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Empirical Article

Learning about social inequalities increases children's moral and prosocial actions to support marginalized groups

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Abstract

Drawing on intergroup contact theory and the social reasoning developmental model, these studies investigated how perceiving (Study 1) and learning about (Study 2) social inequalities involving immigrants in the U.S. informed 8- to 11-year-old American children's moral and prosocial actions to support immigrant peers and families. In Study 1 ($N = 132$, 64% girls, 61% White, in 2024), children with stronger perceptions of inequalities, and in some cases children with more positive attitudes about immigrants, took more moral and prosocial actions (βs .24–.70). In Study 2 ($N = 458$, 49% girls, 42% White, in 2024–2025), children received either evidence of inequalities via stories about immigrant families navigating social systems (critical contact), evidence of cooperative relationships via stories about intergroup friendships (positive contact), or both types of evidence via stories combining family and friendship (critical + positive contact). Critical contact increased children's perceptions of inequalities (βs = .19) with positive effects on actions (βs .18–.28). Although positive contact did not change children's intergroup attitudes, these attitudes were also associated with actions (βs .13–.72). Overall, children who learned about inequalities in their societies through developmentally tailored stories subsequently took more moral and prosocial actions to support marginalized groups.

Keywords intergroup contact, social reasoning developmental model, anti-immigrant bias, social inequality

Lay summary

This research looked at how learning about issues faced by immigrants in the U.S. informed 8- to 11-year-old American children's moral and prosocial actions to support (or not support) immigrant peers and families. For instance, children could choose to donate to a community center helping immigrants get settled in their town or send a positive message in a video telling other Americans about immigration. First, children read stories about either (a) the experiences and challenges of families new to the U.S., (b) immigrant and American kids sharing interests and becoming friends, or (c) both families and friendships. Later, children who read the stories about families' experiences reported higher awareness of issues facing immigrants and took more actions to support them.

Positive intergroup contact can reduce prejudice and promote inclusion among children and adults (Dovidio et al., 2017). Yet, in unequal societies, efforts for intergroup harmony can sometimes overlook enduring needs for intergroup equality (Cocco et al., 2024). Developmental scientists studying discrimination have called for new ways to foster more privileged children's understanding of the real challenges faced by their more marginalized peers (Yip et al., 2019) and their own potential role in addressing (or maintaining) them (Hazelbaker et al., 2022). Some successful inroads have been made, for instance, in scaffolding White parents' color-conscious conversations with their children (Perry et al., 2024) and documenting links between peer contact and affluent children's awareness of economic inequality (Elenbaas, 2019). Yet, in contrast to years of research on collective action among youth from more marginalized backgrounds (Diemer et al., 2021), this new work has also highlighted how little we really know about efforts to reduce inequalities among children from more privileged groups. Drawing on two theoretical perspectives, intergroup contact theory (Tropp et al., 2022) and the social reasoning developmental model (Killen & Rutland, 2011), the current research investigated two possible ways to nurture emerging moral and prosocial support for more marginalized groups among children

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from more privileged backgrounds—positive contact and critical contact—documenting naturally occurring associations (Study 1) and drawing causal conclusions (Study 2) about the kinds of evidence that effectively foster self-identified American children's actions to support immigrant groups. We focused on the developmental period of middle childhood, ages 8–11 years, because this is a time in development when children first start to recognize real social inequalities and seek out trusted others to help them understand (Kneeskern & Elenbaas, 2023).

Children's intergroup attitudes and inequality perceptions

Intergroup attitudes

Cooperative interactions between children from different backgrounds, such as playing together or working on a project together, can reduce prejudice and support positive outgroup attitudes, particularly for children from more privileged social groups (Aboud & Brown, 2013). There are several ways in which well-structured, face-to-face interactions can achieve these goals, including by reducing intergroup anxiety, increasing cross-group empathy, and changing peer group norms (Beelmann & Heinemann, 2014). In other words, intergroup contact can alleviate children's negative expectations about outgroup members (e.g., not getting along) and about cross-group interactions (e.g., anticipated discomfort), leading to more positive attitudes (Tropp et al., 2022). These attitudes commonly include, but are not limited to, social preferences or increased liking of outgroup members (e.g., Brown, 2011), recognition of similarities (e.g., Vezzali et al., 2012), and interest in future interactions (e.g., Cameron et al., 2006).

Experiencing intergroup contact vicariously via media such as books or movies is also a well-established method for reducing prejudice and promoting positive outgroup attitudes (Vezzali et al., 2014). For example, one early study in this area had British 5- to 11-year-olds spend six weeks reading about friendships between refugee and British peers; relative to a control group, children who read the stories were more interested in including refugee peers in their own activities (Cameron et al., 2006). Similarly, in a recent study, Irish 8- to 11-year-olds who read about a Syrian family coming to Northern Ireland were more interested in spending their free time helping Syrian students settle in at their school than children who did not read about these experiences (Taylor & Glen, 2020).

Importantly, not all intergroup contact is positive. Although the large majority of studies on intergroup contact in childhood focus on supporting constructive interactions and beneficial outcomes (Turner & Cameron, 2016), negative interactions also happen, and are known to exacerbate intergroup tensions among adults (Paolini et al., 2024) and children (e.g., Verkuyten & Steenhuis, 2005). Vicarious intergroup contact can also be negative, and over time children's exposure to hostile messages about outgroups, for instance online (Elenbaas et al., 2025) or in the news (Bobba et al., 2024), is associated with increases in prejudice.

Inequality perceptions

Alongside these more well-established findings about intergroup contact and prejudice, recent studies have begun to document associations between intergroup contact and children's perceptions of and actions around social inequalities. For instance, 5- to 7-year-old middle class U.S. children who know more people who are poor also perceive larger everyday resource disparities between rich and poor families and allocate more fun toys to a poor peer than a rich peer when they have the chance (Elenbaas, 2019). Likewise, 8- to 12-year-old American children with more third-hand exposure to immigrants (e.g., via media) are more likely to notice, disapprove, and attempt to correct the imbalance when immigrants have restricted access to school resources (Elenbaas et al., 2026). In adolescence, as well, Italian 15- to 19-year-olds who have more interactions with immigrants (e.g., as neighbors) are more likely to say that immigrants and Italians are treated differently in society and more willing to take actions for change such as protesting that unequal treatment (Di Bernardo et al., 2021). Similarly, over the course of a year, Belgian 13- to 18-year-olds with ethnic minority friends increasingly share their friends' more negative views on their opportunities at school (Kende et al., 2025). By adulthood, people from more privileged social groups who have more direct intergroup contact with people from more marginalized social groups also tend to take more collective actions such as petitioning, protesting, or voting (Cocco et al., 2024).

In short, there is emerging evidence that something about intergroup contact may be raising more privileged children's concerns about social inequalities alongside the well-documented effects on reducing bias. Yet, the current evidence base leaves open questions about the conditions under which this happens, particularly in childhood, and the potential implications of children's changing perceptions for their possible early actions in support of more marginalized groups.

Frameworks: intergroup contact theory and the social reasoning developmental model

Positive contact

One possible explanation from intergroup contact theory is that collaborative, contextually equal-status, authority-supported intergroup interactions, i.e., *positive contact* (Tropp et al., 2022), may foster moral and prosocial actions in support of marginalized groups via improved intergroup attitudes (e.g., lower prejudice). This prediction is a straightforward application of this well-established theory to a new set of outcomes, assuming that the same changes in attitudes that tend to build interpersonal rapport (Lemmer & Wagner, 2015) also strengthen emerging moral and prosocial actions. For example, children from a more privileged group who experience positive contact with peers from a more marginalized group (e.g., rehearse together in a music program, compete together on a soccer team) may develop new, more positive intergroup attitudes (e.g., we have things in common, I like them). These intergroup attitudes, in turn, may support moral and prosocial actions (e.g., I want to help make sure they are welcome here and their concerns get attention).

Critical contact

Alternatively, the social reasoning developmental model outlines the conditions that elevate moral concerns in intergroup contexts (Killen & Rutland, 2011). Drawing on this perspective, one possible explanation is that, when intergroup contact affords evidence of the existence, causes, and consequences of social inequalities, i.e., *critical contact*, it may, in turn, support early moral and

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prosocial actions via improved understanding of these conditions (e.g., unfair access to opportunities). This prediction supposes that children might need morally salient evidence of injustice in order to want to step up and help address it (Elenbaas et al., 2020). For example, children from a more privileged background who experience critical contact with peers from a more marginalized background (e.g., find out that some families cannot attend the big concert because of restricted work opportunities or some peers cannot join the team because of limited access to routine healthcare) may develop new perceptions of inequalities in their society (e.g., some groups face unfair barriers). These perceptions, in turn, may support moral and prosocial actions (e.g., I want to help make sure they can achieve their goals and other people know about these issues).

