The Developmental Origins of Dehumanisation

Niamh Caitriona McLoughlin

PhD

University of York

Psychology

September 2017

Abstract

Dehumanisation is a pervasive social phenomenon that has facilitated historical and modern examples of extreme violence, prejudice and discrimination. The perception that a person can be 'less human' than another person is typically applied to social outgroup members who are attributed with fewer uniquely human capacities compared to ingroup members. A significant amount of developmental research has examined the origins of intergroup bias among young children, however, investigation into the development of our tendency to dehumanise others has been relatively neglected. This is despite the fact that dehumanisation is closely linked to children's social cognitive understanding (e.g., mental state inference) and behaviour (e.g., prosociality). The aim of my doctoral studies was to investigate the developmental origins of this phenomenon. The results of the empirical work in Chapters 2 and 3 revealed that 6-year-olds perceive outgroup faces to be physically less human than ingroup faces and that even younger children (5-year-olds) are less likely to reference the mental states of individuals belonging to a different group. The final experimental chapter (Chapter 4) explored the effects of encouraging children to mentalise about the behaviour of a perceived outgroup and showed that this technique is sufficient to increase empathic helping towards an outgroup member in need. The implications of this research for the nature of dehumanisation in development, as well as for children's understanding of human and non-human agents, are discussed. Ultimately, further inquiry into how dehumanising biases emerge, and are potentially learnt, could contribute to strategies focused on improving intergroup relations.

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Acknowledgements

To Harriet, someone mentioned to me at the beginning of my PhD that you are a rare combination of 'brilliance and warmth' and I have come to wholeheartedly agree with this sentiment (and not just because you are an ingroup member - social psych joke!). I am deeply grateful to you for inspiring me to be as ambitious as possible throughout the last few years, always with a warm smile and a constant string of encouragement. I attribute my continuing passion for finding out what children think about the world to you, thank you. To Steve and Janine, thank you for readily imparting your expertise at any time and for your kind and reassuring words.

To my York family - you know who you are - I did not realise completing a doctorate would end up being some of the most hilarious and enjoyable years of my life, I owe that to you guys. To my York Irish family, the craic at training and during the aul seisiúns has been a massive help in pushing me through this final year, go raibh maith agaibh agus York Eireannach abú!

To Giacomo, I do not know how I would have coped without coming home to your patient hugs and warm bowls of pasta, grazie mille amore. To my home girls, you are forever my rocks. To Seán and Róisín, even though we live in different countries for most of the year, thank you for making your entertaining and comforting presence felt.

And now, the big one, to Mam and Dad, any of my past, present and future accomplishments are and will always be a direct reflection of your unconditional love and support.

Author's Declaration

I, Niamh McLoughlin, declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as References.

The empirical work presented in this thesis has been published or is currently under review in the following peer-reviewed journals:

McLoughlin, N., Tipper, S. P., & Over, H. (2017). Young children perceive less humanness in outgroup faces. *Developmental Science.* Advanced online publication. doi:10.1111/desc.12539.

All authors contributed to the design of this study. C. Looser and T. Wheatley granted the first author permission to use and publish a sample of their stimuli. N. McLoughlin collected and analysed the data under the supervision of H. Over and S. P. Tipper. A. Eggleston performed reliability coding. N. McLoughlin drafted the manuscript and H. Over made a number of revisions. All authors approved the final manuscript before submitting it for publication.

McLoughlin, N., & Over, H. (2017). Young children are more likely to spontaneously attribute mental states to members of their own group. *Psychological Science*. Advanced online publication. doi:10.1177/0956797617710724

Both authors contributed to the design of this study. U. Frith and colleagues granted the first author permission to use their stimuli. N. McLoughlin collected and

analysed the data under the supervision of H. Over. S. P. Tipper provided some valuable advice regarding the coding and analysis of the data. A. Eggleston performed reliability coding. N. McLoughlin drafted the manuscript and H. Over made a number of revisions.

McLoughlin, N., & Over, H. (2017). *Encouraging young children to mentalise about a perceived outgroup increases empathic helping towards them.* Manuscript submitted for publication. **[Currently under review in *Developmental Science*]**

Both authors contributed to the design of this study. The picture book stimuli were created using Storyboard That online software. N. McLoughlin collected and analysed the data under the supervision of H. Over. A. Eggleston performed reliability coding. N. McLoughlin drafted the manuscript and H. Over made a number of revisions. M. Carpenter provided some valuable comments on an earlier draft of the manuscript.

Primary Supervisor Statement

I am listed as a co-author on the three empirical papers which make-up the main body of this thesis.

In each of the reported studies, the work is primarily that of Ms. Niamh McLoughlin. For each paper, Niamh compiled the relevant stimuli, completed all of the data collection and coded and analysed the summary data. Niamh wrote the first draft of each paper.

(*See hard copy for signature*)

Harriet Over

Secondary Supervisor Statement

I am listed as second co-author on the empirical paper which makes-up Chapter 2 of this thesis.

This work is primarily that of Ms. Niamh McLoughlin. Niamh compiled the relevant stimuli, completed all of the data collection and coded and analysed the summary data. Niamh wrote the first draft of this paper.

Steven P. Tipper

Chapter 1: General Thesis Introduction

The ability to recognise and to reason about the minds of our fellow human beings is essential to social functioning (Baillargeon et al., 2013; Dennett, 1996; Gray, Gray, & Wegner, 2007; Tomasello, 1995; Woodward, Sommerville, & Guajardo, 2001). These skills appear early in development, such that even young infants display sensitivity to the social and mental agency of others (Carpenter, Nagell, & Tomasello, 1998; Johnson, 2000; Johnson, 2003). Yet, despite this initial understanding, social psychologists have demonstrated that there are situations in which adults deny the mental life, and in general the humanity, of other people. For example, outgroup members are typically perceived as having fewer uniquely human traits and mental state faculties (e.g., intelligence, culture, complex emotional experiences) compared to ingroup members (Harris & Fiske, 2006; Haslam & Loughnan, 2014; Leyens et al., 2001). This phenomenon is known as 'dehumanisation'. Dehumanisation lies at the root of harmful social problems ranging from genocidal atrocities and extreme intergroup violence (Bandura, Barbaranelli, Caprara, & Pastorelli, 1996; Chalk & Jonassohn, 1990; Leidner, Castano, Zaiser, & Giner-Sorolla, 2010; Tirrell, 2012) to more everyday examples of prejudice and discrimination (Bastian & Haslam, 2010; Čehajić, Brown, & González, 2009). Given these implications for the development of social cognition and behaviour, it is quite surprising that the psychological origins of this phenomenon have received very little research attention to date.

The purpose of my doctoral studies is to investigate dehumanising biases in young children. I aim to contribute to the small body of work on this topic and to provide a clearer picture of when children first begin to selectively attribute

humanness to social group members. In addition, I wish to explore the potential link between children's mental state understanding and dehumanisation by assessing whether they are more likely to spontaneously refer to the mind of ingroup members relative to outgroup members. I ultimately hope that this work can inform interventions to combat the negative consequences of this phenomenon and to encourage positive group relations.

Dehumanisation

Before delving into the relevant developmental literature, it is important that I first outline how dehumanisation has been defined in psychological research with adults. Although this phenomenon is observed in other contexts, for example, in the objectification of females in the media (Loughnan et al., 2010; Vaes, Paladino, & Puvia, 2011), the treatment of medical patients (Haque & Waytz, 2012; Vaes & Muratore, 2013) and even in the perception of the self (Bastian et al., 2013; Haslam, Bain, Douge, Lee, & Bastian, 2005), it is generally thought of as the denial of humanness to social outgroup members relative to ingroup members (Allport, 1954; Leyens, Demoulin, Vaes, Gaunt, & Paladino, 2007). Psychological theories tend to converge on the intergroup nature of dehumanisation; however, they differ somewhat with regards to the key features of this bias.

Early Psychological Perspectives

Social psychologists were originally interested in dehumanisation as a psychological mechanism to explain mass violence carried out in times of conflict (Bar-Tal, 1989; Schwartz & Struch, 1989; Staub, 1989; Tajfel, 1981). The majority of theorists focused on how the blatant act of dehumanising a person, or an entire group, weakens moral inhibitions (Bandura, 1991, 1999; Kelman, 1973) and thus

excludes them from moral concern (Opotow, 1990), allowing for their cruel treatment with little to no distress on part of the perpetrators. Some prime examples of this process include the likening of Jews to vermin in Nazi propaganda campaigns (Bytwerk, 1983), the comparisons between the Tutsi social class and 'cockroaches' in the lead up to the Rwandan genocide (Kellow & Steeves, 1998; Tirrell, 2012) and the categorisation of Black people as 'savages' during the slave trade in the colonial period (Jahoda, 1999). In these and similar cases, brutal actions were deemed to be justifiable because the eradication and/or oppression of marginalised groups were beneficial for society (Smith, 2012).

The first experimental study illustrating the behavioural effects of dehumanisation was carried out in support of Albert Bandura's (1991, 1999) theory of moral disengagement. Bandura, Underwood, and Fromson (1975) showed that participants who heard a dehumanising description of a novel group (e.g., 'animalistic' and 'rotten') punished this group more for making mistakes (through the apparent administration of electric shocks) than when the recipients were characterised in more human terms (e.g., 'perceptive' and 'understanding').

In contrast to these explicit, absolute denials of humanness, more recent psychological theories have paid attention to the implicit aspects of dehumanisation in society more broadly. The most influential of these accounts take an attribute-based approach, as opposed to the metaphor-based approach in which outgroup members are directly compared to non-human categories (see above and Goff, Eberhardt, Williams, & Jackson, 2008). For this perspective, empirical studies investigate and identify the traits considered to be uniquely human and then ask adults to distribute these characteristics among social groups.

Infrahumanisation

Leyens and colleagues (2000, 2001) were the first to operationalise the more subtle and relative way we ascribe humanness to others in the absence of intergroup tension. They assume that we reserve the full human 'essence' for ingroup members in the form of traits that distinguish humans and animals, namely intelligence, language, reasoning and emotions. This assumption derives from essentialist beliefs about social group categories in which we attribute members of a certain category with an underlying quality that determines their nature (Gelman, 2003; Hirschfeld, 1995). Therefore, outgroup members are perceived to be inherently less human or to possess an 'infra-human' essence. Empirically, these theorists concentrated on the distribution of a type of mental state, i.e., basic (*primary*) and uniquely human (*secondary*) emotions. They showed that basic emotions (e.g., sadness, happiness, fear) - thought to be biologically-driven and shared with animals (Ekman, 1992) - are differentiated from uniquely human emotions (e.g., remorse, hope, nostalgia) - which represent a more complex depiction of human interaction (Kemper, 1987) - in lay conceptions of humanness (Demoulin et al., 2004).

