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Young children seek out biased information about social groups

Harriet Over[1] | Adam Eggleston[1] | Jenny Bell[1] | Yarrow Dunham[2]

[1]Department of Psychology, University of York, York, UK

[2]Department of Psychology, Yale University, New Haven, CT, USA

Correspondence
Harriet Over, Department of Psychology, University of York, York YO10 5DD, UK.
Email: harriet.over@york.ac.uk

Abstract

Understanding the origins of prejudice necessitates exploring the ways in which children participate in the construction of biased representations of social groups. We investigate whether young children actively seek out information that supports and extends their initial intergroup biases. In Studies 1 and 2, we show that children choose to hear a story that contains positive information about their own group and negative information about another group rather than a story that contains negative information about their own group and positive information about the other group. In a third study, we show that children choose to present biased information to others, thus demonstrating that the effects of information selection can start to propagate through social networks. In Studies 4 and 5, we further investigate the nature of children's selective information seeking and show that children prefer ingroup-favouring information to other types of biased information and even to balanced, unbiased information. Together, this work shows that children are not merely passively recipients of social information; they play an active role in the creation and transmission of intergroup attitudes.

RESEARCH HIGHLIGHTS

- Children seek out biased information about social groups, preferring to hear information that favours their own group and disfavours their outgroup.
- Children prefer ingroup-favouring information even over unbiased, balanced information.
- Young children also select biased information for others to consume, demonstrating how intergroup biases can start to spread through children's social networks.
- Children are conceptualized as active consumers of social information, not merely passive recipients of information they receive from others.

1 | INTRODUCTION

Prejudice and discrimination remain substantial social problems. Individuals are often discriminated against on the basis of their membership in a particular social category, for example, race, gender or sexual orientation. In the United States, the salary of African Americans is approximately 60% that of Caucasian Americans (US Census Bureau, 2011). Females earn on average 70% that of their male counterparts (Goldin, 2014) and are less likely to be recommended for academic positions even when their CVs are otherwise identical (Moss-Racusin, Dovidio, Brescoli, Graham, & Handelsman, 2012). These inequalities are often underpinned by negative or ambivalent intergroup attitudes. Where do these biased intergroup attitudes come from?

Answering this question requires first noting that intergroup bias begins early in development (Dunham & Olson, 2008). For example, infants prefer to look at, and accept toys from, people who speak their native language over people who speak a foreign language (Kinzler, Dupoux, & Spelke, 2007). From at least the age of 5, and probably as young as 3, children prefer members of their own group even when those groups are 'minimal', that is, based on arbitrary, experimenter-created distinctions such as shirt colour (Bigler, Jones, & Lobliner, 1997; Dunham, Baron, & Carey, 2011; Richter, Over, & Dunham, 2016). Cultural transmission also appears to play a role in determining children's attitudes towards real-world groups (Allport, 1954; Devine, 1989). Children are exposed to information that systematically associates social category membership with particular traits and with positive or negative evaluation. Evidence in favour of this claim comes from recent meta-analytic work demonstrating that, despite prior claims to the contrary (Aboud & Amato, 2001; Aboud & Doyle, 1996), there are clear positive relationships between intergroup attitudes of parents and their children (Degner & Dalege, 2013). Related

experimental work has also shown that children sometimes imitate the discriminatory behaviour of others (Olson, Dweck, Spelke, & Banaji, 2011).

However, children are not merely passive recipients of social information. For example, they tend to remember more positive information about ingroups and tend to interpret ambiguous intergroup interactions in ways that favour the ingroup (Dunham et al., 2011; Dunham & Emory, 2014). Even more profoundly, we argue that children can be considered active consumers of information who make choices regarding what they consume. Indeed, the mere act of categorizing oneself as part of a group may be sufficient to generate a tendency to select biased information and thus begin a process by which even relatively trivial grouping dimensions acquire personal and cultural importance. In five studies, we test whether children seek out biased information about social groups. In these studies, we allocate children to minimal groups and offer them a choice about the type of information they would like to hear or would like to transmit to others. Our primary prediction is that, as active and motivated consumers of social information, children will select the stories that favour their own group.

We test this prediction with 5- and 6-year-old children, the age at which sensitivity to minimal groups begins to be robust (Dunham et al., 2011; Dunham & Emory, 2014; Spielman, 2000). More generally, because children have recently joined school and have increasing opportunity to choose the type of information they consume though storybooks and other media, this is a particularly important period to examine how their choices influence the development of intergroup attitudes.

2 | STUDY 1

In Study 1, we allocated children to one of two minimal groups and then offered them a choice between hearing one of two stories. One of these stories was described as favouring the child's own group and disfavouring the other group. The other story was described as disfavouring the child's own group and favouring the other group. We predicted that children would choose the story written by the author who favoured their own group.

We also measured the effect of hearing their chosen story on children's group preferences. We did this to confirm that consumption of biased information would influence intergroup attitudes. Based on prior work on how children internalize group-relevant information (Baron & Dunham, 2015; Schug, Shusterman, Barth, & Patalano, 2013), we predicted that children who chose to hear the story that favoured their own group would show greater intergroup bias after hearing it.

2.1 | Method

2.1.1 | Participants

Participants were 24 5- and 6-year-olds (mean age: 5 years, 8 months, age range: 4 years, 11 months–6 years, 6 months). Ten of the participants were female and 14 were male. We did not collect specific demographic information from the families who participated in the studies we report here. However, in this study, children were recruited from a village school in a rural area of Northern England. The population of this region is predominantly White with an overall majority of people identifying as Christian. One of the children tested was dropped from the analyses for failing to correctly identify her group in the manipulation check.

2.1.2 | Materials

Two story books depicted cartoon style drawings of children in the Yellow group and the Green group. In one of these books, members of the Yellow group were depicted performing two positive actions (hugging another child and sharing a cookie) and members of the Green group were depicted performing two negative actions (taking another child's building block without asking and pushing another child on the playground). In the other book, the members of the Yellow group were depicted performing the negative actions and the members of the Green group were depicted performing the positive actions. The drawings within these books were adapted from stimuli used in Rhodes (2012). The front covers of the two books depicted neutral playground scenes.