Although constructive conversations about or interactions around social inequalities are not always common in the lives of children from more privileged backgrounds (Wray-Lake et al., 2023), when they are included, children can benefit. For example, one study engaged 6- to 10-year-old White children in six days of 20-min history lessons about famous Black and White Americans that either included or did not include background on discrimination that the Black individuals had experienced; ultimately, children who learned about discrimination were more likely than those who did not to say that Black people should be treated more fairly (Hughes et al., 2007). In less structured contexts, peers are also influential. For example, in addition to the correlational and longitudinal evidence described above (e.g., Kende et al., 2025), one recent study found that 43% of middle class U.S. 8- to 12-year-olds reported learning about social class and economic inequality from observing their peers (Ackerman & Elenbaas, 2024).

Similar research on intergroup interactions and adults' thinking about social inequalities has often focused on circumstances where people from more privileged and more marginalized backgrounds come together with the express purpose of acknowledging and discussing social issues (e.g., Droogendyk et al., 2016 on supportive contact). When children learn about social inequalities via intergroup interactions, however, the evidence to date indicates points to less structured routes. For example, learning about social inequalities may happen as children listen to a friend's story (Kneeskern & Elenbaas, 2023), notice a social media post (Elenbaas et al., 2026), or talk with a neighbor (Di Bernardo et al., 2021).

Positive contact meets critical contact

Importantly, as other researchers have likewise noted (Schreiber et al., 2024), positive contact and critical contact are not mutually exclusive. In fact, evidence of cooperative cross-group relations (positive contact) and evidence of between-group inequalities (critical contact) may foster children's moral and prosocial actions for different reasons (i.e., improving intergroup attitudes *and* strengthening inequality perceptions), making both together, i.e., positive + critical contact, even more impactful than just one. For example, for children from more privileged backgrounds, liking more marginalized groups (a common outcome of positive contact) *and* recognizing that they face discrimination in social systems (one theorized outcome of critical contact) may *align* to nurture moral and prosocial actions such as amplifying these groups' concerns in a public setting and spreading the word to other advantaged ingroup members, with a cumulative effect equal to or greater than the sum of its parts.

With positive contact in childhood, the opportunity for attitude change (e.g., lower prejudice) is usually afforded via an activity with its own purpose (e.g., completing a math worksheet together, playing tug-of-war; Gasser et al., 2014). With critical contact in the current study, we likewise presented the opportunity for a change in perceptions (e.g., recognizing the size of group-based resource disparities) via activities with their own purposes (e.g., launching a community garden, going on a field trip to the zoo). The key was that these activities, conveyed in a vicarious (story-based) format, also contained events and conversations that provided evidence for the existence, structural causes, and negative consequences of social inequalities between immigrants and Americans.

Context of immigration in the U.S.

Children perceive inequalities on many dimensions, such as gender, race, and social class (Heck et al., 2022). Inequalities in the context of immigrant-national relations in the U.S. are underexplored, but increasingly important, for two key reasons. First, conceptually, many American children believe that people immigrate to the U.S. in search of freedom, opportunities, and upward mobility (Brown & Lee, 2015), but few are aware of the structural barriers to achieving those goals, such as limited work authorization, complex access to education, and restricted political representation (Elenbaas et al., 2026). This makes immigrant experiences a familiar topic for many American children, but with plenty of room for the introduction of new information to consider.

Second, practically, immigration has diversified communities across the U.S., making native-born American children today more likely to encounter peers from other countries than were their parents' generation (Kramer & Passel, 2025). With 26% of the current child population identifying as immigrants or children of immigrants (Ward & Batalova, 2023), many opportunities are open for support in everyday life.

Development in middle childhood

Moral and prosocial actions in contexts of intergroup inequality are relevant across the lifespan, but development of these actions in middle childhood, or about ages 8–11 years, is especially interesting and important for two main reasons. First, middle childhood is when some children start to not only recognize but seek to explain social inequalities in their communities (Zhang et al., 2024). To explain the origins of gender (Amemiya & Bian, 2024), racial (Rizzo et al., 2022), and social class (Burkholder et al., 2026) inequalities, older children tend to cite two main causes: either these disparities are the result of individual factors such as effort and ingenuity, so groups succeed or fail because of their intelligence and work ethic, or they are the result of structural factors such as ample or restricted access to education, jobs, decision-making power, and other resources and opportunities. In terms of immigration and national group identity, by middle childhood American children have clearly identified their national ingroup (Brown & Lee, 2015), with emerging awareness that immigrants to the U.S. sometimes experience restricted access to opportunities (Elenbaas et al., 2026).

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Second, meta-analytic evidence indicates that the effects of positive intergroup contact on intergroup attitudes are strongest in middle childhood (Beelmann & Heinemann, 2014). Although research on critical contact is new, there is evidence that older children want to understand the inequalities that they observe and experience and start to seek out trusted others such as friends and parents to help them interpret (Kinnard et al., 2025). Overall, middle childhood may be a key developmental period to examine how positive *and* critical contact may foster early moral and prosocial actions in support of more marginalized groups.

Prior research on adolescents' (Diemer et al., 2021) and adults' (Cocco et al., 2024) actions to address social inequalities has assessed developmentally relevant behaviors such as posting on social media, signing petitions, donating to causes, going to protests, and voting for policies or candidates. By contrast, research on children's actions to address social inequalities has thus far primarily examined decisions about sharing or allocating resources from toys to school supplies (Moran et al., 2024). Motivated by conceptual calls (e.g., Zhang et al., 2024) and empirical efforts (e.g., Taylor & McKeown, 2021) to expand the scope of developmentally salient behaviors related to addressing inequalities, in the current research, we operationalized moral and prosocial actions in four new ways relevant to middle childhood: interest in supporting immigrant groups' goals, giving up desirable resources to support immigrant families, amplifying the concerns of immigrant peers, and educating other ingroup members about issues affecting immigrants in the U.S. These measures took inspiration from past work (e.g., Di Bernardo et al., 2021; Taylor & Glen, 2020) but were original to this research and highlighted the developmentally salient moral and prosocial concerns of older children in their everyday contexts (Heberle et al., 2020).

Current research

The current research comprised two studies: a correlational study (Study 1) and an experiment (Study 2), both with American participants aged 8–11 years. Bringing together intergroup contact theory (Pettigrew & Tropp, 2006) and the social reasoning developmental model (Elenbaas et al., 2020), this research had two main aims. Study 1 aimed to document naturally occurring relations between children's existing intergroup attitudes (e.g., social preferences), inequality perceptions (e.g., structural causes), and moral and prosocial actions in support of immigrant groups. Study 2 aimed to change children's intergroup attitudes and inequality perceptions via positive contact and critical contact, respectively, and test their causal impact on children's moral and prosocial actions. In other words, this research investigated two possible ways to nurture emerging moral and prosocial support for more marginalized groups among children from more privileged backgrounds.

Immigrants to the U.S. are diverse, arriving from almost 200 countries of origin (Ward & Batalova, 2023). We assessed American children's thinking about people from Mexico, China, India, El Salvador, Nigeria, or Poland (between subjects). Mexico, China, and India send the largest numbers of immigrants to the U.S., while immigrants from El Salvador, Nigeria, and Poland are numerically fewer but represent movement from important sending regions (Ward & Batalova, 2023). This approach supported generalizability, allowing us to draw conclusions about associations (Study 1) and experimental condition differences (Study 2) that were not tied to children's beliefs or attitudes about one specific immigrant group.

In Study 2, children experienced positive contact and critical contact via short, illustrated stories. This approach, a form of vicarious intergroup contact (Vezzali et al., 2014), afforded the close experimental control necessary to draw conclusions about positive *and* critical contact through careful manipulation of the plot to center on immigrant and American peers becoming friends (positive contact), immigrant families navigating social systems (critical contact), or both friendships and families (critical + positive contact). Specifically, children in the positive contact condition read stories about collaborative, equal-status, and authority-supported intergroup friendships, fulfilling the optimal conditions for positive intergroup attitudes (e.g., perceived similarity) per intergroup contact theory (Pettigrew & Tropp, 2006). Children in the critical contact condition read stories about families navigating social systems that included evidence of the existence, structural causes, and negative consequences of social inequalities affecting immigrant families, providing evidence that children need to form perceptions of social inequalities according to the social reasoning developmental model (Elenbaas et al., 2020). Children in the critical + positive contact condition read stories that integrated both narratives; that is, they heard about immigrant families navigating social systems and they heard about the child protagonists developing cross-group friendships.

Hypotheses

In Study 1, we expected that more positive intergroup attitudes and higher perceptions of social inequalities would both relate positively to moral and prosocial actions. In other words, children who felt more positively about immigrants and children who perceived they faced more barriers in society were both expected to engage in more moral and prosocial actions to support immigrant groups relative to children who felt more negatively about immigrants and children who perceived social inequalities were not an issue. We did not form a prediction about which association would be stronger.

