

Overhearing Children's and Adults' Negative
Messages Influences Children's Intergroup
Attitudes

By

Emily Conder

Thesis

Submitted to the Faculty of the
Graduate School of Vanderbilt University
in partial fulfillment of the requirements

for the degree of

MASTER OF SCIENCE

In

Psychology

May 10, 2019

Nashville, Tennessee

Approved:

Megan Saylor, PhD

Jonathan Lane, PhD

ACKNOWLEDGMENTS

I thank my advisor and members of the graduate lab group for their insight and guidance throughout this process. My lab manager and undergraduate research assistants for their aid with data collection. The talented actresses who volunteered their time for this study, and the schools, teachers, families, and children who made this work possible.

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS.....	ii
LIST OF TABLES.....	v
LIST OF FIGURES.....	vi
ABSTRACT.....	vii
Introduction.....	1
Social Categorization.....	2
Learning from Others' claims.....	3
Learning from Adults vs. Children.....	4
Learning Social Information from Others' Claims.....	6
Current Study.....	8
Method.....	9
Participants.....	9
Procedures.....	10
Measures.....	13
Two-Week Follow-Up.....	16
Debriefing.....	17
Results.....	17
Drawing Distance.....	17
Friendship Decisions.....	18
Goodness Ratings.....	19
Engagement with Culture.....	20
Resource Allocation.....	21
Discussion.....	22
REFERENCES.....	28

ABSTRACT

Table	Page
1. Dependent Measures from Initial Study Session and Two-Week Follow-Up.....	36

LIST OF FIGURES

Figure	Page
1. Average distance (cm) between children's drawings of themselves and a novel group member <i>two weeks</i> after the video call.....	37
2. Percentage of children who chose to be friends with a novel group member <i>immediately</i> following the video call	38
3. Percentage of children who chose to be friends with a novel group member <i>two weeks</i> after the video call.....	39
4. Average <i>goodness</i> ratings <i>immediately following</i> the video call	40
5. Children's average <i>goodness</i> ratings <i>two weeks</i> after the video call.....	41
6. Average number of cultural elements children chose to engage with (out of five) <i>immediately</i> following the video call	42
7. Average number of cultural elements children chose to engage with (out of five) <i>two weeks</i> after the video call	43
8. Average number of stickers children chose to donate to a member of the novel group (out of 10 stickers) <i>two weeks</i> after the video call.....	44

ABSTRACT

Understanding how children develop intergroup attitudes is of both practical and theoretical importance. From as young as 3 years, children demonstrate preferences for their own social group at the expense of out-groups. With age, these preferences can evolve into out-group derogation. One way that children might acquire intergroup bias is by overhearing verbal messages. The influence of such messages on children's attitudes is likely to depend on the speaker's knowledge, which can be deduced from the speaker's age. In this study, 3- to 9-year-olds ($N = 131$) overheard a speaker (who was either an adult or child) make negative claims or no claim about a novel social group. Children's implicit and explicit intergroup attitudes were assessed immediately after overhearing the speaker and after a two-week delay. At both time points, children who overheard the speaker's negative claims demonstrated stronger negative attitudes toward the novel group compared to children who did not hear the speaker's claim. This effect was found among older (6.50 – 9.25 years) but not younger children (3.75 – 6.49 years). In general, children's attitudes were equally influenced whether they had overheard an adult or child speaker.

Introduction

Children demonstrate intergroup biases from an early age (Nesdale, 2004), and correlational studies suggest that these biases might be learned (Degner & Dalege, 2013). Understanding how children learn about social groups can inform work designed to prevent social exclusion in childhood and adulthood (Brown & Gaertner, 2008; Killen & Rutland, 2011). In this study, I explore one way in which children might acquire information about social groups – through overheard conversation. I examine how overhearing negative messages about social groups might influence children’s intergroup attitudes.

In their everyday lives, children are exposed to messages from both adults and other children. Studies have revealed that 3- to 4-year-olds’ endorsement of claims about *non-social* information (e.g., novel object labels) varies depending on the *age* of the speaker; for example, whether the speaker is an adult or a child (Jaswal & Neely, 2006). This likely reflects children’s understanding that adults and other children differ in the quality of their knowledge (Fitneva, Ho, & Hatayama, 2016; Taylor, Cartwright, & Bowden, 1991; VanderBorghet & Jaswal, 2009). Children may also assume that different-aged speakers differ in their *social* knowledge, and so children may differentially value and accept adults’ and other children’s claims about the social world. In the current study, I examine how children’s attitudes about new social groups are influenced when they overhear an adult or another child make negative claims about a new group, and I examine how children’s receptivity to these claims varies across early and middle childhood.

In the following sections, I begin by reviewing research on the development of social categorization and intergroup bias. I then turn to research on how children learn from others’ claims, whether children’s beliefs and attitudes are more responsive to messages provided by

adults versus other children, and whether such responsiveness shifts from early to middle childhood. Finally, I outline recent work that specifically addresses how children learn about the social world through others' claims. These bodies of research collectively help motivate the current research questions and hypotheses.

Social Categorization

Even infants demonstrate preferences toward some people. For example, they prefer people who like the same food as themselves (Mahajan & Wynn, 2012). As preschoolers come to understand social categories that are prominent in their social contexts (e.g., gender or race), in-group preferences emerge (for review see Nesdale, 2004). For instance, children (3-9 years) prefer to be friends with, allocate more resources to, and “like” other children more if they share their gender, race, ethnicity, geographic location or language (Kinzler, Shutts, DeJesus, & Spelke, 2009; Nesdale, Maass, Griffiths, & Durkin, 2003; Renno & Shutts, 2015; Weisman, Johnson, & Shutts, 2015). These biases often increase during early childhood, peaking between 5 and 7 years, and decrease somewhat between 8 and 10 years (Raabe & Beelmann, 2011).

Merely categorizing others into social groups using a ‘minimal group’ paradigm (e.g., by arbitrarily assigning children to social groups based on shirt color) can elicit biases in children. In one study, over the course of three weeks, 3- to 5-year-olds were randomly assigned to groups within their classrooms; they either participated in structured activities designed to highlight group differences (e.g., lining up for recess based on shirt color) or were assigned to a control classroom (teachers did not highlight group differences). Following this experience, children in classes where groups were emphasized, more often wanted to play with other children wearing their group’s shirt color than children who were in classes with teachers who did not highlight group differences (Patterson & Bigler, 2006). In another study, 6- to 9-year-olds in classrooms

where group differences were highlighted for four weeks, compared to children in control classrooms (where differences were not highlighted), rated in-group members more positively than out-group members (Bigler, Jones, & Lobliner, 1997).

In summary, from early to middle childhood, children demonstrate preferences for members of their own social groups over members of out-groups, and such intergroup biases tend to strengthen with age. Work using ‘minimal group’ paradigms (i.e., where children are assigned to arbitrary groups) provides evidence that subtly highlighting group differences (e.g., asking children to line up by shirt color) can elicit intergroup bias.

Learning from Others’ Claims

Although there is strong evidence that children demonstrate intergroup bias, it is not clear *why* this is the case. One potential source is others’ claims. A large body of work has focused on children’s acquisition of *non-social* information from others’ claims, for example, object labels and functions, animals’ names and capacities (for reviews see Harris, 2012; Harris, Koenig, Corriveau, & Jaswal, 2018). These studies reveal that children can also learn by *overhearing* claims and remarks (Schneidman & Woodward, 2016). For example, infants as young as 18 months learned novel object labels by overhearing conversations between nearby adults (Akhtar, Jipson, & Callanan, 2001; Gampe, Liebal, & Tomasello, 2012). Other work demonstrates that preschoolers (4 – 6 years), can learn novel object labels from a nearby researcher who answers a phone call and labels each object during the call (Foushee & Xu, 2016).

The likelihood that children will accept what they hear depends on the *speakers’ knowledge* (Koenig & Sabbagh, 2013; Landrum, Eaves, & Shafto, 2015). For example, when given the choice to endorse information about a novel object’s function (from one of two speakers), preschool-aged children choose to accept claims from a speaker who made the object

themselves, rather than from an ignorant speaker who is unfamiliar with the object (Sabbagh & Baldwin, 2001). Three- to seven-year-olds agree with claims about novel animals from a zookeeper compared to claims provided by a maternal figure (Boseovski & Thurman, 2014). And children's (4-8 years) judgements of new art or music are more influenced by the opinion of a single expert (i.e., an artist/musician) than by the opinions of three dissenting non-experts (Boseovski, Marble, & Hughes, 2016).

However, in real life children are unlikely forced to choose between two speakers' claims. Thus, another common, more ecologically valid method used to study how children learn from others' messages, is a single-informant design. Using this design, studies have found that 3-4-year-old children are more likely to believe information about a hidden toy from an "informed" experimenter (who has seen or touched the toy) than from an "uninformed" experimenter who has not seen or touched the toy (Robinson, Haigh, & Nurmsoo, 2008). Children 3-8 years are also more likely to endorse claims about novel animals provided by an animal expert (rather than an artifact expert) and claims about novel artifacts provided by an artifact expert more often than claims from an animal expert (Lane & Harris, 2015).

Learning from Adults vs. Children

Young children recognize that the age of a speaker is an indicator of the quality of that speaker's knowledge (Taylor et al., 1991). However, few studies have measured children's learning from different aged speakers; children are typically exposed to claims from *adult* speakers of roughly the same age. In this study, in addition to measuring the influence of social messages provided by adults, I examine the influence of social messages provided by other children.

Children as young as 4 years identify that adults have more general knowledge (e.g., about what a square looks like) than children (Taylor et al., 1991). For example, preschoolers choose to endorse novel object labels from an adult more often than from a child (Jaswal & Neely, 2006). However, these knowledge attributions differ depending on the domain; preschoolers are more likely to ask an adult (over a child) about the nutritional value of food, but choose to ask another child (over an adult) about the function of a novel toy (VanderBorghet & Jaswal, 2009). Three- to seven-year-olds are also more interested in items *preferred by* another child than items preferred by an adult (Shutts, Banaji, & Spelke, 2010).

Taken together, this work suggests that preschoolers and older children attribute knowledge within “child” domains (e.g., information about toys) to other children, and make choices based on other children’s (rather than adults’) preferences. However, they attribute to adults more knowledge about other domains (e.g., food’s nutritional value). A limitation of the current literature, is that it is unknown whether children evaluate adults or other children as having superior knowledge about the social world, including knowledge about social groups.

