Encouraging children to mentalise about a perceived outgroup increases prosocial behaviour towards outgroup members

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Research Highlights

- We investigated the effects of encouraging children to think about the mental states of an immigrant group.

- In two studies, children in the Mentalising condition engaged in greater sharing with a victim of a transgression who belonged to this social group.

- The effect of mentalising about the immigrant group did not generalise to greater sharing with a victim from the children's own culture.

- These findings may ultimately have implications for interventions to promote intergroup harmony.

Abstract

We investigated whether encouraging young children to discuss the mental states of an immigrant group would elicit more prosocial behaviour towards them and impact on their perception of a group member's emotional experience. Five- and 6-year-old children were either prompted to talk about the thoughts and feelings of this social group or to talk about their actions. Across two studies, we found that this manipulation increased the extent to which children shared with a novel member of the immigrant group who was the victim of a minor transgression. The manipulation did not lead to greater sharing towards a victim from the children's own culture and did not influence their perception of a victim's negative emotions. These results may ultimately have implications for interventions aimed at fostering positive intergroup relations within the context of immigration.

Encouraging children to mentalise about a perceived outgroup increases prosocial

behaviour towards outgroup members

Prejudice and discrimination remain substantial social problems. Although these issues are not exclusively linked to any one political party or viewpoint, the rise in support for far-right groups in Western societies serves to highlight their significance (Roth, 2017; Vieten & Poynting, 2016). In the current political climate, particular emphasis has been placed on negative attitudes towards immigrants (Bruneau, Kteily, & Laustsen, 2017; Schmuck & Matthes, 2015). One of the key aims for many researchers in the social sciences is to understand the processes by which social biases are acquired and expressed in the hope that this knowledge can ultimately inform research-led interventions to reduce the prevalence of these problems. Experimental research into the psychological origins of prejudice has an important role to play in this process.

One aspect of intergroup dynamics that has received attention over recent years is dehumanisation (Haslam & Loughnan, 2014; Kteily, Bruneau, Waytz, & Cotterill, 2015; Leyens, 2009; Livingstone-Smith, 2012). This generally refers to the perception that a person is not entirely human as a consequence of their group membership (Vaes, Leyens, Paladino, & Miranda, 2012). In its subtle form, dehumanisation is associated with attributing fewer mental states and uniquely human traits to outgroup than to ingroup members (Castano et al., 2009; Demoulin et al., 2009; Haslam, 2006; Waytz, Epley, & Cacioppo, 2010). Related to this, Leyens and colleagues (2001) have shown that outgroup members are thought to experience secondary emotions, like pride and remorse, less strongly than do ingroup members. This latter phenomenon is referred to as 'infrahumanisation' within the social psychological literature (Boccato, Cortes, Demoulin, & Leyens, 2007). Dehumanisation and infrahumanisation have been implicated in negative behavioural outcomes such as a reduced willingness to help perceived outgroups when they are the victims of harm (Andrighetto,

Baldissarri, Lattanzio, Loughnan, & Volpato, 2014; Čehajić, Brown, & González, 2009; Cuddy, Rock, & Norton, 2007).

Previous research has shown that the psychological origins of intergroup bias are present from early in development (Banaji, Baron, Dunham, & Olson, 2008; Patterson & Bigler, 2006). For example, by the age of five, children prefer members of their own gender, language and racial group on both explicit and implicit measures (Aboud, 1988; Dunham, Baron, & Banaji, 2015; Kinzler, Dupoux, & Spelke, 2007). Young children growing up in a number of different cultural contexts are also observed to report greater liking for national and ethnic ingroup members compared to individuals whose national or ethnic identity is different to their own (Bar-Tal, 1996; Bennett et al., 2004; Cameron, Rutland, Brown, & Douch, 2006; McLoughlin, Tipper, & Over, 2018). These social group preferences extend to how prosocial children are towards other people. Two-year-olds prefer to give a novel toy to a speaker of their native language (Kinzler et al., 2007) while older children are typically more likely to share with, help and protect members of their own group (Buttelmann & Böhm, 2014; Misch, Over, & Carpenter, 2016; Plötner, Over, Carpenter, & Tomasello, 2015; Renno & Shutts, 2015; Sparks, Schinkel, & Moore, 2017).

Recent research has begun to explore the developmental origins of dehumanisation more specifically. Children, aged between 6 and 13 years, attribute more uniquely human qualities (e.g., creativity, trustworthiness, logic) to their own racial (Costello & Hodson, 2014), ethnic (Chas et al., 2018) and peer groups (Van Noorden, Haselager, Cillessen, & Bukowski, 2014). In a related study, McLoughlin et al. (2018) found that 6-year-olds perceive ambiguous doll-human faces to be less human when they belonged to outgroups based on gender and geography. Developmental research on infrahumanisation has investigated how children perceive the emotions of different groups and showed that 6- to 11-

year-old children rate the secondary emotions of sport team members representing a national outgroup to be less intense than those of the ingroup (Martin, Bennett, & Murray, 2008).

