

# Children's judgments on the acceptability of prejudice

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## Abstract

By middle childhood, children become aware that discriminatory behavior is unacceptable; however, the development of their anti-prejudice sentiments is largely unknown. Across two studies, 333 Australian 5- to 10-year-olds (51% female, majority White) were asked how acceptable they thought it was to have prejudicial sentiments toward 25 different targets. Children responded privately through a novel digital paradigm designed to minimize social-desirability biases. With age, children were more likely to display anti-prejudice sentiments toward targets who are prosocial, vulnerable, and of minority race and linguistic backgrounds. In contrast, they judged prejudice as “okay” for targets who are antisocial and negatively regarded in society. These findings suggest that children's perceptions of prejudice become increasingly nuanced and adult-like across the primary school years.

In many societies, it is widely considered unacceptable to hold prejudicial attitudes (Dovidio et al., 2019)—a social norm which has been largely established through the creation and enforcement of laws for equal treatment, the mass media (Paluck, 2009; Ramasubramanian, 2015), and educational efforts aimed at promoting tolerance and appreciating diversity (Bigler, 1999; Gabrielli et al., 2022). These norms have been found to be intricately linked to one's own prejudicial attitudes. For example, in the laboratory context, adults' perceptions of how acceptable it was for people to hold prejudicial sentiments toward a variety of targets correlated almost perfectly ( $r = .96$ ) with their own self-reported prejudices toward those same targets. In the real world, norms against prejudice vary across countries and this, in turn, appears to impact expressions of prejudicial sentiments, as well as how they manifest in discriminatory behaviors. In many countries, anti-prejudice norms are particularly well-established for certain social groups, such as those based on racial-ethnic background, gender, sexual orientation, and religion, which are embedded in rich historical contexts (Crandall et al., 2002). In these societies, the process of socialization via existing norms for these social groups suppresses expressions of prejudicial attitudes (Sherif & Sherif, 1953) and mitigates discriminatory behaviors—at least in overt forms (Crandall &

Eshleman, 2003; Dovidio et al., 2019). In societies with comparably weaker anti-prejudice norms, however, blatant prejudicial attitudes and discriminatory behaviors remain to be displayed freely (Bilewicz, 2012).

Prejudice, however, exists toward a larger variety of social groups beyond those which are commonly acknowledged and protected by anti-prejudice norms. For example, even in societies with strong anti-racism norms, holding negative sentiments regarding individuals who speak with a foreign accent (e.g., “they don't speak English well”) is often considered acceptable, so much so that overt discriminatory behaviors based on these prejudicial attitudes are still prevalent in our everyday lives (Gluszek & Dovidio, 2010). Furthermore, prejudicial attitudes which can be attributed to constructs that are not protected by anti-prejudice norms may be used to justify discriminatory behaviors against social groups that are characterized by related constructs (e.g., foreign accent being used to justify not hiring non-White job candidates; Spence et al., 2022). To understand the psychological processes pertaining to prejudice more broadly, therefore, it is essential that we expand our focus beyond the specific social groups for which norms against prejudice are generally afforded.

In the seminal study to take this approach, Crandall et al. (2002) examined prejudice across a wide range of

Abbreviation: CLMM cumulative link mixed model

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social groups. In their study, White American adults were presented with a list of over 100 social groups which broadly fell into three categories: people who (1) are generally perceived positively (e.g., doctors) or for whom social norms generally prohibit prejudice (e.g., racial minorities); (2) are generally perceived negatively (e.g., criminals); and (3) belong to social groups that may fall somewhere in-between (e.g., environmentalists). To measure how acceptable adults thought it was to hold prejudicial sentiments against each group, the name of each group was printed on a slip of paper, and participants were asked to sort each slip into one of three envelopes which were labeled: “*Definitely OK to have negative feelings about this group*,” “*Maybe it's OK to have negative feelings about this group*,” and “*Definitely not OK to have negative feelings about this group*.”

Crandall et al.'s (2002) study revealed that, for White American adults, a spectrum of acceptability of prejudice existed across the social groups. Not surprisingly, negative evaluations of social groups with norms against prejudice were deemed unacceptable. On the other hand, adults were largely accepting of prejudice against a variety of other social groups—this was especially the case for groups that were characterized by anti-social behavior (e.g., stealing, cheating, lying). Social groups with negative attributes but ambiguous intentions (e.g., “people who smell bad,” “college teachers with poor English skills”) attracted mixed responses, falling in between the two extreme ratings of acceptability.

### Children's awareness of anti-prejudice norms

Twenty years since Crandall et al.'s (2002) seminal work, however, the developmental psychology literature involving children is still characterized by a prevailing focus on a few select social groups which are well-acknowledged targets of prejudice and discrimination in many societies. Furthermore, these studies have not directly asked children for their understanding of anti-prejudice norms—instead, they have attempted to infer this indirectly via children's evaluations of and willingness to engage in discriminatory behavior. One line of work has examined White American and White British children's perceptions of exclusion based on race and gender (e.g., Killen & Stangor, 2001; Rutland et al., 2005). In these studies, children were presented with vignettes about children of their own race (or gender) excluding children of another race (or gender), and then were asked to rate how bad they thought the exclusion scenario was (ranging from *OK* to *very, very bad*; e.g., Rutland et al., 2005). These studies provide evidence that White children as young as 6 years of age negatively evaluate race- and gender-based exclusion (Killen & Stangor, 2001).

Additionally, researchers have examined how children behave toward individuals of their own versus other racial groups under circumstances that vary in the salience

of norms against discriminatory behavior. For example, França and Monteiro (2013) investigated White Brazilian children's resource allocation toward a White target and a Black target when the salience of norms against discrimination was high (experimenter present) versus low (experimenter absent). The authors found that 5- to 7-year-olds allocated more resources to the White over Black target regardless of norm salience. In contrast, 8- to 10-year-olds preferentially allocated to the White over Black target, but only under low norm salience—instead, when the experimenter was present, these older children allocated the resources equally to the White and Black targets. These results are consistent with the general finding that children begin to cease displaying biases in explicit measures of racial attitudes at around 7–8 years of age (Raabe & Beelmann, 2011), particularly when their responses are being monitored by others (Monteiro et al., 2009; Rutland et al., 2005).

While the vast majority of studies on children's sensitivities to situations of race- and gender-based discrimination have focused on White samples, the few studies involving non-White samples suggest that White and non-White children respond similarly (Elenbaas et al., 2016; Killen et al., 2007; Rizzo & Killen, 2020). For example, in Killen et al.'s (2007) study, White and non-White (mix of Asian, Latinx, Biracial, Black) American children were presented with vignettes wherein a White character excluded a Black character. When the reasoning for exclusion was explicitly attributed to race, White and non-White children provided equally negative evaluations of the scenario, and the negativity strengthened with age. Non-White children, however, may be more broadly sensitive to situations of discrimination involving race. When non-race-based reasons for exclusion were provided (e.g., lacking shared interests), non-White children evaluated this situation more negatively than White children—this difference was particularly accentuated in middle childhood. These findings suggest that non-White children may more extensively internalize anti-racism norms, potentially due to their greater exposure to racial-ethnic discrimination.

Nevertheless, by middle childhood, both White and non-White children negatively evaluate and refrain from engaging in discriminatory behaviors against people of social groups protected by well-established anti-prejudice norms. These findings indirectly suggest that children develop an increasing awareness of norms against prejudice across childhood. However, another possibility is that children were responding based on broader social rules that situations of exclusion and resource allocation invoke. In particular, in middle childhood, children display strong concerns for fairness and equality, regardless of whether or not issues of social group membership are called into question (e.g., Fehr et al., 2008). In fact, these more holistic egalitarian values have been found to be critical motivators of the suppression of overt discriminatory behaviors in adulthood (Crandall & Eshleman, 2003). Previous findings on children's evaluations of and engagement in

discriminatory behavior may therefore be explained by these holistic egalitarian values. For example, in França and Monteiro's (2013) study, the presence of the experimenter may have simply invoked expectations for equality more broadly, rather than anti-racism norms specifically. To gain insights into children's understanding of anti-prejudice norms, therefore, we must disentangle this from their propensity to conform to general social rules.