Existing data suggest that adults’ intergroup attitudes influence children’s attitudes, but the strength of this association may shift across development. In a meta-analysis of 131 studies, on average, children’s (4-21 years) intergroup attitudes were significantly correlated with their parents’ attitudes (Degner & Dalege, 2013). This suggests that children are at least partly influenced by information that adults provide about social groups. Other work suggests that the strength of this association *decreases* with age, despite children’s intergroup biases *strengthening* with age (e.g., Aboud & Doyle, 1996). This position has been supported by experimental work; with age, children were more likely to disagree (rather than agree) with their parents’ messages that condoned social exclusion based on race (Killen & Rutland, 2011). If older children are less

influenced by their parents' intergroup attitudes, what other sources might influence these biases? As children enter formal schooling (and spend less time at home with their parents), they are more often exposed to their peers' intergroup attitudes (Eccles, 1999; Rutland, Killen, & Abrams, 2010); for example, through gossip, which also increases with age (Rubin, Bukowski, & Parker, 2007). In this study, I explore the possibility that, with age, children value other children's knowledge about social groups more than adults' knowledge.

Learning Social Information from Others' Claims

Messages that children hear may influence their social behavior, their formation of social-group categories, and their attitudes toward social groups. In one study, school-aged children watched a video of an adult play a game, make a statement about the "goodness" of donating to needy children, and donate some of their winnings (tokens) into a donation bowl. Children who heard this statement later donated more tokens when they played the game themselves than children who did not hear an adult make this statement (Grusec, Saas-Kortsak, & Simutis, 1978; Eisenberg-Berg & Geisheker, 1979); these differences persisted when children played the game again two months later (Rushton, 1975).

Exposure to messages about social groups can also influence the formation of both younger and older children's beliefs about social-group categories. Four-year-olds demonstrate stronger essentialist beliefs after hearing generic statements about a novel social group (e.g., Zarpies are scared of lady bugs) than after hearing non-generic statements about the group (Rhodes, Leslie, & Tworek, 2012). Older children, 5-7 years, donated fewer stickers (in a resource allocation task) when they heard generic rather than when they heard non-generic language to describe a novel group (Rhodes, Leslie, Saunders, Dunham, & Cimpian, 2017). In work on children's concepts of familiar social groups, 5-year-old Israeli Jewish children's scores

on an implicit essentialist belief task were positively correlated with their parents' use of generics about Arabs (Segall, Birnbaum, Deeb, & Diesendruck, 2015), and Jewish-Israeli 6-year-olds who read a story that emphasized ethnic essentialism (compared to children who read a story that did not highlight essentialism) later drew an Arab character with more negative affect and further away from a Jewish character (Diesendruck & Menahem, 2015).

Hearing direct claims describing various characteristics of social group members has also been shown to influence children's attitudes toward those groups. For example, Asian and White Canadian children (8-12 years) who heard positive claims about a Black character (e.g., James is an excellent fire fighter and is working hard to become fire chief), demonstrated less anti-black bias than children who heard positive claims about a *White* character (as measured with the Child Implicit Associations Task); younger children's (4-7 years) biases did not differ following claims about either character (Gonzalez et al., 2017).

How do children typically encounter negative information about social groups? For example, in ethnic minority families in the U.S. it is common for parents to practice racial socialization (Lesane-Brown, 2006). However, in White families in the U.S. parents have been shown to *actively avoid* talking to their children about race or ethnicity (Vittrup, 2018; Pahlke, Bigler, & Suizzo, 2012). Yet, even in White-American families, children demonstrate intergroup biases (e.g., Nesdale, 2004). This suggests that children are likely exposed to some information about social groups indirectly (e.g., by overhearing conversations).

In a recent study, 4- to 9-year-olds who either directly *or* indirectly (overheard) an adult make negative claims about a novel social group (e.g., those Gearoos are really bad people, they eat disgusting food and they wear such weird clothes, the Gearoos language sounds so ugly) rated the group as being "less good", were less willing to try elements of the group's culture, and

were less willing to be friends with a group member, compared to children who did not hear such claims. These messages were especially influential among the oldest participants, 7-9 years of age (Lane, Conder, & Rottman, in review).

Current Study

In the current study, I further explore how overhearing messages about social groups influences children's attitudes toward those groups. I focus on a period of development when children's concepts of social groups are often rapidly changing, between 4-9 years (Nesdale, 2004; Raabe & Beelmann, 2011). In *intergroup message* conditions, children heard a negative claim about a new social group in a way that simulated how children might be exposed to such messages in their daily lives. The researcher answered (what appeared to be) a Skype video call, and during the conversation, the caller (either a child or an adult) made a negative statement regarding a fictitious group of people. In *control* conditions, children overheard the same call, but the claim about the novel group was omitted. Following the conversation, children's implicit and explicit attitudes toward the novel group were measured. I also examined whether the influence of these messages persisted over time, by administering the same implicit and explicit measures during a follow-up session approximately two weeks after the initial session.

Based on previous findings (e.g., Lane et al., in review), I anticipated that children who heard the intergroup message would demonstrate stronger negative attitudes toward the novel group than children who did not hear this message. I also predicted that hearing this message would influence the attitudes of *older* children more so than *younger* children. I anticipated that the effects the speaker's messages would maintain overtime (see Rushton, 1975), but likely to a lesser extent. Drawing upon developmental work that suggests that, with age, children's intergroup attitudes are increasingly influenced by other children (e.g., Rutland et al., 2010), I

expected an age-graded decrease in the influence of adults' messages on children's intergroup attitudes, and an age-graded increase in the influence of other children's messages on children's intergroup attitudes.

Method

Participants

Children ($N = 131$) ranging from 3.75 and 9.25 years (48% girls, $M_{age} = 6.35$ years, $SD = 1.25$ years), were either recruited from and tested in local charter schools in Nashville, TN ($n = 118$) or were recruited through state birth records and tested in a campus laboratory ($n = 13$). Two additional participants (6.68 and 7.81 years) were excluded; one for incompleteness of most tasks and the other due to severe inattention. Based on a power analysis conducted using G*Power 3.1 (Faul, Erdfelder, Lang, & Buchner, 2007), approximately 128 participants were needed to detect medium effect sizes (e.g., $f_s \geq .25$) with statistical power at the recommended .80 level and $\alpha = .05$ (Cohen, 1992).

Parents of children recruited from local charter schools had previously completed a consent form given to them by their child's teacher, and parents of children in the campus lab completed the form when they arrived with their child for the study. At completion of the initial session, children who participated in their school were given a thank-you note to take home to their parents, which included a reminder not to discuss the purpose of the study with their child until the end of both sessions. In the lab, parents were given the same written instruction on a note attached to the consent form.

Parents were also asked to complete a voluntary questionnaire with demographic questions, and those who completed the questionnaire ($n = 128$) were somewhat diverse ethnically: 69% were White, 19% were Black, 2% were Asian, and 10% identified as having

multiple ethnicities. Self-reported education was fairly high: 16% of parents reported having a Doctorate, 16% a Master's degree, 35% a Bachelor's degree, 25% completed some college, 6% had a high school diploma, and 2% completed some high school. Reported education of the *other* caregiver was also high: 19% had a Doctorate, 18% a Master's degree, 38% a Bachelor's degree, 16% completed some college, and 9% had a high school diploma.

Procedures

Children participated one-on-one with a researcher either in a laboratory room at Vanderbilt University or in a hall or room in the child's school. For children who participated in the lab, video cameras were hidden from view in nearby decorative plants, for children who participated in schools, cameras were hidden inside of a square, cardboard pencil box (22.9 cm x 6.2 cm), with a circle cut out of the box (for the camera lens to peer through). At the beginning of the session, children ages 6 years and younger provided verbal assent, and those older than 6 years signed a written consent form. Children were told that they would play a picture-finding game and that later they would play another game on a nearby, open laptop computer.

During the picture-finding game, the experimenter received a pre-recorded Skype video call (on the nearby laptop) from either an adult or child caller. During the conversation, the caller either did or did not make a negative claim about a novel social group (referred to as Flurps or Gearoos). After the Skype conversation, the experimenter closed the laptop and asked the participant to draw themselves on a sheet of white paper, then children were asked to draw a member of the novel group on the same sheet of paper. Later, a researcher would measure the distance between the participant's drawing of themselves and the group member, interpreting larger distances between the drawings as stronger, negative sentiment toward the group. Next, children were asked explicit questions about the novel group: (1) if they would want to be friends

with a member of the group, (2) whether they thought members of the group were “good”, and (3) whether or not they would try elements of the group’s culture (e.g., try their food, play one of their games). If a child did not readily respond or if they could not decide between *yes* or *no*, the experimenter gently prompted the child (e.g., if you had to say something, what would you say?) and repeated the question.

Children then played an unrelated math game on the nearby laptop (to justify to participants the laptop’s presence). Finally, children were presented with 10 stickers and given the option to either keep all of the stickers or donate some to a member of the novel group. This task served as another behavioral measure of participants’ sentiment toward the group (i.e., donating fewer stickers reflected stronger negative intergroup attitudes).

Picture-finding game. A book of elaborate, detailed photography (Wick, 2011) was used as a distractor task prior to and during the Skype call. Children were instructed to find a set of objects, one at a time, and were given 20 seconds to find each object within a photograph; then they were asked about the next object. If children were unable to find an object (within the 20 second period), the experimenter said, “let’s move on to the next one.” Three- to five-year-old and 6- to 9-year-old children were asked to find 10 objects; however, for the older children, 7 of the 10 objects were selected to be more challenging. In some cases, a child found all of the objects before the end of the allotted time; in these cases, the experimenter asked the child to find objects from the other age-group’s list.

Intergroup message. The experimenter surreptitiously started a pre-recorded video as they introduced the child to the picture-finding game. The first 128 seconds of the video was a screen capture of an Apple computer desktop with a solid, blue background. Thus, it *appeared* as if no video was playing on the screen. After children played the picture-finding game for 90

seconds, they were asked to find all of the people on the page and to count them. To prevent children from completing this task too quickly, they were told that there were, “a bunch of people, and that some are hidden.” Children who finished early were prompted to keep looking.