Broadly relevant to work on dehumanisation, McLoughlin and Over (2017) demonstrated that children as young as 5 years of age are more likely to spontaneously reference the mental states of ingroup individuals when asked to describe their behaviour. In this paradigm, children were presented with animations that depicted interacting geometric shapes (i.e., Happé-Frith animations; Abell, Happé, & Frith, 2000). Participants were either told that these videos represented interactions between members of their own social group or members of another group. Both 5- and 6-year-old children produced a greater number of mental state terms (e.g., "to know", "to want" "to be cheeky", "to pretend", "to be sad") in their description of the ingroup videos compared to the outgroup videos. The older children also used a more diverse range of mental state words when talking about their own group. This effect held across two different social categories, one relating to gender and the other relating to country of origin.

An important question for the field is whether children's bias to attribute fewer mental states to outgroups has a causal influence on intergroup differences in prosocial behaviour. There are a number of reasons to suppose that mentalising about an outgroup facilitates prosocial responding towards them. First, research with 8- to 13-year-old children suggests that reflecting on an outgroup member's distress encourages children's willingness to alleviate that distress (Sierksma, Thijs, & Verkuyten, 2015). Other research has provided suggestive evidence for a relationship between mentalising more generally and increases in empathic responding (Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013; Garner, Dunsmore, & Southam-Gerrow, 2008). Drummond, Paul, Waugh, Hammond, and Brownell (2014) showed that the extent to which parents talk about mental states and emotions during a storybook task is positively correlated with their children's tendency to engage in empathic

helping. To our knowledge, no research has yet experimentally investigated whether encouraging children to think about the mental states of outgroup members in general leads them to engage in greater prosocial behaviour towards a novel member of that group in an unrelated situation.

Another question of interest is whether prompting children to mentalise about the behaviour of outgroup members will lead to differences in their perception of an outgroup member's distress in a different setting. Focusing on the mental lives of outgroup members may heighten children's awareness of the potential negative consequences of situations in which members of different groups find themselves (Bruneau, Cikara, & Saxe, 2015; Harris & Fiske, 2006; Todd & Galinsky, 2014; Waytz, Gray, Epley, & Wegner, 2010). The present study therefore additionally investigated whether mentalising about an outgroup influences children's understanding of their negative emotions.

Existing successful strategies to ameliorate children's intergroup biases have focused on a variety of different techniques, for example, promoting interethnic conversations and friendships (Aboud et al., 2012). However, facilitating direct communication between members of various groups can often be time-consuming, expensive and, consequently, an unrealistic option for interventions (Brown & Paterson, 2016). To address these difficulties, psychologists have developed and assessed the efficacy of strategies based on more indirect exposure to social outgroups. Given that indirect contact interventions may often be less effective than those involving direct contact (Allport, 1954; Pettigrew & Troop, 2006), it is crucial researchers find ways to maximise their effectiveness in improving intergroup relations. In these interventions, children are typically exposed to narratives which depict examples of positive intergroup interactions (Cameron, Rutland, Hossain, & Petley, 2011; Liebkind, Mähönen, Solares, Solheim, & Jasinskaja-Lahti, 2014; Vezzali, Stathi, & Giovannini, 2012). Cameron et al. (2006) showed that British children who read stories

involving friendships between English and immigrant children, and discussed intergroup similarities and differences, reported more positivity towards immigrants. In other cases, simply imagining interpersonal contact with an outgroup member has led to positive outcomes for children's intergroup attitudes and intentions (Vezzali, Capozza, Stathi, & Giovannini, 2012; Vezzali, Stathi, Crisp, & Capozza, 2015).

We sought to measure whether mentalising about an outgroup has any benefit above and beyond any general effects of paying attention to the outgroup in the present research. To accomplish this, we asked all of the participants to talk about the outgroup in question but manipulated the nature of that conversation. Whereas half of the children discussed the group's mental states, the other half of children talked about their actions more generally. It is worth noting that this manipulation did not focus on intergroup interactions but rather on pictures of perceived outgroup members engaging in conventional activities.

For the current study, we presented children with a picture book depicting outgroup members in a range of everyday situations (some of which were mildly positive and some of which were mildly negative). We chose to investigate our research questions within the context of an immigrant group due to the significance of this social division in recent political debates (Neumann & Moy, 2018; Sanneh, 2016). Therefore, the characters in the picture book were described as children who came from a country very far away but who had recently moved to the UK. We compared a condition in which we asked participants to consider the thoughts and feelings of the immigrant group (Mentalising condition) to a condition in which children were also presented with an identical picture book, and prompted to think about the perceived outgroup depicted, but without being encouraged to focus on their mental states (Control condition).

Following this manipulation, children were introduced to two novel group members who were the victims of minor harm in situations that were not related to the picture book. We measured the children's prosocial behaviour towards one of the victims (i.e., how many stickers they would share with them), as well as their perception of the other victim's emotional experience (e.g., how sad they perceived them to be). We included two further conditions in which participants were again asked to either talk about the mental states or behaviour of the immigrant group but were told that the subsequent two victims originated from their hometown to examine if any observed effects were specific to the immigrant group or if they also generalised to other individuals presented after the manipulation.