In Study 2, we expected that positive contact (experienced vicariously via stories) would raise children's intergroup attitudes, critical contact (also experienced vicariously) would raise children's inequality perceptions, and both positive intergroup attitudes and strengthened inequality perceptions would have positive effects on children's moral and prosocial actions. Again, we did not form a priori predictions about which effect would be stronger. However, we expected that if both types of evidence shifted behavior for different reasons (i.e., because they improved intergroup attitudes and boosted inequality perceptions, respectively), then both together might be even more impactful than just one. In other words, the combined critical + positive contact condition might have the most positive impact on children's moral and prosocial actions (because it offered the evidence needed for children to develop both more positive intergroup attitudes and stronger inequality perceptions).

Characterization

In sum, our hypotheses for Study 1 and Study 2 were all confirmatory.

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Study 1: method

Participants

Power analyses using a Monte Carlo simulation approach (Muthén & Muthén, 2002) expecting effects around $\beta = .30$ for the relations in the path model described in the section "Analysis Plan" below indicated that a sample of 110 participants would yield power consistently above .85 to test our hypotheses. We recruited participants from 25 community sites (see Supplementary material for details) in Indiana in the summer and fall of 2024. We described the study topic as "how children in the U.S. think about children and families who immigrate to the U.S." We initially enrolled 137 participants and later excluded 4 (see Supplementary material).

The final analytic sample was $N = 132$ children ages 8–11 years. Table 1 provides complete sample demographics. Children reported their own age, gender, race or ethnicity, generational status, and subjective social status (Mistry et al., 2015). Parents reported their educational attainment, family annual income, political affiliation, and region.

Procedure

The study was approved by the Institutional Review Board (IRB) at Purdue University, study ID 2024–614, and conducted in accordance with the ethical principles of the Society for Research in Child Development. Parent consent and child assent were obtained for all participants.

Children took an average of 25 min to complete the measures below independently, using an iPad, with members of the research team nearby to facilitate but not directly observe their responses. Children were randomly assigned to consider immigrants from either Mexico, China, India, El Salvador, Nigeria, or Poland. Measures were presented in four blocks: inequality perceptions, intergroup attitudes, moral and prosocial actions, and demographics. The first three blocks were presented in a random order, with measures randomized within blocks and items randomized within measures. The demographics block was presented last, with questions in a fixed order.

Measures

The paragraphs below include indices of reliability (α, ω, and κ). Checks for differences in children's responses by country are in the Supplementary material. Complete details on every measure are available on Open Science Framework (OSF): https://osf.io/w2vma/overview

Inequality perceptions

These three measures drew on past work (e.g., Elenbaas et al., 2026; Kneeskern & Elenbaas, 2023) but were original to the study.

Existence

Children responded to 10 questions about the existence of inequalities in resources, power, and status between immigrants from their assigned country and Americans, $\alpha = .67$, $\omega = .66$. For example: "Let's say there's a group of people from [Country] and a group of people from America and they all live in the U.S. Take your best guess, which group has more money?" from 1 = definitely the people from [Country] to 6 = definitely the people from America. We created an average score where higher numbers indicate larger perceived inequalities in favor of Americans over immigrants.

Causes

Children responded to four questions about individual causes of these inequalities, $\alpha = .78$, $\omega = .77$, and four questions about structural causes of these inequalities, $\alpha = .62$, $\omega = .64$. For example: "What causes those differences between people from [Country] and people from America? Is it because of how smart they are?" (individual) from 1 = definitely no to 6 = definitely yes. "Is it because of how many opportunities they have?" (structural), same scale. We created an average score for individual causes and an average score for structural causes and then a difference score where higher numbers indicate stronger endorsement of structural over individual causes.

Consequences

Children responded to three questions about the consequences of these inequalities for immigrants, for Americans, and overall. For example: "And what are the consequences of those differences? How good or bad is the situation for people from [Country]?" from 1 = really good to 6 = really bad. The "overall" item was a filler question; for immigrants and Americans $r = .30$. We created a difference score where higher numbers indicate more negative consequences for immigrants than for Americans.

Intergroup attitudes

These three measures are widely used assessments of intergroup attitudes (Brown, 2011; Cameron et al., 2006; Vezzali et al., 2012).

Social preferences

Children responded to three questions about how they felt about immigrants from their assigned country, $\alpha = .80$, $\omega = .80$. For example: "How much do you like kids who are from [Country] and now live in the U.S.?" from 1 = really do not like to 6 = really like. We created an average score where higher numbers indicate stronger social preferences.

Inclusion of the other in the self

Children responded to two questions about how close they felt to other kids from the U.S. and other kids from their assigned country, from 1 = no overlap to 5 = complete overlap. We used the item about closeness to outgroup members.

Affiliation intentions

Children responded to four questions about their behavioral intentions toward immigrants, $\alpha = .77$, $\omega = .79$. For example: "Imagine you're at the park one day and you meet another kid who has just moved to your town from [Country]. How much would you want to say hello to them?" from 1 = really do not want to 6 = really want to. We created an average score where higher numbers indicate stronger intentions to affiliate with immigrants.

Moral and prosocial actions

These four measures drew on past work (e.g., Taylor & Glen, 2020; Taylor & McKeown, 2021) but were original to the study.

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Table 1 Sample demographics: study 1, $N = 132$; study 2, $N = 458$.

	Study 1		Study 2			Study 1		Study 2	
	n	Proportion	*n*	Proportion		*n*	Proportion	*n*	Proportion
Child age in years					Parent educational attainment				
8	27	.21	99	.22	Some high school	0	.00	11	.02
9	40	.30	128	.28	High school degree or equivalent	13	.10	77	.17
10	38	.29	116	.25	Some college	19	.14	84	.18
11	23	.17	92	.20	Technical or vocational degree	3	.02	16	.04
Not specified	4	.03	23	.05	Two-year college or associates degree	11	.08	32	.07
Child gender					Four-year college or bachelor's degree	22	.17	55	.12
Girl	83	.63	225	.49	Master's degree	30	.23	37	.08
Boy	43	.32	204	.45	Doctorate degree	8	.06	6	.01
Nonbinary	1	.01	3	.01	Not specified	26	.20	140	.31
Another identity	1	.01	5	.01	Family annual income				
Not specified	4	.03	21	.05	<$15K	3	.02	17	.04
Child race or ethnicity					$15–$25K	9	.07	23	.05
Black	15	.11	97	.21	$25–$50K	8	.06	92	.20
White	81	.61	194	.42	$50–$75K	18	.14	63	.14
Asian	4	.03	21	.05	$75–$100K	13	.10	29	.06
Latino/Hispanic	2	.01	34	.07	$100–$150K	14	.11	33	.07
Indigenous	0	.00	1	.01	$150–$200K	17	.13	25	.06
Middle Eastern	0	.00	4	.01	$200–$250K	7	.05	7	.02
Multiracial/ multiethnic	12	.09	52	.11	$250–$500K	8	.06	3	.01
Another identity	8	.06	11	.02	>$500K	2	.01	1	.01
Not specified	10	.08	44	.10	Not specified	33	.25	165	.36
Child generational status					Parent political affiliation				
First-generation	3	.02	19	.04	Republican	19	.14	51	.11
Second-generation	12	.09	63	.14	Democrat	30	.23	92	.20
Third-generation+	94	.71	295	.64	Another party	7	.05	12	.03
Not specified	23	.17	81	.18	Unaffiliated	41	.31	128	.28
Child subjective social status					Not specified	35	.27	175	.38
1	1	.01	4	.01	Family region				
2	0	.00	2	.01	Urban	17	.13	112	.25
3	1	.01	2	.01	Rural	57	.43	115	.25
4	4	.03	8	.02	Suburban	29	.22	79	.17
5	30	.23	71	.16	Not specified	29	.22	152	.33
6	21	.16	83	.18					
7	23	.17	100	.22					
8	25	.19	60	.13					
9	10	.08	37	.08					
10	12	.09	66	.14					
Not specified	5	.04	25	.06					

Interest in allyship

Children responded to three questions about their interest in being allies with immigrants from their assigned country, $\alpha = .75$, $\omega = .76$. For example: "Let's say you had the chance to do these things, how much would you want to… help make sure people from [Country] can do the things that are important to them here

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in the U.S." from 1 = really do not want to 6 = really want to. We created an average score where higher numbers indicate stronger interest in allyship.

Welcome donation

Children were issued five tokens that they could choose to cash in for prizes to keep for themselves or donate to a community center that supports immigrant families getting settled in their community. The prize box with items (e.g., fidget spinners, squish toys, and mini Legos) was visible nearby. Participants had two wooden boxes with lids where they placed the tokens they wanted to cash in and the tokens they wanted to donate. We used the total number of tokens donated to the community center.

Platform support

Children were introduced to a hypothetical school that was having an assembly where students could talk about issues in the community that are important to them. They had to decide how to divide five speaking roles between students from the U.S. and students who are immigrants from their assigned country. We used the total number of speaking spots allocated to immigrant students.