Subsequent studies revealed that ingroup members are judged to experience significantly more positive and negative secondary emotions compared to primary emotions (Boccato, Cortes, Demoulin, & Leyens, 2007; Paladino et al., 2002). In comparison, there are no significant differences in the type of emotions attributed to members of a perceived outgroup. This effect was coined outgroup 'infrahumanisation' and has been connected to an array of problematic behavioural outcomes, largely outside the domain of conflict and violence (Vaes, Paladino, Castelli, Leyens, & Giovanazzi, 2003), such as less empathy for and less willingness to help outgroup members in crisis (Čehajić et al., 2009; Cuddy, Rock, & Norton,

2007), fewer instances of intergroup forgiveness (Tam et al., 2007) and reduced perspective taking (Vaes, Paladino, & Leyens, 2004). Furthermore, researchers have identified potential moderators of this bias. Increased support for nationalistic and conservative ideals (DeLuca-McLean & Castano, 2009; Viki & Calitri, 2008), as well as less knowledge of, low perceived similarity and less contact with outgroups (Brown, Eller, Leeds, & Stace, 2007; Rodríguez Pérez, Delgado Rodríguez, Betancor Rodríguez, Leyens, & Vaes, 2011), predict greater levels of infrahumanisation.

The Dual Model of Humanness

Haslam (2006) developed a theory that also focuses on how adults characterise humanity and assign these traits to themselves and to other people (Haslam et al., 2005). However, he proposes that we conceptualise humanness along two dimensions: one based on the comparison between human and animals (*uniquely human*; similar to infrahumanisation) and another based on the comparison between humans and automata (*human nature*; Loughnan & Haslam, 2007). The denial of essential, uniquely human traits (e.g., rationality, culture) is termed 'animalistic dehumanisation' and associated with feelings of disgust. The denial of core, human nature traits (e.g., individuality, interpersonal warmth) is termed 'mechanistic dehumanisation' and generally promotes psychological distance. Empirical findings have reflected these two senses of humanness - the attribution of uniquely human and human nature qualities are seen to be uncorrelated (Haslam et al., 2005) and this distinction is observed across cultures (Bain, Vaes, Kashima, Haslam, & Guan, 2011; Martinez, Rodriguez-Bailon, & Moya, 2012). Interestingly, adults attribute more positive and negative uniquely human traits (e.g., polite, disorganised) to ingroup members than to outgroup members but only think of their ingroup as higher in negative human nature terms (e.g. insecure, jealous; Koval, Laham, Haslam,

Bastian, & Whelan, 2011). The authors argue this finding represents a group protective function whereby emphasising the flaws of ingroup members make them 'only human'. This is an interesting interpretation but further study is needed to explore why valence seems to matter in the attribution of qualities related to mechanistic dehumanisation.

Unlike Leyens (2001) infrahumanisation model (principally related to less severe outcomes for intergroup behaviour), Haslam's (2006) theory proposes a continuum of behavioural consequences that range from very dangerous tendencies to more everyday discrimination. For example, adults who were exposed to low uniquely human and human nature descriptors of Muslims were more likely to report a necessity to torture Muslim prisoners of war (Viki, Osgood, & Phillips, 2013) and quicker associations between female images and both animal- and object-related terms predicted men's proclivity to sexually harass women (Rudman & Mescher, 2012).. In addition, both animalistic and mechanistic dehumanisation have been correlated with lower levels of outgroup helping (Andrighetto, Baldissarri, Lattanzio, Loughnan, & Volpato, 2014), and outgroup praise (Bastian, Laham, Wilson, Haslam, & Koval, 2011).

The Stereotype Content Model

The infrahumanisation (Leyens et al., 2000, 2001) and the dual model (Haslam, 2006) theories of dehumanisation imply that the attribution of fewer mental states to outgroup members is an important feature of this harmful phenomenon. In their research on the neural bases of dehumanisation, Harris and Fiske (2009, 2011) exclusively define this bias as a failure to consider the mind of another person. Their work stems from the stereotype content model (Fiske, Cuddy, Glick, & Xu, 2002)

within which group members are evaluated on their perceived *warmth* and *competence*. Ingroup members are judged to be both likeable and highly competent whereas members of ostracised outgroups (e.g., homeless people, drug addicts) are generally disliked and deemed lower in educational and/or economic status. Hence, these outgroups are likely to be dehumanised.

Potentially supporting this idea, neuroscientific data have demonstrated that adult participants display less activity in brain regions associated with 'mentalising' (i.e., medial prefrontal cortex; Frith & Frith, 2006) and increased activation in disgust-related areas (e.g., insula; Wicker et al., 2003) when viewing extreme outgroup members. Moreover, they used fewer mental state verbs when asked to describe a day in the life of a, for example, homeless person (Harris & Fiske, 2006). Although the authors have not directly associated differences in brain activity with adverse intergroup behaviour, Harris and Fiske (2011) suggest that this cognitive failure could contribute to the inhumane treatment of others (also see Fiske, 2009).

Mind Perception

Very closely related to this approach, another body of research argues that how we perceive the minds of other people is inextricably linked to the concept of dehumanisation (Waytz, Epley, & Cacioppo, 2010; Waytz, Gray, Epley, & Wegner, 2010). The two methods through which we can deny the mind, or 'dementalise', others are very similar to Haslam's two aspects of humanness (Haslam & Loughnan, 2014; Waytz et al., 2010). Specifically, Gray and colleagues (2007) found that the perception of *agency*, or mental state abilities that distinguish humans from animals (e.g., to plan, to think) and *experience*, or emotional capacities that distinguish humans from inanimate entities (e.g., to feel pain, to have a personality) are involved

in mind detection. These theorists further elucidate the relation between mind perception and dehumanisation when considering the impact of attributing someone with less of a mind on moral decision-making. For instance, if we do not perceive another person as having a mind that experiences distress, then we will not proceed to empathise with their distress (Bruneau, Cikara, & Saxe, 2015) and to include them within the realm of moral concern (Waytz et al., 2010).

Empirically, adults perceive a liked target to be more mindful compared to a disliked target (Kozak, Marsh, & Wegner, 2006). More related to intergroup bias, Hackel, Looser, and Van Bavel (2014) suggest that ingroup members are attributed with mental states more readily than are outgroup members. Across two studies, they presented participants with a series of doll-human face morphs ranging from 0% animate to 100% animate and manipulated their belief about whether the morphs were based on members of their own group or another group. The results revealed that ingroup faces were perceived to have a mind at a lower threshold on the continuum (approx. 60%) than outgroup faces (approx. 70%).This effect was later replicated with participants from both Eastern and Western cultures (Krumhuber, Swiderska, Tsankova, Kamble, & Kappas, 2015).

Summary

Taken together, the definition of dehumanisation in social psychological research seems to be a complex and multifaceted one. However, there are a few critical features that overlap across different accounts. The denial of mental state and other human-like characteristics to outgroup members and outgroup derogation (dislike and perceived lower status) are commonly associated with dehumanising perceptions. Reasoning about social groups in an essentialist manner also seems to

be an important component in the process of dehumanisation. These social and psychological factors have also been studied in a distinct body of literature investigating the development of social and intergroup cognition in children.

The Development of Social Cognition

Some of the definitions outlined above suggest that, in order to dehumanise, one must first understand what 'humanness' entails to some extent (Bain et al., 2011; Castano et al., 2009; Demoulin et al., 2004). A significant research effort in developmental psychology has been dedicated to identifying when the recognition and understanding of human action and thought emerges in development (Baron-Cohen, 2000; Cutting & Dunn, 1999; Leslie, 1994; Wellman & Bartsch, 1988) and what this means for children's social (Chalik, Rivera, & Rhodes, 2014; Jenkins & Astington, 2000) and cognitive (Carlson, Moses, & Breton, 2002; Ozonoff, Pennington, & Rogers, 1991) competence.

Agency Understanding

Researchers interested in the perception of agency have pinpointed certain features that may help infants to recognise potential interaction partners: whether an agent has a face or eyes, whether it engages in a contingent, social interaction and whether it appears to move in a self-propelled way (Beier & Carey, 2014; Johnson, 2000; Premack, 1990). For example, infants follow the gaze of a motorised object significantly more often (Johnson, Slaughter, & Carey, 1998) and make social evaluations about the apparent behaviour of moving shapes (Hamlin & Wynn, 2011; Hamlin, Wynn, & Bloom, 2007; Powell & Spelke, 2013) when they possess some of these human-like properties.

Developmental research has often relied on these anthropomorphic tendencies to shed light on the development of children's social cognitive abilities. Five-year-olds, but not younger children, perceive social intent in the seemingly purposeful interaction between animated shapes (see Heider & Simmel, 1944, for comparable work with adults) and are able to identify which shape is 'scared' or 'being mean' (Springer, Meier, & Berry, 1996). Similar stimuli were used to examine mentalising deficits in autism and found that autistic children produced fewer and less appropriate mental state descriptions of these animations compared to matched controls (Abell, Happé, & Frith, 2000). Research into when children first begin to mentalise about the behaviour of others has been especially prolific within the developmental literature and could have particularly interesting implications for the concept of dehumanisation.

Mental State Understanding

Our 'theory of mind' refers to the capacity to overcome an egocentric way of thinking and to reason about the mental states (i.e., intentions, desires, beliefs, emotions) of other people (Premack & Woodruff, 1978; Wellman, 1990). Previous research has shown that young infants demonstrate a form of intention understanding; for example, 7-month-olds are more surprised by collision events that involve two moving people compared to two moving objects (i.e., a box and cylinder mounted on wheels), perhaps expecting that humans would try to avoid colliding with one another (Woodward, Phillips, & Spelke, 1993). Other research has looked at infants' understanding of goal-directed actions in more depth (Woodward, 1998). Five-, 6-, and 9-month-olds were habituated to an actor reaching for one of two toys presented at a distance. At test, the position of these toys was switched and the actor reached for the same toy (but with a different motion pattern) in one trial and for the

alternate toy (but with the same motion pattern as before) in another trial. The results revealed that the older infants looked longer during trials where the actor chose a different toy (and not when they moved in a different direction). Importantly, looking times were not affected when a metal rod engaged in the same movement patterns during test trials. A similar experiment with 18-month-olds found that they were able to correctly interpret an adult's intended action through observation of their failed attempts (Meltzoff, 1995) but that they did not produce the target acts when the disrupted actions were performed by a set of mechanical arms. Thus, infants seem to infer that human motion, and not object motion, is driven by internal goals and intentions (Woodward, Phillips, & Spelke, 1995).