Consequently, a more clean-cut way to assess children's awareness of the acceptability of prejudice may be to simply ask them. This approach of directly asking children was recently used by Neldner et al. (2018) to capture 4- to 10-year-old children's level of regard for a variety of human and animal targets. In this study, children were presented with an image of a target and asked, "How much do you care about [the target]?". Children were then invited to physically place an image of the target on a stratified circle with three tiers, each denoting a different level of care: an inner circle representing that they really care, a middle circle representing they care a little bit, and an outer circle representing that they do not care at all. Overall, with age, children were more likely to display greater care for a broader range of targets; however, children's level of care for different categories of targets interacted with their age. For example, when comparing members of their own versus other social groups (e.g., based on ethnicity), regardless of age, children cared more for those from their own group over those from other groups. When comparing human targets versus non-human targets (e.g., animals), children displayed more regard for humans over other forms of life, and this propensity strengthened with age. Additionally, when comparing helper targets (e.g., policeman) versus needy targets (e.g., sick), younger children exhibited more care for the former over the latter, whereas older children displayed the opposite pattern. Taken together, by using the approach of simply asking primary school-aged children about their attitudes, Neldner et al. (2018) successfully captured age-related changes in children's regard for a diverse range of targets.

## Current study

To gain insights into the development of children's awareness of the acceptability of prejudice in the primary school years, the present study adapted Crandall et al.'s (2002) procedure of simply asking the participants to provide ratings in response to the question: "How okay is it to think bad things about [the target]?" To do this in a child-friendly manner, we adapted Neldner et al.'s (2018) stratified circle paradigm in three main ways. First, to minimize the influence of social desirability on children's responses, we created a digital version of Neldner et al.'s (2018) paradigm that enabled children to complete the task on a tablet privately on their own. This is a major innovation of the current study: The vast majority of prior

literature examining children's intergroup biases has been conducted in the presence of an experimenter or observing adult. Second, we used the three tiers of the stratified circle to denote a different level of perceived acceptability of prejudice: an inner circle represented that it is *not okay* for people to think bad things, a middle circle represented that it is *maybe okay* for people to think bad things and an outer circle represented that *it is okay* for people to think bad things. Third, we adapted Neldner et al.'s (2018) list of targets in light of Crandall et al.'s (2002) approach of examining a broad range of targets associated with a variety of societal attitudes (e.g., positive, negative, ambiguous). By investigating children's judgments of prejudice beyond those that are explicitly taught, we aimed to capture age-related changes in children's understanding of the acceptability of prejudice more broadly, which may come to reflect the nuances previously observed in adults' judgments (e.g., Crandall et al., 2002; Zitek & Hebl, 2007).

To build on the existing literature on children's understanding of anti-racism norms (e.g., Elenbaas et al., 2016; Killen & Stangor, 2001; Rutland et al., 2005), we included targets that differed in race (Asian, Black, and White), and also those that differed in spoken accent. To do this, we paired and counterbalanced the images of each target with a unique "voice" (e.g., an audio clip of the target saying "Hello, how are you?"). Our targets "spoke" with a native variation of English (Australian-accented English) and four different foreign variations of English (Chinese-, French-, Singaporean-, and Spanish-accented English) to allow for the generalizability of our findings regarding accent. Accent was chosen because researchers have argued that while anti-racism norms are well-established in many societies, these norms may only strictly apply to judgments based on physical appearance (i.e., race), and not to other constructs related to one's race. Specifically, there appear to be minimal norms against "racism" that are based on how one speaks (Gluszek & Dovidio, 2010; Imuta & Spence, 2020). Perhaps (at least partially) due to this, children's intergroup biases are more strongly guided by accent over race (Kinzler et al., 2009; Spence & Imuta, 2020). Furthermore, children in societies where anti-racism norms are prevalent appear to actively suppress verbal remarks and behavioral displays of race-based biases by around middle childhood (Raabe & Beelmann, 2011). But perhaps due to the lack of social norms against accent-based prejudice, explicit expressions of accent-based biases continue to manifest across the lifespan (Kinzler, 2020; Spence et al., 2021, 2022). To understand how racism continues to be expressed in societies where anti-racism norms are well-established, therefore, it is essential that we investigate the anti-prejudice norms for constructs that are intricately related to the construct of "race"—in our study, we do this by examining accent.

Finally, we examined children from a country that has been largely underrepresented in the developmental



literature on children's awareness of the norms against prejudice: Australia. Currently, Australia is a majority White country, and White Australians implicitly associate the concept of "Australian" with their own racial-ethnic group over other groups (Sibley & Barlow, 2009). However, public awareness of the importance of acknowledging Australia's history of colonization of the land in which Aboriginal and Torres Strait Islander peoples have lived for more than 60,000 years has been heightened in recent years (Banks et al., 2019). Additionally, Australia is increasingly adopting multicultural policies that celebrate culturally and linguistically diverse people (Nipperess & Williams, 2020). Today, 28% of the population are born overseas and 23% report speaking a language other than English at home (Australian Bureau of Statistics, 2021)—our sample was representative of these demographic distributions. Our study investigated children's awareness of anti-prejudice norms in a country with this unique socio-historical context, at a time when public sentiments that value diversity and rally against social group inequalities are rapidly growing (Banks et al., 2019).

## Hypotheses

Consistent with Crandall et al.'s (2002) findings, we predicted that children's perceived acceptability of prejudice would vary based on the societal attitudes attached to different targets. Namely, for targets that are regarded positively (e.g., those who engage in prosocial acts), we predicted that children would judge prejudice as "not okay." In contrast, we expected that children would judge prejudice as more "okay" and "maybe okay" for targets that are associated with negative societal attitudes (e.g., those who engage in antisocial acts). We predicted that these propensities would strengthen with age. Given that children appear sensitive to norms against race-based prejudice by middle childhood (França & Monteiro, 2013), we predicted that older children would judge prejudice as "not okay" for non-White targets. Due to minimal social norms against accent-based prejudice (Gluszek & Dovidio, 2010; Imuta & Spence, 2020), we predicted that children may judge prejudice as more "okay" and "maybe okay" for foreign-accented targets. This may persist across age, based on Crandall et al.'s (2002) finding that even adults reported it to be relatively acceptable to feel negatively toward "College teachers with poor English skills." In line with Neldner et al.'s (2018) findings on the more ambiguous targets, we expected that children, with age, would increasingly judge prejudice as more "not okay" for humans over other forms of life, and for needy targets who typically require help over helper targets who typically provide help. Finally, given that our sample included children of diverse racial-ethnic backgrounds, and prior research suggests that non-White children may be more sensitive to issues of discrimination (e.g.,

Killen et al., 2007), we examined participant race (i.e., White vs. non-White) as an exploratory factor.

## STUDY 1

### Method

This study was pre-registered on the Open Science Framework. Datasets and analytic scripts can be found at <https://osf.io/xvrmj/>. Analyses where specific hypotheses have been made were confirmatory, and results were run through StatCheck with no inconsistencies.