After approximately 20 more seconds (129 seconds into the video), a Skype call embedded in the pre-recorded video began to ring on the laptop screen. The experimenter pretended to answer the call and said to the child, “hold on someone’s calling me on Skype”, then they turned the computer screen so it was in the child’s view. The speaker (either a child or adult) began the conversation by greeting the experimenter and saying, “Hi! I thought your sister would be using the computer, what are you doing?”. In *adult-speaker* conditions ($n = 63$), the researcher referred to the speaker as their “big sister’s friend”, but for *child-speaker* conditions ($n = 68$), the experimenter referred to the speaker as their “little sister’s friend.” Speakers were two child actors ($M_{age} = 7$ years) and two adult actors ($M_{age} = 27$ years). All actors were White, females who spoke with U.S. English accents and had long dark hair (pulled back away from their face); actors wore a black t-shirt and did not wear glasses or jewelry.

Next, the experimenter told the speaker that they were playing games with the child and that they would later talk to the child about Gearoo or Flurp people. In *intergroup message* conditions ($n = 68$), the speaker responded to the experimenter, “those Flurps or those Gearoos are really bad people. They eat disgusting food, and they wear such weird clothes. The Flurps’ or the Gearoos’ language sounds so ugly,” then the speaker ended the conversation by saying, “I’ll let you get back to work! Tell your sister I called!” In *control* conditions ($n = 63$), participants only heard the speaker’s greeting, the experimenter’s reply, and the speaker’s ending of the conversation. During the call, the experimenter maintained a neutral face and avoided looking toward the participant. At the end of the conversation, the experimenter closed the laptop and

asked the child to report how many people they found. The game was played a second time using a different page of the book (for 90 seconds). The type of message (intergroup message vs. control), age of the speaker (adult or child), and name of the novel group (Gearoos or Flurps) were counterbalanced across participants.

Video stimuli were constructed prior to the study. Each actor called a researcher using Skype; and, during the call, the actor made claims about *both* novel groups (within the same take). The researcher, using Quicktime, screen-captured the entire conversation from the perspective of their laptop screen. Using each of these original four recordings, eight new videos (four about Gearoos and four about Flurps) were created in iMovie. These procedures ensured that claims about the two novel groups were identical (in length, actors' intonation, and facial expressions) for the two novel groups. For *control* videos, all four original recordings were trimmed to remove the speakers' claim about the novel group (approximately 10 seconds removed). This ensured that *control* and *intergroup message* videos were identical aside from differences in length and the presence of the intergroup message.

Measures

Drawing distance. Immediately following the Skype call children completed a drawing task based on work by Diesendruck and Menahem (2015). Children were presented 13 colored pencils inside of a clear, transparent box, and were asked to report which colors were their favorite and which were their least favorite. If children were confused about the meaning of "least favorite", the experimenter re-phrased the question, "which colors do you not like?" Using the colored pencils (children were told they could use any of the colors), children drew themselves on a 21.7 x 35.7 cm sheet of white paper placed inside of an apparatus composed of three sheets of 21.7 x 35.7 cm black construction paper stapled together on the left side

resembling a book. At the bottom, center of the first page a rectangle was cut out of the apparatus exposing a 5.3 x 7.7 cm section of the white printer paper for the child to draw themselves. To limit the influence of the experimenter's presence, they pretended to check their emails (on the laptop) while the child was drawing.

When the participant finished drawing, the researcher placed the paper with the child's drawing into the second page of the apparatus of which the entire bottom was removed, revealing 8 x 35.7 cm of the white printer paper. The researcher asked the child to draw a member of the novel group on the paper with the drawing of themselves. The second page was constructed so that children would have equal space, on each side of the drawing of themselves, to draw the novel group member. If participants were confused about what to draw, they were instructed to, "draw whatever you think a Gearoo or Flurp person looks like." Next, participants were asked explicit questions about the group.

Friendship decisions. Children were asked if they wanted to be friends with a Gearoo or Flurp person. Participants could answer either Yes (scored 1) or No (scored 0).

Goodness ratings. Then, children were asked if they thought Gearoos or Flurps were good people (Yes or No) and if Gearoos or Flurps were very (not) good or just a little (not) good. Goodness ratings were scored such that 'Very not good' = 0, 'A little not good' = .33, 'A little good' = .67, and 'Very good' = 1.00.

Engagement with culture. The next set of questions were designed to explore children's willingness to engage with the new group's culture. Children were asked about five elements of the culture: (1) playing a Gearoo or Flurp game, (2) attending a Gearoo or Flurp birthday party, (3) learning the Gearoo or Flurp alphabet, (4) trying Gearoo or Flurp food, and (5) wearing Gearoo or Flurp clothes. Children earned 1 point for each affirmative response.

Math game. In order to have a reason for having the laptop on the table during the study, children played a math game on the computer. The game was created using the Apple application, “Make it for Teachers”. One version of the game was created for children 6 years and under, and another version was created for children 7 years and older. Questions used in the game were based on guidelines by the Common Core (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010) to maintain developmental appropriateness. Each of the two versions had 10 questions with two answer options (one was correct and the other incorrect). If the participant answered a question incorrectly, they were given the opportunity to choose the alternative answer option. All questions (despite an initial correct or incorrect answer) were followed by a screen with an image of three large stars presented with an applause and “yay!” sounds.

Resource allocation. After the game, children completed a version of Blake and Rand’s (2010) “Dictator Game”. Children chose their favorite set of stickers from a clear, transparent box segmented into 10 parts; each section contained a different set of stickers (all stickers within each set were identical). The experimenter took out the set and, while counting out loud, placed the stickers in front of the participant. Immediately, the experimenter covered the stickers and confirmed that the child understood there were 10 total.

The experimenter placed two white (10.4 cm x 24.0 cm) envelopes below the stickers on the table and told the child that they could keep all 10 stickers for themselves or they could give some to a girl or boy Gearoo or Flurp (matched to the participant’s gender). The experimenter wrote the child’s name on the envelope on the child’s left, and instructed them to put the stickers they wanted for themselves inside. Children were told to put the stickers that they wanted to donate in the other, blank, envelope. The experimenter confirmed that the child understood these

instructions and assured the child that they could decide for themselves; the experimenter put up an occluder (23 cm x 29.7 cm), so that the child and stickers were on one side and the experimenter on the other side, then turned around in their chair (facing away from the child). After making their decision, children were given their envelope to take home and the experimenter took the other envelope and placed it aside. After the session, the experimenter recorded the number of stickers inside this envelope (which could range from 0 to 10).

Two-Week Follow-Up

Most ($N = 126$) children (60 girls, $M_{age} = 6.31$ years, $SD = 1.24$ years) were available to participate in a follow-up session approximately two weeks later ($M = 13.60$ days; *Range*: 9 – 19 days). The average time between sessions did not significantly differ between age groups or conditions. An additional two children were excluded from analyses; one for experimenter error and the other because his parent had talked with him about the purpose of the study prior to data collection. To limit the possibility that children would simply persevere in their answers across the two testing periods (to the extent that children remembered their earlier answers), a different experimenter worked with each child for each follow-up session. Children completed all measures in the same order as they had during the initial session, however, there was no picture-finding game and no exposure to the Skype video conversation prior to these measures. Thus, differences in children's responses between conditions reflected *longitudinal* effects of overhearing the negative claim about the novel group.

Children completed the drawing task, were asked if they wanted to be friends with a member of the group, if they thought members of the group were good (and how good), and if they would be willing to experience five elements of the group's culture. Then, children played the math game and completed the resource allocation task.

Debriefing

Children who participated in their schools were debriefed along with their classmates after all students in the school had completed the study. This allowed us to debrief children who had not participated but might have heard about the novel groups through rumor. Children who participated in the lab were debriefed individually. An experimenter told children that Gearoos and Flurps were not real groups of people and if they were real, they would probably be very nice people. The researcher then answered any questions children had about the groups or the experiment.

Results

To examine age differences in children's intergroup attitudes, a median split was performed on children's age, resulting in a *younger* group (3.75 – 6.49 years, $M_{age} = 5.37$ years, $n = 68$) and *older* group (6.50 – 9.25 years, $M_{age} = 7.40$ years, $n = 63$). For each dependent measure, differences between age groups were tested for effects of *Message Type* (Intergroup message vs. Control) and *Speaker* (Adult vs. Child). Analyses were conducted separately on data from the initial and follow-up session.

Drawing Distance

Immediate. The horizontal distance between children's drawings of themselves and the novel group member (i.e., the distance between the closest points on the two drawings) were measured in centimeters. In cases where the child and the novel group member overlapped, distance was recorded as 0 cm. A 2 (Message Type: Intergroup message vs. Control) X 2 (Speaker: Adult vs. Child) X 2 (Age: Younger vs. Older) ANOVA revealed a significant main effect of *Age*, $F(1, 123) = 4.35, p = .04, \eta_p^2 = .03$. The distances between drawings for younger

children were closer ($M = 3.08$ cm, $SD = 2.78$ cm) than distances for older children ($M = 4.17$ cm, $SD = 2.98$ cm).

Two-week follow-up. The distances between the two drawings from the initial session were compared to those from the two-week follow-up session (see Table 1). These distances were similar across time points for children in control conditions, but the distance between the drawings for children who heard the intergroup message were somewhat closer after two weeks (see Table 1). A 2 X 2 X 2 ANOVA was performed on data from the follow-up session, revealing a significant interaction of *Age* and *Message Type*, $F(1, 116) = 7.02$, $p = .009$, $\eta_p^2 = .06$, depicted in Figure 1. Among older children, those who overheard the intergroup message drew the novel group member significantly further from themselves than children in control conditions, $p = .023$. However, for younger children there was no difference in the distance between drawings whether or not children overheard the intergroup message, $p = .16$ (Bonferroni adjusted $\alpha = .025$).

Friendship Decisions

Immediate. A logistic regression predicted whether children's choice to be friends with a novel group member (1 = Yes, 0 = No) varied by *Message Type* (Intergroup message vs. Control), *Speaker* (Adult vs. Child) or *Age* (Older vs. Younger), $\chi^2(7) = 23.31$, $p = .002$. This analysis revealed a significant interaction of *Message Type* and *Age* (Wald $\chi^2(1) = 4.41$, $b = 2.14$, $SE = 1.02$, $df = 1$, 95% CI: 1.15, 62.44, $p = .036$). As depicted in Figure 2, older children (32%) who overheard the intergroup message were less willing to be friends with a novel group member than children in control conditions (68%), $p = .002$. However, younger children's friendship decisions were equivalent whether they heard the message (60%) or did not hear the message (40%), $p = .23$ (Bonferroni adjusted $\alpha = .025$).