Children's preferences for their own group and the other group were measured using a 5-point Likert scale. Each point on this scale was represented by a line drawing of a face with an expression that ranged from smiling to frowning.

2.1.3 | Design and counterbalancing

The main measure was which of the two stories children chose to hear – the story favouring their own group or the story favouring the other group. In addition, we measured children's preferences for the two groups before and after they had heard the story of their choice. This was done using two questions per group on a 5-point scale, 'How much do you like your Yellow group/the other Green group?' and 'How much do you want to play with your Yellow Group/the other Green group?' Children's responses to these two questions were averaged to make overall preference measures for each group before and after children heard the story of their choice.

The colour of the group to which children were assigned (yellow or green) was counterbalanced as was the colour of the group that was introduced first in the preference measures and the story choice. This meant that half of children were asked about their own group first and half were asked about the other group first.

2.1.4 | Procedure

Each participant was invited into the testing area and asked to sit at a small table. After a brief warm-up period, the experimenter (E) explained that there were two groups – the Yellow group and the Green group – and that children in the Yellow group got yellow

scarves to wear and children in the Green group got green scarves to wear. She then asked children to reach inside a bag and pull out a token, explaining that if the token was yellow then they would be in the Yellow group, and if the token was green, then they would be in the Green group. (Although this process appeared random to the child it was actually fixed such that half of the children were allocated to the Yellow group and half of the children were allocated to the Green group.) Once children had chosen a token, E checked that children understood which group they were in by asking 'What colour token did you get?' and 'What colour group are you in?' In order to check that children could visually identify the two colour groups, they were then asked to take the appropriate colour scarf (yellow or green) from the table in front of them and put it on.

Following the group allocation, children were asked how much they liked the two groups. E explained that children could show her using the scale. She placed the scale in front of children and, pointing at each face in turn, asked, 'Do you really like them, kind of like them, think they're OK, kind of don't like them, or really don't like them?' Once children had answered, E asked them how much they wanted to play with their own group and encouraged them to answer again using the scale. 'Do you really want to play with them, kind of want to play with them, think playing with them would be OK, kind of don't want to play with them, or really don't want to play with them?' Children were then asked the same two questions, following the same procedure, about the other group.

E then introduced the two stories by saying, 'Now, I'm going to tell you a story. There are two different stories and you can tell me which one you want to hear, OK?' 'This story [pointing at the first story] was written by someone who really likes your Yellow group but doesn't like the other Green group at all. This story [pointing at the same story again] has nice things about your Yellow group. This story [pointing at the second story] was written by someone who really likes the other Green group but doesn't like your Yellow group at all. This story [pointing at the second story again] has nice things about the other Green group. Which story do you want to hear, the one with the nice things about your Yellow group or the one with the nice things about the other Green group?'

Once children had made their choice, E read them the corresponding story. After children had heard the story, E asked them to rate how much they now liked and wanted to play with each of the two groups in the same manner described above.

Finally, E thanked children for their participation. To ensure that the procedure ended on a positive note, E told them that, although children in both groups could be mean, they were usually nice. As she told them this, she showed them a final picture in which the Yellow and Green groups played nicely together. Children were then told that the groups did not matter anymore and that they could take off their scarves.

2.1.5 | Coding

Children's responses were coded from video by E. The entire dataset was second coded by a rater who was unaware of the hypotheses of the study. Agreement for the story choice measure was perfect and agreement for the two preference measures was almost perfect $r(190) = .99$, $p < .001$.

2.2 | Results

The 23 children included in the analyses accurately reported which group they were in and chose the appropriate colour scarf for their group when offered a choice between yellow and green. The *p*-values for all reported results in all studies are two-tailed.

Our main question of interest was whether children would be more likely to choose the story that favoured their own group than the story that favoured the other group (Figure 1). In fact, 19 of 23 children chose the story that favoured their own group, and an observed vs. expected chi-square showed that this difference was significant, $X^2 = 9.42$, $p = .002$, $\phi = .64$

We also sought to confirm that hearing the story that favoured their own group would influence children's intergroup attitudes (Figure 2, panel a). A 2 (group membership) * 2 (time of measurement) within-subjects ANOVA on those children who chose the story that favoured their own group revealed a main effect of group membership, $F(1, 18) = 27.74$, $p < .001$, *partial* $\eta^2 = .606$, such that children preferred their own group to the other group but the main effect of time did not reach conventional levels of significance, $F(1, 18) = 3.82$, $p = .066$, *partial* $\eta^2 = .175$. As predicted, there was a significant group membership by time of measurement interaction, $F(1, 18) = 5.93$, $p = .025$, *partial* $\eta^2 = .25$. Planned comparisons revealed that whereas liking for the ingroup was similar before and after the story, $t(18) = .867$, $p = .397$, liking for the outgroup significantly decreased, $t(18) = -2.59$, $p = .019$, $d = .77$. In fact, whereas these children were initially ambivalent towards their outgroup (their ratings of the outgroup did not differ significantly from the neutral point on the scale, one sample $t(18) = .99$, $p = .334$), after they heard their chosen story they showed outgroup negativity (that is, their ratings of the outgroup were significantly lower than the neutral point on the scale, one sample $t(18) = -2.39$, $p = .028$, $d = 1.13$).

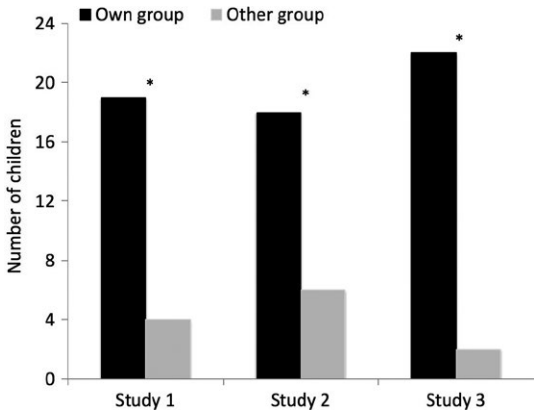

FIGURE 1 The number of children choosing the story that favoured their own group and the other group in Studies 1–3. (In Study 1 $N = 23$, in Studies 2 and 3 $N = 24$.)

