y., Baron, A.S., & Banaji, M.R. (2007). Children and social groups: A developmental analysis of implicit consistency in Hispanic Americans. *Self and Identity, 6*, 238-255.
- Dunham, Y., Baron, A.S., & Banaji, M.R. (2008). The development of implicit intergroup cognition. *Trends in Cognitive Sciences, 12*, 248-253.
- Dunham, Y., Baron, A.S., & Banaji, M.R. (2015). The development of implicit gender attitudes. *Developmental Science, 18*, 469-483.
- Dunham, Y., Baron, A. S., & Carey, S. (2011). Consequences of “minimal” group affiliations in children. *Child Development, 82*, 793-811.
- Dunham, Y., & Degner, J. (2013). From categories to exemplars (and back again). In M. R. Banaji & S. A. Gelman (Eds.), *Navigating the social world: What infants, children, and other species can teach us* (pp. 275-280). New York, NY: Oxford University Press.
- Dunham, Y., & Emory, J. (2014). Of affect and ambiguity: The emergence of preference for arbitrary ingroups. *Journal of Social Issues, 70*, 81-98.
- Dunham, Y., Newheiser, A.K., Hoosain, L., Merrill, A., & Olson, K.R. (2014). From a different vantage: Intergroup attitudes among children from low-and intermediate-status racial groups. *Social Cognition, 32*, 1-21.

- Dunham, Y., Srinivasan, M., Dorsch, R., & Barner, D. (2014). Religion insulates ingroup evaluations: The development of intergroup attitudes in India. *Developmental Science, 17*, 311-319.
- Engelmann, J.M., Herrmann, E., Rapp, D.J., & Tomasello, M. (2016). Young children (sometimes) do the right thing even when their peers do not. *Cognitive Development, 39*, 86-92.
- Engelmann, J.M., Over, H., Herrmann, E., & Tomasello, M. (2013). Young children care more about their reputation with ingroup members and potential reciprocators. *Developmental Science, 16*, 952-958.
- Fehr, E., Bernhard, H., & Rockenbach, B. (2008). Egalitarianism in young children. *Nature, 454*, 1079-1083.
- Finlay, K.A. & Stephan, W.G. (2000). Improving intergroup relations: The effects of empathy on racial attitudes. *Journal of Applied Social Psychology, 30*, 1720-1737.
- Gaias, L.M., Gal, D., Abry, T., Granger, K.L., & Taylor, M. (in press). Diversity exposure in preschool: Longitudinal implications for cross-race friendships and racial bias. *Journal of Applied Developmental Psychology*.
- Gelman, S.A. (2003). *The essential child: Origins of essentialism in everyday thought*. Oxford: Oxford University Press.
- Gelman, S., Collman, P., & Maccoby, E. (1986). Inferring properties from categories versus inferring categories from properties: The case of gender. *Child Development, 57*, 396-404.
- Gopnik, A., & Wellman, H. M. (2012). Reconstructing constructivism: Causal models, Bayesian learning mechanisms, and the theory theory. *Psychological Bulletin, 138*, 1085-1108.

- Greenwald, A.G., McGhee, D.E., & Schwartz, J.L. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology, 74*, 1464.
- Griffiths, J., & Nesdale, D. (2006). Ingroup and outgroup attitudes of ethnic majority and minority children. *International Journal of Intercultural Relations, 30*, 735-749.
- Halim, M.L.D., Ruble, D.N., Tamis-LeMonda, C.S., Shrout, P.E., & Amodio, D.M. (2017). Gender attitudes in early childhood: Behavioral Consequences and cognitive antecedents. *Child Development, 88*, 882-899.
- Haslam, N., Rothschild, L., & Ernst, D. (2000). Essentialist beliefs about social categories. *British Journal of Social Psychology, 39*, 113-127.
- Haun, D.B. & Tomasello, M. (2011). Conformity to peer pressure in preschool children. *Child Development, 82*, 1759-1767.
- Heiphetz, L., Spelke, E.S., & Banaji, M.R. (2013). Patterns of implicit and explicit attitudes in children and adults: Tests in the domain of religion. *Journal of Experimental Psychology: General, 142*, 864-879.
- Hetherington, C., Hendrickson, C., & Koenig, M. (2014). Reducing an in-group bias in preschool children: The impact of moral behavior. *Developmental Science, 17*, 1042-1049.
- Hilliard, L.J. & Liben, L.S. (2010). Differing levels of gender salience in preschool classrooms: Effects on children's gender attitudes and intergroup bias. *Child Development, 81*, 1787-1798.
- Hirschfeld, L.A. (1996). *Race in the making*. Cambridge, MA: MIT Press.

