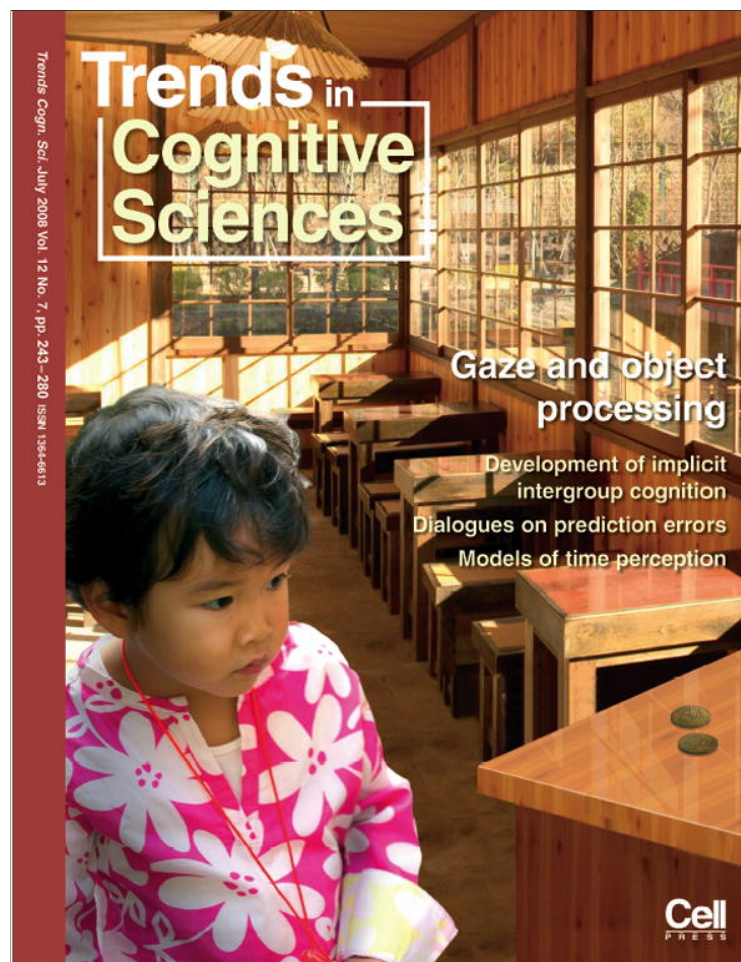


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The development of implicit intergroup cognition

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Challenging the view that implicit social cognition emerges from protracted social learning, research now suggests that intergroup preferences are present at adultlike levels in early childhood. Specifically, the pattern of developmental emergence of implicit attitudes is characterized by (i) rapidly emerging implicit preferences for ingroups and dominant groups and (ii) stability of these preferences across development. Together these findings demonstrate that implicit intergroup preferences follow a developmental course distinct from explicit intergroup preferences. In addition these results cast doubt on 'slow-learning' models of implicit social cognition according to which children should converge on adult forms of social cognition only as statistical regularities are internalized over a lengthy period of development.

Implicit social cognition

The idea that thoughts and feelings can operate outside conscious awareness and control is now firmly accepted in experimental psychology. In particular, research on the nonconscious aspects of reasoning about social entities has played a significant role in shaping the contemporary view of the human mind's operation in social contexts. For example, we know that attitudes, stereotypes and group identities can operate in a nonconscious or 'implicit' form [1–4] and that these mental representations are distinguishable from 'explicit', conscious cognition at both the behavioral [4,5] and neural levels [6,7].

Clearly, implicit intergroup cognition does not spring into existence fully formed in the adult mind, yet we know surprisingly little about its developmental course (as opposed to explicit intergroup cognition, which has received substantial attention; see [Box 1](#) and reviews in [8,9]). How and when do children begin to demonstrate implicit intergroup preferences? How do these evaluations change over the lifespan, and what are the crucial inputs that drive this change? Focusing on how these processes change over time can produce findings of interest beyond developmental psychology because patterns of ontogenetic stability and change can generate and constrain theories of mature social cognition ([Box 2](#)).