Further work has suggested that older infants can discriminate between intentional and accidental actions (Carpenter, Akhtar, & Tomasello, 1998) and can predict someone's desired food choice based on their prior reactions (Repacholi & Gopnik, 1997). The exact emergence of belief understanding is in contention however (Heyes, 2014; Wellman, Cross, & Watson, 2001). Traditional tests have focused on children's ability to indicate the *false belief* (i.e., a belief about the world that differs from the reality of the situation) of another individual (Wimmer & Perner, 1983). For example, in the famous Sally Anne task (Baron-Cohen, Leslie, & Frith, 1985), children view a puppet putting an object into one of two locations (e.g., box A) and then observe the experimenter changing the location of the object (e.g., by putting it in box B) in the puppet's 'absence'. Children's task is to specify the location where they think the puppet would look for the object when it returns (i.e., box A). The results of this paradigm have demonstrated that typically developing children are reliably able to adopt the mental perspective of this agent from around the age of 4. However, more recent work employing less demanding, nonverbal

versions of this test (e.g., based on looking time, active helping measures; Buttelmann, Carpenter, & Tomasello, 2009; Onishi & Baillargeon, 2005; Southgate, Senju, & Csibra, 2007) have argued that young infants demonstrate this ability.

Another aspect to this line of work is examining how individual differences in theory of mind proficiency are associated with children's socio-cognitive skills. As alluded to above, a persistent difficulty in understanding the mental states of others is considered a central characteristic in autism spectrum disorder (ASD) and leads to low quality and confusing social interactions for these individuals (Baron-Cohen, 2000; Chevallier, Kohls, Troiani, Brodkin, & Schultz, 2012). For typically developing children, their performance on theory of mind assessments predicts the nature of peer play (Nielsen & Dissanayake, 2000), how they evaluate moral actions (Baird & Astington, 2004) and their level of executive function (Carlson et al., 2002) among other social cognitive outcomes (Moore & Frye, 1991). Other research with slightly older children has shown that second-order false belief understanding (i.e., Person X wrongly believes that Person Y believes the object is in location A; Perner & Wimmer, 1985) plays a role in coordinating with peers (Grueneisen, Wyman, & Tomasello, 2015) and in the correct interpretation of situational evidence(Astington, Pelletier, & Homer, 2002). Furthermore, their attribution of second-order ignorance (i.e., Person A does not know what Person B knows) helps them to distinguish between a lie and a joke (Sullivan, Winner, & Hopfield, 1995).

Emotion understanding

Since a person's mental states also encompass his or her emotional experiences (Hadwin & Perner, 1991; Hughes & Dunn, 1998) and emotion perception is a common measure in dehumanisation research (Leyens et al., 2000;

Paladino et al., 2002), it is worthwhile to mention when the understanding of primary and secondary emotions may be observed in development. Past work has suggested that the comprehension of basic emotions appear early in life (Sroufe, 1983) - very young infants discriminate between happy and sad vocal and/or facial expressions (Field & Walden, 1982; Vaillant-Molina, Bahrick, & Flom, 2013) and attend more to the gaze of fearful faces, than to neutral or happy faces, when learning about novel objects (Hoehl, Wiese, & Striano, 2008). From around the age of 5 or 6, children can make inferences about complex socially-driven emotions like remorse and guilt (Vaish, Carpenter, & Tomasello, 2011) and are able to verbalise their experience of embarrassment (Bennett, 1989; Buss, Iscoe, & Buss, 1979) and pride (Seidner, Stipek, & Feshbach, 1988) to some degree. Children's understanding of secondary emotions is thought to continually develop at a significant rate throughout middle childhood (Harris, Olthof, Terwogt, & Hardman, 1987; Tangney & Fischer, 1995).

Summary

It is clear that, from early in development, children are sensitive to and are able to reason about various features of humanity. Developmental research has concentrated on when these capacities emerge (Baillargeon et al., 2013; Flavell, Green, & Flavell, 1990; Johnson, 2000), as well as causes and consequences of these skills (Astington, 2001; Heyes, 2014). What are less clear are the social circumstances in which children may deny the humanness of other people.

<center>**The Development of Intergroup Cognition**</center>

Investigation into the origins of intergroup prejudice has provided empirical evidence to suggest that young children might perceive outgroup members as less

human than ingroup members. More specifically, these studies have shown that children demonstrate some of the social biases previously associated with dehumanisation in adults, such as strong preferences for their own versus other groups (Dunham & Emory, 2014), essentialist beliefs about social group members (Rhodes, Leslie, & Tworek, 2012) and knowledge of the relative status of social classes (Liben, Bigler, & Krogh, 2001; Olson, Shutts, Kinzler, & Weisman, 2012).

Explicit and Implicit Preference

The psychological work examining the development of intergroup bias has primarily focused on children's relative implicit and explicit preferences for group members (Dunham & Degner, 2010). It has revealed that, within Western societies at least, social categories based on gender, language and racial differences are particularly influential in the formation of children's attitudes (Aboud, 1988; Hilliard & Liben, 2010; Kinzler, Dupoux, & Spelke, 2007; La Freniere, Strayer, & Gauthier, 1984). In addition to these types of group membership, I will also discuss social divisions based on place of origin or nationality because they are highly relevant in the current social and political climate (Sanneh, 2016; Schmuck & Matthes, 2015) and therefore in my empirical chapters.

Gender

Children profess explicit liking for same-gender individuals from at least 2 years of age (Martin & Ruble, 2004; Yee & Brown, 1994). This preference extends into how they reason about and engage with their social environment. In a set of experiments, Shutts, Banaji, and Spelke (2010) found that 3-year olds base their preferences for novel objects and activities on the gender (but not the race) of the endorser. Additionally, 3-year olds attend to the gender (but, again, not the race) of

other children when deciding who they should be friends with and who would share their social preferences (Shutts, Roben, & Spelke, 2013). Young children even demonstrate this positivity in an implicit way by responding faster to associations between photos of same-gender peers and positive words in a child-friendly version of the Implicit Association Task (Dunham, Baron, & Banaji, 2015).

Language

Preferences for members of our own language group also emerge very early in development (Kinzler et al., 2007). Five- and 6-month-old infants preferentially attend to native language speakers, and older infants (both American and French) are more likely to accept toys from individuals who speak their own language. Relatedly, Buttelmann, Zmyj, Daum, and Carpenter (2013) observed that 14-month olds imitate the actions of a native speaker more faithfully than actions performed by a foreign language speaker. Five-year-old American children favour peers who speak in their native language or with their native accent compared to peers who speak in a foreign accent (i.e., English in a French accent; Kinzler & Spelke, 2011). These preferences are judged to be robust and can even sometimes override young children's liking for other social groups – they prefer to affiliate with racial outgroup members who spoke in a native accent compared to the reverse (Kinzler, Shutts, DeJesus, & Spelke, 2009).

Race

Research has shown that 9-month-old infants orient towards own-race faces (Kelly et al., 2005) and by 3- to 4-years of age, young children can categorise people by race (Dunham, Stepanova, Dotsch, & Todorov, 2015). Even though Shutts et al. (2013) did not find that race influenced 3-year-olds' social choices, 4-year-olds use

race to infer third-party relationships. From around the age of 5, children express social preference for members of their own racial group (Doyle & Aboud, 1995; Kinzler et al., 2009; Kircher & Furby, 1971) and 6-year-old children assign more positive traits to their racial ingroup at an implicit level (Baron & Banaji, 2006; Dunham, Baron, & Banaji, 2006). However, it is important to note that this developmental trend is mainly true for majority (largely White) race children; the emergence of ingroup preferences in children belonging to minority racial groups is not as straightforward (Margie, Killen, Sinno, & McGlothlin, 2005; Milner, 1973) and considerably influenced by cultural factors (for e.g., see Shutts, Kinzler, Katz, Tredoux, & Spelke, 2011).

Nationality

Nationality is a more complex social grouping because it can involve identifying with one or a culmination of social markers (e.g., national colours, cultural traditions, native accent/language, race; Barrett, 2007). For example, relevant research has illustrated how the recognition of this social category is a particularly dynamic process. When presented with the choice, both American and Korean 5- and 6-year-old children tended to categorise national ingroup members based on the language they spoke, regardless of the speaker's race (DeJesus, Hwang, Dautel, & Kinzler, 2017a). Older children, in comparison, had a broader view of their national ingroup and their consideration of racial and linguistic cues differed between the two cultures. Therefore, it is not surprising that, unlike most of the other group divisions mentioned in this section, emergence of biased attitudes favouring one's own national group varies significantly across sociocultural contexts (Bennett et al., 2004; Oppenheimer & Barrett, 2011). Children as young as 3 years of age can show explicit negativity towards national outgroups in countries where intergroup

conflict is prevalent (Bar-Tal, 1996; Povrzanović, 1997) compared to children living in more peaceful settings. Children in these contexts usually begin to reliably prefer and identify with their own country at about 6 or 7 years of age (Barrett, 2007).

Ingroup positivity versus outgroup negativity

Young children demonstrate robust preferences for ingroup members across multiple group dimensions, yet, this display of ingroup positivity may not be equated to having a negative view of the outgroup. There is evidence to suggest that ingroup positivity does appear somewhat earlier in development than outgroup derogation (Aboud, 2003; Benozio & Diesendruck, 2015; Brewer, 1999). Buttelmann and Böhm (2014) showed the potentially diverging development of ingroup love and outgroup hate in a minimal group paradigm. This type of group manipulation - based on relatively minimal symbols of similarity (for e.g., the yellow vs. the green group)- is valuable for investigating the effects of mere categorisation on young children's evaluative responses (Dunham, Baron, & Carey, 2011; Richter, Over, & Dunham, 2016) and behaviour (Engelmann, Over, Herrmann, & Tomasello, 2013; Oostenbroek & Over, 2015; Plötner, Over, Carpenter, & Tomasello, 2015). Their findings revealed that 6-year-olds prevented their minimal ingroup from receiving negative items (e.g., a spider) and instead opted to distribute these items to a neutral party. Older children (i.e., 8-year-olds), however, gave significantly more of these undesirable items to the minimal outgroup.