### Participants

A total of 222 children were tested at a museum in Brisbane (ethics approval: 2019000228) between July 2019 and April 2020. Of these children, 21 were excluded due to inattentiveness, 12 due to clinical diagnoses which may have interfered with their ability to complete the task (e.g., Autism Spectrum Disorder, intellectual impairment), 11 due to not completing the task, six due to failing manipulation checks, and 1 due to experimenter error (wrong gender condition assigned). The final sample involved 171 children aged 5–10 years ( $M_{\text{age}} = 7.51$ ,  $SD = 1.58$ ; 52% female). A post hoc power analysis using G\*Power indicated that our study was sufficiently powered (see Supplementary Material for complete details). Of the 171 children, the majority were monolingual, English-speaking; 44 were bilingual, five of whom reported a primary language other than English. Parents' identification of their child's racial-ethnic background was representative of the sampling population and of typical museum goers at the testing site: White Australian (73%), Asian Australian (11%), Indian Australian (4%), or mixed ethnicity (4%). Less than 1% identified as Indigenous Australian and approximately 8% identified with a racial-ethnic group not listed on our demographic form. In total, 132 children were White and 39 were non-White. The majority of children came from highly educated families; approximately 82% of both parents completed high school, with 69% completing further education (e.g., certificate or diploma, bachelors or higher education degree).

### Stimuli

Children were presented with 24 cartoon illustrations of people and animals on a Samsung tablet screen (see Figure 1). Each of these illustrations were paired with a brief audio recording representing the target's "voice." The targets were chosen by adapting Neldner et al.'s (2018) child-friendly targets in light of Crandall et al.'s (2002) approach of examining a broad range of targets associated with various societal attitudes.



Illustrations and the verbal introductions (e.g., “This is a robber”) of all 24 targets can be seen in Figure 2. A complete list of targets is also presented in the Supplementary Material. For the six accent and race targets (all labeled “Someone from Brisbane”), an entirely female and entirely male set were illustrated to hold gender constant—that is, participants were presented the set that matched their own gender. All targets were presented in a randomized order. For accent and race targets, which illustration was paired with the native or foreign voice recording was counterbalanced—that is, two experimental sets (Set A and Set B) were created for each gender.

Audio recordings

All human targets (including one White, one Black, and one Asian race target) featured voice recordings from native-accented Australian English-speaking adults. One White, one Black, and one Asian race target featured foreign-accented English matched to race (French, Spanish, and Singaporean or Chinese, respectively). The voice recordings were pre-tested for relevant characteristics (see Supplementary Material for more details). Illustrations of non-human targets were paired with auditory cues characteristic to that target (e.g., “Moo” for Cow).

Procedure

Children were recruited by a White, Australian-accented female experimenter in the museum foyer. After consent was obtained from caregivers, children were set up with a tablet and headphones and told that they “...will be playing a game on the tablet, so listen carefully to what comes on the screen.” To minimize the influence of social desirability in children's responses, the child progressed through the game on their own by relying on instructions from automated audio narrations. Additionally, caregivers were preoccupied by completing a demographic questionnaire about their child's racial-ethnic and language background; in fact, many were seated in lounges away from where the children were playing the game. In the instructions, it was made clear that children were to answer how okay it is for people to think bad things about the targets. Manipulation checks to ensure that children understood the rules of the game were conducted at the

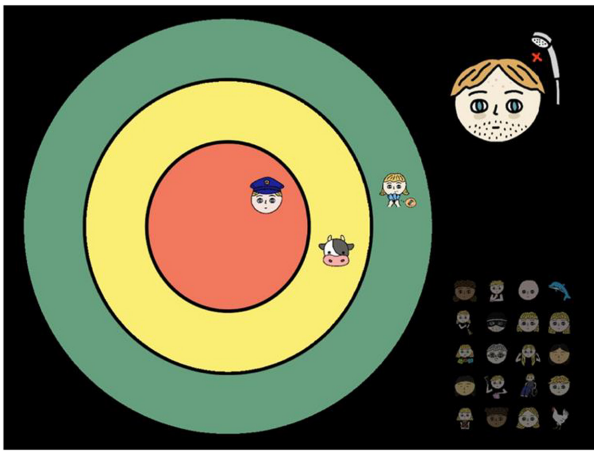


FIGURE 1 Example of the game interface, whereby the red circle represents “not okay” to think bad things, yellow circle represents “maybe okay” to think bad things, and green circle represents “is okay” to think bad things.

	OKAY																								NOT OKAY	
<b>5-year-olds</b> N = 32 59% female																										
	1.81	1.90	1.90	1.84	1.97	1.97	2.03	2.03	2.06	2.09	2.10	2.10	2.18	2.18	2.16	2.16	2.16	2.16	2.19	2.23	2.23	2.29	2.32	2.47	2.47	
<b>6-year-olds</b> N = 37 62% female																										
	1.68	1.76	1.76	1.81	1.89	2.11	2.19	2.19	2.20	2.20	2.22	2.22	2.29	2.29	2.30	2.31	2.41	2.41	2.41	2.46	2.46	2.49	2.49	2.51	2.57	
<b>7-year-olds</b> N = 33 49% female																										
	1.30	1.48	1.48	1.41	1.82	1.97	2.49	2.52	2.59	2.61	2.61	2.61	2.64	2.64	2.67	2.67	2.67	2.70	2.73	2.76	2.76	2.79	2.82	2.82		
<b>8-year-olds</b> N = 25 52% female																										
	1.48	1.56	1.72	1.86	1.80	2.12	2.20	2.44	2.44	2.52	2.52	2.56	2.56	2.60	2.68	2.68	2.68	2.74	2.74	2.74	2.74	2.74	2.80	2.82		
<b>9-year-olds</b> N = 27 52% female																										
	1.44	1.44	1.58	1.62	1.86	2.20	2.49	2.59	2.59	2.63	2.67	2.67	2.67	2.74	2.74	2.74	2.74	2.74	2.81	2.85	2.85	2.89	2.89	2.89		
<b>10-year-olds</b> N = 17 24% female																										
	1.35	1.47	1.47	1.45	1.74	2.08	2.46	2.12	2.35	2.35	2.35	2.35	2.41	2.47	2.47	2.59	2.59	2.59	2.65	2.65	2.65	2.65	2.71	2.71		

FIGURE 2 Children's relative levels of Acceptability to think Bad Things for the 24 different Targets across Age (Study 1), Pictured at 5–10 years (Actual Target Stimuli depicted). Targets were introduced in the experiment as the following: “This is [Mum, your best friend, a bully, a policeman, a robber, a liar, a chicken, a cow, a dolphin, someone who does their chores, someone who doesn't listen, someone who doesn't shower, someone who is old, someone who picks up rubbish, someone who shares their toys, someone who is sick, someone who steals lunch money, and someone in a wheelchair]. Note also that the targets which differed in race (Asian, Black, White) and accent (Native, Foreign) were either male or female, depending on the gender of the participant and were all introduced as ‘Someone from Brisbane’”. The number below each target refers to a mean score, where “is okay” responses were scored as 1, “maybe okay” responses were scored as 2, and “not okay” scores were scored as 3 (range of possible means = 1–3). This is for graphical representation only, as the ordinal cumulative link mixed models treated these responses as non-linearly related categories. Note that targets with equal mean scores for a given age group are included in the same frame.



end of a training phase, as well as halfway through the test phase (see Supplementary Material for full script and procedures).

In the test phase, children were presented with the 24 targets one-at-a-time and were asked to evaluate the acceptability of “thinking bad things” about them. Each target was introduced with an accompanying audio narration which stated: “This is [target], let’s listen to them talk.” After the introduction, all human targets said, “Hello, how are you today?” and non-human animal targets made animal-like noises (e.g., “Moo” for Cow). Children were then asked, “How okay is it to think bad things about [target]?” and presented with a “map” of a three-tiered circle: an inner red circle represented that it is *not okay* for people to think bad things, a middle yellow circle represented that it is *maybe okay* for people to think bad things, and an outer green circle represented that it is *okay* for people to think bad things about the target (see Figure 1). Children were asked to provide their responses by placing each target on the appropriate area of the circle by tapping on it.