Existing accounts of implicit social cognition contain strong assumptions about the developmental course of implicit constructs. Most commonly, acquisition of implicit social cognition has been conceptualized as the result of

a slow-learning system culling the environment for regularities [10,11]. Specific formulations emphasize the gradual accumulation of trace experiences [3], well-learned associations [12] and heuristics [13] not accessible to consciousness, or patterns of affectively-laden childhood experience [14,15]. Such claims support a particular view, namely that implicit attitudes and beliefs emerge gradually over a protracted period of development as regularities in the social world are detected and internalized. Embedded in such a view is the assumption that outside a particular cultural climate infused with widespread negative evaluations of certain groups, neither children nor adults would manifest intergroup bias.

Contrary to these expectations, new evidence on the development of implicit social cognition suggests that implicit intergroup preferences appear quite early in life and are remarkably stable over the lifespan. We argue that the most parsimonious explanation for this pattern of results involves two early-emerging processes: (i) a rapidly forming ingroup-favoring tendency and (ii) an early sensitivity to knowledge of the relative social status of one's own group in the local, culturally determined dominance hierarchy.

Preferences in infancy

The roots of mature social preferences are visible in early infancy. By using looking time as a measure of preference, even newborns prefer facelike configurations to equally complex, non-facelike patterns and attractive to unattractive faces, suggesting that they might be innately specified (see review in [16]). However, infants also prefer to look at the face of and hear the voice of their primary caregiver [17], prefer the sound of their native language [18], prefer women's faces [19] and prefer faces of racial ingroup members [20,21]. This latter set of preferences is clearly learned; infants whose primary caregivers are male or who are frequently exposed to racial outgroups do not show these normative patterns of preference. Overall, these results indicate the role of both innate proclivities and early experience in shaping preferences.

Although intriguing, caution should be used when interpreting looking time data as reflecting social preferences. Longer looking times can reflect expectancy violation, intrigue, familiarity as well as preference. However, other studies using an 'intermodal matching' paradigm have shown that infants look longer at 'congruent' stimuli. For example, infants look longer at a female face upon hearing a female voice and look longer at a male face upon

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Box 1. The development of explicit intergroup preferences

The fact that young children verbally report negative attitudes toward members of racial and other outgroups often comes as a shock, especially to surprised parents. Nonetheless, the accumulated evidence shows that from age four, White children in North America and the UK express negative attitudes and stereotypes toward racial outgroups (reviewed in [8,9,47]). These expressions begin to decline in middle childhood and are weak or absent by adolescence. Traditional interpretations of these findings (e.g. [47]) have focused on processes of domain-general cognitive maturation in which childhood egocentrism and deficiencies in the ability to multiply categorize the same individual led to overextension of positive valence to the ingroup and to the rigid application of stereotypes. As these developmental limitations are overcome in the course of normative development, intergroup bias wanes; in this view both the early emergence and gradual disappearance of intergroup bias are driven by stagelike developmental change.

The emergence of evidence on the development of implicit social cognition provides grounds to revise these findings. Rather than documenting the changes in intergroup cognition writ large, they must be interpreted as applying only to children's self-reported, explicit evaluations. Explicit teaching about appropriate social norms for respecting all groups as well as egalitarian moral principles might explain the developmental shift away from expressions of intergroup bias. But the data presented in this article suggest that implicit intergroup preferences follow a decidedly different pattern, characterized by early emergence of ingroup preference followed by developmental stability (see main text). Thus, the well-known dissociation between implicit and explicit intergroup attitudes visible in adults appears to result when explicit attitudes are revised gradually over development (growing more egalitarian), whereas implicit attitudes remain generally stable, continuing to favor the ingroup or culturally dominant group [27].

hearing a male voice [22]. Most relevant to our exploration of the early emergence of social preferences, infants have been shown to look longer at attractive rather than unattractive faces when hearing pleasant sounds and vice versa for unattractive faces [23], suggesting a positive evaluative association with attractive faces. Intermodal matching could prove useful in exploring other intergroup preferences in infants by moving beyond simple visual preferences to actual evaluative associations. Such research could provide a much needed bridge to toddler and early childhood data on intergroup cognition, on which the remainder of this review will focus.