Peer education

Children were told that the research team was making a YouTube video to teach other American kids about what life is like for immigrant kids in the U.S., and the team wanted their advice on what to say in this video, to make it really good and help people learn a lot. Participants typed their suggestions in a text box.

Responses were later coded using a gold standard procedure in which a junior team member trained on the four-category coding system established by the senior lead on the project (see the Supplementary material for details) until they reached an acceptable degree of inter-rater reliability on each category ($\kappa > 0.80$) (Conry-Murray et al., 2024). Then, both team members independently coded a random selection of 100 responses and calculated final κ values for each category (reported below). Finally, the first team member completed coding the rest of the dataset. Multiple codes per response were allowed and were coded 1 if the category was referenced and 0 if it was not. Responses that did not fit into any of the four categories were coded 0 for all four categories.

Moral: 25% of participants ($n = 33$) referenced something morally relevant about fairness, equality, or rights, $\kappa = 0.90$, e.g., "people from India should be treated fairly." Prosocial: 24% of participants ($n = 32$) referenced something prosocial about kindness, welcoming, or helping, $\kappa = 0.92$, e.g., "be nice to people from Nigeria." Cultural: 19% of participants ($n = 25$) wanted others to know something cultural, $\kappa = 0.98$, e.g., "tell them what language they speak in El Salvador." Unsure: 20% of participants ($n = 26$) thought about it but could not come up with a message for others, $\kappa = 1.00$, e.g., "I really don't know what to put in the video." We created a sum score for moral + prosocial + cultural suggestions.

Analysis plan

To assess the effects of inequality perceptions and intergroup attitudes on children's moral and prosocial actions using multiple measures of each construct, all assessed on different scales, we first standardized by creating *z*-scores for each measure, then tested exploratory factor analyses (EFAs) for dimensionality and fit. Next, we tested for measurement invariance across the six countries (Mexico, China, India, El Salvador, Nigeria, and Poland) using multigroup confirmatory factor analysis (CFAs).

Finally, we conducted a path analysis in M*plus* 8 (Muthén & Muthén, 2017) testing the direct effects of intergroup attitudes and inequality perceptions on children's moral and prosocial actions. Missing data were rare (ranging from 0% to 5% across measures); we used full information maximum likelihood (FIML) estimation (Enders, 2025). Overall model fit was considered acceptable if root mean square error of approximation (RMSEA) < .06, standardized root mean square residual (SRMR) < .08, and comparative fit index (CFI) and Tucker-Lewis index (TLI) > .90 (Hu & Bentler, 1999). Standard errors (SEs) are indices of point estimate precision, and standardized path coefficients (β) are indices of effect size.

Scientific integrity and openness

We determined our sample size using a priori power analyses (above). We report all exclusions (Supplementary material). All measures are on OSF: https://osf.io/w2vma/overview. We can share the data with researchers on request but do not have permission to post it publicly. We do provide extensive descriptives for all measures (here and in the Supplementary material). Analyses were not preregistered. Analytic code for all final models is in the Supplementary material.

Study 1: results

Descriptives

On average, participants perceived inequalities that slightly favored Americans over immigrants ($M = 4.40$, *SD* [standard deviation] = 0.61), thought structural causes were slightly more likely than individual causes ($M = 0.66$, $SD = 1.35$), and the consequences for Americans were slightly better than the consequences for immigrants ($M = 0.69$, $SD = 1.32$). On average, participants liked ($M = 5.23$, $SD = 0.66$), felt some closeness with ($M = 3.52$, $SD = 1.06$), and wanted to affiliate with immigrants ($M = 5.07$, $SD = 0.71$). And overall, participants wanted to be allies with immigrants ($M = 5.30$, $SD = 0.76$), donated about half of the items they could have kept to support immigrants getting settled in their communities ($M = 2.83$, $SD = 1.34$), selected slightly more immigrants than Americans to speak on their concerns in a school assembly ($M = 2.95$, $SD = 0.87$), and had about one constructive thing to convey about immigrants in a video for American ingroup members ($M = 0.71$, $SD = 0.50$).

Mean comparisons (in the Supplementary material) indicated no average differences on any measure by randomly assigned country (Mexico, China, India, El Salvador, Nigeria, or Poland). As detailed in Table S1, children's existence, cause, and consequence perceptions (inequality perceptions) all correlated positively, their social preferences, inclusion of the other in the self, and affiliation intentions (intergroup attitudes) all correlated positively, and the four moral and prosocial actions (interest in allyship, welcome donation, platform support, and peer education) were less consistently correlated.

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Data reduction

As detailed in the Supplementary material, EFAs generated reasonable factors for inequality perceptions and intergroup attitudes but not for moral and prosocial actions; we opted to treat the behavioral measures (only) as four separate outcomes. Tests for measurement invariance using multigroup CFAs indicated that the inequality perceptions factor (existence, causes, and consequences) and the intergroup attitudes factor (social preferences, inclusion of the other in the self, and affiliation intentions) operated comparably across the six countries in question.

Path model

To test for associations between children's perceptions, attitudes, and actions, we established a path model linking the inequality perceptions and intergroup attitudes factors to the four moral and prosocial actions. We checked all participant demographics (see Table 1) as covariates of the two factors. Older children, $b = -0.10$, $SE = .04$, $\beta = .21$, $SE = .11$, $p = .047$; girls, $b = -0.05$, $SE = .02$, $\beta = -.23$, $SE = .10$, $p = .017$, and children whose parents had completed more years of education, $b = 0.39$, $SE = .15$, $\beta = .48$, $SE = .10$, $p < .001$, had stronger inequality perceptions. Girls additionally had more positive intergroup attitudes, $b = -0.10$, $SE = .04$, $\beta = -.25$, $SE = .10$, $p = .008$.

Overall model fit was good, $\chi^2(51) = 59.36$, $p = .197$, RMSEA = .04, 90% confidence interval (CI) [.00, .07], SRMR = .07, CFI = .96, and TLI = .94. The Supplementary material offers the complete M*plus* 8 analytic code for this model and details on loadings for the two factors.

Direct effects

As displayed in Figure 1, inequality perceptions were significantly associated with interest in allyship, $b = 0.45$, $SE = .21$, $\beta = .24$, $SE = .09$, $p = .007$, with welcome donation, $b = 1.12$, $SE = .49$, $\beta = .35$, $SE = .11$, $p = .002$, and with peer education, $b = 0.34$, $SE = .17$, $\beta = .28$, $SE = .11$, $p = .014$, but not with platform support, $b = 0.23$, $SE = .27$, $\beta = .11$, $SE = .12$, $p = .371$. That is, children with higher inequality perceptions were more interested in being allies with immigrants, donated more resources to help immigrants get settled in their communities, and made more constructive suggestions in a video educating other Americans about immigrants' experiences (but did not offer immigrants more of a platform to talk about issues).

Also as displayed in Figure 1, intergroup attitudes were significantly associated with interest in allyship, $b = 0.66$, $SE = .10$, $\beta = .70$, $SE = 06$, $p < .001$, but not with welcome donation, $b = 0.01$, $SE = .18$, $\beta = .01$, $SE = .11$, $p = .960$, or platform support, $b = 0.17$, $SE = .11$, $\beta = .15$, $SE = .10$, $p = .134$, or peer education, $b = 0.01$, $SE = .07$, $\beta = .01$, $SE = .10$, $p = .902$. That is, children with more positive intergroup attitudes were also more interested in being allies with immigrants (but did not donate more, offer more of a platform, or make more constructive suggestions).

Moderation

As detailed in the Supplementary material, we found no evidence that any of the relations in Figure 1 varied meaningfully based on the randomly assigned country that children were considering: Mexico, China, India, El Salvador, Nigeria, or Poland.

Summary

Overall, the associations between children's perceptions of social inequalities involving immigrants and their moral and prosocial actions in support of immigrant groups aligned with predictions from the social reasoning developmental model. Simultaneously, one association between intergroup attitudes and actions also aligned with expectations from intergroup contact theory. In Study 2, we sought to raise children's inequality perceptions and intergroup attitudes using critical and positive contact, respectively, in order to draw causal conclusions about their effects on moral and prosocial actions.