Researchers have provided various explanations for the possibly distinct developmental trajectories of these processes. Some have emphasised the evolutionary value of early attachment to the ingroup (Brewer & Caporael, 2006; Caporael, 1997) while others have focused on the role of learning in the emergence

of negative outgroup attitudes (Over, Eggleston, Bell, & Dunham, 2017). Meltzoff (2007, 2013) presents a theoretical perspective that highlights our early propensity to prefer people who are *similar* to us. Based on research with infants, he argues that early shared experiences with others (e.g., imitating a parent's actions or expressions and vice versa) shapes 'like me' preferences which underlie the ingroup positivity observed in young children.

Social Essentialism

Essentialism was first investigated as an element of children's folk psychological theories (Gelman & Legare, 2011; Hirschfeld, 1995). This research demonstrated an almost universal tendency to believe that the biological and social world is made up of 'natural kinds' that possess a fundamental hidden property which is determined from birth and is responsible for their observable traits (Gelman, 2004). The grouping of biological entities into different kinds is considered helpful for children's learning. For example, knowing that one tiger is aggressive allows children to make similar inferences about seemingly harmless baby tigers (Waxman, Medin, & Ross, 2007) and those who have a slightly different appearance (Gelman & Legare, 2011) because they all retain a tiger 'essence'. However, these essentialist beliefs become problematic when they are applied to social groups (Hirschfeld, 1996; Rhodes et al., 2012) and can facilitate stereotyping (Allport, 1954; Haslam, Rothschild, & Ernst, 2000; Prentice & Miller, 2007), and perhaps even dehumanising biases (Leyens, 2009) in adults.

More recent work has examined the developmental trajectory of social essentialism. In these studies, children make judgements about the generalisability of stereotypic characteristics, for example, whether every boy likes to play sports, and

if these traits are hereditary and stable, for example, whether the race of a baby will always match the race of the parent. By the age of 5, children are thought to essentialise about gender (Taylor, Rhodes, & Gelman, 2009) and native language (Kinzler & Dautel, 2012) and the emergence of these beliefs seem to be prevalent across cultures (Rhodes & Gelman, 2009). In contrast, the development and strength of essentialist beliefs about racial (Astuti, Solomon, & Carey, 2004; Waxman, 2010), ethnic (Birnbaum, Deeb, Segall, Ben-Eliyahu, & Diesendruck, 2010; Diesendruck & HaLevi, 2006) and religious (Chalik, Leslie, & Rhodes, 2017) groups relies on cultural influences. For instance, young children from more politically conservative backgrounds in the US are more likely to display a racial bias (Rhodes & Gelman, 2009) and Israeli children in religious communities are more likely to use inductive reasoning when talking about Jew and Arab social categories compared to secular children (Diesendruck & Haber, 2009).

Perceived Status

The perception of dehumanised outgroups often co-occurs alongside the belief that outgroup members are inferior to the ingroup in some respect and/or constitute a lower social class (Capozza, Andrighetto, Di Bernardo, & Falvo, 2011; Harris & Fiske, 2006; Loughnan, Haslam, Sutton, & Spencer, 2014). Developmental work has shown that sensitivity to the hierarchical nature of society emerges early (Bigler, Brown, & Markell, 2001; Nesdale & Flesser, 2001). Three-year-olds associate a greater amount of wealth with higher status racial groups in certain cultures (Olson et al., 2012) and older children think novel occupations are more prestigious (e.g., more important and gain a higher wage) when they are portrayed by conventionally competent characters (i.e., White males; Bigler, Averhart, & Liben, 2003; Liben et al., 2001). Moreover, across a variety of contexts, children tend to

favour members belonging to high status groups (Bigler et al., 2001; Horwitz, Shutts, & Olson, 2014; Newheiser & Olson, 2012; Shutts et al., 2011).

Summary

Overall, there is strong empirical evidence to suggest that young children are able to understand some of the important components of humanity and, in addition, exhibit many of the intergroup biases linked to outgroup dehumanisation in previous literature. I will now review the few recent studies that have begun to investigate this phenomenon in adolescents and children. Similar to work with adults (Haslam, 2006; Leyens et al., 2001), this small body of work has focused on the attribution of human characteristics to social in- and outgroup members.

The Development of Dehumanisation

Two different studies showed that adolescents, aged between 11 and 16 years of age, 'infra-humanise' outgroup members by specifying fewer uniquely human emotions (e.g., sympathy, hope) in the evaluation of peers who belong to a different school (Brown et al., 2007) and who support a different football team (Chas, Betancor, Rodríguez-Pérez, & Delgado, 2015) to them. Martin, Bennett, and Murray (2008) used an adapted version of this paradigm to examine the development of infrahumanisation in 6- to 7-year-old and 10- to 11-year-old Scottish children. In this study, children of both ages believed their national football team would experience secondary emotions (e.g., pride) more intensely than primary (e.g., anger) emotions but that the English football team would experience both types of emotion to a similar degree. Costello and Hodson (2014) also proposed that children judge outgroup members to be less human than ingroup members on this dimension across racial divisions. Their results revealed that 6- to 10-year-old White participants

thought Black children experience fewer complex emotions (e.g., guilt) and possess fewer uniquely human capacities in general (e.g., curiosity). Finally, Van Noorden, Haselager, Cillessen, and Bukowski (2014) developed a measure to assess both animalistic and mechanistic forms of dehumanisation towards friends and non-friends in 7- to 12-year-olds. They found that ingroup peers were attributed with more human nature (e.g., sociability, friendliness) and uniquely human (e.g., humility, politeness) qualities and that outgroup peers were more likely to be dehumanised in an animalistic (i.e., denied uniquely human traits) rather than in a mechanistic fashion. Taken as a whole, this research implies children as young as 6 years of age might dehumanise peer, racial and national outgroup members.

Although these trait-based results are compelling, they are limited to some respect in explaining how dehumanising biases originate in development. It is not clear whether adults and young children conceive of humanity in the exact same way; for example, Betancor Rodriguez, Chas Villar, Rodriguez-Perez, and Delgado Rodriguez (2016) recently proposed that 11- and 12-year-olds categorise the respective humanness of emotional terms differently to adults. One of these differences was that, while adults believe secondary emotions to be a strong indicator of a person's morality, children endorse basic emotions as signs of 'goodness' or 'badness'. Betancor Rodriguez et al. (2016) claim this particular deviation could be reflective of children's developing sense of morality. Hence, previous findings on this topic should perhaps be interpreted with caution because they may not directly reflect children's dehumanising perceptions. Furthermore, investigation into the developmental trajectory of dehumanisation and how it relates to other facets of children's social and intergroup cognition has been somewhat neglected.

The Present Research Aims

The first aim of my doctoral work was to take a step away from paradigms based on emotion and trait attribution and to develop a novel measure of humanness for use with young children. My first experimental chapter (Chapter 2) thus explores whether children perceive outgroup members to be less human than ingroup members in the context of face perception. In two studies, 5- and 6-year-olds were asked to rate the physical humanness of ambiguous doll-human faces (taken from Hackel et al., 2014) when they belonged to their gender in- and outgroup (Study 1) and to a geographically based in- and outgroup (Study 2). Potential age differences in this tendency and whether it was associated with children's explicit preference for the social groups was also investigated.

My next empirical chapter (Chapter 3) combines adult research on dehumanisation with developmental work on mental state understanding to investigate whether young children are biased in the way they mentalise about the behaviour of other people. I chose to focus on this specific feature of dehumanisation because potential biases in children's mental state attribution could have direct implications for the nature of their theory of mind abilities. For this study, 5- and 6-year-olds were asked to describe the actions of interacting geometric shapes (employed in research with autism; see Abell et al., 2000) and their belief about the group membership of these characters was manipulated (again, across gender and geographically based categories). The dependent measure was the quantity and diversity of mental state content in children's descriptions.

My final set of studies (Chapter 4) attempts to address the ultimate aim of the present research. Building on the results from Chapter 3, I examined the role of

mental state attribution in fostering positive intergroup behaviour (specifically for outcomes that are associated with dehumanisation) in a politically relevant context. To accomplish this, 5- and 6-year-olds were either encouraged to discuss the thoughts and feelings or the actions of an immigrant group and their perception of a novel group member's emotions was measured, as well as the extent to which they helped another group member in an empathic-based situation.

I decided to recruit 5- and 6-year-old children in my empirical research for multiple reasons. First, by this age, children can explicitly reason about the social behaviour of agents (Springer et al., 1996) and pass standard theory of mind tests (Baron-Cohen et al., 1985; Wellman, 2002). Second, and most importantly for Chapter 3, children in this age range correctly use mental state terms when referring to people's minds (Shatz, Wellman, & Silber, 1983) and frequently do so in conversation (Frith & Frith, 2003). Finally, 5- and 6–year-olds exhibit the intergroup biases previously linked to dehumanisation: they demonstrate implicit and explicit preferences for members of their own groups (Banaji, Baron, Dunham, & Olson, 2008; Kinzler et al., 2009; Patterson & Bigler, 2006), essentialise about certain social categories (Birnbaum et al., 2010; Kinzler & Dautel, 2012; Rhodes & Gelman, 2009) and are sensitive to the status of social group members (Nesdale & Flesser, 2001).

Chapter 2: Children's Perception of Humanness

Reference:

McLoughlin, N., Tipper, S. P., & Over, H. (2017). Young children perceive less humanness in outgroup faces. *Developmental Science*. doi:10.1111/desc.12539[1]

Abstract

We investigated when young children first dehumanise outgroups. Across two studies, 5- and 6-year-olds were asked to rate how human they thought a set of ambiguous doll-human face morphs were. We manipulated whether these faces belonged to their gender in- or gender outgroup (Study 1) and to a geographically based in- or outgroup (Study 2). In both studies, the tendency to perceive outgroup faces as less human relative to ingroup faces increased with age. Explicit ingroup preference, in contrast, was present even in the youngest children and remained stable across age. These results demonstrate that children dehumanise outgroup members from relatively early in development and suggest that the tendency to do so may be partially distinguishable from intergroup preference. This research has important implications for our understanding of children's perception of humanness and the origins of intergroup bias.