Implicit ingroup preference in young children

Children from racial/ethnic groups that are socially advantaged (and, hence, dominant) show robust implicit preference for their ingroup. By using a version of the Implicit Association Test (IAT) adapted for children to examine race attitudes (see [24,25] and Box 3), White six-year-olds in the US manifested implicit ingroup preference at levels statistically identical to White American adults (Figure 1) [25]. Similar findings with other samples of majority children in the UK, USA and Japan [26,27] reinforce the generality of early ingroup preference in the form of robust association of 'good' with one's own racial group and confirm that there is little developmental change in the magnitude of these preferences. This pattern was extended recently to even younger children by adapting a method previously used to demonstrate implicit group preferences

Box 2. Possible developmental courses of implicit social attitudes

The observed course of development can shed light on the causal factors driving the formation of implicit preferences. If a gradual exposure or slow-learning model best captures the nature of implicit intergroup cognition, negative evaluations of outgroup members should increase in strength as a function of exposure to converge on observed adult levels [for example as an 'S-shaped' learning curve typical in many areas of development, e.g. vocabulary acquisition; Figure 1, curve (a)]. If implicit evaluations of outgroups follow the same developmental trend exhibited by explicit evaluations of outgroups, we expect an initial increase in bias followed by a gradual decline in negative appraisal (at least in members of

advantaged groups; Figure 1, curve (b)). A third model reflects developmental stability, in which children closely resemble adults from early on in life; Figure 1, curve (c)). This pattern, supported by the data reviewed in the main text, implies that prolonged exposure to environmental information is not a necessary condition for the formation of implicit intergroup evaluations, suggesting that implicit intergroup preferences emerge early and are surprisingly stable across development. At the most general level, mapping observed results onto trajectories predicted by different theoretical frameworks allows developmental research to directly contribute to theory building and evaluation.

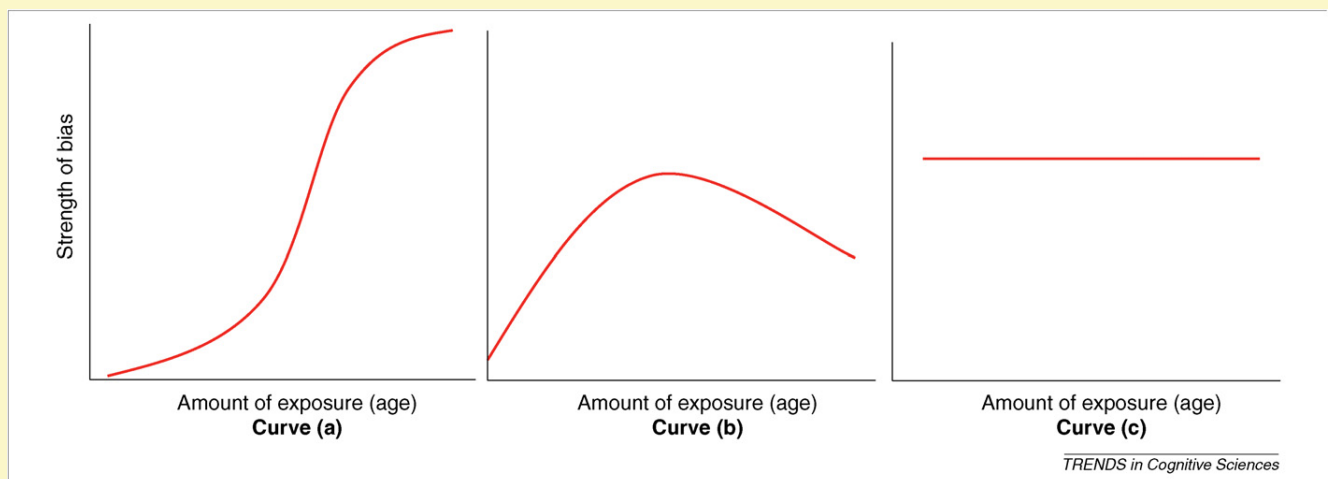


Figure 1. Three hypothetical relationships between exposure and the strength of intergroup bias.