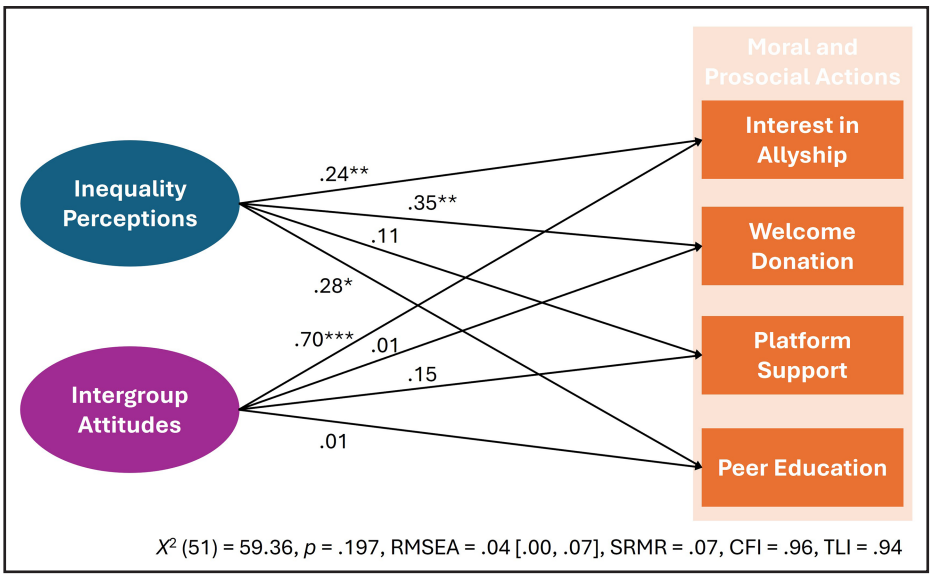


Figure 1 Inequality perceptions and intergroup attitudes inform moral and prosocial actions. *Note*. *$p < .05$, **$p < .01$, ***$p < .001$. Numbers on paths are standardized betas (β). Error terms, covariances, and covariates are omitted for readability. $N = 132$.

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Study 2: method

Participants

Power analyses using a Monte Carlo simulation approach (Muthén & Muthén, 2002), expecting effects around $\beta = .20$ for relations between condition and inequality perceptions and condition and intergroup attitudes, and adopting the effect sizes from Study 1 as estimates for relations between inequality perceptions and moral and prosocial actions and between intergroup attitudes and the same (see Figure 1), indicated that a sample of 440 participants (or 110 participants per condition) would yield power consistently above .82 to test our hypotheses for condition effects and consistently above .92 to replicate the significant relations between perceptions and actions and attitudes and actions that we found in Study 1.

We recruited participants from 28 community sites (see Supplementary material) in Indiana in the fall, winter, and spring of 2024–2025. We described the topic as in Study 1. We initially enrolled 470 participants and later excluded six (see Supplementary material). The final analytic sample was $N = 458$ children aged 8–11 years. Table 1 provides complete sample demographics, assessed as in Study 1.

Procedure

IRB approval was the same as for Study 1. We obtained parent consent and child assent for all participants.

Design

Children were first randomly assigned to condition—critical contact, positive contact, critical + positive contact, or control—then randomly assigned to story within condition: A Day at the Zoo featured a peer from Mexico, Music Class featured a peer from China, Holiday Celebrations featured a peer from India, The Big Soccer Game featured a peer from El Salvador, The Community Garden featured a peer from Nigeria, and Trying New Foods featured a peer from Poland. They read the story with a researcher for about 15 min, then used an iPad to privately report their perceptions, attitudes, and actions for about 25 min. All stories are available on OSF: https://osf.io/w2vma/overview.

Critical contact condition

Children read about a peer who had just immigrated to the U.S. with their family from Mexico, China, India, El Salvador, Nigeria, or Poland. Each story centered on a challenge the family was facing within a system that they needed to navigate. Challenges involved language practices in education, work authorization rules, public religious observances, access to basic health care, voting rights, and housing security, and each story touched on the implications of immigration policy overall for families (Abrego & León, 2025). Each story was told through the eyes of the child main character and, per the social reasoning developmental model (Elenbaas et al., 2020), illustrated the issue at stake, its structural cause, and its negative consequences in a highly developmentally sensitive way while portraying the family as capable people working to achieve a goal that mattered to the child protagonist.

Positive contact condition

Children read about a peer who had just immigrated to the U.S. with their family from one of the six countries and an American peer who had lived in their town all their life who became best friends. The story acknowledged cultural differences in a positive way and centered on a common interest that the friends shared involving biology at the zoo, a new music class, artistic expression, forming a soccer team, tending a community garden, or potluck cooking. The story was told through the eyes of the child main character and, per intergroup contact theory (Tropp et al., 2022), showed them collaborating with their friend toward a shared goal that drew on their equal talents and elicited the support of their parents.

Critical + positive contact condition

Children read a story that merged both constituent stories. That is, they heard about an immigrant family navigating a social system *and* they heard about the protagonist child becoming best friends with an American peer.

Control condition

This group first completed all measures for comparison to the other conditions and then read a randomly selected story so they could still benefit from participation.

Story development process

In any experimental design, there is a trade-off between experimental control and ecological validity. However, these streamlined narratives represented real issues and real lives. We used a four-step story development and piloting process. First, we reviewed the literature on story-based vicarious intergroup contact for best practices (e.g., Turner & Cameron, 2016) and on immigrant experiences in the U.S. for core issues to address (e.g., Suárez-Orozco et al., 2018), and wrote first drafts of each story. Then, we asked additional scholars beyond the project team with expertise in immigrant families, anti-immigrant bias, or both issues to offer edits on accuracy and representation keeping the goals of the study in mind. Next, we contracted a local art teacher to illustrate the narratives. Then, working with community partners serving immigrant families, we shared each story with parents and elementary-aged children who had immigrated to the Midwest from Mexico, China, India, El Salvador, Nigeria, and Poland, asking for input on authenticity and making their suggested edits accordingly. Finally, working with different community partners, we pilot tested the near-final versions for comprehension and relatability with U.S.-born American children. Ultimately, there are two versions of each story, one with girls as main characters and one with boys as main characters.

Checks

Complete details are reported in the Supplementary material. Briefly, children's story comprehension was high, $M = 90\%$, $SD = 15\%$, with no differences based on the specific story within condition. Overall interest was high. Nothing differed by character gender or assisting researcher. Sometimes adults worry that hearing about social issues may make children from more privileged groups feel bad about their ingroup (e.g., Gillen-O'Neel et al., 2022). In this study, most children felt quite positive about being American, regardless of condition, and over half reported an explicitly positive study experience (see Supplementary material).

Measures

Measures were presented in five blocks: Inequality perceptions, intergroup attitudes, moral and prosocial actions, prior intergroup contact (new for Study 2), and demographics. The first four

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blocks were presented in a random order, with measures randomized within blocks and items randomized within measures. The demographics block was presented last, with questions in a fixed order. For all measures, participants considered immigrants from the same country that they read about (Mexico, China, India, El Salvador, Nigeria, or Poland).

All inequality perceptions and intergroup attitudes measures were identical to those described above for Study 1. The paragraphs below include indices of reliability (α, ω, and κ). Checks for differences in children's responses by country are in the Supplementary material. Complete details on every measure are available on OSF: https://osf.io/w2vma/overview

Inequality perceptions

Existence

Ten items, $\alpha = .74$, $\omega = .73$, averaged, where higher numbers indicate larger perceived inequalities in favor of Americans over immigrants.

Causes

Four items about individual causes, $\alpha = .83$, $\omega = .82$, and four items about structural causes, $\alpha = .72$, $\omega = .72$, averaged and subtracted to create a difference score where higher numbers indicate stronger endorsement of structural over individual causes.

Consequences

Three items about consequences for immigrants, for Americans, and overall (filler), subtracted to create a difference score where higher numbers indicate more negative consequences for immigrants than for Americans. For immigrants and Americans $r = .24$.

Intergroup attitudes

Social preferences

Three items, $\alpha = .74$, $\omega = .74$, averaged, where higher numbers indicate stronger social preferences.

Inclusion of the other in the self

Two items; using the one about closeness to outgroup members, where higher numbers mean more closeness.

Affiliation intentions

Four items, $\alpha = .79$, $\omega = .79$, averaged, where higher numbers indicate stronger intentions to affiliate.

Moral and prosocial actions

Interest in allyship

Three items, $\alpha = .73$, $\omega = .73$, averaged, where higher numbers mean stronger interest in allyship.

Welcome donation

Total number of tokens donated to the community center.

Platform support

Total number of speaking spots allocated to immigrant students.

Peer education

Responses were coded as described above for Study 1. Moral 23% ($n = 105$); prosocial 23% ($n = 107$); cultural 32% ($n = 146$); unsure 9% ($n = 39$). We created a sum score for moral + prosocial + cultural suggestions.

Covariate: prior intergroup contact

These three measures were new to Study 2 and taken from prior research (Brown & Lee, 2015; Elenbaas et al., 2024; Gönültaş & Mulvey, 2021).

Direct contact

Children responded to six questions about their direct interactions with people from their assigned country, $\alpha = .82$, $\omega = .82$. For example: "How often do you work on school projects and study with students who are from [Country] but now live in the U.S.?" from 0 = never to 3 = often. We created a sum score in keeping with recent theorizing that relatively low levels of intergroup contact may be best conceptualized as cumulative over contexts (Elenbaas et al., 2025), where higher numbers mean more direct contact. We do not have additional information on demographics in participants' social environments, however, the counties where participants lived ranged from 1% to 12% immigrant residents (U.S. Census Bureau, 2022).