- Howard, L.H., Henderson, A.M., Carrazza, C., & Woodward, A.L. (2015). Infants' and young children's imitation of linguistic in-group and out-group informants. *Child Development, 86*, 259-275.
- James, J.D. (2001). The role of cognitive development and socialization in the initial development of team loyalty. *Leisure Sciences, 23*, 233–261.
- Jin, K., & Baillargeon, R. (2017). Infants possess an abstract expectation of ingroup support. *Proceedings of the National Academy of Sciences, 114*, 8199-8204.
- Jordan, J.J., McAuliffe, K., & Warneken, F. (2014). Development of ingroup favoritism in children's third-party punishment of selfishness. *Proceedings of the National Academy of Sciences, 111*, 12710-12715.
- Kalish, C. W., & Lawson, C. A. (2008). Development of social category representations: Early appreciation of roles and deontic relations. *Child Development, 79*, 577-593.
- Keller, J. (2005). In genes we trust: The biological component of psychological essentialism and its relationship to mechanisms of motivated social cognition. *Journal of Personality and Social Psychology, 88*, 686-702.
- Kelly, D.J., Quinn, P.C., Slater, A.M., Lee, K., Gibson, A., Smith, M., Ge, L., & Pascalis, O. (2005). Three-month-olds but not newborns prefer own-race faces. *Developmental Science, 8*, F31-F36.
- Kinzler, K.D., & Dautel, J. (2012). Children's essentialist reasoning about language and race. *Developmental Science, 15*, 131-138.
- Kinzler, K.D., Dupoux, E., & Spelke, E.S. (2007). The native language of social cognition. *Proceedings of the National Academy of Sciences, 104*, 12577-12580.

- Kinzler, K.D., Dupoux, E., & Spelke, E.S. (2012). “Native” objects and collaborators: Infants’ object choices and acts of giving reflect favor for native over foreign speakers. *Journal of Cognition and Development, 13*, 67-81.
- Kinzler, K., Shutts, K., DeJesus, J., & Spelke, E. (2009). Accent trumps race in guiding children’s social preferences. *Social Cognition, 27*, 623-634.
- Lee, K., Quinn, P.C., & Pascalis, O. (2017). Face race processing and racial bias in early development: A perceptual-social linkage. *Current Directions in Psychological Science, 26*, 256-262.
- Liberman, Z., Kinzler, K.D., & Woodward, A.L. (2014). Friends or foes: Infants use shared evaluations to infer others’ social relationships. *Journal of Experimental Psychology: General, 143*, 966-971.
- Liberman, Z., Woodward, A.L., & Kinzler, K.D. (2017). Preverbal infants infer third-party social relationships based on language. *Cognitive Science, 41*, 622-634.
- Mahajan, N., & Wynn, K. (2012). Origins of “us” versus “them”: Prelinguistic infants prefer similar others. *Cognition, 124*, 227-233.
- Mahalingam, R. (2003). Essentialism, culture, and power: Representations of social class. *Journal of Social Issues, 59*, 733-749.
- Marques, J.M., Yzerbyt, V.Y., & Leyens, J. (1988). “The black sheep effect”: Extremity of judgments toward ingroup members as a function of group identification. *European Journal of Social Psychology, 18*, 1-16.
- Master, A., Cheryan, S., & Meltzoff, A.N. (2017). Social group membership increases STEM engagement among preschoolers. *Developmental Psychology, 53*, 201-209.

- Master, A. & Walton, G.M. (2012). Minimal groups increase young children's motivation and learning on group-relevant tasks. *Child Development, 84*, 737-751.
- McAuliffe, K. & Dunham, Y. (2017). Fairness overrides group bias in children's second-party punishment. *Journal of Experimental Psychology: General, 146*, 485-494.
- McGlothlin, H. & Killen, M. (2010). How social experience is related to children's intergroup attitudes. *European Journal of Social Psychology, 40*, 625-634.
- McLoughlin, N. & Over, H. (2017). The developmental origins of dehumanization. *Advances in Child Development and Behavior, 54*, 153-178.
- McLoughlin, N., Tipper, S.P., & Over, H. (in press). Young children perceive less humanness in outgroup faces. *Developmental Science*.
- Medin, D.L., & Ortony, A. (1989). Psychological essentialism. In S. Vosnaidou & A. Ortony (Eds.), *Similarity and analogical reasoning* (pp. 179 –196). Cambridge, MA: Cambridge University Press.
- Misch, A., & Dunham, Y. (in prep). Conform or contrast? The influence of group members' prosocial and antisocial examples on children's sharing behavior.
- Misch, A., Over, H., & Carpenter, M. (2014). Stick with your group: Young children's attitudes about group loyalty. *Journal of Experimental Child Psychology, 126*, 19-36.
- Misch, A., Over, H., & Carpenter, M. (2016). I won't tell: Young children show loyalty to their group by keeping group secrets. *Journal of Experimental Child Psychology, 142*, 96-106.
- Misch, A., Over, H., & Carpenter, M. (2018). The whistleblower's dilemma in young children: When loyalty trumps other moral concerns. *Frontiers in Psychology, 9*, 250.
- Misch, A., & Wynn, K. (in prep). Infants' expectations of moral conformity in social groups.