Box 3. The Child Implicit Association Test (IAT)

The IAT [22] measures the associative strength between pairs of concepts, such as social categories (e.g. White, Black), and attributes (e.g. pleasant, unpleasant). It is typically computer administered, and in the Child-IAT [25] the categories are presented as pictures, the attributes as spoken words via headphones (to compensate for differences in reading ability) and large-response buttons are color matched to reminder bars on the screen (see Figure 1). After familiarization participants complete two blocks of critical trials involving paired categorization. These critical blocks are pictured here, along with the example of a Black–White race attitude IAT. In the first critical block, children categorize Black faces and negative

words by using a single left response button and White faces and positive words by using a single right response button (bottom left panels). In the second critical block, the positioning of the attribute categories (i.e. good and bad words) are reversed, resulting in the opposite pairings of 'White and negative' and 'Black and positive' (bottom right panels). Conceptually, the assumption is that preferred groups will be paired more rapidly and more accurately with positive attributes. The IAT effect size D is the standardized difference in response latencies across the two critical blocks and, thus, an individual difference measure of the strength of this implicit preference [48].

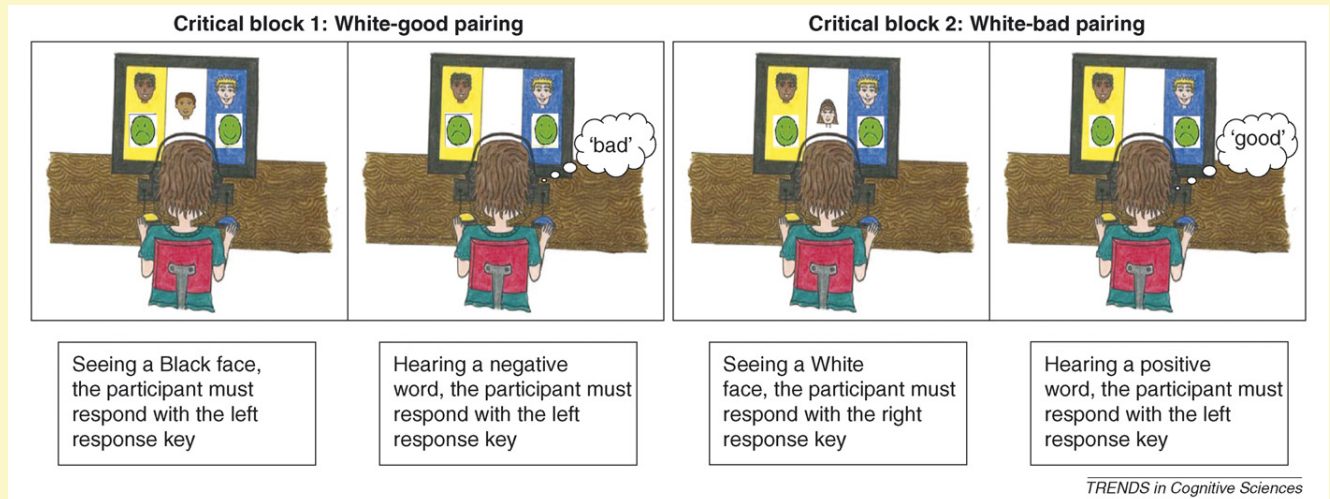


Figure 1. Critical blocks in the Child-IAT.

in adults [28]. Children were asked to rapidly categorize racially ambiguous target faces as Black or White; each target face was presented in both a frowning and smiling facial expression. Paralleling findings with adults [28], children as young as age three who could successfully categorize by race showed a tendency to be influenced by facial expression such that angry faces were overcategorized as Black, demonstrating a negative association with that group. Once again developmental stability was observed, with children's implicit preferences statistically indistinguishable from those of adults (Y. Dunham and M. Banaji, unpublished).