Only four children chose the story biased towards the other group. As this number was so low, it was not possible to statistically analyse their responses. Instead we briefly report the means of their preferences: Own group at Time 1: 2.13; Outgroup at Time 1: 4.63; Own group at Time 2: 1.75; Outgroup at Time 2: 4.88.

3 | STUDY 2

Study 1 demonstrated that children chose to hear information that favoured their own group. Importantly, this effect could not have been driven purely by a desire to hear more about one of the two groups because both stories were described as containing information about the ingroup and the outgroup. It also could not have been driven purely by a desire to hear more positive or negative information in general, as both stories were described as containing positive and negative evaluations. Rather, the effect must have been driven by a desire to hear information that was, relatively speaking, biased towards children's own group.

Study 1 also confirmed that hearing the story they chose influenced children's intergroup attitudes such that intergroup bias was stronger after children heard the story favouring their own group and disfavouring the other group. This conceptually replicates previous research demonstrating that hearing biased information influences children's intergroup attitudes and can, in certain circumstances, lead to outgroup negativity (Schug et al., 2013).

In Study 2, we seek to replicate this effect using a subtler introduction to the two stories in which we do not explicitly state that the authors of the stories prefer one group over the other. Previous research has shown that language is a powerful cue to intergroup bias in children (Bigler et al., 1997) and so we wanted to confirm that the observed effect would hold across a somewhat different introduction to the story choice in which the views of the authors of the story books are not explicitly mentioned. In addition to conceptually replicating the results of Study 1, a similar pattern in Study 2 would suggest that children select ingroup-favouring information in a wider range of contexts than could be concluded from Study 1 alone.

3.1 | Method

3.1.1 | Participants

Participants were 24 5- and 6-year-olds (mean age: 5 years, 9 months, age range: 4 years, 9 months–6 years, 11 months). Four were female and 20 were male. Children were recruited from a primary school on the outskirts of a Northern city and a science museum located in an urban centre.

3.1.2 | Design, counterbalancing and materials

The design and counterbalancing were identical to Study 1. The materials were identical to Study 1 except that the front covers of the storybooks showed members of the two groups performing positive and negative actions. One version showed a member of the Green group sharing a cookie and a member of the Yellow group pushing another child (Figure 3, panel a). The other version showed a member of the Green group pushing another child and a member of the Yellow group sharing a cookie (Figure 3, panel b). The side on which the two actions were presented was also counterbalanced so that, for half of participants the positive action was on the right and for half of children the positive action was on the left.

3.1.3 | Procedure

The procedure was identical to Study 1 except that E introduced the two stories in a different way. E said, 'The person who wrote this story says that children in your Yellow group do things like this. Look at what they say this child in your Yellow group is doing [pointing to the picture on the left]. They say that children in the other Green group do things like this. Look at what they say this child in the other Green group is doing [pointing to the picture on the right].' She then described the other story in the same way but pointed to the contrasting pictures on the front cover of the other book. She then offered children a choice of which story to hear by saying, 'Which story do you want to hear? The one written by the person who says the children do things like this or the one written by the person who says the children do things like this?'

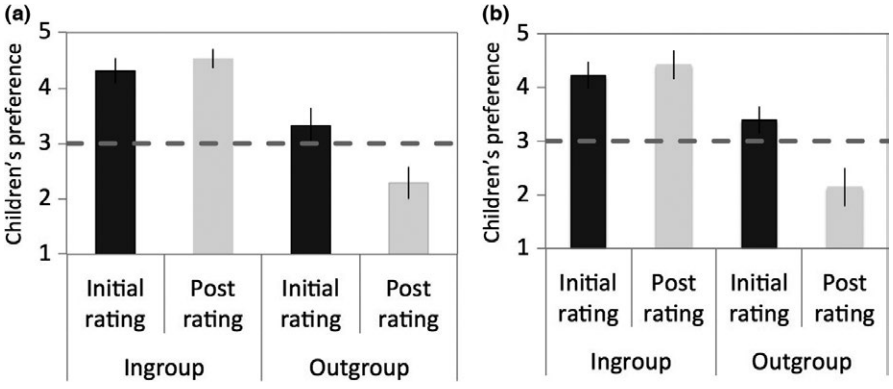

FIGURE 2 Intergroup attitudes before and after children chose and were read the story that favoured their own group and disfavoured the other group in Studies 1 (panel a) and 2 (panel b). Dashed line reflects a neutral attitude (the scale midpoint). Error bars represent the standard error of the mean