- Muzzatti, B. & Agnoli, F. (2007). Gender and mathematics: Attitudes and stereotype threat susceptibility in Italian children. *Developmental Psychology, 43*, 747-759.
- Nesdale, D., & Flesser, D. (2001). Social identity and the development of children's group attitudes. *Child Development, 72*, 506-517
- Noyes, A. & Dunham, Y. (2017). Mutual intentions as a causal framework for social groups. *Cognition, 162*, 133-142.
- Olson, K. R., & Dunham, Y. (2010). The development of implicit social cognition. In B. Gawronski, & B. K. Payne (Eds.), *Handbook of implicit social cognition: Measurement, theory, and applications* (pp. 241-254). New York, NY: Guilford Press.
- Oostenbroek, J. & Over, H. (2015). Young children contrast their behavior to that of out-group members. *Journal of Experimental Child Psychology, 139*, 234-241.
- Over, H. & Carpenter, M. (2009). Eighteen-month-old infants show increased helping following priming with affiliation. *Psychological Science, 20*, 1189-1193.
- Over, H., Eggleston, A., Bell, J., & Dunham, Y. (2017). Young children seek out biased information about social groups. *Developmental Science, 21*, 1-12.
- Over, H., Vaish, A., & Tomasello, M. (2016). Do young children accept responsibility for the negative actions of ingroup members? *Cognitive Development, 40*, 24-32.
- Pettigrew, T.F. & Tropp, L.R. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology, 90*, 751-783.
- Powell, L.J., & Spelke, E.S. (2013). Preverbal infants expect members of social groups to act alike. *Proceedings of the National Academy of Sciences, 110*, E3965–E3972.
- Prentice, D.A., & Miller, D.T. (2007). Psychological essentialism of human categories. *Current Directions in Psychological Science, 16*, 202-206.

- Qian, M.K., Quinn, P.C., Heyman, G.D., Pascalis, O., Fu, G., & Lee, K. (2017). Perceptual individuation training (but not mere exposure) reduces implicit racial bias in preschool children. *Developmental Psychology, 53*, 845-859.
- Quinn, P.C., Yahr, J., Kuhn, A., Slater, A.M., & Pascalis, O. (2002). Representation of the gender of human faces by infants: A preference for female. *Perception, 31*, 1109-1121.
- Raabe, T., & Beelmann, A. (2011). Development of ethnic, racial, and national prejudice in childhood and adolescence: A multinational meta-analysis of age differences. *Child Development, 82*, 1715-1737.
- Renno, M.P., & Shutts, K. (2015). Children's social category-based giving and its correlates: Expectations and preferences. *Developmental Psychology, 51*, 533-543.
- Rhodes, M. (2012). Naïve theories of social groups. *Child Development, 83*(6), 1900-1916.
- Rhodes, M., & Chalik, L. (2013). Social categories as markers of intrinsic interpersonal obligations. *Psychological Science, 24*, 999-1006.
- Rhodes, M., & Gelman, S.A. (2009). A developmental examination of the conceptual structure of animal, artifact, and human social categories across two cultural contexts. *Cognitive Psychology, 59*, 244-274.
- Rhodes, M., Leslie, S.J., Saunders, K., Dunham, Y., & Cimpian, A. (2017). How does social essentialism affect the development of inter-group relations? *Developmental Science, 21*, 1-15.
- Rhodes, M., Leslie, S.J., & Tworek, C.M. (2012). Cultural transmission of social essentialism. *Proceedings of the National Academy of Sciences, 109*, 13526-13531.