Although the limitations in basing causal claims on cross-sectional data should be kept in mind, the now familiar pattern of developmental stability between childhood and adulthood presents a challenge to slow-learning models of implicit attitude formation, which assume that convergence on adult attitudes requires a protracted process of social learning. The strong interpretation of these results is that implicit ingroup preference emerges as soon as an ingroup–outgroup contrast is acquired. This possibility is buttressed by results demonstrating that adults rapidly manifest implicit ingroup preference even with respect to novel and minimal social groups [29–31]. Indeed, adults even appear to implicitly evaluate novel non-social stimuli [32], providing convergent evidence that the implicit system is capable of forming evaluations in the absence of protracted social learning.

In addition to reflecting ingroup preference, these data might suggest that even at these young ages children

already have internalized consensual social views as to the value associated with different social groups (e.g. among children living in the USA and UK, the White majority is good and other racial groups are bad). One way to untangle these two possibilities is to examine children from disadvantaged groups for whom ingroup preference and the internalization of consensual social views are in opposition.

Early internalization of social hierarchies

Children are born into societies structured by hierarchical arrangements of social groups [33]. For example, races, classes and religions sit in vertical power relationships that are recognized by socially acculturated adult members of the society. In the USA Whites are in a socially dominant position compared with racial and ethnic minorities, such as Blacks, Hispanics and Asian Americans. In India power relations likewise involve the Hindu majority in comparison to Muslim, Christian, Sikh and other minorities, not to mention a complex system of castes. Often, but not always, social dominance is associated with numerical dominance (though colonial dominance such as in Apartheid South Africa are examples of minority dominance).

The central issue is this: on average, adult members of non-dominant groups show weak or no implicit ingroup preferences (e.g. the elderly show a young preference, Black Americans show no racial ingroup preference, lesbians and gay men show only weak ingroup preference, etc. [34,35]). Thus, ingroup preference clearly interacts with social learning about the relative status of one's own group [36].