We tested these questions with 5- to 6-year-old children for the following reasons. We know from previous research that children in this age range exhibit intergroup biases (Dunham, Baron, & Carey, 2011; Kinzler & Spelke, 2011), including a tendency to dehumanise members of geographically-based outgroups (Martin et al., 2008; McLoughlin & Over, 2017; McLoughlin et al., 2018). Relatedly, they are aware of anti-immigration attitudes (Brown, 2011) and often report fewer prosocial intentions towards members of immigrant groups (Cameron et al., 2006; Cameron et al., 2011; Vezzali et al., 2012). In addition to this, by this age, children are capable of explicitly reasoning about the mental states of others (Wimmer & Perner, 1983) and use mental state terms quite frequently in conversation (Frith & Frith, 2003).
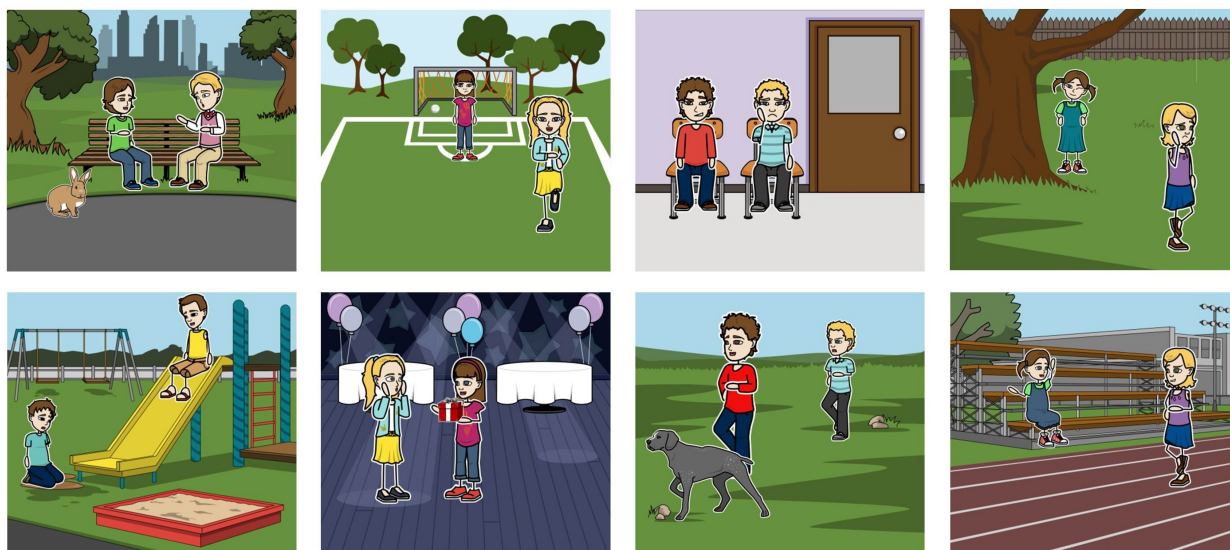
Study 1

Method

Participants

Ninety-six 5- and 6-year-olds (48 boys, Mage = 6 years 0 months, age range = 5 years 0 months-6 years 11 months) were recruited from a medium sized museum located in northern England. Five more children participated in the study but were excluded due to not understanding the sticker distribution task (see below, $n = 1$), not completing the task (also see below, $n = 1$), parental interruption ($n = 2$) and for not paying attention ($n = 1$). The children were randomly allocated to participate in one of the four conditions, resulting in 24 participants in each group. The sample size for both studies was decided in advance and was in accordance with past research examining the effect of intergroup strategies (Brown, Eller, Leeds, & Stace, 2007; Cameron et al., 2006). We stopped data collection once the pre-specified sample size was reached.

Materials

Picture book. Eight pictures were developed using Storyboard That online software. Each image depicted two children in familiar social situations (e.g., playing football, at a birthday party). Separate picture books were created for boys and girls such that the gender of the characters always matched the gender of the participant (see Figure 1).

Figure 1. The picture book used in Study 1: The characters display a range of emotions and two children are depicted in each image.

Prosocial behaviour. Children's tendency to share with the victim was measured by their distribution of five yellow sticker stars on two cardboard trays (one belonging to the participant and one belonging to the victim; see Figure 2, panel A).

Emotion perception. A 4-point scale was used to measure children's perception of sadness. The four response options included "Okay", "A little sad", "Sad" and "Very sad". Each of these options was represented with a basic illustration of that emotion (see Figure 2, panel B).

Design and Counterbalancing

The main independent variables were the condition assigned in the picture book phase (Mentalising or Control) and the group membership of the victims (Own cultural group or Immigrant group). This led to four between-subject conditions: mentalising or control questions about the immigrant group in the picture book followed by victims belonging to that group or to the child's own culture. The dependent variables were the number of stickers

children donated to the victim in the empathic sharing task and their perception of a novel member's sadness. The order in which these two dependent measures were presented was counterbalanced, such that half of children completed the sharing task first and the other half were first asked the emotion perception question.

Procedure

Immigrant group picture book. The experimenter (E) first introduced children to the immigrant group. She showed them a picture of a group of illustrated child characters (on the front of the picture book) and said "These children come from a country very far away but now they live here. They speak a different language and they sometimes eat different food to you. They also used to go to a school quite different from your school". After the introduction, E proceeded to go through the eight pictures and asked children two questions for each image. In the Mentalising condition, she asked "What do you think the children might be feeling in this picture?" followed by "What do you think the children might be thinking about?" In the Control condition, she asked "Where are the children in this picture?" and then "What do you think the children might be doing?" All participants discussed the immigrant group in this phase.