## Results

Children’s acceptability judgments were entered into a series of cumulative link mixed model (CLMM) analyses with a logit link function using the “ordinal” package (Christensen, 2018; Christensen & Christensen, 2015) in R (R Core Team, 2020). CLMMs form part of the family of generalized linear mixed models and are recommended for use when the outcome variable of interest is an ordinal variable (Christensen, 2018). Our dependent variable was ordinal, given that it contained categories ordered by their level of “okayness” (not okay, maybe okay, okay).

To assess our hypotheses, we ran a full model that included our fixed effects of interest: Age (continuous variable ranging from 5 to 10 years, centered at the mean) and Target (24 targets). Additionally, given that no directional hypotheses regarding gender or participant race were proposed, Gender (girls vs. boys) and Participant race (White vs. non-White) were also entered into the model, but as control factors. The 3-level dependent variable (okay, maybe okay, not okay) was classified as ordinal. A null model containing a random slope for Target and Participant did not converge, so all models contained a random intercept at the participant level only. Comprehensive details regarding the model selection and diagnostic process can be found in Supplementary Material.

The best fitting model contained significant fixed effects of Age and Target, as well as a significant Age  $\times$  Target interaction. The significant Age  $\times$  Target interaction,  $\chi^2(23, 4080) = 235.04, p < .001$ , qualified the significant main effects of Age,  $\chi^2(1, 4080) = 8.16, p < .01$ , and Target,  $\chi^2(23, 4080) = 839.05, p < .001$ . Gender and Participant race were both non-significant.

## Age-related changes in children’s acceptability judgments

The Age  $\times$  Target interaction was followed up in a number of ways. First, we calculated simple age slopes for each of the 24 targets, in order to examine how children’s acceptability judgments toward specific targets changed linearly with age. As summarized in Figure 3, the model suggests that in general, children reported that it was more “not okay” to think bad things about the targets with age. However, there were a few exceptions to this pattern. First, some targets revealed the opposite pattern, whereby children reported that it was more “okay” to think bad things (Bully, Doesn’t Listen, Robber, and Steals Money) with age. Second, some targets remained stable across age. No significant age slopes were found for Chicken, Cow, Doesn’t Shower, and Liar (see Table S2). Figure 2 provides a graphical representation of these findings.

Next, we examined age-related differences in children’s acceptability judgments for the various categories of targets. We conducted six planned contrasts between pairs of categories that were expected to show differences based on prior literature (Crandall et al., 2002; Crimston et al., 2016; Neldner et al., 2018): valence (positive vs. negative), behavior (prosocial vs. antisocial), status (needy vs. helper), human (humans vs. non-human animals), race (White vs. non-White), and accent (native vs. foreign). Comprehensive details on these analyses are presented in the Supplementary Material.

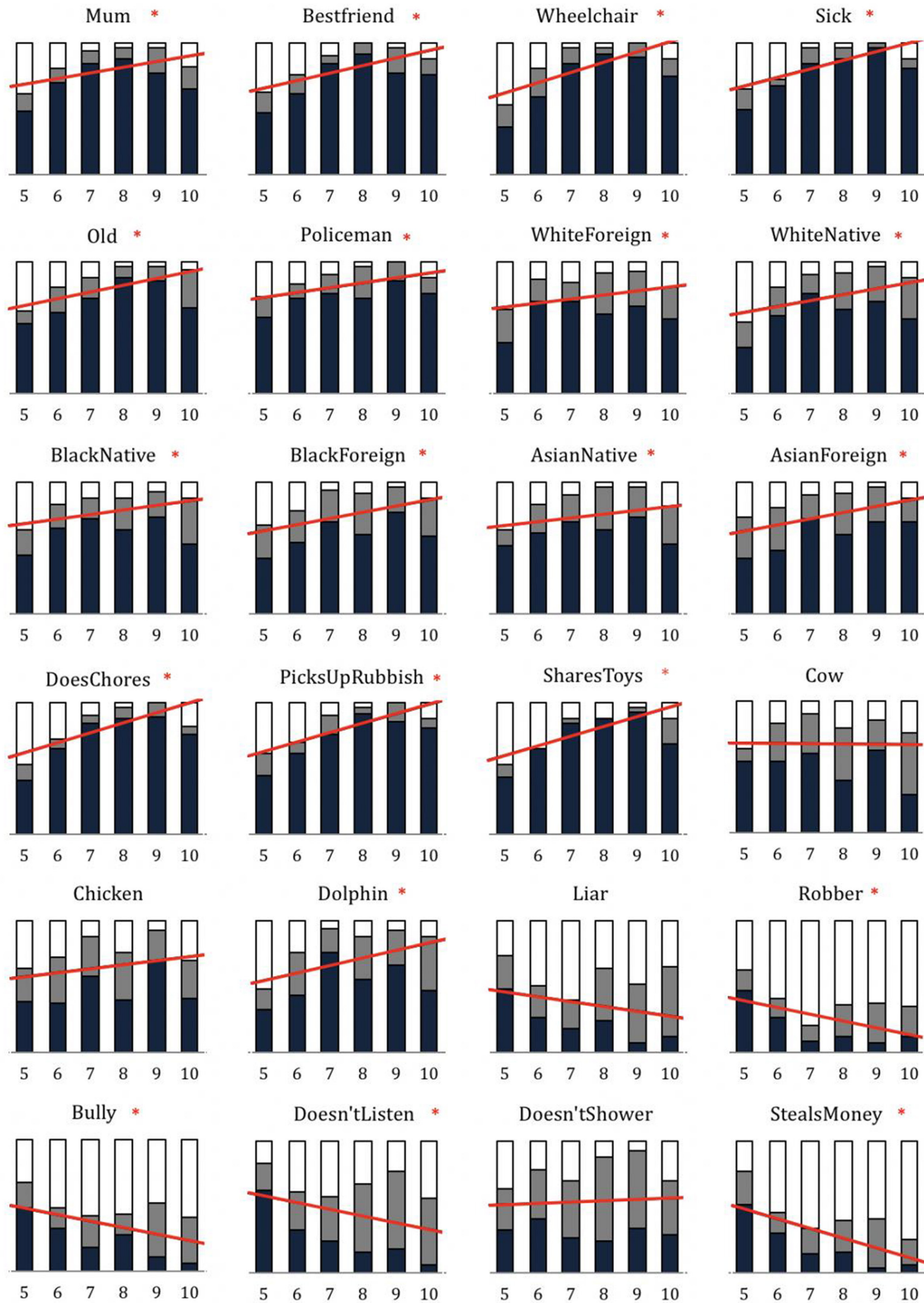
The best fitting model for four of the six planned contrasts (valence, behavior, status, and human contrasts) included a significant Age  $\times$  Category interaction, suggesting that children’s relative acceptability judgments for these categories changed with age. Table 1 summarizes the results of these planned contrasts and presents the predicted probabilities of a child responding that it was “not okay” to think bad things about targets within each category. For ease of interpretation, we report the findings for three age points: 5, 7, and 9 years.

### Valence

Children across age were more likely to report that it was “not okay” to think bad things about targets with positive valence (e.g., Best friend) compared to those with negative valence (e.g., Bully), and this markedly strengthened with age. The probability to report that it was “not okay” to think bad things about positive valence targets increased from 54% at 5 years, to 71% at 7 years, and 83% at 9 years. In contrast, the probability to report that it was “not okay” to think bad things about negative valence targets decreased from 34% at 5 years, to 25% at 7 years, and 17% at 9 years.