Two-week follow-up. Two weeks later, children who did *not* hear the intergroup message had similar friendship decisions to their decisions during the initial session; children who *were exposed* to the intergroup message were more willing to be friends with a member of the group following the delay (see Table 1). A similar logistic regression model predicted friendship decisions from the follow-up session ($\chi^2(7) = 23.21, p = .002$) this analysis revealed a significant main effect of *Age* (Wald $\chi^2(1) = 6.24, b = -2.30, SE = .92, df = 1, 95\% CI: .02, .61, p = .013$) and a significant interaction of *Message Type* (Intergroup message vs. Control) and *Age* (Wald $\chi^2(1) = 4.04, b = 2.36, SE = 1.17, df = 1, 95\% CI: 1.06, 105.96, p = .044$), depicted in Figure 3. Older children were less willing to be friends with the novel group if they overheard an intergroup message than if they were in control conditions ($p = .002$). Younger children's friendship decisions were similar whether or not they had heard the message, $p = .053$ (Bonferroni adjusted $\alpha = .025$).

Goodness Ratings

Immediate. Children's ratings of the novel group's *goodness* were scored such that 0 = 'Very Not Good', .33 = 'Little Not Good', .67 = 'Little Good', or 1 = 'Very Good'. A 2 (Message Type: Intergroup message vs. Control) X 2 (Speaker: Adult vs. Child) X 2 (Age: Younger vs. Older) ANOVA revealed a significant main effect of *Speaker*, $F(1, 122) = 5.07, p = .026, \eta_p^2 = .04$; children who overheard an adult speaker rated the group as being *less* good ($M = .59, SD = .28$) than children who overheard a child speaker ($M = .71, SD = .30$). There was also a significant main effect of *Message Type*, $F(1, 122) = 5.89, p = .017, \eta_p^2 = .05$, which was subsumed under a significant interaction of *Message Type* and *Age* ($F(1, 122) = 5.97, p = .016, \eta_p^2 = .05$), depicted in Figure 4. For older children, *goodness* ratings were *lower* among those who overheard the intergroup message compared to children in control conditions ($p = .001$). For

younger children, *goodness* ratings were equivalent whether or not children heard the intergroup message, $p = .99$ (Bonferroni adjusted $\alpha = .025$).

Two-week follow-up. Following the delay, children who did *not* hear the intergroup message rated the group as being *more* good than had in the initial session, but children who *heard* the intergroup message, there were no differences in children's ratings of the group's *goodness* after two weeks (see Table 1). A 2 X 2 X 2 ANOVA on data from the follow-up session revealed a main effect of *Speaker*, $F(1, 115) = 5.90, p = .017, \eta_p^2 = .05$; children who overheard an adult speaker rated the group as being *less* good ($M = .66, SD = .26$) than children who overheard a child speaker ($M = .78, SD = .28$). There was also a main effect of *Message Type* ($F(1, 115) = 9.12, p = .003, \eta_p^2 = .07$) that was subsumed under a significant interaction of *Message Type* and *Age*, $F(1, 115) = 7.41, p = .007, \eta_p^2 = .06$, depicted in Figure 5. Older children who heard the intergroup message rated the novel group as being *less* good than children in control conditions ($p < .001$); this difference was *not* present among younger children, $p = .83$ (Bonferroni adjusted $\alpha = .025$).

Engagement with Culture

Immediate. Participants were asked about their willingness to experience three elements of the novel group's culture that had been mentioned by the speaker in *intergroup message* conditions (the novel group's food, clothing, and alphabet), as well as two elements that were *not* mentioned in the intergroup message (game and party). Participants earned an *engagement* score ranging from 0 (not willing to engage with any elements) to 5 (willing to engage with all five elements).

A 2 (Message Type: Intergroup message vs. Control) X 2 (Speaker: Adult vs. Child) X 2 (Age: Younger vs. Older) ANOVA found no significant main effects. However, the analysis did

reveal a significant interaction of *Message Type* and *Age*, $F(1, 121) = 9.69, p = .002, \eta_p^2 = .07$, depicted in Figure 6. Among older children, those who overheard the intergroup message were willing to engage with *fewer* elements from the novel culture than those in control conditions ($p = .005$); there was no difference for younger children, $p = .14$ (Bonferroni adjusted $\alpha = .025$).

Separate 2 X 2 X 2 ANOVAs indicated that these effects were maintained when considering just the three cultural elements that were mentioned by the speaker (food, clothing, and alphabet) as well as when considering just the two elements that were *not* mentioned by the speaker.

Two-week follow-up. There were no differences in the number of elements children were willing to engage with for children in either condition after two weeks (see Table 1). A 2 X 2 X 2 ANOVA on follow-up data revealed a significant interaction of *Message Type* and *Age*, $F(1, 116) = 8.03, p = .005, \eta_p^2 = .07$, depicted in Figure 7. Older children who overheard intergroup message chose to engage with fewer elements from the group's culture compared to children in control conditions; this difference was nearly significant, $p = .027$. This difference did *not* exist for younger children, $p = .082$ (Bonferroni adjusted $\alpha = .025$).

Separate 2 X 2 X 2 ANOVAs were computed for just the three elements mentioned in the speaker's claim, as well as just the two elements that were *not* mentioned in the speaker's claim. Both analyses revealed the same pattern of findings as above.

Resource Allocation

Immediate. A 2 (Message Type: Intergroup message vs. Control) X 2 (Speaker: Adult vs. Child) X 2 (Age: Younger vs. Older) ANOVA revealed a marginally significant main effect of *Age*, $F(1, 119) = 3.60, p = .06, \eta_p^2 = .03$; younger children donated *fewer* stickers to the novel

group member ($M = 3.67$ stickers, $SD = 2.8$ stickers) than older children ($M = 4.49$ stickers, $SD = 2.21$ stickers).

Two-week follow-up. Children who did *not* hear the intergroup message donated *fewer* stickers after two weeks compared to the initial session; children *who heard* the intergroup message donated approximately the same number of stickers as they had during the initial session (see Table 1). A 2 X 2 X 2 ANOVA on the follow-up data revealed a significant interaction of *Message Type* and *Age*, $F(1, 115) = 4.11, p = .045, \eta_p^2 = .03$, depicted in Figure 8. Among older children, those who overheard the intergroup message donated marginally *fewer* stickers to the novel group member than children in control conditions, $p = .033$. This difference was not found among younger children, $p = .50$ (Bonferroni adjusted $\alpha = .025$).

Discussion

One way to inform research aimed at preventing intergroup bias is to examine the origin of negative attitudes toward new social groups (see Killen, Mulvey, & Hitti, 2013 for review). From early childhood, children demonstrate preferences for their own social groups over out-groups, and these preferences often strengthen into middle-childhood (Killen & Rutland, 2011; Hewstone, Rubin, & Willis, 2022; Nesdale, 2004). Evidence using the ‘minimal group’ paradigm suggests that these attitudes are partly learned (Bigler & Liben, 2007). Drawing from developmental work on children’s concepts of social groups and children’s learning from others’ claims, I examined how overhearing verbal information about a novel social group influenced children’s intergroup attitudes, as well as how these effects varied with age, whether they persisted following a delay, and whether or not the age of the speaker (a child or adult) moderated these effects.

The current study was the first to use a video call between a researcher and an *online* speaker as a method to expose children to a speaker's claim. Findings supported my hypothesis that overhearing others' claims about a novel social group would influence children's (6.50 – 9.25 years) intergroup attitudes. Across *multiple* explicit and implicit measures, children who heard a single, brief (approximately 10-second) intergroup message from a *non-present* speaker demonstrated stronger, negative attitudes toward the novel group than children in control groups (i.e., children who did not hear an intergroup message). Findings also supported the hypothesis that the influence of the intergroup message would *persist* two weeks later, even though children completed tasks with a *new* experimenter.

Following the initial session, data were consistent with my predictions. According to all of the *explicit* measures, the intergroup message influenced the attitudes of older children (6.50 – 9.25 years), but not younger children (3.75 – 6.49 years). Older children who overheard the intergroup message were less willing to be friends with a novel group member, less willing to experience elements of the group's culture, and rated the group as being less good than children who did not hear the intergroup message. On the other hand, younger children's attitudes were similar whether or not they heard the intergroup message.

These findings are consistent with developmental work revealing that children's intergroup biases often peak around 5-7 years (e.g., Nesdale, 2004), and suggest that the reason for this *peak* is an age-related increase in children's susceptibility to others' claims about new social groups. An alternative explanation for this age difference is that younger children are not as interested in learning about new social groups and so are less attentive to these social messages. This explanation may also account for evidence that hearing about a Black character's

positive characteristics did not influence anti-Black bias among 4- to 7-year-olds (Gonzalez et al., 2017).

Age differences were also found using implicit measures of children's attitudes. Older children drew the novel group member further from themselves than younger children. This difference may reflect age-related increases in negative sentiment toward new groups. It could also simply imply that, across development, children generally leave more space between drawings. In apparent contrast, older children donated *more* stickers to the novel group than younger children. This difference may reflect older children's developing awareness of social norms and expectations of fairness. For example, in a resource allocation task, White 5- to 10-year-olds gave more resources to a White child than a Black child in the *absence* of a Black experimenter; however, in the *presence* of the experimenter, older children (8-10 years) donated to White and Black children equally (De Franca & Monteiro, 2013).

An alternative account of these findings is that younger children's less developed attention skills impacted their ability to process the intergroup message (see Foushee & Xu, 2016). Future work should be conducted to assess children's attention to and memory of overheard claims. Examining the amount of time that younger versus older children look toward ambient sources of information (e.g., nearby conversations, video calls, television programs) could also shed light on this possibility.

Across *explicit* measures, children's attitudes toward the novel group were more positive toward the group following the two-week delay than in the initial session. This could be attributed to mere exposure — repeated exposure to a stimulus evokes an increase in positive attitudes toward that stimulus (Zajonc, 1968). Yet, the effects of the intergroup messages maintained two weeks later. Interestingly, although children in control conditions increased their

ratings of the group's "goodness" after two weeks, children who overheard the intergroup message rated the group similarly during the initial session and two-week delay. Perhaps children who heard the speaker's claim that the group was "bad" assumed that the experimenter agreed with this statement (as they did not verbally dissent), thus strengthening children's belief that the group was "not good". This would not be the case for the other explicit measures because the speaker did not specifically claim that people should not befriend a novel group member or that people should not try elements from the group's culture.