Introduction to the victims. After talking about the pictures of the immigrant group children, E put the book away and then asked participants about two new individuals, each of whom had been the victims of minor harm. In the Immigrant group victim conditions, E immediately proceeded to administer the prosocial behaviour and emotion perception tasks (see below). In the Own cultural group victim conditions, E first mentioned that she would be asking about "two children who come from your own town and who live close to you".

Prosocial behaviour. For this task, E said "I am going to see a child (from the place "far away" or from the same town as the participant) tomorrow who I heard had all of their

stickers stolen from them." E then gave children five identical stickers and told them that, if they wanted, they could give some of their stickers to the victim by placing them on his or her cardboard tray. However, E also informed children that they could keep the stickers themselves by putting them on another tray that she placed on the table directly in front of the participant. Thus, in contrast to much of the previous work on resource distribution within intergroup contexts, this was a costly sharing measure (Over, 2018). Children were asked to identify their own and the other child's tray and were then told that they could give out the stickers however they wished. E looked away at this point to give children some privacy when distributing the stickers.

If a child asked about the purpose of the task again, failed to correctly identify the trays or simply did not proceed to distribute the stickers, E repeated the instructions. Participants were excluded from the analyses if they still explicitly said that they did not understand the task or if they failed to correctly identify the trays after the second explanation. If a child just simply did not engage in the task at this point, E prompted them one more time ("Go ahead and give out the stickers"). Children who did not complete the task following the final prompt were also excluded.

Emotion perception. For this measure, E showed the children a drawing with a relatively small tear in the upper left corner of the page (see Figure 2, panel C). She told participants that "a child (either from the place "far away" or from the same town as the participant, depending on condition) drew this picture earlier but someone tore some of it. They are now at home playing with their toys. How do you think they feel now?" and directed the children to answer on the 4-point smiley-face scale (0 = *Okay*, 1 = *A little sad*, 2 = *Sad*, 3 = *Very sad*). This transgression was described as having happened in the recent past to avoid the ceiling effects on perceived sadness observed during piloting (see also Over & Uskul, 2016).

A. B. C.
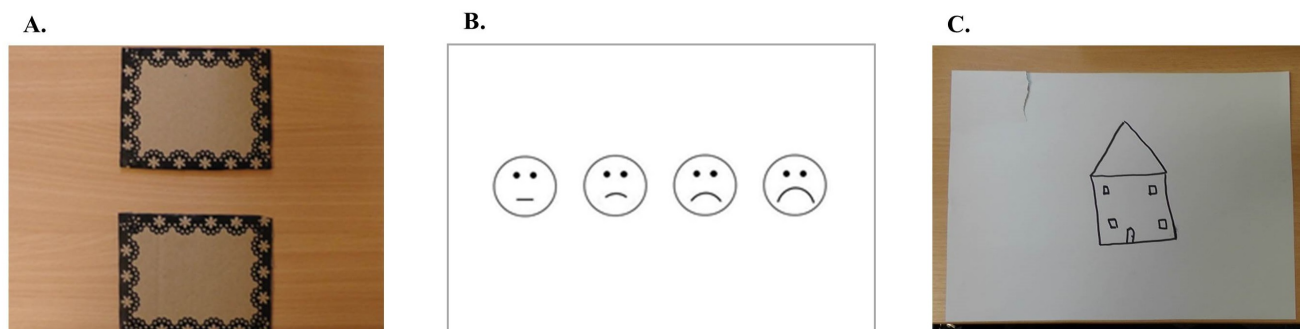
Figure 2. Materials: (A) the cardboard trays that were part of the sharing task (note that the tray belonging to the participant was placed nearer to them while the one belonging to the victim was placed slightly further away), (B) the 4-point scale that measured children's ratings of emotion perception and (C) the damaged drawing used as a prop for the emotion perception measure in Study 1.

Coding

Manipulation check. In order to check that children were reflecting on the mental states of the characters more often in the Mentalising conditions, we coded the total number of mental state words children used in these conditions versus the Control conditions. The first author coded children's descriptions for mental state content based on McLoughlin and Over's (2017) coding scheme. Words were counted as referring to mental states if they referenced a character's thoughts, desires, emotions or intentions (e.g., "to wish", "to decide", "to like", "to be upset", "to be excited", "to try to") or made a mental state inference about an interaction between the characters (e.g., "to surprise", "to scare", "to argue"). A second rater recoded 25% of children's responses for mental state content and inter-rater reliability was almost perfect, intraclass correlation coefficient (ICC) = .999, 95% confidence interval (CI) = [.998, 1.00].

Dependent measures. The number of stickers children donated for the sharing measure could range between 0 and 5, and their responses on the emotion perception measure

could range between 0 (*Okay*) and 3 (*Very sad*). Children's performance on both of these tasks was coded directly from the videos. A second researcher, unaware of the hypotheses of the study, recoded 100% of the data. The two raters only disagreed in their coding of two responses - one on the emotion and the other on sharing measure, meaning they agreed in 98.96% of cases. These two disagreements were resolved through discussion.

Results and Discussion

Preliminary Analyses

Manipulation check. A between subjects *t*-test confirmed that children produced significantly more mental state words in the Mentalising condition ($M = 18.94$, $SD = 11.30$) compared to the Control condition ($M = 1.50$, $SD = 2.54$), $t(51.72) = 10.43$, $p < .001$ (the degrees of freedom were modified because the assumption for equality of variances was violated). Note that the number of mental state terms produced in the Mentalising condition is most likely an underestimate of the extent to which children were considering the outgroup's mental states in this condition. For instance, they often responded to the question "What do you think the children might be thinking about?" with statements like "Moving to a different country" or "Scoring goals". These answers imply that children were reflecting on the characters' mental life even though they did not incorporate mental state terms into these responses.