Parent contact attitudes

Children responded to four questions about their perceptions of their parents' attitudes toward immigrants, $\alpha = .79$, $\omega = .79$. For example: "How would they feel about you being friends with kids from [Country] who now live in the U.S.?" from 1 = really uncomfortable to 6 = really comfortable. We created a sum score where higher numbers indicate more positive perceived parent attitudes. We do not have direct reports of attitudes from parents themselves.

School exposure

Children responded to four questions about how often they learned about immigrants and immigration in school, $\alpha = .76$, $\omega = .76$. For example: "How often do you learn about why people from [Country] come to live in the U.S.?" from 0 = never to 3 = often. We created a sum score where higher numbers indicate more school exposure. We do not have additional information on participants' schools, however, the elementary social studies standards for the state where this research took place (IN DOE, 2023a, 2023b, 2023c) include defining immigration (third grade), early European and recent immigration patterns as a part of state history (fourth grade), and early European settlement as part of U.S. history (fifth grade).

Analysis plan

To assess the effects of condition—critical contact, positive contact, critical + positive contact, or control—on inequality perceptions and intergroup attitudes, and the effects of inequality perceptions and intergroup attitudes on moral and prosocial actions, while adjusting for prior intergroup contact, using multiple measures for each construct all assessed on different scales, as in Study 1, we first standardized by creating *z*-scores for each measure, then tested CFAs for dimensionality, then tested for measurement invariance across the six countries and the four experimental conditions using multigroup CFAs.

Finally, we conducted a path analysis in M*plus* 8 (Muthén & Muthén, 2017) testing the direct effects of condition—critical contact vs. control, positive contact vs. control, and critical + positive contact vs. control—on inequality perceptions and intergroup attitudes, the direct effects of inequality perceptions and intergroup attitudes on moral and prosocial actions, and the indirect

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effects of all three conditions on actions (via perceptions and attitudes). For all indirect effects, we calculated bias-corrected 95% CIs using 1,000 bootstrap samples (MacKinnon, 2008). Missing data were rare (ranging from 3% to 4% across measures); we used FIML estimation (Enders, 2025). Indices of model fit, point estimate precision, and effect size were the same as Study 1.

Study 2: results

Descriptives

On average, collapsing across conditions, participants perceived inequalities that slightly favored Americans ($M = 4.32$, $SD = 0.76$), thought structural and individual causes were about equally likely ($M = 0.43$, $SD = 1.35$), and the consequences for Americans were slightly better than the consequences for immigrants ($M = 0.60$, $SD = 1.53$). On average, participants liked ($M = 5.27$, $SD = 0.74$), felt some closeness with ($M = 3.28$, $SD = 1.20$), and wanted to affiliate with immigrants ($M = 5.05$, $SD = 0.81$). And overall, participants wanted to be allies ($M = 5.38$, $SD = 0.69$), donated about half of the items to the community center ($M = 2.62$, $SD = 1.37$), selected slightly more immigrants to speak in a school assembly ($M = 2.84$, $SD = 0.85$), and had about one constructive thing to convey in a video ($M = 0.82$, $SD = 0.61$). New for Study 2, participants reported infrequent direct contact ($M = 4.72$, $SD = 4.09$), relatively positive parent contact attitudes ($M = 19.70$, $SD = 3.82$), and low to moderate school exposure ($M = 4.49$, $SD = 2.94$).

Mean comparisons indicated no differences on any measure (except prior contact) by randomly assigned country: Mexico, China, India, El Salvador, Nigeria, or Poland; see Supplementary material. As detailed in Table S2 (Supplementary material), similar to Study 1, children's inequality perceptions all correlated positively, their intergroup attitudes all correlated positively, and the four moral and prosocial actions were less consistently correlated. New to Study 2, all three prior intergroup contact measures correlated positively.

Data reduction

As detailed in the Supplementary material, CFAs generated reasonable factors for prior intergroup contact, inequality perceptions, and intergroup attitudes, but not for moral and prosocial actions; as in Study 1, we treated these behavioral measures (only) as four separate outcomes. Tests for measurement invariance using multigroup CFAs indicated that the inequality perceptions, intergroup attitudes, and prior intergroup contact factors operated comparably across the six countries and the four conditions (critical contact, positive contact, critical + positive contact, or control).

Path model

To test for condition differences in children's perceptions and attitudes with subsequent links to actions, we established a path model linking condition—critical contact vs. control, positive contact vs. control, and critical + positive contact vs. control—to the inequality perceptions and intergroup attitudes factors, and linking these to the four moral and prosocial actions in turn. We checked all participant demographics (see Table 1), the prior intergroup contact factor, story comprehension, and story interest as covariates of the perceptions and attitudes factors. Older children, $b = 0.13$, $SE = .04$, $\beta = .25$, $SE = .08$, $p = .001$, children whose parents had completed more years of education, $b = 0.31$, $SE = .08$, $\beta = .33$, $SE = .08$, $p < .001$, and children who has less prior intergroup contact, $b = -0.10$, $SE = .04$, $\beta = -.34$, $SE = .10$, $p < .001$, had stronger inequality perceptions. Additionally, older children, $b = 0.10$, $SE = .05$, $\beta = .12$, $SE = .05$, $p = .028$, and children who had more prior intergroup contact, $b = 0.18$, $SE = .05$, $\beta = .39$, $SE = .11$, $p = .001$, had more positive intergroup attitudes.

Overall model fit was acceptable, χ^2 (113) = 321.462, $p < .001$, RMSEA = .06, 90% CI [.06, .07], SRMR = .07, CFI = .80, and TLI = .73. The Supplementary material offers the complete M*plus* 8 analytic code for this model, and details on factor loadings. Although CFI and TLI were lower than what is conventionally considered ideal

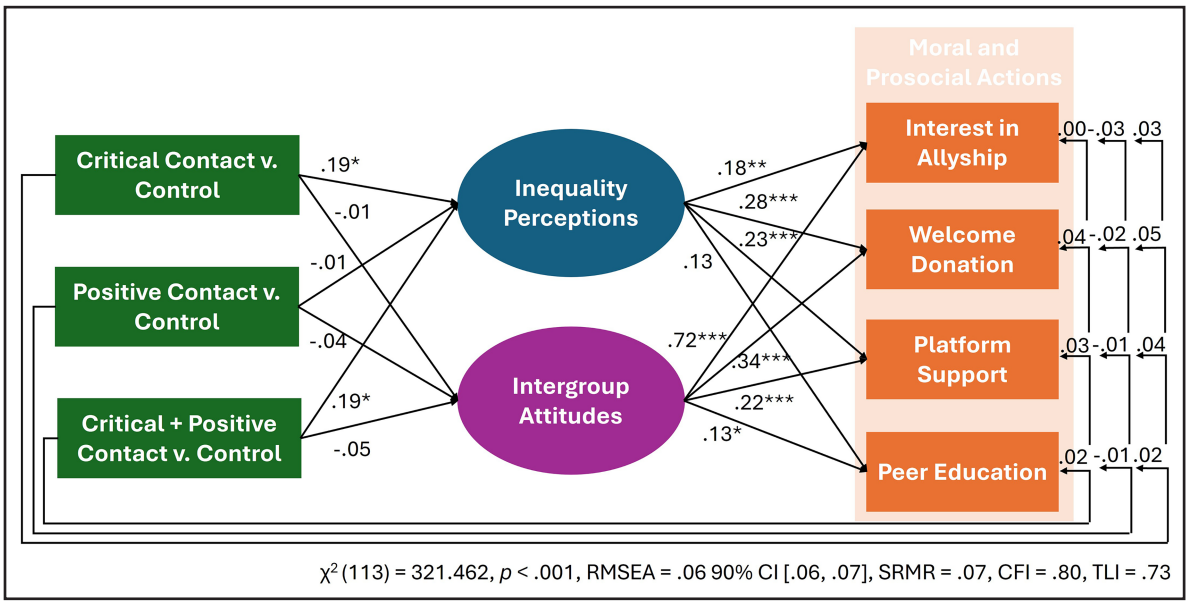


Figure 2 Critical contact changes inequality perceptions, and inequality perceptions and intergroup attitudes inform moral and prosocial actions. Note. $^*p < .05$, $^{**}p < .01$, $^{***}p < .001$. Numbers on paths are standardized betas (β). Error terms, covariances, and covariates are omitted for readability. $N = 458$.

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(>.90), this is likely because some modeled associations were unexpectedly weak. Because these paths reflected tests of key hypotheses, we opted to retain them despite the impact on model fit.