### Behavior

Children’s “not okay” judgments at 5 years were relatively equal for prosocial (e.g., Shares toys; 37%) and antisocial



**FIGURE 3** Summary of Children's Acceptability Judgments for each Target across Age Groups (Study 1). White bars indicate the proportion of "okay" responses; gray bars indicate the proportion of "maybe okay" responses, and black bars indicate the proportion of "not okay" responses. Red lines indicate linear effects of age. Targets with significant age effects are marked with an asterisk.

(e.g., Steals money; 41%) targets. However, with age, children were increasingly more likely to report that it was "not okay" to think bad things about targets displaying

prosocial behavior (68% at 7 years increased to 88% at 9 years) relative to those displaying antisocial behavior (32% at 7 years and 25% at 9 years).



**TABLE 1** Summary of Planned Contrast Results (Study 1) and Predicted Probabilities of “Not Okay” Judgments at 5, 7, and 9 Years.

Contrast	Best model	Probability of “not okay” judgment (at 5 years)	Probability of “not okay” judgment (at 7 years)	Probability of “not okay” judgment (at 9 years)
Valence (positive vs. negative)	Age, Valence, Age × Valence	Positive: 54% [44%, 65%] Negative: 34% [26%, 43%]	Positive: 71% [66%, 76%] Negative: 25% [20%, 29%]	Positive: 83% [78%, 88%] Negative: 17% [13%, 22%]
Behavior (prosocial vs. antisocial)	Age, Behavior, Age × Behavior	Prosocial: 37% [27%, 48%] Antisocial: 41% [32%, 51%]	Prosocial: 68% [62%, 73%] Antisocial: 32% [27%, 38%]	Prosocial: 88% [83%, 92%] Antisocial: 25% [20%, 31%]
Status (helper vs. needy)	Age, Status, Age × Status	Helper: 74% [74%, 74%] Needy: 52% [51%, 52%]	Helper: 90% [90%, 90%] Needy: 88% [88%, 88%]	Helper: 97% [97%, 97%] Needy: 98% [98%, 98%]
Humans (humans <sup>a</sup> vs. non-human animals)	Age, Human, Age × Human	Humans: 51% [32%, 69%] Animals: 42% [24%, 63%]	Humans: 75% [66%, 83%] Animals: 54% [42%, 65%]	Humans: 90% [84%, 94%] Animals: 65% [50%, 78%]

Note: All models contained a significant interaction. Accordingly, the main effects were not interpreted. 95% confidence intervals are presented in square brackets.

<sup>a</sup>This analysis excluded human targets with negative valence and anti-social behavior.

### Status

At 5 years, children were more likely to report that it was “not okay” to think bad things about helper targets (e.g., Policeman; 74%) relative to needy targets (e.g., Sick; 52%). Children’s “not okay” judgments for needy targets increased sharply from 5 years (52%), to 7 years (88%), and 9 years (98%). Children’s “not okay” judgments for helper targets also increased from 5 years (74%), to 7 years (90%), and 9 years (97%).

### Human

Children of all ages were more likely to report that it was “not okay” to think bad things about humans relative to non-human animals, and this markedly strengthened with age. Indeed, children’s “not okay” judgments for human targets increased from 5 years (51%), to 7 years (75%), and 9 years (90%). Children’s “not okay” judgments for animal targets also increased from 5 years (42%) to 7 years (54%) and 9 years (65%), albeit less sharply relative to human targets.

The best performing models for the two remaining contrasts (Accent and Race contrasts) included a main effect of Age only; however, diagnostic tests revealed that these models were poor fits of our data (see Supplementary Material for elaboration). Accordingly, we do not present or interpret the results of these models.

## Discussion

Consistent with our hypotheses and the patterns found in prior work (Crandall et al., 2002; Neldner et al., 2018), we found that children—increasingly with age—judged prejudice as more “not okay” for most targets. Specifically, with age, children judged prejudice as more “not okay”

for targets with positive valence, and those who displayed prosocial behavior. We also found that children judged prejudice as more “not okay” for human targets relative to non-human targets, and that this propensity strengthened with age. Younger children judged prejudice as more “not okay” for helper targets relative to needy targets, while older children judged them relatively equally. In contrast, with age, children judged prejudice as more “okay” for targets with negative valence and those who displayed antisocial behavior.

Given the previous findings on children’s sensitivities to race-based discrimination (e.g., França & Monteiro, 2013), it may be surprising that we did not detect reliable patterns in our data on our race and accent targets. However, there are several plausible explanations for why this may be. In Study 1, we labeled all of our race and accent targets as “Someone from Brisbane” to reduce social desirability in children’s responses—that is, we anticipated that more subtle cues to race and accent would allow children to respond more freely. Nevertheless, it is possible that the lack of explicit identification of the targets’ race and accent prevented children from attending to, or prompted them to refrain from, differentiating the targets based on these features. It is also possible that after children responded in a certain way to one “Someone from Brisbane” target, children felt that they then needed to continue to respond in the same manner for other targets with the matching label. Furthermore, by hearing the same label used across each of our race and accent targets, children may have evaluated all of these targets based on a single category of social group membership. Moreover, given that the children themselves were from Brisbane, this label may have led them to consider all of the race and accent targets equally favorably as people from their own social group.



## STUDY 2

Given the relevance of our race and accent targets on issues of prejudice and discrimination that are prevalent in multicultural societies, we conducted a follow-up experiment that addressed the limitations of Study 1. In particular, Study 2 was aimed to determine how children judge the acceptability of race- and accent-based prejudice across the primary school years. We replicated the procedures from Study 1, with the exception of the labels used for the race and accent targets: instead of introducing these targets as “Someone from Brisbane,” we explicitly identified the defining race and accent features (e.g., “Someone who is Black” and “Someone who speaks with a Chinese accent”). By testing a new sample of children using the same targets from Study 1 (apart from the revised race and accent targets), we aimed to further validate the paradigm through replicating the pattern of findings we had obtained previously. For race targets, we predicted that younger children would judge prejudice against non-White targets (Black, Asian) as “okay” or “maybe okay,” but that children around 7–8 years and older would judge this as “not okay.” We predicted that this anti-prejudice sentiment regarding race will increase with age. For accent targets, we expected that children's increasing anti-prejudicial sentiments across age may be reflected in their responses regarding the native-accented targets. In contrast, based on the idea that there may be minimal social norms against accent-based discrimination (Gluszek & Dovidio, 2010), we expected that children across age may judge prejudice against foreign-accented targets as “okay” or “maybe okay.”

Additionally, to improve the fit of our race and accent models, we accounted for potential sources of individual variation on children's judgments. In particular, children's exposure to diversity in race (Pettigrew & Tropp, 2006) and language (Spence et al., 2021) has been found to influence the strength of children's displays of race- and language-based biases. Moreover, recent findings suggest that exposure to diversity may impact prejudicial attitudes across intersecting domains. For example, bilingual children (Singh et al., 2020) appear to show fewer biases based on race relative to monolinguals. Accordingly, in Study 2, we accounted for individual variation in exposure to racial and linguistic diversity when examining children's perceived acceptability of race- and accent-based prejudice.

## Method

This study was pre-registered on the Open Science Framework. Datasets and analytic scripts can be found at <https://osf.io/xvrmj/>.

## Participants

A total of 231 children were tested at a museum in Brisbane (ethics approval: 2019000228) between June and December

2021. Of these children, 10 were excluded due to inattentiveness, 32 were excluded due to not completing the task, 15 were excluded due to clinical diagnoses, and 12 were excluded due to failing manipulation checks. The final sample involved 162 children aged 5–10 years ( $M_{\text{age}}=7.58$ ,  $SD=1.70$ ; 49.38% female). Of the 162 children, the majority were monolingual, English-speaking; 38 were bilingual, five of whom reported a primary language other than English. Again, parents' identification of their child's ethnicity was representative of the sampling population and of typical museum goers: White Australian (71%), Asian Australian (9%), Indigenous Australian (2%), Indian Australian (2%), or mixed ethnicity (6%). The remaining 10% identified with a racial-ethnic group not listed on our demographic form. In total, 116 children were White and 46 were non-White. Children mostly came from highly educated families; approximately 83% of both parents completed high school, with 75% completing further education.