Valence of mental state words produced. To check that the picture book stimuli did not prompt children to focus on negative experiences but rather on the outgroup's general mental states, we coded the valence of the mental state words that children used in the Mentalising conditions ($n = 48$). We coded the number of times they produced positive mental state terms (e.g., "to be happy", "to have fun"), negative mental state terms (e.g., "to be angry", "to be confused") and 'other', more neutral terms that do not have a clear valence

(e.g., "to wonder", "to be surprised"). A within-subjects *t*-test revealed that children were equally likely to use positive (*M* = 5.56) and negative (*M* = 5.77) mental state words to describe the immigrant group picture book, $t(47) = .44, p = .663$.

Counterbalancing. The order in which the tasks were administered, the gender of the child and the age of the child had no significant effect on the dependent measures (all *p*'s > .119.). As a result, we collapsed across theses variables and do not consider them further.

Main Analyses

Prosocial behaviour. A 2 (Condition: Mentalising, Control) × 2 (Group membership of victim: Own cultural group, Immigrant group) between-subjects ANOVA on children's costly sharing behaviour showed that the Mentalising manipulation had a significant influence over their tendency to donate stickers to the individual in distress. More specifically, there was a significant interaction between condition and group membership of the victim, $F(1, 92) = 8.81, p = .004$, partial $\eta^2 = .09$. Children who were encouraged to attribute mental states to the immigrant group donated more stickers to a victim from this group (*M* = 1.79, *SD* = 1.35) than the children in the control condition (*M* = .79, *SD* = 1.14), $t(46) = 2.77, p = .008$, Cohen's *d* = .80 (moderate to large effect size). However, there was no difference between conditions in the extent to which children shared with a victim from their own town ($t(46) = 1.49, p = .144$; see Figure 4, panel A). These results imply that the effects of mentalising about an immigrant group do not generalise across the boundaries of this group dimension. There was no main effect of picture book condition ($F(1, 92) = .61, p = .437$) or the group membership of the victim ($F(1, 92) = .10, p = .755$).

Emotion perception. A 2 (Condition: Mentalising, Control) × 2 (Group membership of victim: Own cultural group, Immigrant group) between-subjects ANOVA revealed that children viewed the victim as equally sad regardless of whether they heard the mentalising

prompts ($M = 1.50$, $SD = 1.32$) or the control prompts ($M = 1.46$, $SD = 1.34$; $F(1, 92) = .02$, $p = .879$). In both conditions, children viewed the victim as somewhat sad. There was also no main effect of the victim's group membership ($F(1, 92) = .21$, $p = .649$) and no significant interaction between these variables ($F(1, 92) = .21$, $p = .649$). Therefore, it seems that the mentalising manipulation did not affect children's perception of a basic negative emotion experienced by a novel group member.

Study 2

Our main aim for Study 2 was to investigate whether we could conceptually replicate the observed increase in children's sharing with an immigrant group member using a broadly similar paradigm. In addition, since increased mentalising did not alter children's perception of a primary emotion (sadness) in Study 1, we wanted to extend the potential scope of our manipulation to examine the impact it may have on children's judgement of a secondary emotion (disappointment). This modification was based on previous literature suggesting that both children and adults are more likely to perceive differences in how in- and outgroup members experience secondary emotions (which are thought to be uniquely human) than in how they experience or express more basic emotions (Leyens et al., 2000; Martin et al., 2008). Therefore, encouraging children to think about the mental life of outgroup members might be more likely to influence understanding of a secondary negative emotion like disappointment. We also made a couple of other minor changes to the procedure which we describe in more detail below.

Method

Participants

We recruited 96 5-year-olds (48 boys, Mage =, age range = 5 years 0 months-5 years 11 months) from local schools and a museum. Twelve more children were tested but then excluded for failing to understand the sticker distribution task ($n = 7$), not completing the task ($n = 4$) and for misunderstanding the experimental test questions ($n = 1$). As in Study 1, participants were randomly allocated to one of the four conditions.