- Richter, N., Over, H., & Dunham, Y. (2016). The effects of minimal group membership on young preschoolers' social preferences, estimates of similarity, and behavioral attribution. *Collabra*, 2, 8.
- Rotenberg, K.J. & Cerda, C. (1994). Racially based trust expectancies of Native American and Caucasian children. *Journal of Social Psychology*, 134, 621-631.
- Rothbart, M., & Taylor, M. (1992). Category labels and social reality: Do we view social categories as natural kinds? In G.R. Semin & K. Fiedler (Eds.), *Language, interaction and social cognition* (pp. 11-36). Thousand Oaks, CA: Sage Publications, Inc.
- Rutland, A., Cameron, L., Bennett, L., & Ferrell, J. (2005). Interracial contact and racial constancy: A multi-site study of racial intergroup bias in 3-5 year old Anglo-British children. *Journal of Applied Developmental Psychology*, 26, 699-713.
- Rutland, A., Killen, M., & Abrams, D. (2010). A new social-cognitive developmental perspective on prejudice: The interplay between morality and group identity. *Perspectives on Psychological Science*, 5, 279-291.
- Salomon, E. & Cimpian, A. (2014). The inherence heuristic as a source of essentialist thought. *Personality and Social Psychology Bulletin*, 40, 1297-1315.
- Sani, F. & Bennett, M. (2009). Children's inclusion of the group in the self: Evidence from a self-ingroup confusion paradigm. *Developmental Psychology*, 45, 503-510.
- Schmidt, M.F., Rakoczy, H., & Tomasello, M. (2012). Young children enforce social norms selectively depending on the violator's group affiliation. *Cognition*, 124, 325-333.
- Schug, M.G., Shusterman, A., Barth, H., & Palatano, A.L. (2013). Minimal-group membership influences children's responses to novel experience with group members. *Developmental Science*, 16, 47-55.

- Shutts, K. (2015). Young children's preferences: Gender, race, and social status. *Child Development Perspectives, 9*, 262-266.
- Shutts, K., Banaji, M.R., & Spelke, E.S. (2010). Social categories guide young children's preferences for novel objects. *Developmental Science, 13*, 599-610.
- Sierksma, J., Thijs, J.T., & Verkuyten, M. (2015). In-group bias in children's intention to help can be overpowered by inducing empathy. *British Journal of Developmental Psychology, 33*, 45-56.
- Singarajah, A., Chanley, J., Gutierrez, Y., Cordon, Y., Nguyen, B., Burakowski, L., & Johnson, S.P. (2017). Infant attention to same- and other-race faces. *Cognition, 159*, 76-84.
- Song, R., Over, H., & Carpenter, M. (2015). Children draw more affiliative pictures following priming with third-party ostracism. *Developmental Psychology, 51*, 831-840.
- Sousa, P., Atran, S., & Medin, D. (2002). Essentialism and folkbiology: Evidence from Brazil. *Journal of Cognition and Culture, 2*, 195-223.
- Tajfel, H. & Turner, J. (1979). An integrative theory of intergroup conflict. In W.G. Austin & S. Worchel (Eds.), *The social psychology of inter-group relations* (pp. 33-47). Monterey, CA: Brooks/Cole.
- Taylor, M.G. (1996). The development of children's beliefs about social and biological aspects of gender differences, *Child Development, 67*, 1555-1571.
- Taylor, M., Rhodes, M., & Gelman, S. (2009). Boys will be boys; cows will be cows: Children's essentialist reasoning about gender categories and animal species. *Child Development, 80*, 461-481.
- Watson-Jones, R.E., Whitehouse, H., & Legare, C.H. (2016). In-group ostracism increases high-fidelity imitation in early childhood. *Psychological Science, 27*, 34-42.

- Waxman, S. R. (2010). Names will never hurt me? Naming and the development of racial and gender categories in preschool-aged children. *European Journal of Social Psychology, 40*, 593-610.
- Waxman, S.R., & Grace, A.D. (2012). Developing gender- and race-based categories in infants: Evidence from 7- and 11-month-olds. In G. Hayes & M. Bryant (Eds.), *Psychology of culture*. Hauppauge, NY: Nova Science Publishers.
- Wellman, H. M., & Gelman, S. A. (1992). Cognitive development: Foundational theories of core domains. *Annual Review of Psychology, 43*, 337-375.
- Williams, M.J., & Eberhardt, J.L. (2008). Biological conceptions of race and the motivation to cross racial boundaries. *Journal of Personality and Social Psychology, 94*, 1033-1047.
- Wilks, M. & Nielsen, M. (2018). Children disassociate from antisocial in-group members. *Journal of Experimental Child Psychology, 165*, 37-50.
- Witt, S.D. (1997). Parental influence on children's socialization to gender roles. *Adolescence, 32*, 253-259.
- Wright, S.C., Aron, A., McLaughlin-Volpe, T., & Ropp, S.A. (1997). The extended contact effect: Knowledge of cross-group friendships and prejudice. *Journal of Personality and Social Psychology, 73*, 73-90.
- Yang, F., Choi, Y., Misch, A., Yang, X., & Dunham, Y. (in press). In defense of the commons: Young children negatively evaluate and sanction free-riders. *Psychological Science*.