During the two-week follow-up, interaction effects of age and condition emerged for *implicit* measures of children's attitudes. The intergroup message seemed to influence older (but not younger) children's attitudes toward the novel group. The distance between drawings for older children who heard the speaker's claim were larger than the distances between drawings for children who did not hear the speaker's claim. Findings suggest that the effects of the speakers' message on intergroup attitudes strengthened overtime. A majority of children in this study were recruited from local schools and might have discussed the overheard messages with their classmates, thus reinforcing the negative qualities of the group. For the other implicit measure, the resource allocation task, older (but not younger) children who overheard the intergroup message donated (marginally) fewer stickers than children who did not hear these messages. This effect could be accounted for by the unexpected decrease in the number of stickers donated in the follow-up session (compared to the initial session) for children who were *not* exposed to messages about the novel group. Perhaps after the first session, children realized that they actually were allowed to keep the stickers they did not donate and subsequently chose to give themselves more stickers during the follow-up session.

Contrary to my hypotheses, there was no evidence that younger children's attitudes were more influenced by the adult speaker or that older children's attitudes were more influenced by the peer speaker. The sole effect of speaker age applied to children across the full age-range; those who overheard the adult speaker rated the novel group as being less good than children who overheard a child speaker. It's possible that children evaluated adults as having superior knowledge about the *goodness* of others.

One reason for failing to find an effect of speaker age on children's intergroup attitudes could be that the children in this sample were not old enough. According to developmental social identity theory (Nesdale, 2004), at approximately 7 years of age, children's tendency to demonstrate in-group preference is increasingly a result of identifying with specific social groups and thinking about others in relation to this identity. Expanding on this theory, Abrams, Rutland, Ferrell, and Pelletier (2008) propose that around 9 years of age (and into the teenage years), children's social identity is increasingly based on group norms (e.g., "I identify with this group because we all believe X"). Future work should include older children and adolescents and should include messages provided by an older "child" speaker.

In summary, findings from the current study expand on research demonstrating how children learn from others' claims (e.g., Harris, 2012) and from overhearing conversations (Akhtar et al., 2001; Schneidman & Woodward, 2016). This work contributes to the current literature by exploring how children learn from overhearing intergroup messages as well as how these effects vary with age (see also Gonzalez et al., 2017; Lane et al., in review). Over time, negative intergroup messages may foster prejudicial attitudes and discrimination, which has serious mental health implications. For example, in a longitudinal study of 40,000 ethnic-minority adults in the United Kingdom, racial discrimination was found to incrementally lead to

negative mental health issues (Wallace, Nazroo, & Bécaries, 2016). Further work on the effects of overhearing others' claims about social groups can help to clarify how biases that underlie discrimination are transmitted and can help to identify ways to reduce or counter the transmission of these biases.

References

- Abrams, D., Rutland, A., Ferrell, J. M., & Pelletier, J. (2008). Children's judgments of disloyal and immoral peer behavior: Subjective group dynamics in minimal intergroup contexts. *Child Development, 79*(2), 444–461. doi:[10.1111/j.1467-8624.2007.01135.x](https://doi.org/10.1111/j.1467-8624.2007.01135.x)
- About, F. E., & Doyle, A. B. (1996). Parental and peer influences on children's racial attitudes. *International Journal of Intercultural Relations, 20*(3), 371–383. doi:[10.1016/0147-1767\(96\)00024-7](https://doi.org/10.1016/0147-1767(96)00024-7)
- Akhtar, N., Jipson, J., & Callanan, M. A. (2001). Learning words through overhearing. *Child Development, 72*(2), 416–430.
<https://dx.doi.org.proxy.library.vanderbilt.edu/10.1111/1467-8624.00287>
- Bigler, R. S., & Liben, L. S. (1993). A cognitive-developmental approach to racial stereotyping and reconstructive memory in euro-american children. *Child Development, 64*(5), 1507.
<https://doi.org/10.2307/1131549>
- Bigler, R. S., Jones, L. C., & Lobliner, D. B. (1997). Social categorization and the formation of intergroup attitudes in children. *Child Development, 68*(3), 530–543.
<https://doi.org/10.1111/j.1467-8624.1997.tb01956.x>
- Blake, P. R., & Rand, D. G. (2010). Currency value moderates equity preference among young children. *Evolution and Human Behavior, 31*(3), 210–218.
<https://doi.org/10.1016/j.evolhumbehav.2009.06.012>
- Boseovski, J. J., Marble, K. E., & Hughes, C. (2016). Role of expertise, consensus, and informational valence in children's performance judgments. *Social Development, 26*(3), 445–465. <https://doi.org/10.1111/sode.12205>

- Boseovski, J. J., & Thurman, S. L. (2014). Evaluating and approaching a strange animal: Children's trust in speaker testimony. *Child Development, 85*(2), 824–834.
<https://doi.org/10.1111/cdev.12156>
- Brown, R., & Gaertner, S. (2008). *Blackwell Handbook of Social Psychology: Intergroup Processes*. Hoboken, NJ: John Wiley & Sons, Incorporated.
- Cohen, J. (1992). A power primer. *Psychological Bulletin, 112*(1), 155-159.
<http://dx.doi.org.proxy.library.vanderbilt.edu/10.1037/0033-2909.112.1.155>
- de França, D. X., & Monteiro, M. B. (2013). Social norms and the expression of prejudice: The development of aversive racism in childhood. *European Journal of Social Psychology, 43*(4), 263–271. <https://doi.org/10.1002/ejsp.1965>
- Degner, J., & Dalege, J. (2013). The apple does not fall far from the tree, or does it? A meta-analysis of parent–child similarity in intergroup attitudes. *Psychological Bulletin, 139*(6), 1270–1304. <https://doi.org/10.1037/a0031436>
- Diesendruck, G., & Menahem, R. (2015). Essentialism promotes children's inter-ethnic bias. *Frontiers in Psychology, 6*. <https://doi.org/10.3389/fpsyg.2015.01180>
- Eccles, J. S. (1999). The development of children ages 6 to 14. *The Future of Children, 9*(2), 30–44. <https://doi.org/10.2307/1602703>
- Eisenberg-Berg, N., & Geisheker, E. (1979). Content of preachings and power of the model/preacher: The effect on children's generosity. *Developmental Psychology, 15*(2), 168–175. <https://dx.doi.org.proxy.library.vanderbilt.edu/10.1037/0012-1649.15.2.168>
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*, 175-191. <https://doi.org/10.3758/BF03193146>

- Fitneva, S. A., Ho, E. P., & Hatayama, M. (2016). Japanese and Canadian children's beliefs about child and adult knowledge: A case for developmental equifinality? *PLoS One*, *11*(9). <https://dx.doi.org.proxy.library.vanderbilt.edu/10.1371/journal.pone.0163018>
- Foushee, R., & Xu, F. (2016). Active overhearing: Development in preschoolers' skill at 'listening in' to naturalistic overheard speech. In Papafragou, A., Grodner, D., Mirman, D., & Trueswell, J.C. (Eds.), *Proceedings of the 38th Annual Conference of the Cognitive Science Society: Recognizing and Representing Events* (pp. 2178 – 2182). Philadelphia, PA: Cognitive Science Society, Inc.
- Gampe, A., Liebal, K., & Tomasello, M. (2012). Eighteen-month-olds learn novel words through overhearing. *First Language*, *32*(3), 385–397.
<https://doi.org/10.1177/0142723711433584>
- Gonzalez, A. M., Steele, J. R., & Baron, A. S. (2017). Reducing children's implicit racial bias through exposure to positive out-group exemplars. *Child Development*, *88*(1), 123–130.
<https://doi.org/10.1111/cdev.12582>
- Grusec, J. E., Saas-Kortsak, P., & Simutis, Z. M. (1978). The role of example and moral exhortation in the training of altruism. *Child Development*, *49*(3), 920–923.
<https://doi.org/10.2307/1128273>
- Harris, P. L. (2012). *Trusting what you're told: How children learn from others*. Cambridge, MA: Harvard University Press.
- Harris, P. L., Koenig, M. A., Corriveau, K. H., & Jaswal, V. K. (2018). Cognitive foundations of learning from testimony. *Annual Review of Psychology*, *69*(1), 251–273.
[doi:10.1146/annurev-psych-122216-011710](https://doi.org/10.1146/annurev-psych-122216-011710)

- Hewstone, M., Rubin, M., & Willis, H. (2002). Intergroup bias. *Annual Review of Psychology*, 53, 575–604. <https://doi.org/10.1146/annurev.psych.53.100901.135109>
- Hughes, D., Rodriguez, J., Smith, E. P., Johnson, D. J., Stevenson, H. C., & Spicer, P. (2006). Parents' ethnic-racial socialization practices: A review of research and directions for future study. *Developmental Psychology*, 42(5), 747–770. <https://doi.org/10.1037/0012-1649.42.5.747>
- Jaswal, V. K., & Neely, L. A. (2006). Adults don't always know best: Preschoolers use past reliability over age when learning new words. *Psychological Science*, 17(9), 757–758. <https://dx.doi.org/10.1111/j.1467-9280.2006.01778.x>
- Killen, M., Mulvey, K. L., & Hitti, A. (2013). Social exclusion in childhood: A developmental intergroup perspective. *Child Development*, 84(3), 772–790. <https://doi.org/10.1111/cdev.12012>
- Killen, M., & Rutland, A. (2011). *Children and social exclusion: Morality, prejudice, and group identity*. J. Dunn (Ed.). Hoboken, NJ: John Wiley & Sons, Incorporated.
- Kinzler, K. D., Shutts, K., DeJesus, J., & Spelke, E. S. (2009). Accent trumps race in guiding children's social preferences. *Social Cognition*, 27(4), 623–634. <https://doi.org/10.1521/soco.2009.27.4.623>
- Koenig, M. A., & Sabbagh, M. A. (2013). Selective social learning: New perspectives on learning from others. *Developmental Psychology*, 49(3), 399–403. <https://doi.org/10.1037/a0031619>
- Landrum, A. R., Eaves, B. S., & Shafto, P. (2015). Learning to trust and trusting to learn: A theoretical framework. *Trends in Cognitive Sciences*, 19(3), 109–111. <https://doi.org/10.1016/j.tics.2014.12.007>