Materials

Picture book. Similar to Study 1, children were presented with eight pictures developed using Storyboard That online software. In contrast to the picture book used in Study 1, each image depicted three children in order to try to elicit more conversation from the participants (see Figure 3).
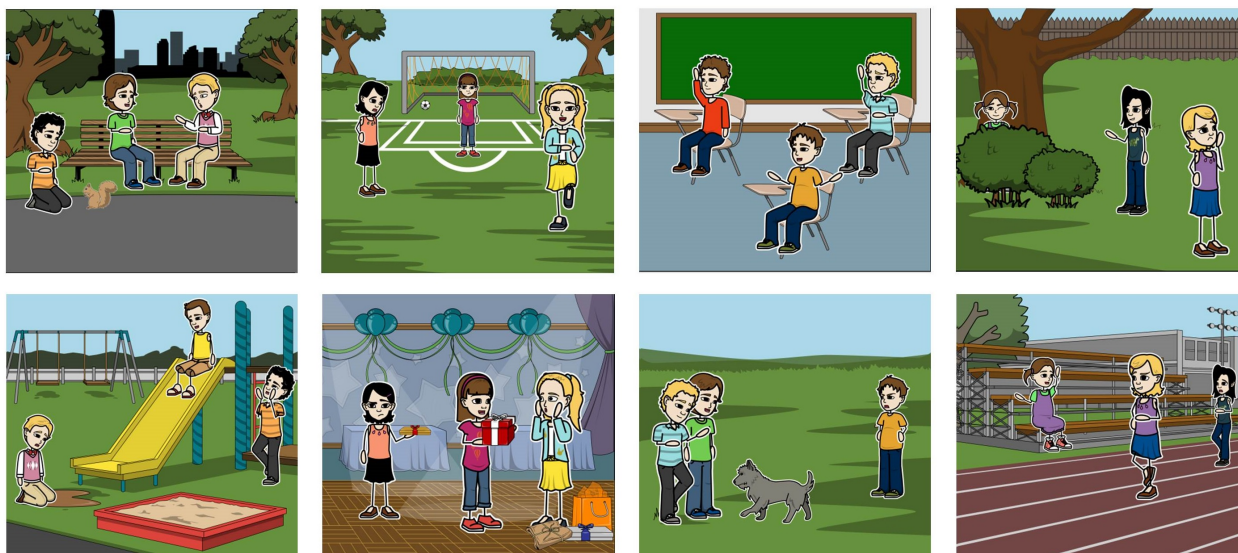
Figure 3. The picture book used in Study 2: The characters display a range of emotions and three children are depicted in each image.

Prosocial behaviour. In Study 1, children's overall tendency to share with the victim was quite low. To try to encourage greater levels of sharing, children were given slightly less interesting stickers to distribute for the helping task (i.e., five yellow circles as opposed to five yellow stars) on the same trays used in Study 1.

Emotion perception. The same 4-point scale was used to measure children's perception of disappointment. In this study, the four options represented "Okay", "A little disappointed", "Disappointed" and "Very disappointed". To ensure that children in this age range understood the meaning of the word 'disappointment', we conducted a small pilot with six children prior to running the main study (2 boys, Mage = 5 years 6 months, age range = 5 years 2 months - 5 years 11 months). Participants were presented with three images (also created with using Storyboard That software) in which one child could be thought of as experiencing this emotion. For example, one character was winning a race and smiling while the other was losing the race and frowning. We asked children to identify the character that they thought was disappointed in each picture. Children's performance was at 100%.

Design and Counterbalancing

As in Study 1, the independent variables were the condition associated with the picture book (Mentalising, Control) and the group membership of the victims (Own cultural group, Immigrant group). The dependent variables were the number of stickers children chose to donate to the victim and their ratings of disappointment. The order in which these two dependent measures were presented was counterbalanced.

Procedure

The procedure for Study 2 was identical to that of Study 1 except for the emotion perception measure. For this task, E told children that "a child (either from the place "far

away" or from the same town as the participant, again, depending on condition) wanted to colour after school, but someone broke their colouring set. They are now at home playing with their toys" and then presented children with the 4-point scale so they could rate how this child felt (0 = *Okay*, 1 = *A little disappointed*, 2 = *Disappointed*, 3 = *Very disappointed*).

Coding

Manipulation check. As in Study 1, to check whether the mentalising prompts successfully directed children to focus on the mental states of the characters, the first author coded the number of mental state terms children produced in these and in the Control conditions. A second researcher recoded 25% of children's responses for mental state content and inter-rater reliability was almost perfect, ICC = .998, 95% CI = [.996, .998].

Dependent measures. Children's responses for the sharing and emotion perception measures were coded in the same way as in Study 1. A second rater, unaware of the hypotheses of the study, recoded 100% of the data. Agreement between coders was perfect for emotion perception scores (matched on 100% of trials) and very high for empathy scores (matched on 96.88% of trials). The three inconsistent trials in the latter measure were discussed between coders and agreement reached 100%.

Results and Discussion

Preliminary Analyses

Manipulation check. Like in Study 1, the mentalising test questions led children to produce more mental state words (M = 16.16, SD = 10.88) than did the control questions (M = 1.23, SD = 1.81), t(49.59) = 9.37, p < .001 (the degrees of freedom were modified due to the violation of the assumption of equal variance). Note that, again, this measure probably does not fully encapsulate the extent to which children engaged in mentalising in response to

the experimental prompts because children sometimes implied they were reflecting on the characters' mental states without explicitly using mental state terms.

Valence of mental state terms produced. Children were equally likely to use negative mental state words ($M = 5.35$) and positive mental state words ($M = 6.19$), when describing the thoughts and feelings of the immigrant group children in the mentalising conditions, $t(47) = 1.67$, $p = .102$.

Counterbalancing. There was no effect of the counterbalancing variable (all p's >.145) or gender (all p's > .054) on children's responses.