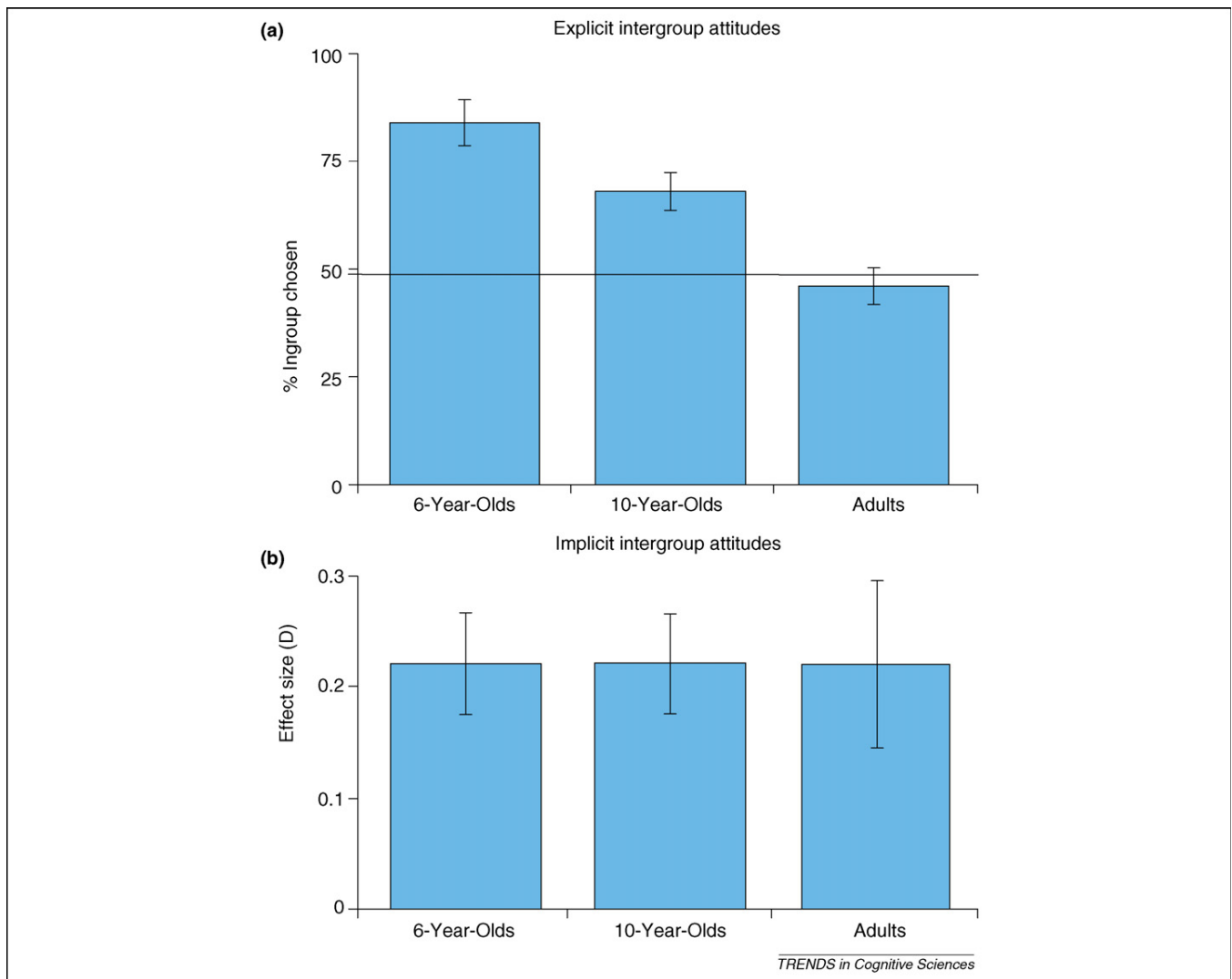


Figure 1. Implicit and explicit intergroup preferences in White Americans. Graph summarizing implicit (IAT) and explicit (self-report) intergroup preferences from White children in the USA, originally published in [25]. Higher bars indicate stronger preference for White over Black; error bars indicate standard error of the mean. Implicit preference is stable across ages (b) despite significant decline in explicit, self-reported preference for the ingroup [(a); chance responding = 50%]. Similar patterns have been observed in other studies of majority populations in the US, UK, and Japan [26,27].

Although a slow-learning model did not fare well in predicting the emergence of ingroup preferences, it is possible that such a model could do a better job when predicting the emergence of knowledge that one's own group is not as socially privileged as other groups. For example, children of disadvantaged groups might initially show ingroup preference, similar to members of the advantaged majority. If they then gradually acquire knowledge of their own group's lower status, we might expect this ingroup preference to wane with age.

Conversely, if children are sensitive to social group hierarchies at an early age, young children from non-dominant groups should reveal the same lack of ingroup preference that typifies adult members of their group. A recent study explored these possibilities. Hispanic children as young as five years old growing up in a predominantly Hispanic neighborhood showed no preference for their ingroup when compared with the White majority, as did older Hispanic children and adults [37]. This result points to the early acquisition of at least a basic form of implicit

social hierarchy knowledge, again challenging slow-learning models of implicit attitude development.

Interestingly, these same Hispanic children who showed no ingroup preference when comparing their group to White Americans did show ingroup preference when comparing their group to Black Americans. This result is noteworthy because it demonstrates that children's implicit attitudes are sensitive to which of two outgroups (White and Black) is socioculturally advantaged. In addition this finding suggests that implicit biases in young children are not merely the result of internalizing the value associated with locally salient social groups. Rather, emergent implicit preferences appear to be the result of both social dominance sensitivity (i.e. to the privileged position of the White majority) and ingroup preference (i.e. showing strong preference for the ingroup when the comparison is a group approximately equal in social status).