- Lane, J. D., Conder, E. B., & Rottman, J. (in review). The influence of direct and overheard messages on children's attitudes toward novel social groups.
- Lane, J. D., & Harris, P. L. (2015). The roles of intuition and speakers' expertise in children's epistemic trust. *Child Development, 86*(3), 919–926. <https://doi.org/10.1111/cdev.12324>
- Lane, J. D., Wellman, H. M., & Gelman, S. A. (2013). Informants' traits weigh heavily in young children's trust in testimony and in their epistemic inferences. *Child Development, 84*(4), 1253–1268. <https://doi.org/10.1111/cdev.12029>
- Lesane-Brown, C. L. (2006). A review of race socialization within black families. *Developmental Review, 26*(4), 400–426. <https://doi.org/10.1016/j.dr.2006.02.001>
- Mahajan, N. & Wynn, K. (2012). Origins of “us” versus “them”: Prelinguistic infants prefer similar others. *Cognition, 124*(2), 227–233. <https://doi.org/10.1016/j.cognition.2012.05.003>
- National Governors Association Center for Best Practices, Council of Chief State School Officers (2010). *Common Core State Standards* (Mathematics Standards). Retrieved from <http://www.corestandards.org/Math/>
- Nesdale, D. (2004). Social identity processes and children's ethnic prejudice. In M. Bennett & F. Sani (Eds.), *The development of the social self*, (pp. 219-245). New York, NY: Psychology Press.
- Nesdale, D., Maass, A., Griffiths, J., & Durkin, K. (2003). Effects of in-group and out-group ethnicity on children's attitudes towards members of the in-group and out-group. *The British Journal of Developmental Psychology, 21*, 177. <https://doi-org.proxy.library.vanderbilt.edu/10.1348/026151003765264039>

- Pahlke, E., Bigler, R. S., & Suizzo, M. A. (2012). Relations between colorblind socialization and children's racial bias: Evidence from European American mothers and their preschool children. *Child Development, 83*(4), 1164–1179.
<https://doi.org/10.1111/j.1467-8624.2012.01770.x>
- Patterson, M. M., & Bigler, R. S. (2006). Preschool children's attention to environmental messages about groups: Social categorization and the origins of intergroup bias. *Child Development, 77*(4), 847–860. <https://doi.org/10.1111/j.1467-8624.2006.00906.x>
- Raabe, T. & Beelmann, A. (2011). Development of ethnic, racial, and national prejudice in childhood and adolescence: A multinational meta-analysis of age differences. *Child Development, 82*(6), 1715–1737. <https://doi.org/10.1111/j.1467-8624.2011.01668.x>
- Renno, M. P., & Shutts, K. (2015). Children's social category-based giving and its correlates: Expectations and preferences. *Developmental Psychology, 51*(4), 533–543.
<https://doi.org/10.1037/a0038819>
- Rhodes, M., & Chalik, L. (2013). Social categories as markers of intrinsic interpersonal obligations. *Psychological Science, 24*(6), 999–1006.
<https://doi.org/10.1177/0956797612466267>
- Rhodes, M., Leslie, S. J., Saunders, K., Dunham, Y., & Cimpian, A. (2017). How does social essentialism affect the development of inter-group relations? *Developmental Science, 21*(1). <https://doi.org/10.1111/desc.12509>
- Rhodes, M., Leslie, S. J., & Tworek, C. M. (2012). Cultural transmission of social essentialism. *Proceedings of the National Academy of Sciences, 109*(34), 13526–13531.
<https://doi.org/10.1073/pnas.1208951109>
- Robinson, E. J., Haigh, S. N., & Nurmsoo, E. (2008). Children's working understanding of

- knowledge sources: Confidence in knowledge gained from testimony. *Cognitive Development*, 23(1), 105–118. <https://doi.org/10.1016/j.cogdev.2007.05.001>
- Rubin, K. H., Bukowski, W. M., & Parker, J. G. (2007). Peer interactions, relationships, and groups. In W. Damon & R. M. Lerner (Eds.), *Handbook of Child Psychology* (pp. 619–700). NY: Wiley & Sons.
- Rushton, J. P. (1975). Generosity in children: Immediate and long-term effects of modeling, preaching, and moral judgment. *Journal of Personality and Social Psychology*, 31(3), 459–466. <http://dx.doi.org/10.1037/h0076466>
- Rutland, A., Killen, M., & Abrams, D. (2010). A new social-cognitive developmental perspective on prejudice: The interplay between morality and group identity. *Perspectives on Psychological Science*, 5(3), 279–291. <https://doi.org/10.1177/1745691610369468>
- Sabbagh, M. A., & Baldwin, D. A. (2001). Learning words from knowledgeable versus ignorant speakers: Links between preschoolers' theory of mind and semantic development. *Child Development*, 72(4), 1054–1070. <https://doi.org.proxy.library.vanderbilt.edu/10.1111/1467-8624.00334>
- Shneidman, L., & Woodward, A. L. (2016). Are child-directed interactions the cradle of social learning? *Psychological Bulletin*, 142(1), 1–17. doi:[10.1037/bul0000023](https://doi.org/10.1037/bul0000023)
- Segall, G., Birnbaum, D., Deeb, I., & Diesendruck, G. (2015). The intergenerational transmission of ethnic essentialism: How parents talk counts the most. *Developmental Science*, 18(4), 543–555. <https://doi.org/10.1111/desc.12235>

- Shutts, K., Banaji, M. R., & Spelke, E. S. (2010). Social categories guide young children's preferences for novel objects. *Developmental Science, 13*(4), 599–610.
<https://doi.org/10.1111/j.1467-7687.2009.00913.x>
- Taylor, M., Cartwright, B. S., & Bowden, T. (1991). Perspective taking and theory of mind: Do children predict interpretive diversity as a function of differences in observers' knowledge? *Child Development, 62*(6), 1334–1351.
<http://dx.doi.org.proxy.library.vanderbilt.edu/10.2307/1130810>
- VanderBorgh, M., & Jaswal, V. K. (2009). Who knows best? Preschoolers sometimes prefer child speakers over adult speakers. *Infant and Child Development, 18*(1), 61–71.
<https://doi.org/10.1002/icd.591>
- Vittrup, B. (2018). Color blind or color conscious? White american mothers' approaches to racial socialization. *Journal of Family Issues, 39*(3), 668–692.
<https://doi.org/10.1177/0192513X16676858>
- Wallace, S., Nazroo, J., & Bécares, L. (2016). Cumulative effect of racial discrimination on the mental health of ethnic minorities in the united kingdom. *American Journal of Public Health, 106*(7), 1294–1300. doi:[10.2105/AJPH.2016.303121](https://doi.org/10.2105/AJPH.2016.303121)
- Weisman, K., Johnson, M.V., & Shutts, K. (2015). Young children's automatic encoding of social categories. *Developmental Science, 18*(6), 1036–1043.
<https://doi.org/10.1111/desc.12269>
- Wick, W. (2011). *Can You See What I See? Toyland Express: Picture Puzzles to Search and Solve*. New York, New York: Scholastic Inc.
- Zajonc, R. B. (1968). Attitudinal effects of mere exposure. *Journal of Personality and Social Psychology, 9*(2), 1–27. <https://doi.org/10.1037/h0025848>

Table 1

*Dependent Measures from Initial Study Session and Two-week Follow-up*Children in Intergroup Message Conditions

Measure	Immediate		Follow-up		Paired-samples tests
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	
Drawing Distance (cm)	3.71	(2.85)	2.92	(2.66)	$t = 2.05$ $p = .04$
Goodness Rating	.60	(.31)	.66	(.28)	$t = -1.53$ $p = .13$
Cultural Experience	3.22	(1.67)	3.30	(1.69)	$t = -.21$ $p = .84$
Resource Allocation	3.79	(2.46)	3.53	(2.40)	$t = 1.03$ $p = .31$
Friendship Decision	.47		.65		$Z = -2.12$ $p = .03$

Children in Control Conditions

Measure	Immediate		Follow-up		Paired-samples tests
	<i>M</i>	(<i>SD</i>)	<i>M</i>	(<i>SD</i>)	
Drawing Distance (cm)	3.49	(3.01)	2.73	(2.75)	$t = 1.73$ $p = .09$
Goodness Rating	.71	(.28)	.80	(.26)	$t = -1.99$ $p = .05$
Cultural Experience	3.43	(1.51)	3.33	(1.63)	$t = .67$ $p = .50$
Resource Allocation	4.41	(2.63)	3.83	(2.63)	$t = 1.97$ $p = .05$
Friendship Decision	.59		.68		$Z = -1.89$ $p = .06$

Note. Paired-samples *t*-tests were used to compare scores for drawing distance, goodness ratings, cultural experience, and resource allocation *immediately* versus *two weeks* after the video call.

For *friendship decisions*, paired-samples tests were performed using Wilcoxon signed-rank tests.

Means and standard deviations are unstandardized.

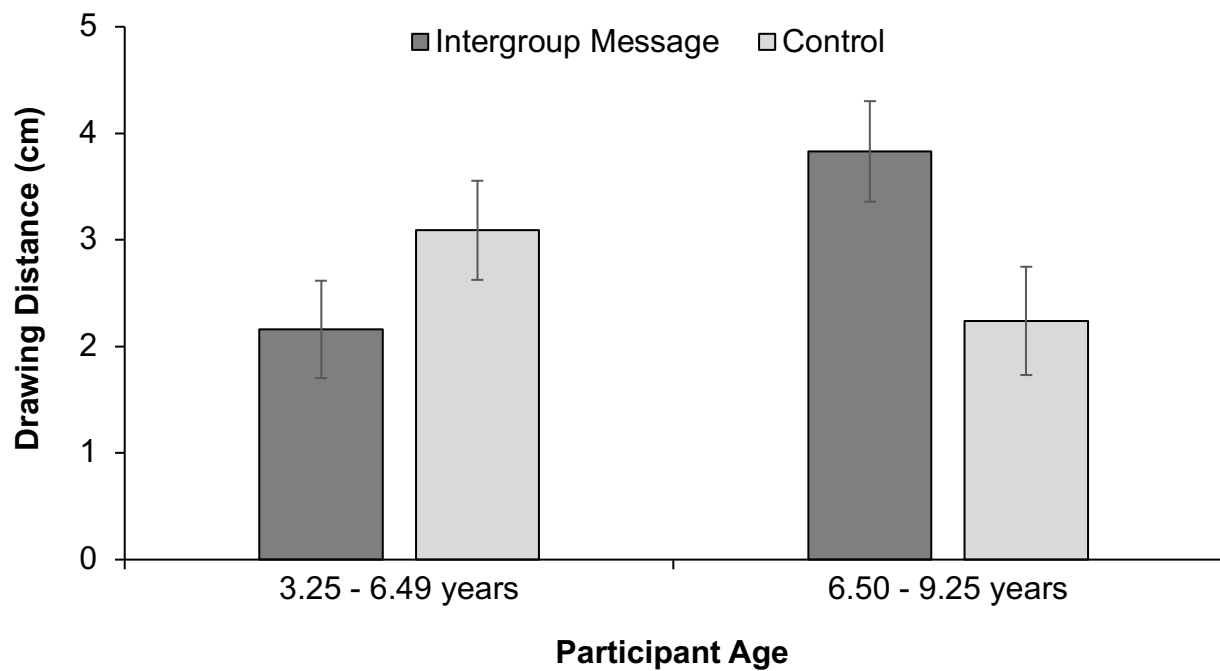


Figure 1. Average distance (cm) between children’s drawings of themselves and a novel group member *two weeks* after the video call. Children in *intergroup message* conditions overheard a speaker’s claim about the novel social group; children in *control* conditions did not overhear the speaker’s claim. Error bars represent +/- 1 standard error of the mean.