Main Analyses

Prosocial behaviour. A 2 (Condition: Mentalising, Control) × 2 (Group membership of victim: Own cultural group, Immigrant group) between-subjects ANOVA on empathic sharing scores did not yield a significant main effect of condition, $F(1, 92) = 3.81$, $p = .054$, partial $\eta^2 = .04$. However, there was a trend towards children giving more stickers to the victim in the Mentalising picture book conditions ($M = 1.46$, $SD = 1.25$) than in the Control conditions ($M = .98$, $SD = 1.19$). There was no main effect of the group membership of the victim ($F(1, 92) = .87$, $p = .353$) but, similar to the main result from Study 1, there was a significant interaction between condition and group membership of the victim, $F(1, 92) = 4.50$, $p = .037$, partial $\eta^2 = .05$. Follow-up tests showed that children shared with the immigrant group victim more after mentalising about that group ($M = 1.83$, $SD = 1.24$) than after describing their actions ($M = .83$, $SD = 1.13$), $t(46) = 2.92$, $p = .005$, Cohen's $d = .84$ (moderate to large effect size). There was no difference between the Mentalising and Control conditions in children's prosocial behaviour towards the victim from their own culture ($t(46)$ = 1.18, $p = .906$; see Figure 4, panel B). Converging with the results from Study 1, these

findings suggest that, within this particular intergroup context, mentalising about a perceived outgroup may have specific benefits for a victim belonging to that group.

Emotion perception. A 2 (Condition: Mentalising, Control) × 2 (Group membership of victim: Own cultural group, Immigrant group) between-subjects ANOVA did not reveal an effect of condition although children's perception of how disappointed the victim felt was slightly, albeit non-significantly, higher after the Mentalising conditions ($M = 1.96$, $SD = 1.30$) than the Control conditions ($M = 1.48$, $SD = 1.32$), $F (1, 92) = 3.14$, $p = .080$, partial $\eta^2 = .03$. Overall, participants viewed the individual as moderately disappointed in both conditions. There was no main effect of group membership of the victim ($F(1, 92) = .15$, $p = .701$), nor was there an interaction between these variables ($F(1, 92) = .05$, $p = .818$). Hence, prompting children to talk about the mental states of immigrant group members does not seem to impact upon their perception of a primary (Study 1) or secondary negative emotion (the present study) a victim experienced after a minor transgression.
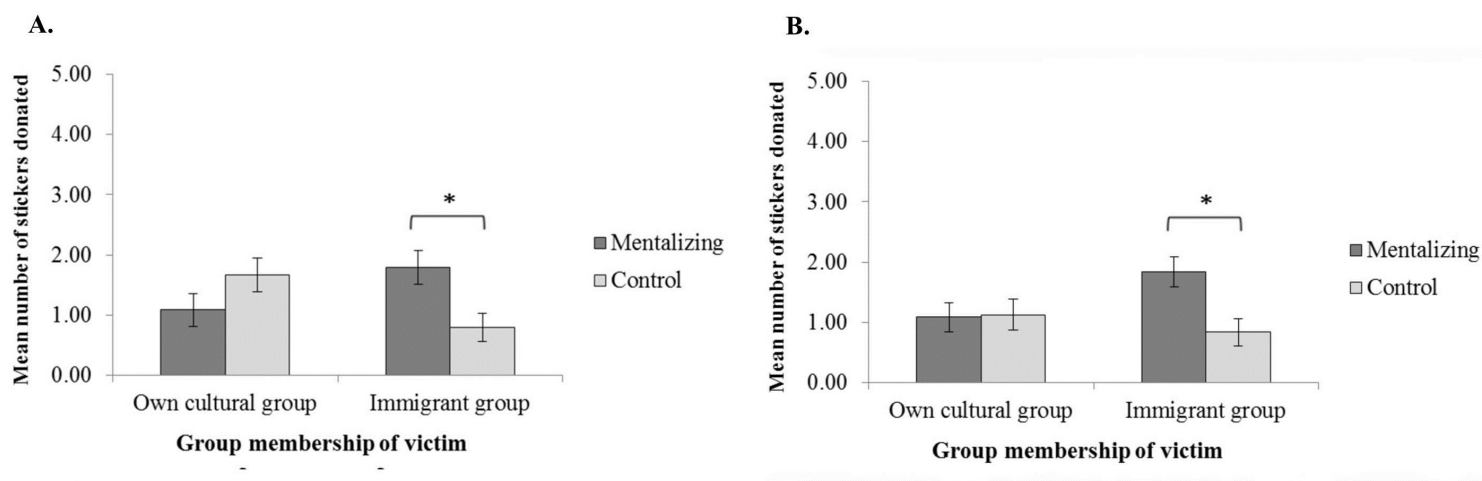
Figure 4. The results from Study 1 (panel A) and Study 2 (panel B) for the mean number of stickers that children donated to the victim. Error bars represent standard error of the mean.

General Discussion

These two studies show that encouraging children to discuss the mental states of a perceived outgroup leads to increases in their prosocial behaviour towards a novel member of that group. Previous research has revealed that children in this age range use mental state terms more often when describing the interactions of ingroup members compared to outgroup members (McLoughlin & Over, 2017). The present work contributes to our understanding of how mental state attribution shapes intergroup interactions by demonstrating the causal role it plays in eliciting more prosocial responses towards members of perceived outgroups. This effect was robust even though the sharing task was unrelated to the situations and particular characters portrayed in the picture book. Furthermore, mentalising about the actions of the perceived outgroup had a significant effect on prosocial behaviour above and beyond any more general benefits of increased attention to the outgroup (as exemplified by our Control condition).