## Stimuli

Children were presented with the same 24 cartoon illustrations and audio recordings of the people and animals used in Study 1 (see Figure 2). The six race and accent targets (labeled “Someone from Brisbane”) used in Study 1 were replaced with new target labels. The new target labels were explicit about the race (e.g., “Someone who is Black”) and accent (e.g., “Someone who speaks with a Chinese accent”) of the targets. We also included one additional target (a total of 25 targets) to ensure that all races were paired with at least one native and foreign accent variety. The combination of which accent and race was paired together was again counterbalanced by creating two experimental sets. A breakdown of the new targets can be found in Table 2.




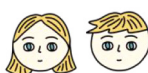



## Procedure

The procedure was identical to Study 1. While children participated, the experimenter asked the caregivers to complete a demographic questionnaire about their child's racial-ethnic and linguistic background. This questionnaire also included questions on their child's exposure to people who were of a different race and people who spoke with a different accent to them. These questions asked about more general exposure (e.g., how often does your child come across people of a different race? [Never, Rarely, Sometimes, Often, Always]), as well as close exposure (e.g., how many of your child's friends are of a different race? [None, A Few, Several, Most, All]).

## Results

Following the same analysis plan as Study 1, children's acceptability judgments were again entered into a series

TABLE 2 List of new targets in Study 2.

Target label	Stimuli	Target introduction
White <sup>a</sup>		Someone who is White
Black <sup>a</sup>		Someone who is Black
Asian <sup>a</sup>		Someone who is Asian
Australian Accent		Someone who speaks with an Australian accent
European Accent White		Set A: Someone who speaks with a Spanish accent Set B: Someone who speaks with a French accent
European Accent Black		Set A: Someone who speaks with a French accent Set B: Someone who speaks with a Spanish accent
Asian Accent		Set A: Someone who speaks with a Singaporean accent Set B: Someone who speaks with a Chinese accent

Note: Gender was held constant for race and accent targets, so children only saw race and accent targets that were matched to their gender.

<sup>a</sup>These targets all featured native-Australian accented voices.

of CLMM analyses with a logit link function using the “ordinal” package. Consistent with our overall findings from Study 1, the best fitting model contained significant fixed effects of Age and Target, as well as a significant Age  $\times$  Target interaction. The significant Age  $\times$  Target interaction,  $\chi^2(24, 4050)=491.30, p<.001$ , qualified the significant main effects of Age,  $\chi^2(1, 4050)=10.48, p<.001$ , and Target,  $\chi^2(24, 4050)=609.07, p<.001$ . Contrary to Study 1, the best fitting model additionally contained a significant fixed effect of Participant Race, as well as a significant Participant Race  $\times$  Target interaction. The significant Participant Race  $\times$  Target interaction,  $\chi^2(24, 4050)=54.80, p<.001$ , qualified the significant main effect of Participant Race,  $\chi^2(1, 4050)=7.89, p<.01$ . The interactions were followed up using the same approach as Study 1 (see Supplementary Material for complete details).

## Revised race and accent targets

Each of the revised race and accent targets revealed a significant age slope suggesting that, for these targets, children increasingly reported that it was “not okay” to think bad things about them with age. Our planned contrasts for race compared children's relative acceptability judgments for White versus non-White targets. For accent, we compared native-accented versus foreign-accented

targets. Within these models, we additionally included diversity exposure factors as fixed effects to investigate how they impacted on children's acceptability judgments. These included: (1) whether children spoke one or two languages (i.e., Bilingualism); (2) how many friends children had that were of a different race or spoke with a different accent to them (i.e., Race Friends, Accent Friends, respectively); and (3) how often children came across people in their everyday environment that were of a different race or spoke with a different accent to themselves (i.e., Race Exposure, Accent Exposure, respectively). Detailed information on how diversity exposure factors were coded for analysis is presented in the Supplementary Material. Based on recent findings that suggest that bilingualism impacts both race- and accent-based prejudice (Singh et al., 2020; Spence et al., 2021), we included this factor in both our race and accent models. For the friendship and exposure factors, we included ones matched in domain (i.e., race friends and race exposure for race models, accent friends and accent exposure for accent models).

Best performing models for both race and accent contrasts contained a significant main effect of age, suggesting that with age, children were increasingly more likely to report it was “not okay” to think bad things about all race and accent targets. Table 3 summarizes the results of the race and accent planned contrasts and presents the predicted probabilities of a child responding that it was “not okay” to think bad things about targets within each category at 5, 7, and 9 years of age. We discuss each model separately in detail below.

### Race

Children across all ages were more likely to report that it was “not okay” to think bad things about non-White targets (Asian, Black) compared to the White target. The probability to report that it was “not okay” to think bad things about non-White targets increased sharply from 31% at 5 years to 74% at 7 years, and 96% at 9 years. The probability of “not okay” judgments for White targets also increased with age (see Table 3 for all predicted probabilities). Moreover, non-White children reported that it was more “not okay” to think bad things about all race targets relative to White children. However, there was no effect of Bilingualism, Race Friends, or Race Exposure, suggesting that children's acceptability of race-based prejudice did not vary according to these factors.

### Accent

The best performing model contained no effect of Accent, suggesting that children's judgments did not vary according to whether the target spoke with a native or foreign accent. Interestingly, however, the pattern of findings suggested an extremely sharp increase in “not okay” judgments across accent targets with age—for example, the probability to report that it was “not okay” to think bad things about foreign accent targets jumped from 27% at 5 years, to 77% at 7 years, and near ceiling (98%) at

**TABLE 3** Summary of race and accent contrast results (Study 2) and predicted probabilities of “not okay” judgments at 5, 7, and 9 years.

Contrast	Best model	Fixed effect	Probability of “not okay” judgment (at 5 years)	Probability of “not okay” judgment (at 7 years)	Probability of “not okay” judgment (at 9 years)
Race	Age, Target Race, Participant Race	Older > Younger ( $b = 1.19$ , $SE = .22$ , $p < .001$ , 95% CIs [0.75, 1.63])			
		Non-White > White Targets ( $b = 0.63$ , $SE = .28$ , $p = .023$ , 95% CIs [0.08, 1.18])	White: 21% [8%, 44%] Non-white: 31% [14%, 55%]	White: 63% [45%, 78%] Non-white: 74% [56%, 86%]	White: 93% [79%, 98%] Non-white: 96% [86%, 99%]
		Non-White > White Participants ( $b = 1.64$ , $SE = .73$ , $p = .023$ , 95% CIs [0.20, 3.07])			
Accent	Age, Participant Race	Older > Younger ( $b = 1.44$ , $SE = .24$ , $p < .001$ , 95% CIs [0.97, 1.90])	Native: 26% [10%, 52%] Foreign: 27% [11%, 52%]	Native: 76% [57%, 88%] Foreign: 77% [60%, 89%]	Native: 98% [90%, 99%] Foreign: 98% [92%, 99%]
		Non-White > White Participants ( $b = 1.91$ , $SE = .78$ , $p = .013$ , 95% CIs [0.38, 3.44])			

Note: 95% confidence intervals are presented in square brackets.

9 years. Moreover, non-White children reported that it was more “not okay” to think bad things about all accent targets relative to White children. Finally, there was no effect of Bilingualism, Accent Friends, or Accent Exposure, suggesting that children's responses did not vary as function of their language background or exposure to linguistic diversity.