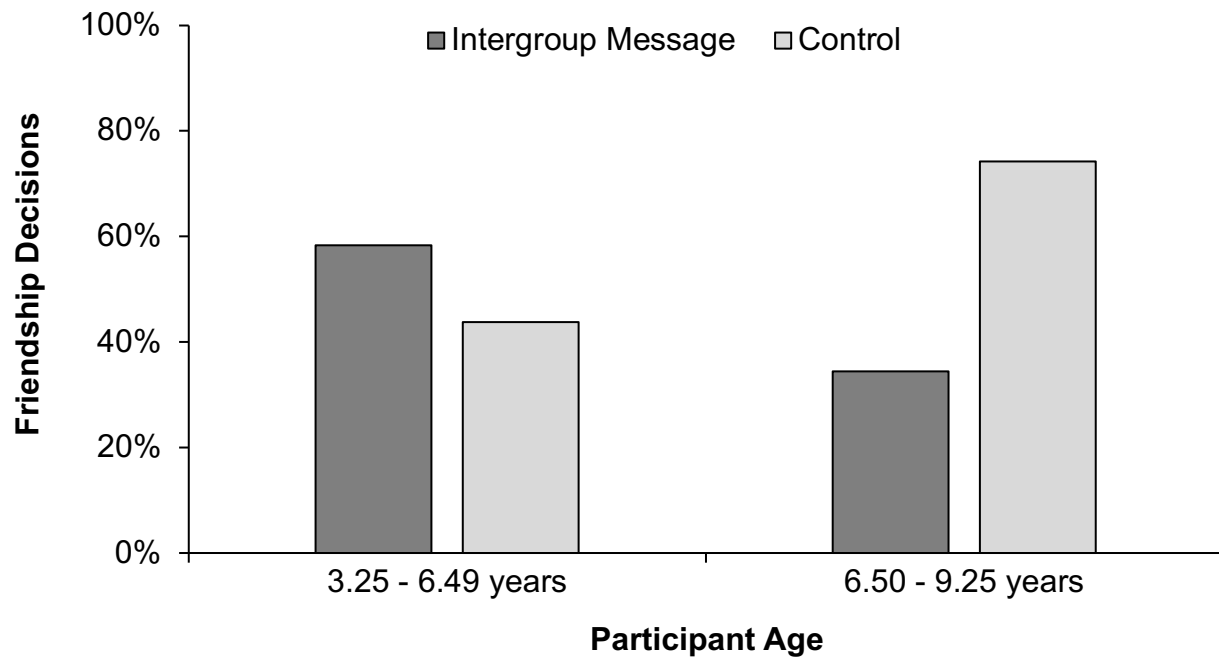


Figure 2. Percentage of children who chose to be friends with a novel group member immediately following the video call. Children in *intergroup message* conditions overheard a speaker's claim about the social group; children in *control* conditions did not overhear the speaker's claim.

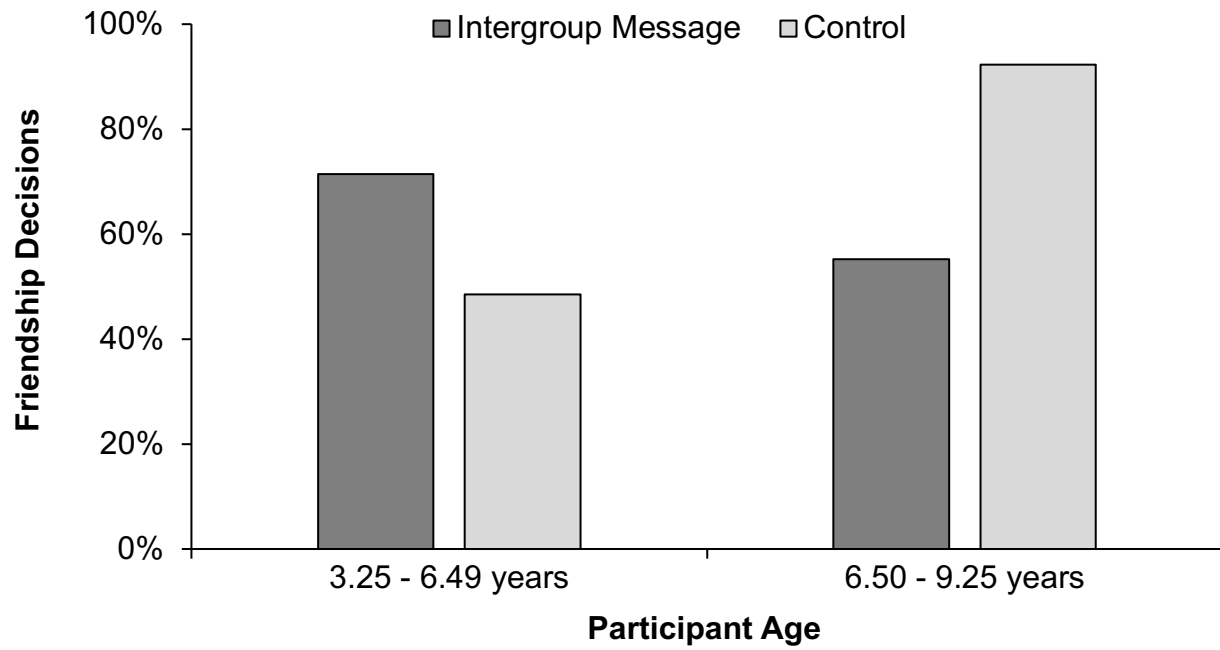


Figure 3. Percentage of children who chose to be friends with a novel group member *two weeks* after the video call. Children in *intergroup message* conditions overheard the speaker’s claim about the social group; children in *control* conditions did not overhear the speaker’s claim.

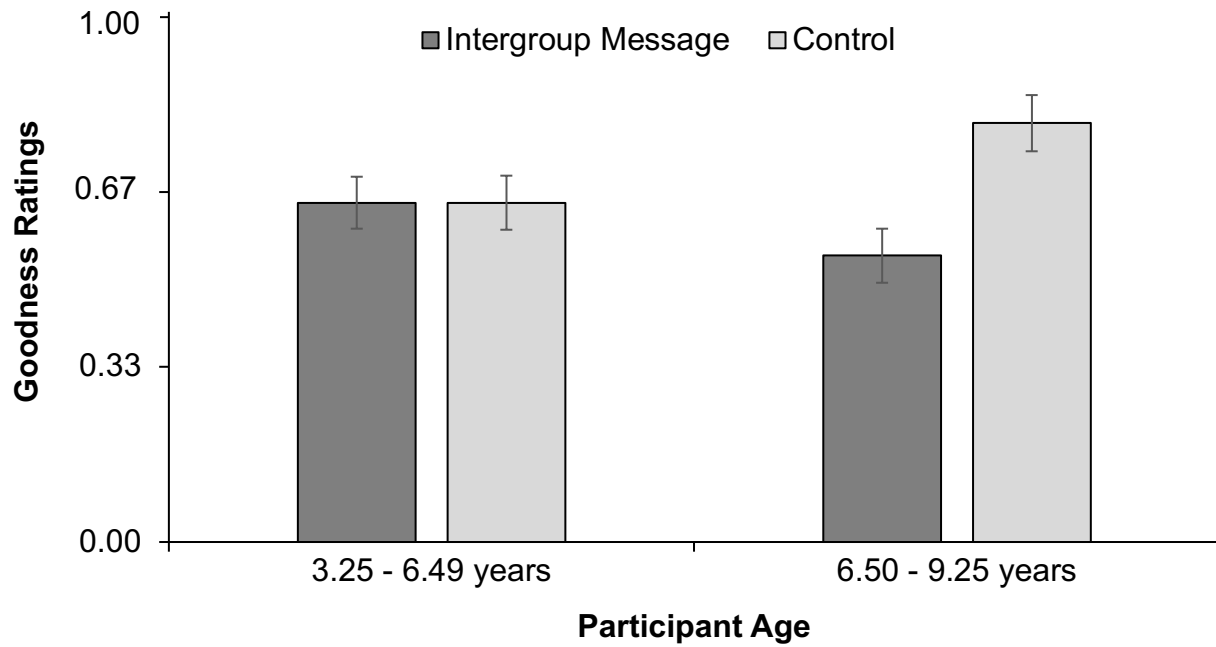


Figure 4. Average goodness ratings immediately following the video call. Goodness ratings ranged from 0 (very not good) to 1 (very good). Children in *intergroup message* conditions overheard a speaker's claim about the social group; children in *control* conditions did not overhear the speaker's claim. Error bars represent +/- 1 standard error of the mean.