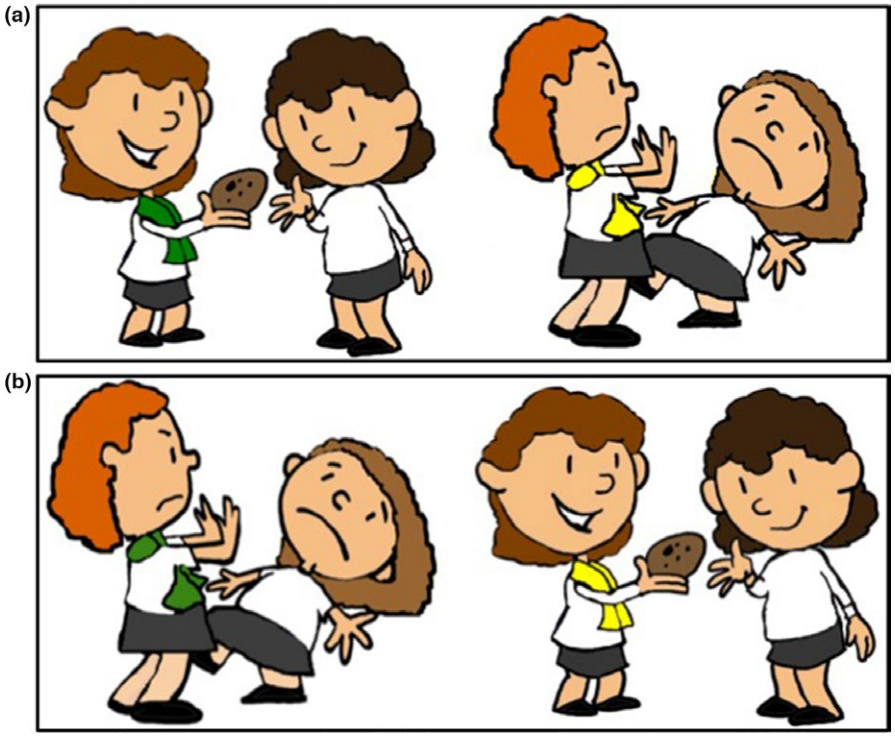

FIGURE 3 The front covers of the storybooks used in Studies 2 and 3. Panel (a) shows a front cover of a book biased in favour of the Green group and panel (b) shows a front cover of a book biased in favour of the Yellow group. Note that, in these examples, the Green group was introduced first. In Study 4, each of these four pictures was presented on the front cover of its own storybook

3.1.4 | Coding

Children's responses were coded from video by E. The entire dataset was second coded by a rater who was unaware of the hypotheses of the study. Agreement for the story choice measure was perfect and agreement for the two the preference measures was almost perfect, $r(190) = .97$, $p < .001$.

3.2 | Results

All 24 children accurately reported which group they were in and chose the appropriate colour scarf for their group when offered a choice between yellow and green. Replicating the results of Study 1, an observed vs. expected chi-square showed that children were significantly more likely to choose the story that favoured their own group; 18 of 24 did so, $X^2 = 6$, $p = .01$, $\phi = .5$ (Figure 1).

Looking in more detail at children who chose the story that favoured their own group, a 2 (group membership) * 2 (time of measurement) within-subjects ANOVA revealed a main effect of group membership, $F(1, 17) = 17.24$, $p = .001$, *partial* $\eta^2 = .5$, such that children preferred their own group to the other group. There was also a main effect of time of measurement, $F(1, 17) = 7.11$, $p = .016$, *partial* $\eta^2 = .3$, suggesting that children's ratings were lower after they heard the story than before. Critically, these main effects were qualified by a significant group membership by time of measurement interaction, $F(1, 17) = 7.84$, $p = .012$, partial $\eta^2 = .35$ (Figure 2, panel b). Again replicating the pattern of results from Study 1, planned comparisons revealed that whereas liking for the ingroup was similar before and after children heard the story of their choice, $t(17) = .6$, $p = .56$, liking for the outgroup significantly decreased, $t(17) = -3.82$, $p = .001$, $d = .95$. Again, these children were initially ambivalent towards their outgroup (their rating of the outgroup did not differ from the neutral point on the scale, one sample $t(17) = 1.4$, $p = .17$), but showed outgroup negativity after hearing their chosen story (their ratings of the outgroup were then significantly lower than the neutral point on the scale, $t(17) = -2.46$, $p = .025$, $d = 1.19$.

Only six children chose the story biased towards their outgroup, precluding detailed statistical analysis. However, the raw means of their preference ratings were as follows: Own group at Time 1: 3.25; Outgroup at Time 1: 3.17; Own group at Time 2: 2.08; Outgroup at Time 2: 4.5.

4 | STUDY 3

Studies 1 and 2 demonstrated that children prefer to hear information that is biased towards their own group and against the other group. In Study 3, we investigated how this bias relates to cultural transmission. Rather than asking children which story they personally wanted to hear, we asked them which story another child should be told. In order to test this question, we introduced the stories in a similar way as in Study 2 but asked participants which story another child should be told. We predicted that children would want their own group to be perceived in a positive light and so prefer this child to be told the story that was biased towards their own group.

4.1 | Method

4.1.1 | Participants

Participants were 24 5- and 6-year-olds (mean age: 5 years, 11 months, age range: 5 years, 1 month–6 years, 11 months). Thirteen

were female and 11 were male. Children were recruited from a science museum in an urban centre.

4.1.2 | Materials, design and counterbalancing

The materials and counterbalancing were identical to those used in Study 2. The design was similar to Study 2 except that, instead of asking children which story they would like to hear, E asked children which story another child should hear. As children did not hear either story, we measured their intergroup preferences only once, before they were offered a choice between the stories.

4.1.3 | Procedure

The group allocation and initial group preference measures were the same as in Studies 1 and 2. Following these preference measures, E introduced the story choice by saying 'Tomorrow I'm going to talk to another child and I'll read this child a story. You can tell me which story I should read to them, OK?' E then went on to describe the two stories as she had done in Study 2. She then offered children a choice between the two stories by saying, 'Which story should I tell the child I'm seeing tomorrow. Should I tell them the story written by the person who says the groups do things like this [pointing at one of the storybooks] or the story written by the person who says the groups do things like this [pointing at the other story book]?' Unlike in Studies 1 and 2 we did not read the story to children and so did not assess their intergroup attitudes a second time. As in the previous studies, E ended the procedure thanking children and explaining that, although both groups could be mean, they were usually nice and showing them the picture of the two groups playing nicely together.

4.1.4 | Coding

Children's responses were coded from video by E. The entire dataset was second coded by a rater who was unaware of the hypotheses of the study. Agreement for the story choice measure was perfect and agreement for the two preference measures was almost perfect, $r(94) = .99$, $p < .001$.