## Replicated targets from Study 1

Age slopes on the targets that were replicated from Study 1 revealed the same pattern of findings as Study 1 with two minor exceptions. One target (Liar) which remained stable across age in Study 1 (i.e., no age slope) had a significant age slope in Study 2—with age, children reported that it was more “okay” to think bad things about the Liar. For the Dolphin, in Study 1 a significant age slope was found, revealing that children with age reported that it was more “not okay” to think bad things about the Dolphin; however, no significant age slope was found for the Dolphin in Study 2 (see Table S5 for age slopes for all 25 targets).

Next, we conducted the same planned contrasts between pairs of categories outlined in Study 1. Given that there was a significant Participant Race  $\times$  Target interaction in the omnibus model for Study 2, we also included a Participant Race  $\times$  Category interaction term for each planned contrast. Our significant Age  $\times$  Category interactions were replicated in Study 2 for each of the contrasts: valence (positive vs. negative), behavior (prosocial vs. antisocial), status (needy vs. helper), and human (human vs. non-human animals). As the pattern of these findings replicated across studies, we presented these results in full in the Supplementary Material. The consistency in findings between Studies 1 and 2 on the replicated targets provides support for the reliability of our paradigm.

A significant Participant Race  $\times$  Category interaction was found for two contrasts: valence and behavior. Non-White children were less likely to report it was “not okay” to think bad things about targets with negative valence compared to White children, but were more likely to report it was “not okay” to think bad things about targets with positive valence compared to White children. Additionally, while both White and non-White children judged the acceptability of prejudice similarly for antisocial targets, non-White children were more likely to judge the acceptability of prejudice as more “not okay” for prosocial targets relative to White children. For the human contrast, a significant main effect of participant race was found, such that non-White children were more likely to judge prejudice toward all human and animal targets as “not okay” relative to White children. Finally, children's acceptability judgments did not differ as a function of their own race for needy versus helper targets. Comprehensive results are presented in the Supplementary Material.

## Discussion

Study 2 examined how children judge the acceptability of prejudice on the basis of two social cues that drive racial-ethnic discrimination (Gluszek & Dovidio, 2010; Raabe & Beelmann, 2011): race and accent. Our findings are consistent with prior work showing that children develop strong awareness of anti-racism norms around middle childhood (França & Monteiro, 2013). Specifically, the probability to report that prejudice was “not okay” for non-White targets increased sharply from 31% at 5 years to 74% at 7 years. At 9 years, “not okay” responses were at near-ceiling levels. Furthermore, children of all ages were more likely to judge negative sentiments about non-White targets as more “not okay” compared to those



about White targets. This is consistent with previous findings that primary school-aged children often make decisions favoring lower-status racial groups (Elenbaas & Killen, 2016).

We had predicted that children across the primary school years may continue to respond that it is “okay” or “maybe okay” to have negative attitudes toward foreign-accented targets; this was based on the idea that there are minimal social norms against accent-based prejudice (Gluszek & Dovidio, 2010). In contrast to our hypothesis, with age, children increasingly judged prejudice toward both native- and foreign-accented targets as “not okay.” One possible explanation is that our study provides the first empirical evidence that Australian children's anti-“racism” sentiments extend beyond those based on physical attributes (i.e., race) to the way one speaks. Indeed, age-related differences in the probability of children reporting that prejudice was “not okay” for accented targets paralleled that for the race targets: The probability for 5-year-olds to report it was “not okay” to have negative attitudes toward someone based on their accent was less than 30%, but for 7-year-olds, this probability was more than 70%. Then, for the 9-year-olds, this probability was near-ceiling.

Another possibility, however, is that despite the explicit labeling of the target's accent in Study 2 (e.g., “Someone who speaks with a Chinese accent”), children may have made their decisions about the accent targets by additionally accounting for the race of the targets. In our study, we chose to represent naturalistic race-accent pairings: for example, we paired the Chinese and Singaporean accents with the Asian race, as seen in the real world. By prioritizing naturalistic pairings, this led to two-thirds of our foreign-accented targets being paired with images representing a non-White race (Asian or Black). Given that children are highly sensitive to race-based discrimination (e.g., França & Monteiro, 2013), it is possible children's responses regarding many of our foreign-accented targets were driven (at least partially) by the target's race rather than their accent.

There are two arguments against this interpretation, however. First, when both race and accent cues are presented, evidence suggests that majority White children from the United States and Australia prioritize accent over race when making social decisions (Kinzler et al., 2009; Spence & Imuta, 2020). Second, we conducted a separate post hoc analysis comparing children's responses to the native-accented White target versus the foreign-accented White target only. Consistent with the findings from the analysis that included all foreign-accented targets (i.e., including those that were of non-White race), the probability of children responding that it was “not okay” to think bad things about both the native- and foreign-accented White targets increased with age. Accordingly, our findings on the accent targets are likely not a simple artifact of target race—across the primary school years, children appear to increasingly judge accent-based

prejudice for both native and foreign accents as unacceptable following a similar trajectory to the development of anti-racism sentiments. By assessing children's attitudes toward a large variety of accents (Australian-, Chinese-, French-, Singaporean-, Spanish-accented English), our study provides the first evidence to date that Australian children's anti-“racism” sentiments likely extend beyond those based on physical attributes (i.e., race) to the way one speaks, raising important questions about whether these findings might generalize to other cultural contexts.

In Study 2, we also examined how variations in children's exposure to racial and linguistic diversity are linked to their judgments of the acceptability of race- and accent-based prejudice. Overall, we found no evidence that children's exposure to diversity (e.g., whether children were monolingual or bilingual; whether they had close friends of a different race or who spoke with a different accent) had a bearing on their perceived acceptability of race- and accent-based prejudice. We discuss why this may be in the General Discussion.

Finally, unique to Study 2, we found evidence that children's own racial background impacted their perceived acceptability of prejudice. For our race and accent targets, non-White children were more likely to report it was “not okay” to think bad things on the basis of race and accent relative to White children. Non-White children in Australia may more frequently encounter discrimination in their day-to-day life, and therefore may develop a stronger—and more personal—awareness that prejudice based on these social cues is wrong. Children's own racial background was also found to impact the acceptability of prejudice more broadly: Relative to White children, non-White children were more likely to report that prejudice was “not okay” for all human and animal targets, and were more likely to report prejudice was “not okay” toward prosocial and positively valenced targets. These findings align with previous research showing that minoritized children's explicit expressions of prejudice and evaluations of discriminatory behavior may develop differently to majority children (e.g., Killen et al., 2007; Raabe & Beelmann, 2011). Nevertheless, we caution drawing strong conclusions from these findings given the relatively small sample of non-White children included in our study. Relatedly, there may be variability within non-White groups that we were not able to assess. Future research with increased representation of minoritized children would help elucidate whether different developmental trajectories of anti-prejudice sentiments exist for children of various racial-ethnic backgrounds.

## GENERAL DISCUSSION

Prejudice is experienced by a larger variety of social groups beyond those which are protected by anti-prejudice societal norms. The present study successfully captured age-related changes in primary school-aged

children's perceived acceptability of prejudice across 25 different targets. Furthermore, we were able to minimize the impact of social desirability on children's responses by administering a novel paradigm that children completed privately.

The findings from both studies demonstrated consistent patterns, revealing that children from 6 years of age begin to exhibit adult-like nuances in their judgments on the acceptability of prejudice (e.g., Crandall et al., 2002; Zitek & Hebl, 2007). For example, consistent with Crandall et al.'s (2002) study of adults, children appeared to be relatively accepting of prejudice toward targets who are negatively regarded and who exhibit antisocial behavior (e.g., Bully, Liar, Steals Money). Indeed, older children judged prejudice toward these targets as more "okay" with age. These findings were in stark contrast to targets that are positively regarded and those who exhibit prosocial behavior (e.g., Shares Toys); with age, children increasingly judged prejudice toward these targets as more "not okay."