It is interesting to note that attributing mental states to an outgroup did not affect children's prosocial responding towards their own cultural group. This result is compatible with the findings of Shih et al. (2009) who reported that adopting the perspective of an Asian individual increased the likelihood that a sample of mostly White adults would help an Asian confederate, but not a White confederate, who dropped their keys on the floor. Taken together, these results illustrate that the positive effects of mentalising about a group may not transfer across group boundaries. This is not to argue that the results are necessarily specific to outgroups however. It remains entirely possible that mentalising about ingroup members would encourage empathic sharing with another member of the ingroup. In this respect, our findings could be analogous to work on cooperation. Past work has shown that intergroup cooperation is a powerful means of improving intergroup relations (Dovidio, Gaertner, & Kawakami, 2003; Lickel, Hamilton, & Sherman, 2001; Tomasello, Melis, Tennie, Wyman, &

Herrmann, 2012) but that promoting cooperation with neutral and/or ingroup individuals also has positive consequences for relationships within groups (Hamann, Warneken, Greenberg, & Tomasello, 2011; Kuwabara, 2011). Nevertheless, from an applied perspective, the focus on members of perceived outgroups is of particular relevance. Importantly, the specific nature of the current findings indicate that interventions designed to encourage mentalising about outgroups do not necessarily risk discouraging prosociality towards ingroup members, at least in this particular context.

It is also worthy of note that children did not become generous as a result of the mentalising manipulation (it was relatively uncommon for them to give away more than 50% of their stickers) but rather their levels of sharing moved closer to a fair distribution (i.e., sharing evenly between themselves and the victim). This result aligns with previous experimental studies showing that young children do not often give away more than 50% of their own resources under costly sharing conditions (Fehr, Bernhard, & Rockenbach, 2008; Smith, Blake, & Harris, 2013; Steinbeis & Over, 2017), even when it would be strategically beneficial for them to do so (Benozio & Diesendruck, 2015; Engelmann, Over, Herrmann, & Tomasello, 2013).

We did not find any evidence that prompting children to think about the mental states of outgroup members influenced their attribution of emotions to a subsequent victim of minor harm. Our mentalising manipulation had no effect on children's perception of a victim's sadness (Study 1) or disappointment (Study 2). As with any null result, these findings are difficult to interpret. One possible explanation is that mentalising about an outgroup does not influence children's perception of their negative emotions. This interpretation raises the interesting possibility that the observed increases in prosocial behaviour were not driven by a change in children's understanding of the victim's distress but rather in the extent to which they *cared* to alleviate their distress. Another possible explanation, however, is that drawing

increased attention to the outgroup (which we did in both conditions) was sufficient to modify children's perceptions of an outgroup member's emotions (Leyens et al., 2001; Martin et al., 2008) or that any potential effect of mentalising specifically was too subtle to detect in our paradigm. The interplay between emotion perception and mentalising warrants investigation in future research.

Another important route for future work is to explore whether certain types of mentalising exert a more powerful influence over prosocial behaviour than do others. When asked to talk about the general thoughts and feelings of members belonging to an immigrant group, children in our study referenced a range of mental states including knowledge states (e.g., "to notice", "to be confused"), desire states (e.g., "to want", "to like"), positive emotions (e.g., happiness, excitement) and negative emotions (e.g., sadness, anger). Drawing sharp distinctions between different types of mentalising is not straightforward and researchers disagree on how this ought to be done (Adrian, Clemente, & Villanueva, 2007; Jenkins, Turrell, Kogushi, Lollis, & Ross, 2003; McLoughlin & Over, 2017; Meins, Fernyhough, Arnott, Leekam, & de Rosnay, 2013; Wellman & Bartsch, 1988). Yet, it would still be worthwhile for future research to assess whether the observed effect is driven more by, for example, focusing on emotions versus cognitions or whether the complexity of the terms that are produced during this process matters (e.g., intentions vs. beliefs or primary vs. secondary emotions; Paladino et al., 2002). Moreover, it could be that different findings would emerge when children are asked to simply read about the mental states of outgroup members compared to when they are asked to deliberately reflect on their inner lives – examining these potential differences among older children could be helpful in elucidating the optimal delivery of this manipulation.

Our results could ultimately have implications for research-led interventions to promote positive intergroup behaviour. We found that a relatively short mentalising

manipulation was sufficient to significantly increase the level of sharing children engaged in with an immigrant group victim and that this manipulation produced a medium to large effect size. The road to intervention is, however, a long one. Before incorporating this approach into existing strategies, it is vital to examine how long the observed effects last, whether changes to the manipulation would increase the current effect sizes and if the present results generalise to more ecologically valid situations. Further studies should, in addition, investigate the applicability of this manipulation to other targeted cultural groups (e.g., minority religious communities), across diverse intergroup and cultural contexts, as well as to different outcome variables (e.g., explicit and implicit preference) and in comparison to baseline conditions. Finally, it will be crucial to investigate whether encouraging children to mentalise about an outgroup ever has adverse effects, for example, when the group in question is perceived as a potential competitive threat (Hackel, Looser, & Van Bavel, 2014; Jason, Gavin, Adam, & Niro, 2013).

Overall, our research offers a promising technique for strategies focused on enhancing intergroup harmony in young children. When asked to reflect on the mental states of an immigrant group, they were more likely to share resources with an immigrant child who was a victim of an unfair life event. This line of research demonstrates a causal role for mental state attribution in influencing intergroup behaviour and could potentially be valuable in increasing aid towards vulnerable social groups.

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