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[1] The author, Niamh McLoughlin, designed the experiment, collected the data, analysed the results, and wrote the article under the supervision of Dr. Harriet Over and Prof. Steven Tipper.

Introduction

In order to navigate the social world, it is essential to be able to recognise and engage with potential interaction partners (Baillargeon et al., 2013; Over, 2016; Tomasello, 1995). A great deal of developmental research has focused on when children are first able to identify socially relevant agents (Johnson, 2000; Meltzoff, 1995; Woodward et al., 1993) and attribute human-like capacities to those agents (Carpenter et al., 1998; Onishi & Baillargeon, 2005; Repacholi & Gopnik, 1997). However, a body of work from social psychology suggests that we do not always consider the humanity of others. Adults tend to 'dehumanise', or deny full humanness to, outgroups (Bandura, 1991, 1999; Loughnan et al., 2014; Vaes, Leyens, Paladino, & Miranda, 2012; Viki & Calitri, 2008). Outgroup members are perceived to have fewer uniquely human qualities, such as rationality, openness and cultured beliefs (Haslam, 2006), and are also attributed with fewer second-order emotions, such as compassion and remorse (Leyens et al., 2000; Leyens et al., 2001) than ingroup members. Leyens and colleagues found that this differential attribution of emotion was present across a series of studies and termed the effect 'infrahumanisation'. More generally, outgroup members are thought to have less of a mind (Hackel et al., 2014; Harris & Fiske, 2006, 2011; Krumhuber et al., 2015). Dehumanisation has been linked to acts of prejudice (Haslam & Loughnan, 2014; Rudman & Mescher, 2012; Viki, Osgood, & Phillips, 2013) and neglect (Čehajić et al., 2009; Cuddy et al., 2007) observed among social groups. The developmental origins of this phenomenon are thus important for our understanding of intergroup relations.

To date, there has been relatively little work on dehumanisation in development. Certainly, we know from previous research that intergroup biases are

present from a young age (Aboud, 1988; Dunham et al., 2011; Kinzler et al., 2009; Patterson & Bigler, 2006). Research has shown that young children reliably exhibit both implicit and explicit preference for individuals of the same gender (Dunham et al., 2015; Yee & Brown, 1994). For example, Shutts et al. (2010) found that 3-year-olds prefer novel objects and activities that are endorsed by same-gender peers. Gender is also the first social category that children think about in an essentialised manner, in that they believe group members share an underlying quality or 'essence' that defines their nature (Gelman, 2003; Rhodes & Gelman, 2009). From around the age of 5, children prefer and assign more positive traits to their own racial group (Doyle & Aboud, 1995; Kinzler & Spelke, 2011). Somewhat older children (i.e. 6-year-olds) show implicit own-race preference, at a level comparable to that seen in adults, as measured by a child friendly version of the Implicit Association Task (Baron & Banaji, 2006). With regards to national groups, children begin to explicitly identify with and prefer their own country from around the age of 6 or 7 (Barrett, 2007). The emergence of these attitudes, however, varies across sociocultural settings and can be seen earlier in countries that have recently experienced or are currently experiencing intergroup conflict (Oppenheimer & Hakvoort, 2003; Teichman, 2001).

Only a handful of studies have considered the origins of dehumanisation. These studies have tended to focus on emotion and trait attribution. Van Noorden et al. (2014) asked 7- to 12-year-old children to judge if their friends versus their non-friends possessed human-like qualities such as humility, trustworthiness and sociability. In general, children thought of friends as having more of these traits. A related finding looking specifically at social groups found that White children, aged 6 to 10 years, attributed fewer human traits (e.g., curiosity, creativity) and fewer

second-order emotions (e.g., embarrassment, love, guilt) to Black targets than to White targets (Costello & Hodson, 2014). Finally, Martin et al. (2008) showed how 6- to 11-year-old Scottish children estimated that their national football team would experience second-order emotions (e.g., pride, disappointment) more intensely than would the English football team. Although these results regarding trait and emotion attribution are suggestive, they need to be complemented by more extensive research investigating which qualities young children actually associate with humanness (for e.g., see Betancor Rodriguez et al., 2016, with older children).

To our knowledge, no studies have yet explored the developmental origins of dehumanisation in relation to social perception. We therefore examined whether young children perceive outgroup members to be less human. To investigate this question, we focused on face perception since previous research has demonstrated that young children are able to perceive social qualities in faces. Cogsdill, Todorov, Spelke, and Banaji (2014) found that 5- and 6-year-olds were at adult levels of reliability when judging faces for trustworthiness, dominance and competence and, in addition, Song, Over, and Carpenter (2016) found that similarly aged children are able to discriminate between subtly different facial expressions (i.e., real vs. fake smiles). Other research has suggested that group membership influences how young children perceive faces. At least from the age of 5, and perhaps even considerably younger (Bar-Haim, Ziv, Lamy, & Hodes, 2006), children are better at recognising the faces of ingroup members, including same-race (Feinman & Entwisle, 1976; Pezdek, Blandon-Gitlin, & Moore, 2003) and same-age (Anastasi & Rhodes, 2005) individuals. In terms of social group bias, 3- and 4-year-old White children are more likely to categorise racially ambiguous faces as outgroup members when they possess a negative expression (Dunham, Chen, & Banaji, 2013).

We investigated whether children perceive less humanness in outgroup faces relative to ingroup faces. In order to do this, we adapted a paradigm from the adult literature to make it suitable for developmental research. Hackel et al. (2014) presented a set of face stimuli that were generated by morphing doll faces with human faces to create a series of continua that ranged from 0% animate (i.e., doll face) to 100% animate (i.e., human face). In two studies, Hackel et al. (2014) manipulated the group to which these faces belonged by informing participants that some of the faces were based on morphs developed from ingroup members and others were based on morphs developed from outgroup members. Participants were then asked to rate the extent to which each face looked like it 'had a mind' on a 7-point scale. Results indicated that the threshold for perceiving a mind in a face was lower for ingroup members, when fewer human cues were present, (at approx. 60% increment along the continuum) compared to the threshold for outgroup faces (at approx. 70% increment along the continuum). In other words, ingroup faces were humanised, and perceived to have a mind, more readily than were outgroup faces.

We modified this paradigm in the following ways. First, we substantially reduced the number of trials by identifying the most ambiguous doll-human morph from each face continuum in a pretest study with adults. This allowed us to have eight test trials rather than the 110 that were presented to adult participants. Second, we modified the test question and, instead, asked participants how human the face appeared. Our final modification involved the way in which children gave their responses. We asked them to estimate how human each face looked on a 4-point scale ranging from 'not at all human' to 'completely human'. We predicted that children would judge the morph faces to be less human when they belonged to their outgroup than when they belonged to their ingroup.

We chose to examine this question with 5- and 6-year-old children because we know that they are able to extract social meaning from faces (Cogsdill et al., 2014), that social categories influence how they process faces (Dunham et al., 2013; Pezdek et al., 2003) and that they show reliable preferences for their own groups (Dunham & Emory, 2014; Kinzler et al., 2007; La Freniere et al., 1984). Lastly, by including 5-year-olds, we tested dehumanisation in a somewhat younger age group than other research on this topic.

Study 1

We tested the extent to which children perceive relatively less humanness when evaluating other-gender faces. We chose gender because it is a particularly salient category for young children when thinking about and engaging with their social environment (Grace, David, & Ryan, 2008; Martin & Ruble, 2004; Shutts et al., 2013). In an informal pilot study with 32 5- to 7-year-olds (18 boys, Mage = 6;5, age range = 5;7-7;5), we presented the ambiguous doll-human faces selected in the pretest study with adults (see Figure 1) and found that children, on average, perceived less humanness in the faces that belonged to their gender outgroup than in the faces that characterised their own gender (t (31) = 2.23, p =.033, d = .39).

Our objective for Study 1 was to replicate this preliminary finding with a larger sample. Furthermore, we systematically explored any effect of age by testing an equal number of 5-year-olds and 6-year-olds. Children's explicit preference for the groups was also measured as a manipulation check. All of the measures that were administered across both studies are reported in full.

Method

Participants

Thirty-two 5-year-olds (16 boys, *M*age = 5;7, age range = 5;0-5;11) and 32 6-year-olds (16 boys, *M*age = 6;6, age range = 6;0-6;11) were recruited from a local school and a museum to take part in the study. Six more children also participated but were excluded from analysis due to language and hearing difficulties (*n* = 1), making two or more errors during initial training on the response scale (*n* = 3, see below), technical error (*n* = 1) and experimenter error (*n* = 1). The sample sizes for Studies 1 and 2 were based on previous work with adults using a very similar paradigm (see Hackel et al., 2014) and research examining the development of intergroup bias (e.g., Dunham et al., 2011; Kinzler et al., 2009; Martin et al., 2008). The sample size was chosen in advance and data collection was stopped once the pre-specified sample size was reached.

Materials

Face stimuli. A subset of animacy morphs (*N* = 10) made available by Hackel et al. (2014) were used for the training and experimental trials. The morphs were originally developed by combining images of inanimate faces (e.g., dolls, statues) with well-matched human faces, resulting in 11 images that ranged from 0% human to 100% human (see Looser & Wheatley, 2010, for examples of the morph continua). As mentioned above, we carried out a pretest study with adults to identify the most ambiguous morph image for each face identity.