Consistent with Neldner et al. (2018), children increasingly prioritized human life over other forms of life with age—that is, older children judged prejudice as more "not okay" for humans relative to animals. Moreover, with age, children's "not okay" judgments on the acceptability of prejudice toward targets that represented vulnerable members of society (e.g., the sick and elderly) increased sharply; at 9 years of age, children reported that prejudice against these targets was "not okay" at near-ceiling levels. By around 7 years of age, children were also very likely to report that prejudice against all race and accent targets was "not okay"—a pattern which continued to strengthen with age.

Across both studies, however, a striking difference was seen for our youngest age group: the 5-year-olds. As illustrated in Figure 2, this age group displayed a disorganized pattern of responses. For children 6 years and older, we consistently found large differences in judgments regarding prosocial versus antisocial targets wherein they clearly judged prejudice to be more "not okay" for prosocial targets and more "okay" for antisocial targets. The 5-year-olds' responses, however, did not differ based on the target's behavior. One possible explanation for this may be limitations to 5-year-olds' cognitive abilities needed to understand the task instructions. For example, instead of listening to the entire descriptor of "not okay to think bad things about [target]", some younger children may have fixated on the phrases of "okay," "maybe okay," and "not okay." This could explain why 5-year-olds appeared to judge prejudice for some negatively regarded targets as most "not okay"—these children might have assessed these targets as simply "not okay." Indeed, 5-year-olds have been shown to make wide generalizations when they become fixated on a single source of information (e.g., Hermes et al., 2018).

The 5-year-olds' performance, however, may also be explained by schooling effects. In Australia, most

children begin primary school at 5 years of age. The first year of primary school has been shown to prompt unique developments in children's cognitive functioning (e.g., short-term memory) and use of strategies (e.g., Ornstein & Coffman, 2020). Additionally, schooling plays a critical role in children's acquisition of societal attitudes and development of social processes (Barrett, 2013). It is also possible, therefore, that 5-year-olds' judgments may not yet be under social control. Indeed, from 6 years, as children begin to experience more social interactions, they rapidly acquire increased capacities to perspective-take and display empathic concern for others (Miller, 2012). This also appears to occur alongside children's growing awareness of, and moral protection for, vulnerable social groups (e.g., people with mental or physical disabilities; Gasser et al., 2014).

### Limitations and future research

Our methodology provides an exciting avenue through which children's anti-prejudice sentiments can be further explored. For example, the paradigm can be expanded to an even broader selection of targets for which the acceptability of prejudice remains unclear, and for those which prejudice certainly occurs but may manifest in more subtle and indirect ways (e.g., LGBTQ+ populations). Moreover, the paradigm could be used to examine the emergence and development of prevalent forms of prejudice that have well-documented consequences in adulthood (e.g., prejudice against overweight people in the medical profession) to inform steps toward targeted interventions to ameliorate such biases. Future studies, however, may seek to improve on certain elements of our paradigm which may have limited the conclusions that can be drawn.

First, our study instructed children to answer how okay it is *for people*—that is, not just for themselves—to think bad things about the targets. Despite this, it is difficult to delineate whether children were responding in terms of their own personal sentiments or their perceptions of how society judges prejudicial attitudes. According to the Group Norm Theory, our own personal assessments of, and expressions of prejudice closely mirror those of our valued social groups (Sherif & Sherif, 1953). Thus, even if our study exclusively measured children's personal thoughts, these assessments are likely reflective of the normative views in their social environment. Indeed, adults' perceptions of how acceptable it is for people to be prejudiced toward a variety of targets correlates almost perfectly ( $r = .96$ ) with their own self-reported explicit prejudices (Crandall et al., 2002). Furthermore, Social Identity Development Theory posits that one important contributor to the development of prejudicial attitudes in childhood is whether prejudice is a norm or expectation held by the child's own social group (Nesdale, 2017). This appears true even in novel group situations: Nesdale

et al. (2005) found that White Australian children reported greater disliking of a racial-ethnic outgroup when randomly assigned to a group which held a norm of exclusion (compared to a norm of inclusion).

Some of our findings, however, raise the possibility that children's perceptions of the acceptability of prejudice may develop differently from their own biases. In Study 2, we found no evidence to suggest that children's acceptability of race-based prejudice differed according to their level of exposure to different races. This stands in contrast to the finding that greater levels of race-based intergroup contact correlate with lower race-based prejudices (Pettigrew & Tropp, 2006). The disconnect between these findings leaves open the possibility that anti-prejudice norms and individual prejudices may not be closely connected in the primary school years. To better understand the link between children's perceived acceptability of prejudice and their own prejudicial biases, future research could modify the instructions provided in our paradigm to examine both constructs alongside each other.

Another possible explanation for this inconsistency may be due to how exposure to diversity was measured in our study. For example, when exposure to diversity was measured through parental self-report, Paquette-Smith et al. (2019) found that it had no relation with children's expression of intergroup biases. In contrast, when exposure to diversity was examined by comparing heterogenous and homogenous populations living in different geographical regions, Cohen and Haun (2013) found that exposure was associated with children's intergroup biases. Accordingly, parental self-report measures to gauge a child's level of exposure to racial and linguistic diversity—like that used in the current study—may not provide a complete enough picture to detect meaningful differences.

Lastly, it is important to acknowledge the unidimensional nature of the characteristics of the targets in the present study. Because our sample was majority White, all targets (except those that were explicitly identified by their race and accent) were presented as White. Additionally, while both native and foreign accent varieties were paired with White and non-White targets, foreign accent varieties were matched to race (i.e., Chinese accent with Asian race target) to reflect naturalistic race-accent pairings. These methodological choices preclude some interpretations relevant to the complexity of prejudice in real life. For example, how might the acceptability of prejudice toward prosocial and antisocial targets differ according to the target's race and accent? Furthermore, while some people may hold a combination of identities consistent with the majority population that surrounds them (e.g., White, Australian-accented English-speaking person in Australia), others hold a combination of identities that are inconsistent with the majority population and these combinations may appear incongruent to some (e.g., Asian, British-accented English-speaking person in Australia). To better encapsulate the complexities of prejudice in real

life, therefore, future designs should endeavor to include targets with differing combinations of identities.

## Conclusion

Over two decades ago, in the field of social psychology, Crandall et al. (2002) raised the importance of studying a broad range of social groups—not just those who are protected by anti-prejudice norms—to understand how prejudice manifests in our everyday lives. Our study was the first to extend this approach to the field of developmental psychology. Across two studies, our findings revealed that by 6 years of age, children's perceived acceptability of prejudice begin to reflect the nuances previously observed in adults (e.g., Crandall et al., 2002; Zitek & Hebl, 2007), and that these judgments continue to become more adult-like across the primary school years. While various social-cultural and psychological factors inevitably contribute to the development of prejudicial attitudes, the degree to which norms on the acceptability of prejudice are established for a given social group impacts the malleability of prejudicial attitudes toward those groups (Zitek & Hebl, 2007) and how they are expressed in the form of discriminatory behaviors (Crandall & Eshleman, 2003). Through the use of our innovative paradigm, developmental psychologists can expand our knowledge on how we can help individuals and groups that may require further protection against prejudice and discrimination.

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## DATA AVAILABILITY STATEMENT

This research was preregistered on the Open Science Framework. The visual and auditory materials necessary to attempt to replicate the findings are not publicly accessible. Data and analytic code necessary to reproduce the analyses presented in this paper are publicly accessible. Preregistration, data, and analytic code can be found at <https://osf.io/xvrmj/>.

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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