In a similar analysis of data from Black children tested in the laboratory, at their school and over the Internet, we

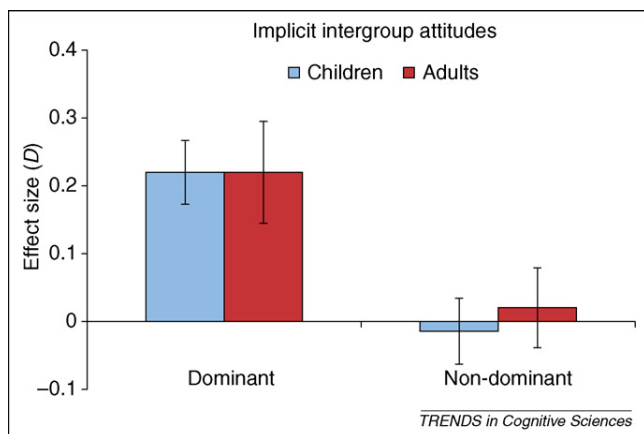


Figure 2. Implicit intergroup preferences in disadvantaged populations. Graph summarizing data across several studies with members of socioculturally dominant and non-dominant groups [37,38]. Higher bars indicate stronger implicit preference for one's racial ingroup over an outgroup; error bars indicate standard error of the mean. Members of dominant groups show strong ingroup preference, as noted by their significant preference (>0) for their own group. However, members of non-dominant groups show no preference for their own group relative to the dominant group, as reflected in the lack of difference from zero (no preference). In addition, within each group the level of preference is virtually identical for adults and children, again suggesting a pattern of developmental stability.

again found a lack of implicit ingroup preference across development; at no age did Black American children exhibit an implicit preference for Black relative to White. In other words, by age five, Black children scored strikingly similar to Black adults, who show no ingroup preference. Thus, although advantaged and disadvantaged groups do differ with respect to their implicit attitudes (with advantaged groups showing more robust ingroup preference), in both populations the mean level of implicit preference was stable across development (see Figure 2 and Ref. [38]).

Affect: the basis of acquiring and modifying intergroup preferences

The early presence of group-based evaluations probably implicates a general system for rapid preference formation, grounded in the evaluative or attitudinal system. The propensity to gravitate toward the benign and familiar and away from harmful influences is vital to survival, and affective processes are central to successfully orienting responses in this way [39,40]. In adults we know that implicit intergroup preferences predict fear-potential responses to members of social outgroups that are akin to more general affective learning of prepared fear stimuli [41] and that implicit intergroup bias is attenuated by high-quality contact [42–44], especially romantic contact [41]. In addition reports of affectively laden childhood experiences have been shown to correlate with adult implicit attitudes [14,15]. At the neural level the magnitude of implicit intergroup preferences correlates strongly with activation in the amygdala, a subcortical structure known to be involved in the learning and expression of emotion [6,7].

It is possible that children acquire social hierarchy knowledge primarily through affective channels; experiences that support the internalization of society's appraisal of their own group and/or the dominant majority might be powerful inputs to the implicit system. Understanding the

form and frequency of such experience, particularly for non-dominant groups, will probably have a high payoff in understanding early intergroup attitudes.

Concluding remarks

Although open questions remain, the assumption that implicit intergroup cognition emerges through the slow-learning of environmental regularities is not supported by recent developmental data. On the contrary, the implicit system forms and maintains adultlike intergroup evaluations from early in development. This ability to rapidly evaluate groups that are salient in the local environment along a hierarchical good–bad dimension and to use those evaluations as guides to action is fundamental to an organism's survival and plausibly forms part of an evolved mechanism to track and monitor social coalitions [45,46]. Although such evaluations probably benefit from 'fine-tuning' via cultural assimilation, they cannot await a protracted history of learning, both because decisions must often be made immediately and because coalitions themselves can shift in response to contextual forces. The developmental record suggests a solution based on a simple but highly flexible sensitivity to contrastive ingroup–outgroup distinctions as well as a basic sensitivity to the status of those groups within the broader social hierarchy.

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