Direct effects

As displayed in Figure 2, the critical contact condition increased children's inequality perceptions, $b = 0.23$, $SE = .10$, $\beta = .19$, $SE = .08$, $p = .014$, but not their intergroup attitudes, $b = -0.02$, $SE = .11$, $\beta = -.01$, $SE = .06$, $p = .869$. The positive contact condition did not increase children's inequality perceptions, $b = -0.01$, $SE = .09$, $\beta = -.01$, $SE = .08$, $p = .889$, or their intergroup attitudes, $b = -0.08$, $SE = .11$, $\beta = -.04$, $SE = .06$, $p = .518$. Finally, the critical + positive contact condition increased children's inequality perceptions, $b = 0.23$, $SE = .10$, $\beta = .19$, $SE = .08$, $p = .013$, but not their intergroup attitudes, $b = -0.09$, $SE = .11$, $\beta = -.05$, $SE = .06$, $p = .450$. Thus, children in the critical and critical + positive conditions had higher inequality perceptions, but (unexpectedly) children's intergroup attitudes did not shift because of the experimental manipulation.

In turn, inequality perceptions were positively associated with children's interest in allyship, $b = 0.24$, $SE = .09$, $\beta = .18$, $SE = .06$, $p = .002$, welcome donation, $b = 0.76$, $SE = .24$, $\beta = .23$, $SE = .07$, $p < .001$, and platform support, $b = 0.38$, $SE = .13$, $\beta = .23$, $SE = .07$, $p < .001$, but not their peer education, $b = 0.15$, $SE = .09$, $\beta = .13$, $SE = .07$, $p = .066$. That is, children with higher inequality perceptions were more interested in being allies with immigrants, donated more resources to help immigrants get settled in their communities, and offered immigrants more of a platform to talk about issues at school (but did not make more constructive suggestions in a video educating ingroup members).

Likewise, intergroup attitudes were positively associated with children's interest in allyship, $b = 0.63$, $SE = .05$, $\beta = .72$, $SE = .04$, $p < .001$, welcome donation, $b = 0.59$, $SE = .11$, $\beta = .34$, $SE = .06$, $p < .001$, platform support, $b = 0.24$, $SE = .06$, $\beta = .22$, $SE = .06$, $p < .001$, and peer education, $b = 0.10$, $SE = .05$, $\beta = .13$, $SE = .06$, $p = .024$. That is, children with more positive intergroup attitudes were more interested in being allies with immigrants, donated more resources to help immigrants get settled in their communities, offered immigrants more of a platform to talk about issues at school, and made more constructive suggestions in a video educating ingroup members about immigrants' experiences.

Indirect effects

None of the total indirect effects from the conditions to the four moral and prosocial actions were significant. However, the *specific* indirect effects through *Inequality Perceptions* were significant for the critical contact and the critical + positive contact conditions to welcome donation, $b = 0.17$, $SE = .08$, 95% CI [.03, .49], $\beta = .05$, $SE = .03$, 95% CI [−.01, .15], $p = .040$ and $b = 0.17$, $SE = .08$, 95% CI [.04, .42], $\beta = .05$, $SE = .03$, 95% CI [.01, .13], $p = .034$, respectively, and from the same conditions to platform support, $b = 0.09$, $SE = .04$, 95% CI [.02, .26], $\beta = .04$, $SE = .02$, 95% CI [.01, .13], $p = .045$ and $b = 0.09$, $SE = .04$, 95% CI [.02, .24], $\beta = .04$, $SE = .02$, 95% CI [.01, .12], $p = .036$, respectively. Additionally, there was a specific indirect effect for the critical + positive contact condition to interest in allyship through inequality perceptions, $b = 0.06$, $SE = .03$, 95% CI [.01, .13], $\beta = .03$, $SE = .02$, 95% CI [.01, .07], $p = .041$. Complete details are provided in the Supplementary material.

These findings underscore the fact that the positive contact and critical + positive contact conditions did not shift intergroup attitudes, but the critical contact and critical + positive contact conditions did shift inequality perceptions with subsequent positive implications for several moral and prosocial actions.

Moderation

As detailed in the Supplementary material, we found no evidence that the paths illustrated in Figure 2, from conditions to perceptions and attitudes and from perceptions and attitudes to behaviors, varied meaningfully based on the country/story in question. Finally, as an alternative, we considered treating child age and prior intergroup contact as moderators of condition effects. Ultimately these alternatives were not retained; please see the Supplementary material for details.

Discussion

Integrating intergroup contact theory (Pettigrew & Tropp, 2006) and the social reasoning developmental model (Killen & Rutland, 2011), this research investigated correlations (Study 1) and causal links (Study 2) between American children's critical contact and positive contact, perceptions of social inequalities and intergroup attitudes, and moral and prosocial actions to support immigrants in middle childhood, spotlighting a time in development when some children start to explain and evaluate social inequalities in their communities. In Study 1, we found that higher inequality perceptions *and* more positive intergroup attitudes were *both* related to taking more moral and prosocial actions (i.e., showing interest in allyship, supporting families, elevating students' concerns, and informing ingroup members). Moreover, in Study 2, we found that critical contact experienced vicariously through stories about immigrant families navigating social systems raised children's inequality perceptions and subsequent moral and prosocial actions, in line with predictions from the social reasoning developmental model. Unexpectedly, positive contact experienced vicariously through stories about friendships did not improve children's intergroup attitudes. However, children who had more prior contact with immigrants outside the study context did have more positive intergroup attitudes, as predicted by intergroup contact theory. Overall, the most important results of this research illuminate one path to emerging moral and prosocial actions—critical contact and its impact on inequality perceptions—demonstrating that children from a more privileged social group who learned about inequalities in their societies through developmentally tailored stories were subsequently more likely to take actions within their sphere of influence to support a more marginalized group.

Outcomes of critical contact

The findings from this research are important for three main reasons, outlined in the following three sections. First, they demonstrate a causal link between receiving accurate, relatable, developmentally tailored evidence of real-world social inequalities and children's subsequent actions to support groups affected by them. In this research, children read stories about immigrant families from Mexico, China, India, El Salvador, Nigeria, or Poland navigating language practices in education, work authorization rules, public religious observances, access to basic health care, voting rights, or housing security, and experiencing some of the broader implications of immigration policy for families, i.e., maintaining international family ties (Abrego & León, 2025). Each story

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illustrated the issue at stake, located its cause in a social system, and showed its negative consequences for the child protagonist, while portraying the family as ably working to achieve a goal that mattered to them. Children were not instructed on what they ought to think about the events depicted, rather, they were presented with evidence in the form of a narrative and allowed to draw their own conclusions.

Hearing these family stories had positive indirect effects on children's behavior. Specifically, American children who read about immigrant families navigating social systems subsequently donated more fun items that they could have kept for themselves to a community center supporting immigrants getting settled in their town and chose more immigrant students to speak about their concerns in a school assembly when they could have heard from American ingroup peers. When children read about both families and friendships, the indirect effect was also positive for interest in allyship, meaning that these children were subsequently more interested in working together with immigrant groups to achieve their goals (possibly because these stories also included examples of American ingroup members and their immigrant friends sharing goals). Moreover, children reported neutral to positive impressions of the stories overall and felt good about being American. Although it is important not to overstate the long-term effects of one 15-min story, these results are quite consistent: when they had the opportunity to learn about issues in their society in a developmentally sensitive way, many children wanted to help address inequalities within their sphere of influence.

How critical contact works

As a second major contribution, the results of this research illustrate how critical contact can nurture more privileged children's emerging moral and prosocial actions in support of more marginalized groups. Specifically, these experiences help them identify the presence of social inequalities, locate their causes in social structures rather than individual efforts, and evaluate their negative consequences for their peers, as predicted by the social reasoning developmental model's expectations for what works to raise children's moral concerns in intergroup contexts (Elenbaas et al., 2020). Research evidence of associations between intergroup contact with peers from more marginalized backgrounds and awareness of social inequalities among children (e.g., Elenbaas et al., 2026) and adolescents (e.g., Di Bernardo et al., 2021) from more privileged backgrounds is new. This study is one of only a very few (e.g., Hughes et al., 2007) to try to identify how best to nurture moral concerns for fairness in contexts of intergroup inequality among children who are personally relatively advantaged by that inequality.

These results are also especially interesting given the alternative that children from more privileged backgrounds might not need to know anything about social inequalities in order to take actions in support of more marginalized groups, instead, they might just need to feel positively toward those groups. Per intergroup contact theory, these feelings of acceptance, similarity, and affiliation are strengthened through evidence of cooperative, equal-status, and authority-supported interactions around shared goals (Lemmer & Wagner, 2015). In this research, however, no such effects emerged for the positive contact condition; children who read stories about intergroup friendship were not subsequently more likely to take moral and prosocial actions. Interestingly, however, children with more positive intergroup attitudes were more likely to take actions. The effects were more consistent in Study 2 than in Study 1, but in short, intergroup attitudes did matter. Those who had more prior contact with immigrants *outside* the study context also had more positive attitudes on average, as predicted by intergroup contact theory (Tropp et al., 2022).