Pretest of face stimuli with adults. We included eight morphs in the test phase of our study. The two remaining morph continua were used in the training

phase. To determine which images along the continuum to use for the test trials, we conducted a pretest study in which we asked 10 adult participants to categorise every morph image ($N = 88$) as either a doll or a human. Participants were also asked to rate how confident they were with their decision on a 5-point scale (1 = *Extremely uncertain*, 3 = *Fairly certain*, 5 = *Extremely certain*). The morph that received the most contradictory set of responses (approx. 50% doll and 50% human) signified the perceptual mid-point for each face identity. Certainty ratings were recorded in order to discriminate between morphs of the same face continuum that received an identical number of contradictory doll-human responses. In this case ($n = 4$), the image with the lower average certainty rating was selected. Note that the subjective mid-point of the eight morph continua was rarely compatible with the image generated at 50% increment. Five face identities had their highest ambiguity rating at increments greater than 50%, while the remaining continua were perceived to be most ambiguous at the physical mid-point ($n = 2$) or slightly lower ($n = 1$). The morphs (see Figure 1) were presented in the approximate dimensions of a life-size face in a central location on a black background using a Lenovo ThinkPad Intel Core i5 laptop.
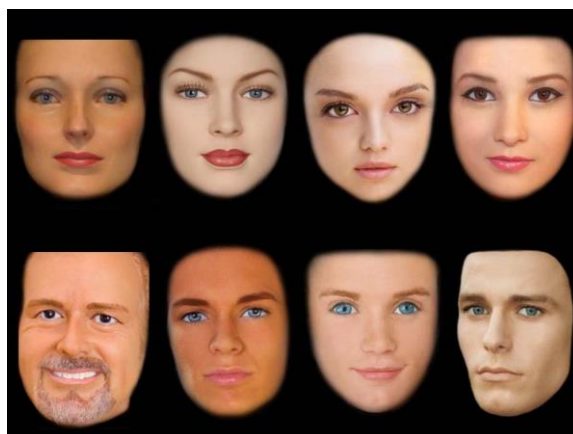

Figure 1. The face morph stimuli (4 female, 4 male) used in the test trials for Studies 1 and 2 (taken from Hackel, Looser, & Van Bavel, 2014).

Ensuring children understood the face stimuli. To ensure that children could distinguish human and doll faces, we asked six children (3 boys, *M*age = 6;0, age range = 5;3-6;10) to discriminate between the clearly human and non-human points along the continua used for the test phase. In each trial (of which there were eight in total), children were presented with two faces that represented the 0% human and the 100% human increment from the same morph continuum. Their task was to identify which face in the pair looked more human. All six children showed 100% accuracy.

Response scale. The scale employed to measure perceived humanness was adapted from Severson and Lemm (2016) who used it to assess individual differences in anthropomorphism in 5- to 9-year-old children. The adapted scale took the form of a bar chart with four bars representing 'Not at all', 'A little bit', 'A medium amount' and 'A lot' (see Figure 2, panel A). This 4-point scale was also used for responses to the explicit preference questions.

Design and counterbalancing

The main independent variable of interest was the group membership of the presented faces (ingroup, outgroup). We also compared the performance of 5- and 6-year-olds. Children saw four trials with faces from their gender ingroup and four trials with faces from their gender outgroup. The dependent variables were mean humanness scores for ingroup/outgroup faces and explicit preference for both groups.

Eight fixed orders were created for the test trials such that no two same-gender faces were presented more than twice in a row and each face appeared in

every position. The order of ingroup and outgroup preference questions and the way in which the training faces were presented was also counterbalanced.

Procedure

Training phase. Children were trained on the response scale by being asked to make judgments about simple liquid measurements. The experimenter (E) presented children with five pictures of jugs filled with juice that directly corresponded to the different points on the scale and asked them to point to the bar that most likely represented how much juice was in each jug. Note that two of the pictures were identical. This was done so children understood they could use the same response option more than once[2]. According to our pre-specified inclusion criteria, children who made two or more errors during the initial scale training were dropped from the analyses.

Participants were then introduced to the 'humanness' version of the 4-point scale (0 = *Not at all human,* 1 = *A little bit human*, 2 = *A medium amount human,* 3 = *Completely human*) and the face stimuli. They were shown the entire morph continuum for two face identities (one male and one female face that were not included in the test trials) and E emphasised corresponding scale representations at specific morph points. E clicked through the images and said 'Now here this face is

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[2] Inspection of the training phase data across both studies revealed that children's accuracy on the four main liquid judgements was high ('Not at all': 96.09%, 'A little bit': 86.72%, 'A medium amount': 98.44%, 'A lot': 95.31%) and accuracy for the repeated judgement was also extremely high ('A little bit' (2): 98.44%).

not at all human … now it's *a little bit human* … now it's *a medium amount human* … now it's *completely human*' (see Figure 2 for an illustration of the training phase). This process was repeated twice for each face identity and covered both directions of the transformation (doll to human and human to doll).

Experimental phase. For the experimental trials, children were presented with the ambiguous face morph images in a sequential manner. Each face was obstructed by an occluder which gradually revealed the entire face (from bottom to top) in approximately 6 seconds. When the face was finally revealed, E asked 'How human is this face?' and indicated that the child should respond by using the scale, 'Not human, a little bit human, a medium amount human, or completely human?'. Gender was never mentioned either before or during the test trials.

After this task, E asked children 'How much do you like boys/girls?' and again directed them towards using the scale, 'Not at all, a little bit, a medium amount or a lot?'. At the end of the session, children were thanked for their participation and presented with a photo of male and female individuals smiling together.
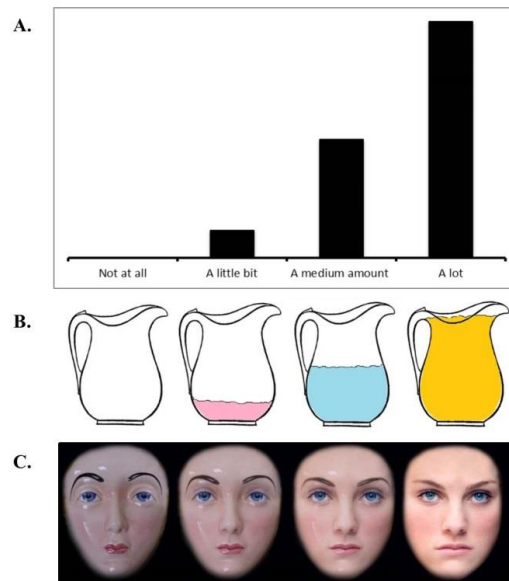
Figure 2. The materials used in the training phase of the studies including the response scale (panel A), the four liquid measurements (panel B) and the four points along one of the training morph continua (panel C) that corresponded to the four points along the humanness scale.

Coding

For both studies, children were given a score from 0 (*Not at all human*) to 3 (*Completely human*) for each face. Children's responses for Study 1 were independently coded by another researcher and agreement was 100% for both humanness and preference scores.

Humanness ratings for ingroup and outgroup faces were created for each child by averaging responses for the four ingroup and outgroup trials. (The ratings for the four female faces were averaged to act as girls' ingroup score while the average rating for the four male faces acted as boys' ingroup score). In order to correlate the extent of dehumanisation with children's age, we created a relative dehumanisation score for each participant by subtracting their mean outgroup rating

from their mean ingroup rating. Higher scores on this measure implied a greater bias towards outgroup dehumanisation.

Children's preference for their gender ingroup and gender outgroup was also measured. We additionally created a relative own-group preference score by subtracting outgroup preference scores from ingroup scores. Higher positive relative preference values represented an overall greater explicit preference for the ingroup.

Results and Discussion

Preliminary analyses

All of the correlations, main effects and interactions reported in the analyses below are two-tailed. Initial analyses indicated that there were no significant main effects of the counterbalancing variables, and they did not significantly interact with children's ratings of humanness (all F's $<$ 2.34, all p's $>$ .124). We therefore collapsed across these variables and do not consider them further.

Dehumanisation

A two-way mixed ANOVA with group membership of the face (ingroup, outgroup) as a within-subjects factor and age (5-year-old, 6-year-old) as a between-subjects factor revealed no main effect of group membership (F (1, 62) = .39, p = .534). There was a main effect of age suggesting that 6-year-olds' responses were significantly lower (M = 1.57, SD = .59) than that of 5-year-olds (M = 1.88, SD = .71), F (1, 62) = 6.85, p = .011, partial η2 = .10, and a significant interaction between group membership and age, F (1, 62) = 5.73, p = .02, partial η2 = .09. Follow-up tests revealed that 6-year-olds gave significantly lower humanness ratings to outgroup faces (M = 1.41, SD = .55) compared to ingroup faces (M = 1.73, SD =

.60), t (31) = 2.05, p = .049, d = .36, while 5-year olds did not (t (31) = 1.31, p = .2; see Figure 3, panel A).

To determine whether the relative tendency to dehumanise the outgroup increased with age, we reanalysed the data treating age as a continuous variable. Results showed that relative dehumanisation had a significant positive relationship with children's age in months, r (62) = .29, p = .02, suggesting that this group bias may gradually increase with age (see Figure 4, panel A).

Explicit group preferences

A two-way mixed ANOVA with group (ingroup, outgroup) as a within-subjects factor and age (5-year-old, 6-year-old) as a between-subjects factor yielded a main effect of group demonstrating that children liked their gender ingroup (M = 2.72, SD = .60) significantly more than their gender outgroup (M = 1.67, SD = 1.10), F (1, 62) = 40.09, p < .001, partial η2 = .39. There was no main effect of age (F (1, 62) = .10, p = .755) and no interaction between group and age (F (1, 62) = .22, p = .638), showing that even the youngest children in the sample preferred their own group. Interestingly, the strength of children's relative preference for their own group was not significantly associated with relative dehumanisation scores (r (62) = .10, p = .431) or with age in months (r (62) = -.12, p = .330).

Study 2

In Study 2, we sought to extend the findings of Study 1 to another real-world group by comparing the place in which children lived to a place far way. We opted to use geographically based groups because, unlike gender, they need not be

associated with particular facial features. As a result, we could hold the faces constant and manipulate children's belief about where the individuals came from.

We compared children's responses to faces described as coming from the city where the children lived to a city 'far away' which we called 'Daxo'. By using a fictional location, we were able to create the idea of another group without tapping into any pre-existing national stereotypes the children might have. Following the results of Study 1, we explored the possibility of an age-related increase in children's tendency to dehumanise outgroup faces relative to ingroup faces.

Method

Participants

Thirty-two 5-year-olds (17 boys, Mage = 5;7, age range = 5;2-5;11) and 32 6-year-olds (16 boys, Mage = 6;5, age range = 6;0-6;11) were recruited from a local school to take part in Study 2. Two more children also participated but were excluded from the analyses for making multiple errors during initial training of the scale (see below).

Materials

Group images. Images of the ingroup city and an outgroup city, sourced from the internet, were used in the test trials. Images of 'Daxo' were chosen on the basis of their notable contrast (i.e., cityscapes with skyscrapers) to the landscape of the ingroup (i.e., town with familiar landmarks). There were eight images of each group in total: four for the pretest trials and four for the test trials.

Face stimuli. The same subset of ambiguous face morphs ($N = 8$) from Study 1 was used for the test phase. However, we extracted the face stimuli from their

accompanying black background using Adobe Photoshop CC 2014 software and presented them in a smaller size on top of images of the two locations using a Lenovo ThinkPad Intel Core i5 laptop.