4.2 | Results

All 24 children accurately reported which group they were in and chose the appropriate colour scarf for their group when offered a choice between yellow and green. Although children's liking of their ingroup was numerically higher ($M = 4.0$) than their liking for the outgroup ($M = 3.63$), the sample as a whole did not show evidence of explicit ingroup preference, $t(23) = 1.0$, $p = .328$. Nonetheless our main prediction was supported: 22 of 24 children indicated that the child should be read the story favouring their own group, $X2 = 16.67$, $p < .001$, $\phi = .83$ (Figure 1). Thus children prefer information that favours their own group to be transmitted to others, and they reliably show this pattern even when they do not manifest strong explicit preferences for their own group. This preference for information that favours the ingroup has the potential to spread biased group attitudes throughout the population.

These results further add to Studies 1 and 2 by demonstrating that children were not simply choosing the story that favoured their own group because it was more pleasant for them to hear. In this study, it was clear that children would not hear the story they chose themselves and yet they still chose the story biased towards their own group, potentially propagating the spread of biasing information through their social networks. In this study, we did not specify the group membership of the recipient of the story but, in future research, it would be informative to manipulate whether this child is described as belonging to the same group as the child, the other group, or unaffiliated with either group.

5 | STUDY 4

Studies 1–3 demonstrated that children selectively choose information that favours their own group and disfavours the outgroup rather than information that disfavours their own group and favours the outgroup. In these initial studies, we modelled the two choices that we offered children on real-world situations in which positive information about one group is often combined with negative information about the alternatives. For example, literature on global warming may contain positive evidence for one viewpoint and criticism of the alternative viewpoint, and information linking a social group to negative behaviour frequently presents that information in a group-comparative context. However, one consequence of this design choice is that we are not able to conclude whether children are seeking positive information about their own group, negative information about the other group, or both. In Study 4, we de-confounded these different types of information and offered children a choice between four stories containing positive ingroup, negative ingroup, positive outgroup and negative outgroup information.

In order to determine children's relative preferences for all four options, after they made their first choice we then removed that option and asked them to choose the one they would most like to hear from the remaining three. By repeating this process once more, we were able to determine children's relative preference for all four options.

5.1 | Method

5.1.1 | Participants

Participants were 64 5- and 6-year-olds (mean age: 6 years, 0 months, age range: 5 years, 0 months–6 years, 11 months). Thirty-two of these children were female and 32 were male. Children were recruited from a primary school located in a culturally diverse city in the Midlands and a science museum. Three additional children were tested but excluded from the dataset as a result of experimenter error (they were placed

in the wrong counterbalancing condition). We employed a larger sample as compared to our prior studies to increase the chance that we could fully distinguish between children's ranked preferences, which we derive from their three successive story choices.

5.1.2 | Materials

Four separate books were created, each with a different front cover. Two of these front covers depicted a positive action in which a child shared a cookie with another child. On one of these covers, the child engaging in the positive action was in the Yellow group and, on the other, the child engaging in the positive action was in the Green group. The other two front covers depicted a mildly negative action in which one child pushed another child. On one of these covers, the child engaging in the negative action was in the Yellow group and, on the other, the child engaging in the negative action was in the Green group (see Figure 3 for the relevant illustrations). The materials for the preference measures and group manipulation were the same as in previous studies.

5.1.3 | Design and counterbalancing

Children were offered a choice of which of the four stories they most wanted to hear. Once they chose their most preferred story, they were asked to choose between the remaining three stories. Once they chose between these three stories, they were offered a final choice between the remaining two stories. The dependent variable was which of the stories children chose at each decision point.

The order in which the four stories were introduced to children was counterbalanced. As in the previous studies, the colour of the group to which children were assigned was counterbalanced, as was the colour of the group that was introduced first in the preference measures.

5.1.4 | Procedure

The group allocation and initial group preference measures were conducted in the same way as in Studies 1–3. Following this, E introduced children to four stories by saying, 'Here there are four stories and you can tell me which story you want to hear. The person who wrote this story says that the children in your Yellow group do things like this [referring to the picture on the relevant front cover]. The person who wrote this story says that the children in the other Green group do things like this [referring to the picture on the relevant front cover].' As he described each story, he pointed to the relevant picture on each front cover. E then asked children 'Which story would you most like to hear?', repeating the four options for them before waiting for their answer.

Once children made their choice, E picked up the story they had chosen and said, 'OK, that's the story you'd most like to hear. I'll put that over here for later.' E then moved the story completely out of sight and went on to say, 'OK, now there are only three stories left. Out of these three stories, which one would you most like to hear?' Once, children had made their choice, E repeated the procedure offering them one final choice between the two remaining stories.

As in the previous studies, E ended the procedure by thanking children and telling them that the groups didn't matter any more and that they could take off their group scarves.

5.1.5 | Coding

Children's responses were coded from video by E. The experimenter noted which story children chose at each decision point. In order to determine children's relative preference for each story we also created a rank scoring system in which the story children chose first was given a score of 4, the story they chose second was given a score of 3, the story they chose third was given a score of 2 and their least preferred story was given a score of 1. Thus, in this measure, higher scores represent greater preference.

A second rater, naïve to the hypotheses of the study, second coded 100% of the data. Agreement for children's four choices was almost perfect, with disagreement on only one data point (Cohen's Kappa = .99). Agreement for the preference measures was also close to perfect, $r(128) = .968$, $p < .001$.

5.2 | Results

All children accurately reported which group they were in and chose the appropriate colour scarf for their group when offered a choice between yellow and green. Preliminary analyses revealed that children felt more positive about their own group (mean preference = 4.26) than the other group (mean preference = 3.7) prior to being offered the story choice measures, paired sample $t(63) = 2.94$, $p = .005$, Cohen's $d = .37$, confirming that the group manipulation influenced children's preferences.

We first examined whether the distribution of responses across all choice points deviated from what would be expected by chance; it did, Friedman's $X^2(3) = 63.06$, $p < .001$. To understand the nature of the deviations we next separately examined the distribution of responses at each choice point. Because effect size measures for goodness-of-fit tests with more than one degree of freedom are not well developed, we follow Sharpe (2015) in providing tests of statistical significance for each cell mean as compared to the frequency expected by chance, and report cell means and standard errors in Figure 4. Looking at children's first choice, their most common preference was overwhelmingly for the story that contained positive information about their own group, $X^2(3) = 45.88$, $p < .001$. Thirty-nine children chose the ingroup positive story as their first choice (which differed from chance expectations, $p < .001$), 11 children chose the outgroup positive story and 10 children chose the ingroup negative story (which did not differ from chance expectations, both $p > .06$) and four children chose the outgroup negative story (which differed from chance expectations, $p = .001$).