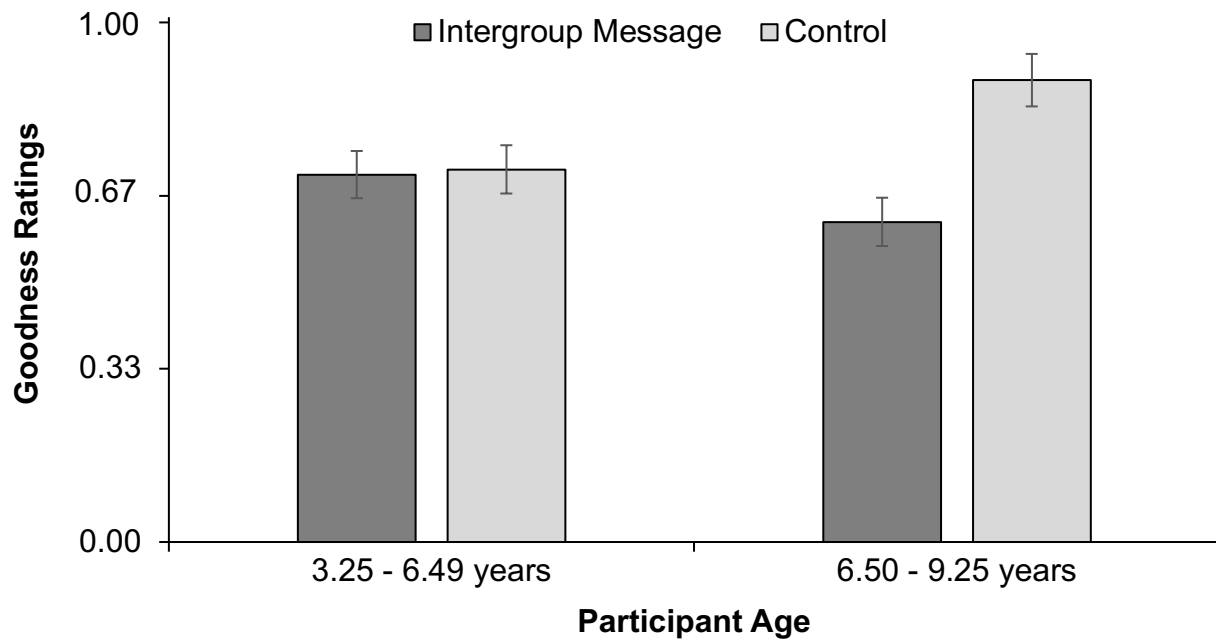


Figure 5. Children's average *goodness* ratings two weeks after the video call. *Goodness* scores ranged from 0 (very not good) to 1 (very good). Children in *intergroup message* conditions overheard a speaker's claim about the social group; children in *control* conditions did not overhear the speaker's claim. Error bars represent +/- 1 standard error of the mean.

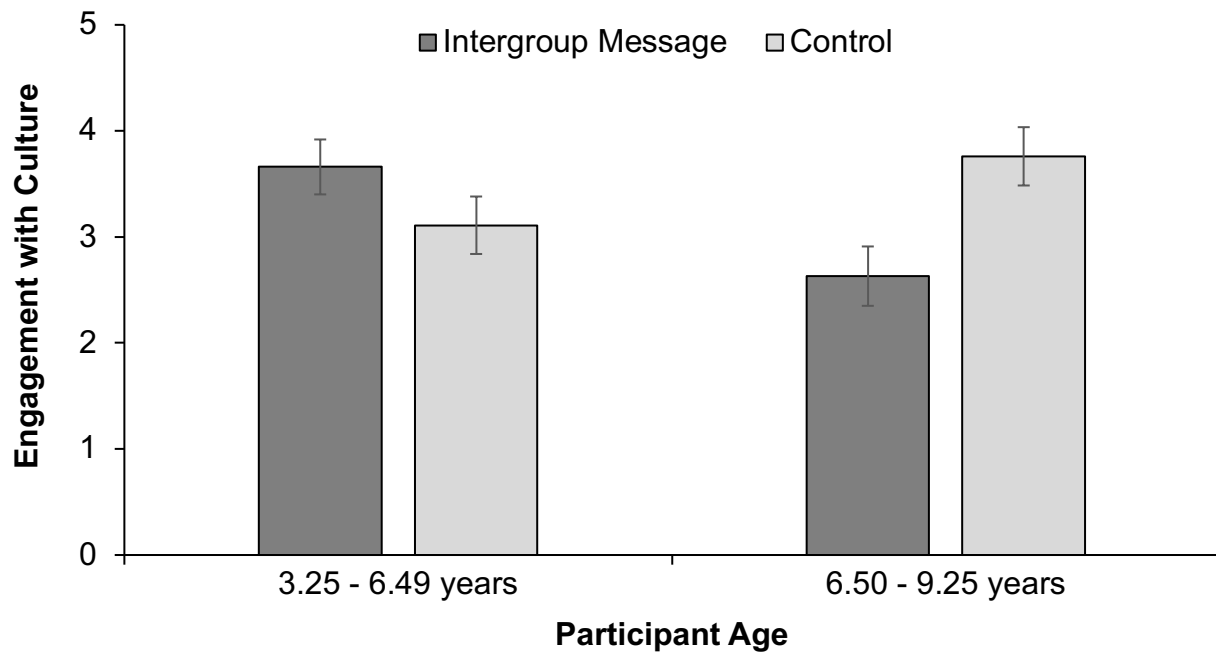


Figure 6. Average number of cultural elements children chose to engage with (out of five) immediately following the video call. Children in *intergroup message* conditions overheard a speaker's claim about the social group; children in *control* conditions did not overhear the speaker's claim. Error bars represent +/- 1 standard error of the mean.

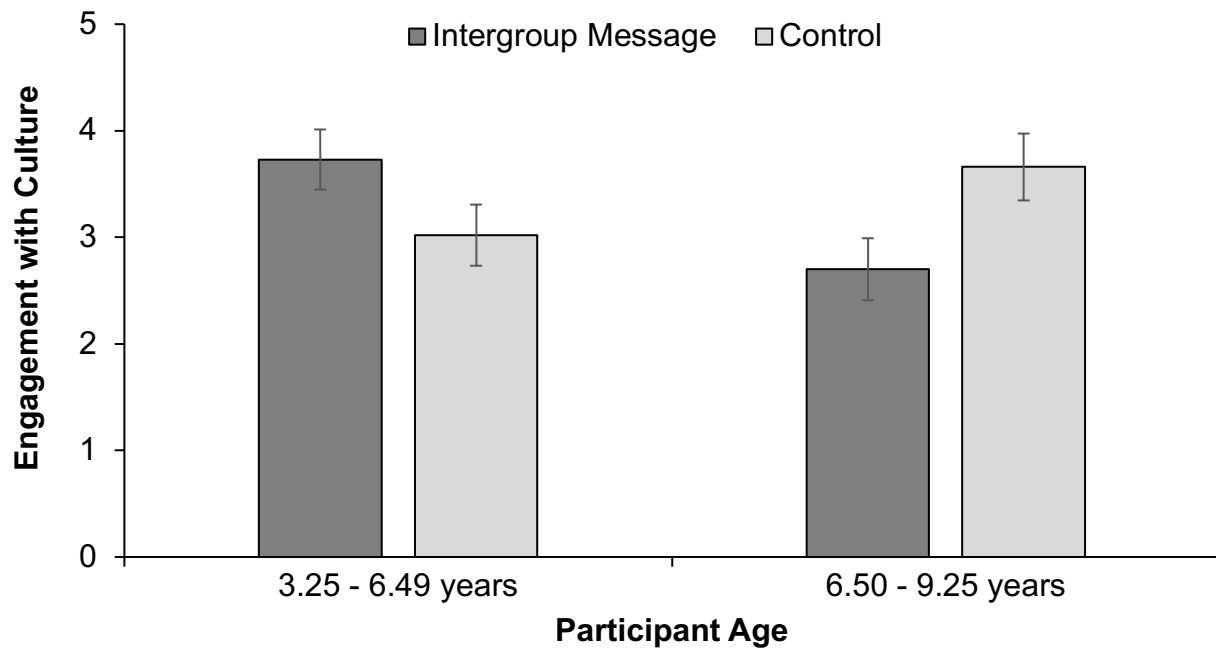


Figure 7. Average number of cultural elements children chose to engage with (out of five) *two weeks* after the video call. Children in *intergroup message* conditions overheard a speaker's claim about the social group; children in *control* conditions did not overhear the speaker's claim. Error bars represent +/- 1 standard error of the mean.

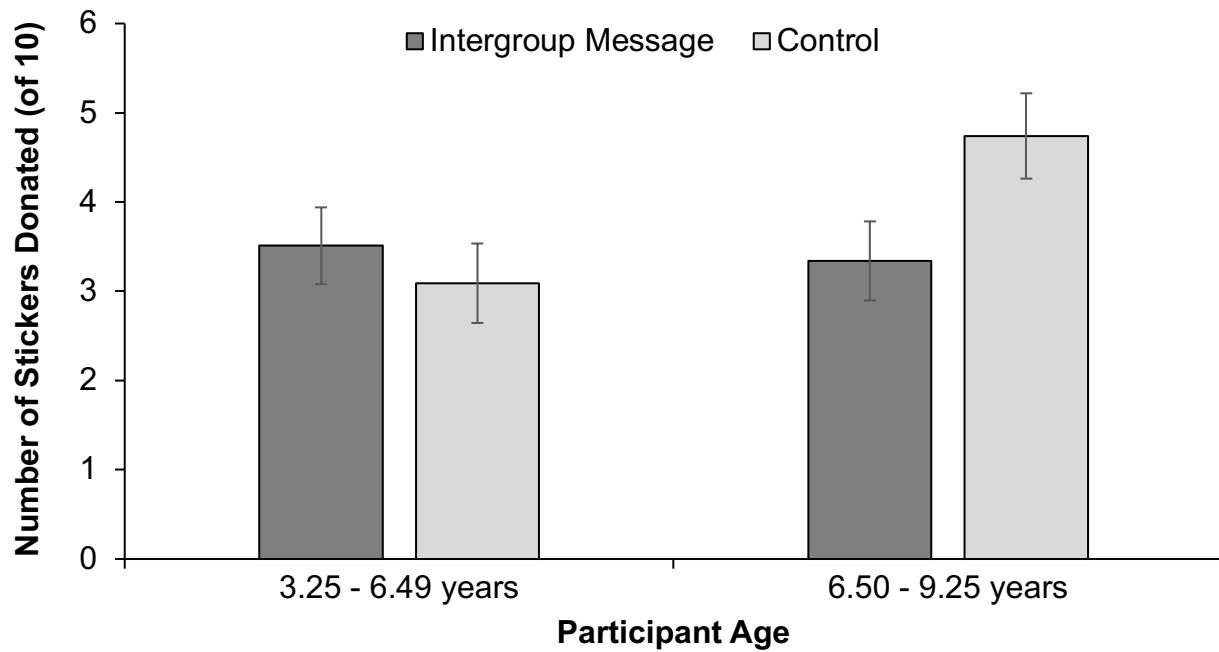


Figure 8. Average number of stickers children chose to donate to a member of the novel group (out of 10 stickers) *two weeks* after the video call. Children in *intergroup message* conditions overheard a speaker's claim about the social group; children in *control* conditions did not overhear the speaker's claim. Error bars represent +/- 1 standard error of the mean.