Response scale. The same 4-point measurement scale was used for the study's dependent measures.

Design and counterbalancing

The main independent variables were, again, the group membership of the face (ingroup, outgroup) and children's age (5-year-old, 6-year-old). The number of trials was identical to Study 1 and the dependent variables were also calculated in the same way.

In contrast to Study 1, we were able to counterbalance which faces were associated with the group categories. Four of the faces were grouped into one set while the remaining four faces were grouped into a second set (with two male and two female faces in each set). The set of faces associated with a child's ingroup and outgroup was counterbalanced. As in Study 1, eight fixed orders of face presentation were created so that no two same-group faces were presented more than twice in a row and each face appeared in every position (and so with every group image). The first group introduced for both phases of the experiment and the order of explicit preference ratings was also counterbalanced.

Procedure

Training and pretest phase. Children engaged in the same scale training phase as in Study 1. Again, children that made two or more errors during the basic scale training with liquid measurements were excluded.

E then introduced children to the two groups. She did this by giving them an ingroup flag representing their own city and showing them an outgroup flag depicting Daxo. E proceeded to direct children's attention towards the physical features of the first group image by saying, 'Look here are all of the different buildings in…' followed by associating various entities (i.e., car, bird, tree) that appeared within similar background images with that group, for example, 'Look here, this is a car from…'. To check that children understood the group manipulation and the nature of the stimuli, children were shown another group image and asked 'Where's this?' after which one of the training faces would appear and E then asked children to identify the group associated with the face by saying 'So where is this face from?'. If children failed to answer one of these pretest questions correctly, then E explained the manipulation again. If participants failed to answer the pretest questions a second time, then they would have been excluded from analysis (however all participants passed the pretest phase).

Experimental phase. For each test trial, E asked children to identify the location ('Where's this?'), followed by the group membership question ('So where is this face from?'), similar to the pretest. Children were then asked to give a scale rating for how human they thought each face was. If the child identified the group image incorrectly, E would correct them and continue with the group membership question (i.e., 'So where is this face from?'). However, if children did not answer the second question correctly, then this trial was dropped. After this task, children were asked about their preference for people from both their ingroup and the outgroup. Finally, children were thanked for their participation and debriefed.

All of children's responses for Study 2 were recorded by an independent coder. The coding was identical in 99.61% of trials for humanness scores and in 99.22% of trials for preference scores. The few inconsistent trials were discussed between researchers and 100% agreement was reached for both measures.

Results and Discussion

Preliminary analyses

Eleven out of 512 trials (approximately 2.15% of the data) were excluded from the analyses because children failed to correctly identify where the face was from. Preliminary analyses confirmed that there were no effects of the counterbalancing conditions on humanness ratings (all F's < 2.35, all p's > .113).

Dehumanisation

A two-way mixed ANOVA with group membership of the face (ingroup, outgroup) as a within-subjects factor and age (5-year-old, 6-year-old) as a between-subjects factor did not reveal a significant main effect of group membership although outgroup ratings were slightly lower ($M = 1.84$, $SD = .72$) than ingroup ratings ($M = 2.03$, $SD = .68$), $F (1, 62) = 3.64$, $p = .061$, partial $\eta 2 = .06$. There was no main effect of age ($F (1, 62) = .57$, $p = .452$) and no significant group membership $\times$ age interaction on humanness ratings, $F (1, 62) = 3.25$, $p = .076$, partial $\eta 2 = .05$. However, since we observed an effect among 6-year olds in Study 1, we explored the non-significant interaction further. Individual paired-samples t-tests indicated a pattern of results similar to that found in Study 1. Five-year-olds' responses were not influenced by the group manipulation ($t (31) = .08$, $p = .935$). In comparison, 6-year-

olds rated faces that belonged to their outgroup as significantly less human (M = 1.70, SD = .70) than those that belonged to their ingroup (M = 2.06, SD = .64), t (31) = 2.39, p = .023, d = .42 (see Figure 3, panel B). We can only speculate as to why the results were somewhat weaker in this study. A possible explanation may involve the salience of the group distinction. The faces presented to children were identical in both conditions in Study 2 whereas the group distinction in Study 1, based on gender, was marked by physical features of the faces. Related to this, the analysis may not have been sufficiently powered to detect the interaction observed in Study 1.
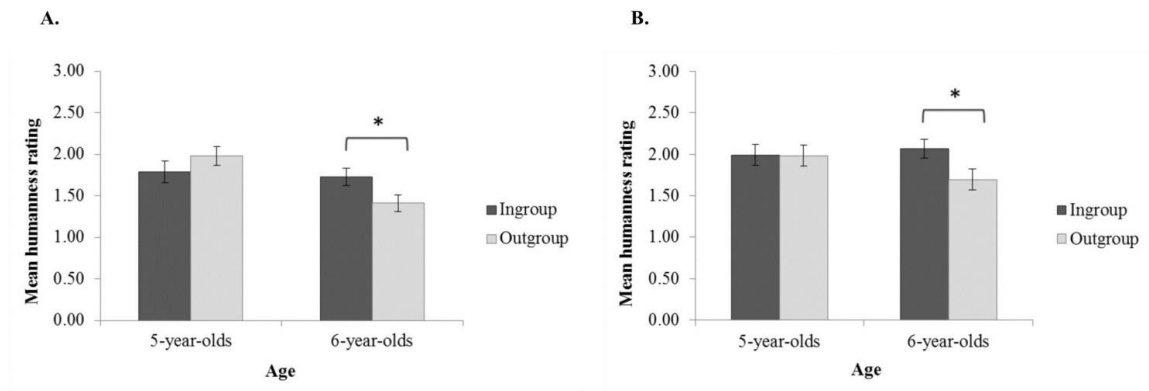
Figure 3. The results from Study 1 with gender groups (panel A) and Study 2 with geographically based groups (panel B) when age was treated as a categorical variable (error bars represent one standard error).

In order to explore whether there was a gradual increase in dehumanisation with age in Study 2, we reran the analyses treating age as a continuous variable. As in Study 1, there was a significant positive relationship between relative dehumanisation scores and age in months, r (62) = .26, p = .041 (see Figure 4, panel B). Thus, with a more powerful means of detecting age-related change, we found a significant increase in relative dehumanisation of outgroup members between the ages of 5 and 6 which suggests a similar emergence of outgroup dehumanisation in both these types of group.
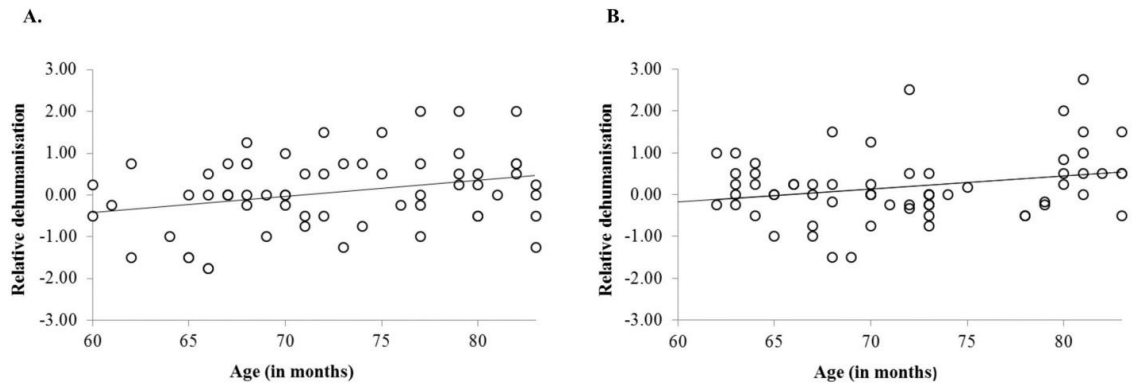
Figure 4. The relationship between age (in months) and relative dehumanisation from Study 1 with gender groups (panel A) and Study 2 with geographically based groups (panel B).

To confirm that the results observed in Study 1 (in which the groups were based on gender) were similar to the results of Study 2 (in which the groups were based on geographical location), we conducted a combined analysis where we investigated the effects of the group membership of the faces, the age of children, and the study in which children participated. Importantly, the study in which children participated did not interact with the critical variables of group membership or age (all F's < 1.24, all p's > .268). Noteworthy in this combined analysis was the significant interaction between children's age and the group membership of the face, $F (1, 124) = 8.88$, $p = .003$, partial $\eta2 = .07$. Whereas humanness ratings for the ingroup did not differ between 5 and 6 ($t (126) = -.03$, $p = .974$), there was a significant decline in humanness ratings of outgroup faces between 5 ($M = 1.98$, $SD = .69$) and 6 years of age ($M = 1.55$, $SD = .64$), $t (126) = 3.65$, $p < .001$, $d = .65$. This result implies that the observed age differences were due to 6-year-olds perceiving less humanness in outgroup faces rather than more humanness in the faces of ingroup members. This adds weight to the claim that this phenomenon represents a potential age–related increase in outgroup dehumanisation rather than ingroup humanisation.

Explicit group preferences

A two-way mixed ANOVA with group (ingroup, outgroup) as a within-subjects factor and age (5-year-old, 6-year-old) as a between-subjects factor showed that children liked their own geographically based group significantly more ($M = 2.72$, $SD = .63$) than the outgroup ($M = 1.52$, $SD = 1.02$), $F (1, 62) = 71.60$, $p < .001$, partial $\eta 2 = .54$. There was no main effect of age ($F (1, 62) = 1.66$, $p = .203$) and no group $\times$ age interaction ($F (1, 62) = .11$, $p = .743$) demonstrating that, again, even the youngest children in the sample preferred their own group. Children's relative group preference score was not significantly associated with relative dehumanisation ($r (62) = -.01$, $p = .942$) or with age ($r (62) = -.10$, $p = .413$).

As with the perceived humanness measure, we combined the data from both studies to investigate any differences between children's explicit preferences for gender and geographically based groups. This combined analysis revealed a significant main effect of group, $F (1, 62) = 106.46$, $p < .001$, partial $\eta 2 = .46$, confirming that children prefer their own group, but there were no significant interactions between the study in which children participated and group or age (all F's < 1.32, all p's $> .253$). It therefore appears that children felt similarly positive about both types of groups and that this preference did not vary with age.