We then went on to investigate children's later choices. Looking at children's second choice, their most common preference was the outgroup positive story, $X^2(3) = 40.13$, $p < .001$. Thirty-seven

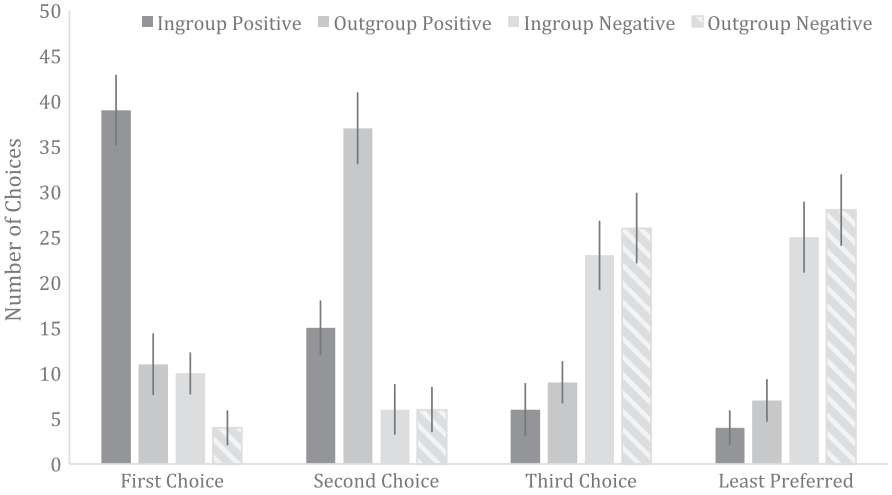

FIGURE 4 Results of Study 4, indicating the number of children choosing each story at each decision point (thus all participants are represented once at each of the four choice points). Error bars reflect standard errors of the proportions, computed independently at each choice point (following Sharpe, 2015)

children chose the outgroup positive story as their second choice (above chance expectations, $p < .001$), 15 chose the ingroup positive story ($p = .40$), six chose the ingroup negative story and six chose the outgroup negative story (below chance expectations, both $p = .006$).

Looking at children's third choice, children tended to choose either the ingroup negative or outgroup negative stories, $X^2(3) = 18.63$, $p < .001$. Twenty-three children chose the ingroup negative story as their third choice (above chance expectations, $p = .04$) and 26 children chose the outgroup negative story (above chance expectations, $p = .006$). Only six children chose the ingroup positive story (below chance expectations, $p = .006$) and nine children chose the outgroup positive story (below chance expectations, $p = .04$).

It follows that children's least preferred options tended to be the ingroup negative and Outgroup negative stories, $X^2(3) = 28.13$, $p < .001$. Twenty-five children least wanted to hear the ingroup negative story (above chance expectations, $p = .01$) and 28 children least wanted to hear the outgroup negative story (above chance expectations, $p = .001$). Only four children least wanted to hear the ingroup positive story (below chance expectations, $p = .001$) and seven least wanted to hear the outgroup positive story (below chance expectations, $p = .01$).

The above analysis provides a clear picture of the relative rank-ordering of the four stories. However, an alternative way to conceptualize the four stories is as crossing group membership (ingroup or outgroup) and valence (positive or negative) in a 2 × 2 design. To explore the independent influence of these two factors we submitted children's ranked preferences for the four types of stories to a 2 (group membership of the protagonists) × 2 (valence of the story) within-subjects ANOVA. This ANOVA revealed a main effect of group, with children choosing to hear information about their own group (mean ranking = 2.70) over information about the other group (mean ranking = 2.30), $F(1, 63) = 9.58$, $p = .003$, *partial* $\eta^2 = .132$. There was also a main effect of valence, suggesting that children choose to hear positive information (mean ranking = 3.10) over negative information (mean ranking = 1.90), $F(1, 63) = 70.87$, $p < .001$, *partial* $\eta^2 = .529$. There was no interaction between group membership and valence, $F(1, 63) = 1.89$, $p = .174$, suggesting that children's story preferences emerge from two independent strategies: pursuing information about their own group and pursuing positive information.

5.3 | Discussion

In this study, children were offered a choice between four biased options. Analysis of children's first choice demonstrated that children's most preferred option among these four was overwhelmingly to hear positive information about their own group, suggesting that this was the most likely motivation driving the results of Studies 1 and 2. Their second choice was overwhelmingly to hear positive information about the outgroup, suggesting that children's choices were influenced by both ingroup preference and a bias in favour of positive information.

The results of the ANOVA also support this conclusion by revealing independent effects of group membership and story valence. These findings dovetail with past work in several ways. First, they fit with previous theory and empirical research suggesting that ingroup members are particularly important as potential cooperative partners and friends (Brewer, 2004), making it critical to learn about the character of individual ingroup members. Second, other researchers have reported a positivity bias in children (Mezulis, Abramson, Hyde, & Hankin, 2004), perhaps driven by a desire to maintain positive mood or to avoid negative or threatening information, and we observed clear evidence in favour of this bias here.

Interestingly, children did not show a clear preference for hearing negative information about the outgroup, even when compared to negative information about the ingroup. One might have predicted an interaction between valence and group, such that children would seek out negative outgroup information (or avoid negative ingroup information), but our data do not support that interpretation. Importantly, however, a tendency to preferentially seek out ingroup information and positive information amounts to a bias in learning that plausibly promotes the accretion of ingroup-positive information and thus the relative positive differentiation of the ingroup from the outgroup. We return to this issue in the General Discussion.