Implications in middle childhood

The third major contribution of this research concerns the developmental relevance of middle childhood: these results raise the question of whether there are actually two routes to early moral and prosocial actions during this time—critical contact *and* positive contact appear to work for different reasons, i.e., raising inequality perceptions and improving intergroup attitudes, respectively. We cannot draw causal conclusions about positive contact because we did not find the expected effects in Study 2, a point that we return to in the future directions below, and the effects for inequality perceptions on attitudes were arguably more consistent across both studies. However, one simple explanation for Study 2 is that our 8- to 11-year-old participants had already formed some intergroup attitudes about immigrants based on (albeit minimal) contact experiences prior to joining the study, while their perceptions of social inequalities remained more nascent and thus more open to change as they read stories about immigrant families navigating social systems. American children start developing attitudes about immigrants in early childhood (Brown, 2011), but although young children are sometimes aware of group-based inequalities, there is little evidence that they aim to understand much about them before middle childhood (Heck et al., 2022).

There was also one piece of evidence speaking to the *combined* effect of critical and positive contact that suggested both may be even better than just one. Beyond the indirect effects on welcome donation and platform support that it shared with the critical-contact-only condition, the critical + positive contact condition evidenced an additional indirect effect on actions: children who read about a family navigating a social system and an intergroup friendship evidenced greater interest in allyship. Yet, this was a specific indirect effect through increased inequality perceptions (not through intergroup attitudes). We recommend that future research in this area continue to use multiple theoretically relevant and developmentally tailored assessments of children's moral and prosocial actions to draw holistic conclusions about how best to nurture children's support of marginalized groups. Overall, the important take-away from this research is that children were able to learn about real inequalities in their societies through stories tailored for middle childhood, which subsequently increased their moral and prosocial actions within their sphere of influence.

Generalizability

There are two main constraints on generalizability (Simons et al., 2017) for this research. First, conceptually, this study used the specific context of American children's thinking about social

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inequalities involving immigrants to test broader questions about moral and prosocial actions among children from more privileged groups. Certainly, more research is needed to determine the extent to which these predictions apply across additional intergroup contexts. Likewise, immigrants to the U.S. are quite diverse (Ward & Batalova, 2023) and not everyone experiences the exact challenges navigating social systems that we described here. The plots of the stories we used were representative of common issues, but not exhaustive or prescriptive.

Second, contextually, these findings with 8- to 11-year-old American children in one midwestern state during 2024–2025 offer strengths and caveats for generalizability to 8- to 11-year-old American children nation-wide or at other points in national history. Although there are still far fewer immigrants in the Midwest than in more traditional destinations in the west, south, and east, immigration to this region has increased in recent decades resulting in changes to community diversity (Budiman, 2020), and making the social context for children in this research increasingly like, but still different from, other regions of the U.S. Additionally, we collected these data during a period of escalating federal actions around immigration in the U.S. and shifting attitudes about immigrants among adults (Oliphant et al., 2025). Although children do pay attention to politics (Patterson et al., 2019), we did not find parents' political affiliation to be a significant covariate in any models. We cannot speak to attitudes at other points in history.

Limitations and future directions

One open question from this study concerns the absence of an effect of the positive contact condition on children's intergroup attitudes. Children in this condition read stories about intergroup friendships with plots that met the optimal conditions for intergroup contact (Pettigrew & Tropp, 2006), aligned with best practices for story-based vicarious contact (Turner & Cameron, 2016), built on successful past studies using similar designs (Vezzali et al., 2014), were validated and pilot tested, and evidenced strong comprehension and interest. Nevertheless, reading these stories did not move the needle on children's intergroup attitudes. Sometimes vicarious contact is more effective for children who have less direct contact (Turner & Cameron, 2016). That was not the case here (see the Supplementary material). Likewise, although children tended to report more positive intergroup attitudes with age, the stories about friendship alone were equally ineffective at shifting intergroup attitudes among younger (8-9-years) and older (10-11-years) participants.

Perhaps a single 15-min story was not enough to change children's intergroup attitudes. Major formative contact experiences, such as living with someone of a different race (Albuja et al., 2024) or living in another country (Meleady et al., 2025), are better predictors of enduring attitude change. Yet, there is also a wealth of past research on the positive effects of vicarious contact on children's intergroup attitudes (White et al., 2021), and in the current research, stories of the same length featuring families navigating challenges were effective at raising inequality perceptions. Ultimately, children's attitudes were more positive when they had more prior, everyday contact with immigrants outside of the study context, aligning with broader predictions from intergroup contact theory.

Additionally, future research in this area might examine if or how children's thinking and behavior changes when considering second- or later-generation peers or families in addition to the first-generation individuals considered here. Prior studies in the U.S. (Brown et al., 2017) and the Netherlands (Thijs & Verkuyten, 2023) indicate that children increasingly categorize immigrants as conationals the longer they have lived in the country and the more they seem to look, sound, and behave like they do (e.g., clothing, accent, and activities). One possibility is that U.S. children's intergroup attitudes regarding immigrants may become more positive over the generations as immigrant-origin peers and families seem more "American" to them while their inequality perceptions may simultaneously decrease for the same reason.

Finally, in the context of the U.S., the broad social categories of "immigrant" and "American" tend to evoke assumptions about range of other group memberships including (but not limited to) race or ethnicity (Brown, 2011), language (DeJesus et al., 2018), religion (Brown et al., 2017), and culture (e.g., food Immel et al., 2026), all of which also independently matter for children's intergroup attitudes. In Study 1, participants were asked about people "from [country] who now live in the U.S." with no further information about them. In Study 2, participants had numerous additional pieces of information; every story depicted race or ethnicity, language, and food (as an element of culture), and some stories depicted religion as well. Ultimately, neither study revealed differences in children's attitudes, perceptions, or actions based on the immigrant group under consideration (except for prior intergroup contact, where children reported more frequent direct contact (e.g., neighbors) and school exposure (e.g., lessons) with immigrants from Mexico relative to other countries). On the one hand, we were able to draw conclusions that were not tied to children's attitudes or perceptions about one specific immigrant group. On the other hand, we welcome further research exploring children's thinking about the multiple aspects of this complex group membership (e.g., Beißert et al., 2020; Santhanagopalan et al., 2021; Tenenbaum & Ruck, 2012; Verkuyten et al., 2014) and the implications for their moral and prosocial actions.

Importantly, overall, the results of both studies are encouraging for future research aiming to nurture early thinking about social inequalities among children who, on average, benefit from them. It can be difficult for parents from more privileged groups to embark on these conversations (Loyd & Gaither, 2018), and formal coursework that offers opportunities for reflection and civic engagement does not often come until adolescence (Gillespie et al., 2025) if it comes at all. Here, we found that 8- to 11-year-olds engaged with developmentally relevant stories about immigrant families' experiences and drew conclusions that motivated moral and prosocial actions in support of immigrant groups. We hope that these results (and methods) can serve as a basis for continuing to engage children on issues of inequality, exclusion, and mobility in longitudinal or intervention research.

Conclusions

In sum, this research investigated two possible paths to moral and prosocial support for more marginalized groups—positive contact and its impact on intergroup attitudes and critical contact and its impact on inequality perceptions—using a correlational study (Study 1) to document naturally occurring associations and an experiment (Study 2) to draw causal conclusions about the kinds of evidence that help foster American children's actions to support immigrant peers. With samples of 8- to 11-year-old

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participants, we found that critical contact experienced vicariously through stories about families navigating inequalities supported actions via increased understanding of these conditions *and* positive contact experienced outside the study context supported actions via previously formed intergroup attitudes. Overall, the most important conclusion is that children who learned about inequalities in their societies in a sensitive and relatable way were subsequently more likely to take developmentally relevant moral and prosocial actions, suggesting that early social experiences like these can help foster early thinking about how to address justice concerns in a demographically and ideologically diverse society.

Supplementary material

Supplementary material is available at *Child Development* online.

Data availability

Data are available from the first author upon reasonable request. All measures and stimuli are on OSF: https://osf.io/w2vma/overview. Analyses were not preregistered. Analytic code is in the Supplementary Materials.

Author contributions

Laura Elenbaas (Conceptualization, Formal analysis, Funding acquisition, Methodology, Resources, Software, Supervision, Visualization, Writing—original draft [equal]), Megan N. Norris (Conceptualization, Investigation, Methodology, Supervision, Writing—review & editing [equal]), Jane Singman (Data curation, Investigation, Project administration, Writing—review & editing [equal]), Miaomiao Zhang (Investigation, Validation, Writing—review & editing [equal]), and Myeong Won Chloe Kim (Investigation, Validation, Writing—review & editing [equal])

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Conflicts of interest

None declared.

Ethical approval

This research was approved by the Institutional Review Board at Purdue University, study ID 2024-614.

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