6 | STUDY 5

Study 4 showed that children have a preference for information that favours their own group over other forms of biased information. However, in Studies 1–4, we did not at any point present children with an *unbiased* option. On the one hand, this reflects the complexity of real-world social groups in which it is rarely possible to identify a truly neutral opinion. On the other hand, some commentators are unbiased at least in the sense that they feel equally positive towards members of different social groups, and it remains possible that children would prefer such information when it was an option. In this study, we thus test whether children prefer ingroup-favouring information even over this type of unbiased, balanced information.

In order to do this, we offer children a single choice between three stories. The authors of these three stories are described as liking the child's own group, liking the other group, and liking the two groups the same amount. If children still favour information that is positive about their own group, even over information that is equally positive about both groups, it suggests that beyond seeking positive ingroup information they may be motivated to positively differentiate their own group from other groups by consuming information that uniquely favours the ingroup.

6.1 | Method

6.1.1 | Participants

Participants were 48 5- and 6-year-olds (mean age: 5 years, 10 months, age range: 5 years, 0 months–6 years, 8 months). Twenty-four of these children were female and twenty-four were male. Children were recruited from a primary school in a culturally diverse city in the Midlands and a science museum.

6.1.2 | Materials

The materials were three storybooks each with a neutral front cover showing subtly different playground scenes with a swing and a tree. The materials for the preference measures and group manipulation were the same as in previous studies.

6.1.3 | Design and counterbalancing

The three storybooks were introduced to children in different ways. E explained that one of the storybooks was written by a person who liked their group more than the other group, one was written by someone who liked the other group more than the child's own group and one was written by someone who liked the two groups the same amount. In this study, we returned to the technique of introducing the stories that we used in Study 1 because of difficulties associated with trying to present an unbiased option in picture form. (In order to depict neutrality, we would have needed to use four pictures rather than two, one positive and one negative for each of the two groups, which would have introduced a confound relating to how much information was referred to in the introduction of the books.) The dependent variable was which of the three stories children chose to hear.

The order in which the three stories were introduced was counterbalanced, as was which of the subtly different front covers was associated with which story. As in previous studies, the group introduced first in the preference measures and group assignment were also counterbalanced.

6.1.4 | Procedure

The group allocation and initial group preference measure were conducted in the same way as in the previous studies. After the group preference measures, E introduced children to the three stories by saying, 'There are three stories and you can tell me which story you want to hear. The person who wrote this story likes your group more than the other group [pointing at the first picture]. The person who wrote this story likes the other group more than your group [pointing at the second picture]. The person who wrote this story likes the two groups the same amount [pointing at the third picture].' E then asked children which story they wanted to hear and repeated the options to them before waiting for their choice. Once children had made their choice, the stories were removed and children were read a positive story in which the two groups played together. Finally, children were thanked for their participation and told that the two groups didn't matter any more and that they could remove their group scarves.

6.1.5 | Coding

Children's responses were coded from video by E. A second rater, naïve to the hypotheses of the study, second coded 100% of the data. Agreement between the two raters was perfect for the story choice measure and close to perfect for the preference measures, $r(96) = .997$, $p < .001$.

6.2 | Results

All children accurately reported which group they were in and chose the appropriate colour scarf for their group when offered a choice between yellow and green. Preliminary analyses revealed that children felt more positive about their own group (mean preference = 4.24) than the other group (mean preference = 3.54), paired sample $t(47) = 2.49$, $p = .016$, Cohen's $d = .36$, demonstrating that the group manipulation was effective in influencing children's intergroup preferences.

Analyses of children's story choice showed that most chose the ingroup-favouring story, $X^2(2) = 15.13$, $p < .001$ (see Figure 5). Twenty-seven children chose the story written by the author who preferred their own group (above chance expectations, $p = .003$), 16 children chose the story written by the author who liked both groups equally ($p = .50$) and five children chose the story written by the author who preferred the other group (below chance expectations, $p = .003$).

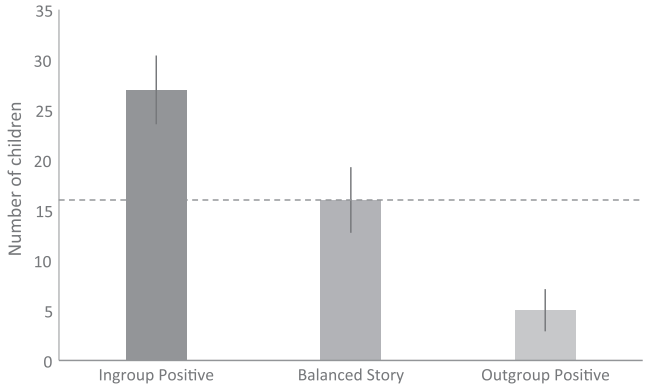

FIGURE 5 The number of children choosing each story in Study 5. Error bars reflect standard errors of the proportion

6.3 | Discussion

Whereas Study 4 found that children choose to hear ingroup-favouring information in preference to other types of biased information, Study 5 demonstrates that children choose to hear ingroup-favouring information even over balanced, unbiased, information. This demonstrates the strength of children's tendency to seek positive information about their own group in particular, and further suggests that they seek to differentiate their own group from other groups along the dimension of valence. This fits well with a long tradition of research in the Social Identity Theory tradition, which contends that positively differentiating the ingroup is a core social motivation (Tajfel & Turner, 2004).

7 | GENERAL DISCUSSION

Taken together, these studies show how children play an active role in selecting the information they consume, seeking out information that supports a positive evaluation of their own group. Study 1 demonstrated that when offered a choice between a story that was described as containing positive information about their own group and negative information about the other group and a story described as containing negative information about their own group and positive information about the other group, children chose to hear the story biased towards their own group. Study 2 replicated this effect using a more subtle paradigm and found that children chose to hear the story biased towards their own group even when they did not explicitly hear that the people who wrote the stories liked one group and not the other group. In both of these studies, the information children chose to consume in turn affected their intergroup attitudes.

Study 3 suggests that biased information seeking may also have implications for the cultural transmission of prejudice. When asked which story the experimenter should read to another child, children chose the story biased towards their own group. This study points towards one route through which prejudice could start to spread through children's social networks.

Study 4 further investigated the nature of the bias in children's selective information seeking and demonstrated that children preferred positive information about the ingroup over other types of biased information. These results suggest that children's behaviour is driven by two relatively independent motivations: to seek out information about the ingroup, and to seek out positive information. These results help to clarify the psychological mechanisms underlying the accretion of social bias: due to the additive nature of these two motivations, ingroup-positive information will be relatively favoured, leading children to accumulate real or imagined evidence concerning the positivity of the ingroup above all the other kinds of group-relevant information that we examined. Of course, the lack of tendencies to seek out negative information about outgroups or to avoid negative information about ingroups should also be clearly noted. Future work could fruitfully examine whether other contexts, such as intergroup conflict or competition, would promote a tendency to specifically seek out negative information about outgroups and whether a tendency to seek out outgroup negative information appears later in development (Buttelmann & Böhm, 2014).

Study 5 demonstrated that children prefer ingroup-positive information even when offered a choice to hear unbiased, balanced information that was described as being similarly positive about both groups. This highlights the strength and extent of children's preference for ingroup positive information and suggests that, in some cases, they may favour information sources that positively differentiate their own group from other contrasting social categories. Further research could helpfully investigate the nuances of selective information seeking in more diverse situations in order to understand the scope and limits of children's preference for biased information.

Taken together, these studies complement and extend previous work showing that children are active participants in their own learning and thus in the cultural transmission process. Previous work has shown that, when learning about the physical world, children prefer some models to others (Harris, 2012) and ask questions to learn more about how different objects function (Callanan & Oakes, 1992). Specifically within the social domain, research has shown that children do not passively receive information, but rather structure the social information they receive (Bigler et al., 1997). Here we show that children actively create an environment for themselves in which they are exposed to more biased information. This can be considered a simple form of social niche construction (Flynn, Laland, Kendal, & Kendal, 2013) and might represent one route by which intergroup bias can spiral from small, and relative innocuous, origins (as represented by the minimal group manipulation) into stronger, and potentially more entrenched, intergroup attitudes.

It is interesting to consider how our results might relate to the more general cognitive phenomenon of the 'confirmation bias'. Previous research has shown that once adults are committed to a particular opinion, for example on global warming or abortion, they prefer to consume information which is consistent with that opinion (see Nickerson, 1998). One possible explanation for our results is that brief experience of belonging to a social group is sufficient to lead children to select information which confirms their initial expectations about their group. A related, but subtly different alternative is that children are not implicitly testing a hypothesis but rather prefer to learn certain

types of information more than others. Regardless of the nature of the cognitive mechanism involved, the phenomenon of selective information seeking has important consequences for the ways in which children come to build rich representations of social groups.

An outstanding question is why a small minority of children in each study chose stories that were biased *against* their own group. However, there were too few children making this choice to statistically analyse their responses. In future research, it would be interesting to investigate the strength of individuals' tendency to seek out biased information (perhaps by asking children to make multiple choices) and measure how it relates to intergroup bias. Another interesting question is whether this bias affects children's exposure to information about real-world groups. We focused on minimal groups because we wanted to determine whether intergroup attitudes can grow in strength following an arbitrary social distinction. However, future work should consider whether children seek out information that conforms to their preconceived ideas and stereotypes of real-world groups rather than information that contradicts those preconceived ideas and stereotypes; an affirmative answer might suggest that children's information seeking also functions to justify and legitimize the existing social order, in line with work with adults (e.g., Jost, Banaji, & Nosek, 2004).

Another important question for future research is whether our results would apply outside of WEIRD (Western, Educated, Industrialized, Rich and Democratic) cultural settings (Henrich, Heine, & Norenzayan, 2010). Previous research has shown that whereas some cultural differences in social behaviour emerge early in development (Legare & Harris, 2016; Nielsen & Haun, 2016; Over & Uskul, 2016), certain aspects of intergroup cognition appear to show cultural invariance (Dunham, Baron, & Banaji, 2006; Dunham, Srinivasan, Dotsch, & Barner, 2014). Understanding the nature and extent of cultural variation must be a priority for developmental research, especially research centring on the construction and transmission of social information, such as that relating to groups. To offer just one example, it has been suggested that members of collectivist cultures show weaker preferences in minimal group experiments than those described in these studies (Falk, Heine, & Takemura, 2013), raising the question of whether children from such cultures would make similar choices in our paradigm. These findings could also be examined across other dimensions of participant variation such as social status: would children from disadvantaged groups also selectively seek out ingroup-favouring information, or might they, under some circumstances, seek out information that supports culturally consensual views of their own group as lower in status (cf. System Justification Theory; Jost et al., 2004)?

Many theorists have assumed that a primary ingredient of intergroup bias is the internalization of positive or negative messages provided by cultural elders (Devine, 1989). While we do not dispute the importance of that form of passive internalization, our results provide stark evidence that children play a more active role in the construction of their own intergroup attitudes. This phenomenon is likely of particular relevance in contemporary society, in which children have access to a dizzying array of information that portrays prominent social groups in nearly every imaginable way. Especially as they increasingly rely on the Internet as a source of information, their ability to exert this form of self-determination no doubt becomes even more prominent, increasing the potential ramifications of biases in information seeking. Indeed, research with adults suggests that the Internet can foster increasingly segregated communities that consume only information that favours their pre-existing viewpoints (e.g., Kahan et al., 2012; Stroud, 2010). Our findings can be considered a nascent form of this information self-selection.

A critical implication of these findings is that merely altering the input we provide to children may not be sufficient to facilitate more positive intergroup attitudes. It will also be important to intervene on children's tendency to select biased sources of information, or to otherwise expose them to information that cuts against such tendencies. More broadly, these results suggest that children will select information that confirms their initial positive view of the ingroup, and in so doing may furnish the raw material out of which their own prejudice is constructed.

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