General Discussion

Taken together, these studies illustrate that 6-year-old children perceive less humanness in outgroup faces. Study 1 showed that 6-year-olds perceived ambiguous faces to be less human when they belonged to their gender outgroup. This finding fits with earlier research suggesting that gender influences young children's social evaluations (Bussey & Bandura, 1999; Levy & Haaf, 1994; Martin & Fabes, 2001;

Shutts et al., 2010) and extends it by showing that children sometimes dehumanise their gender outgroup. The findings from Study 2 replicated this pattern and extended it to another type of group based on geographical location. Thus, even when the faces were physically identical in the two conditions, children still attributed less humanness to outgroup faces with increasing age. Our results complement and extend the small body of previous work on the development of dehumanisation (Costello & Hodson, 2014; Martin et al., 2008; Van Noorden et al., 2014) by establishing that, as well as affecting the attribution of uniquely human emotions and traits, group membership influences young children's perception of how human faces appear to be. Overall, this research suggests that the origins of this powerful, and often damaging, social phenomenon emerge relatively early in development.

We tested dehumanisation in younger children than the majority of previous studies and, as a result, we were able to identify a potentially important developmental transition. The tendency to dehumanise the outgroup relative to the ingroup gradually increased between the ages of 5 and 6 for both gender and geographically based groups. It is interesting to consider why 5-year-olds did not show a bias to dehumanise outgroup members. It is not likely that it was due to misunderstanding the task as the results of the control study, training phase and pretest questions established that 5-year-old children understood the stimuli, were able to use the scale and, in Study 2, could identify the group membership of the faces. Moreover, analysis of the explicit preference scores demonstrated that the manipulation was effective for younger children since they preferred their ingroup to the outgroup in both studies. The reasons for this developmental change in dehumanisation remain an important query for future research. One possible account

relates to the fact that 5-year-olds have had significantly less experience with broader social groups than have 6-year-olds (Banaji et al., 2008). It is also possible that dehumanisation could be associated with the emergence of outgroup negativity (as opposed to ingroup preference) which may develop only after children's sixth birthday (Buttelmann & Böhm, 2014). In this context, it is interesting to note that the developmental pattern identified in our studies parallels that found in a recent study on pain perception. Dore, Hoffman, Lillard, and Trawalter (2014) found that, between the ages of 5 and 10, White children show a gradual decrease in the extent to which they believe Black children experience pain. Reductions in the perception of others' pain have been linked to decreased mind attribution (Gray et al., 2007; Gray & Wegner, 2009) and depersonalisation (Loughnan et al., 2010), highlighting that this developmental period might be particularly important in understanding the origins of dehumanisation.

Another interesting aspect of our results is that performance on the dehumanisation measure was not related to explicit intergroup preference. The younger children in our sample showed robust evidence of ingroup bias for both their own gender and own geographically based group, however, they did not show evidence of dehumanising the outgroup. Furthermore, at an individual level, the extent of children's preference for their own groups did not predict their tendency to dehumanise outgroup faces. This finding draws attention to another interesting parallel with the work of Dore et al. (2014) who found the belief that outgroup members feel less pain than ingroup members was not moderated by explicit social preference for own-race individuals. Additionally, in a study with adults, Demoulin et al. (2009) observed that ingroup preference sometimes appears in the absence of infrahumanisation (for e.g., when groups are based on random allocation). In sum,

these studies propose that dehumanisation is a distinct concept that cannot simply be reduced to intergroup preference. Further research is needed to determine the relationship between these two concepts in development.

Our research opens up a number of other important avenues for future studies. Individuals who are perceived to have less of a mind, for instance, are seen by adults to be less worthy of moral consideration (Waytz et al., 2010). It would be interesting to investigate young children's attribution of mind to members of different groups and whether it affects their moral decision-making and judgements about the acceptability of causing harm. Developmental research has found that emotions and motives linked with morally disengaging from one's own behaviour are associated with instances of bullying in schools (Menesini et al., 2003; Van Noorden et al., 2014). Hence it will also be important to examine the detrimental effects of dehumanisation among young children in more applied intergroup settings.

The present studies demonstrate that group membership influences the perception of humanness in young children. Thinking of another group as less human has been shown to predict their mistreatment and disregard (Bandura et al., 1975; Cuddy et al., 2007; Haslam & Loughnan, 2014). This work suggests that the origins of this frequently harmful process appear relatively early in development. It therefore identifies a potentially important age at which to target interventions focused on combatting the phenomenon of outgroup dehumanisation.

Chapter 3: Biases in Children's Mental State Attribution

Reference:

Abstract

We investigated whether young children were more likely to spontaneously attribute mental states to members of their own social group than to members of an outgroup. We asked 5- and 6-year-old children to describe the actions of interacting geometric shapes and manipulated whether children believed these shapes represented their own group or another group. Children of both ages spontaneously used mental state words more often in their description of ingroup members compared with outgroup members. Furthermore, 6-year-olds produced a greater diversity of mental state terms when talking about their own social group. These effects held across two different social categories (based on gender and geographical location). This research has important implications for understanding a broad range of social phenomena including dehumanisation, intergroup bias and theory of mind.

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[3] The author, Niamh McLoughlin, designed the experiment, collected the data, analysed the results, and wrote the article under the supervision of Dr. Harriet Over.

Introduction

The ability to understand others' minds is vital to human social interaction (Baron-Cohen et al., 1985; Gray et al., 2007). From a young age, children are able to reason about the intentions (Carpenter et al., 1998), desires (Repacholi & Gopnik, 1997), and perhaps even the beliefs (Onishi & Baillargeon, 2005) of other people.

However, social psychological research has demonstrated that adults do not always take the mental life of others into account (Harris & Fiske, 2006). They sometimes 'dehumanise' members of social outgroups or deny their mental capacities, such as intelligence, agency and emotional depth (Haslam, 2006; Leyens et al., 2000). Outgroup dehumanisation has been an integral part of prejudice and discrimination throughout history and remains an important political issue today (Haslam, 2006). Although the tendency to dehumanise others is not limited to any one political group, rising support for far right parties throughout the West makes the significance of this topic all too clear (Roth, 2017).

In the present study, we combined developmental work on theory of mind with social psychological research on dehumanisation by investigating whether young children are more likely to spontaneously consider the mental states of ingroup members than those of outgroup members. In order to do this, we adapted a paradigm created by Abell et al. (2000) in which participants are asked to describe the behaviour of interacting geometric shapes. The actions of these shapes have been shown to elicit mental state terms in typically developing children and adults (Abell et al., 2000). We manipulated whether children believed these shapes represented members of their own social group or a different social group. We predicted that

they would use mental state terms more often, and with greater variety, when describing ingroup interactions.

We tested these hypotheses with two different types of social group, one relating to gender and the other relating to geographical location. We chose to manipulate gender because previous research has shown that this category is particularly salient to young children and that knowledge of gender stereotypes influences their aspirations and career goals (Bian, Leslie, & Cimpian, 2017). We decided to manipulate geographical or national origin as well because this social division is so deeply intertwined with current political debates regarding immigration. We reasoned that if the tendency to attribute more mental states to members of the ingroup is robust, then the effect should hold across both types of group.

We opted to work with 5- and 6-year-olds because, by this age, children are proficient at mental state reasoning (Baron-Cohen et al., 1985), frequently incorporate mental state terms into their conversation (Frith & Frith, 2003) and show preferences for members of their own gender and geographically based group (McLoughlin, Tipper, & Over, 2017).

Method

Participants

The sample consisted of 64 5-year-olds (mean age: 5 years 6 months; age range: 4 years 11 months-5 years 11 months) and 64 6-year-olds (mean age: 6 years 5 months; age range: 6 years 0 months-6 years 11 months) with an equal number of boys and girls in each age group. The children were recruited from local primary

schools situated in a small town in northern England and from a science museum located in an urban centre. Further demographic information was not collected.

Six additional children were tested but excluded from analyses because of developmental delay ($n = 1$), technical error ($n = 3$), shyness (i.e., the child did not respond to any of the test questions or prompts; $n = 1$) and misunderstanding the instructions ($n = 1$). The sample size was based on previous research exploring the development of intergroup cognition (e.g., Dunham et al., 2011; Martin et al., 2008; McLoughlin et al., 2017). We decided on the sample size for each comparison in advance and data collection was stopped once the pre-specified sample size was reached.

Stimuli and Materials

Frith-Happé animations

The videos were originally developed by Abell et al. (2000) and later used by other labs (e.g., Salter, Seigal, Claxton, Lawrence, & Skuse, 2008) to examine mental state attribution. The key feature of these videos from our perspective is that they can be described in terms of simple actions (e.g., pushing each other) or in terms of perceived mental states (e.g., teasing each other).

The videos depict two animated triangles, one big and one small, which appear to interact. In the video used for the warm-up trial, one shape follows the other around the screen in a way that could be described as trying to imitate or mock that character. The main purpose of this warm-up trial was to familiarise the children with the stimuli. In the two videos used in the test phase, one triangle appears to coax the other one outside (the *coaxing* video); in the other video, one triangle

appears to deliberately surprise the other one (the *surprising* video). A fourth video created by Abell et al. (2000) was discarded because the content was not ideally suited for young children (i.e., one shape attempts to seduce the other).

Each video lasted approximately 40 seconds. To avoid any assumptions related to gender or stereotypical associations between nations and colours, we changed the original colours of the animated shapes (red and blue) to black using Movavi Video Editor software. The videos were presented to participants on a Lenovo ThinkPad Intel Core i5 laptop.

Response scale

A 4-point Likert scale was used to measure children's explicit preference for the social groups (McLoughlin et al., 2017). This scale took the form of a bar chart with a 'Not at all' option followed by black bars that increased in height to represent 'A little', 'A medium amount' and 'A lot'.

Design and Counterbalancing

The study had a 2 (group type: gender, geographical location) × 2 (group membership: ingroup, outgroup) × 2 (age: 5-year-old, 6-year-old) mixed design. Children's age and the group type were treated as between-subjects variables and group membership was treated as a within-subjects variable. The dependent variables were the total number and the diversity of mental state terms that children used in their description of the videos.

The video associated with the two groups was counterbalanced so that half of the children saw the coaxing video paired with their own group and half of the children saw the coaxing video paired with their outgroup. The order in which the

two videos (coaxing and surprising) were presented was also counterbalanced, as was the order in which children were presented with the in- and outgroup video.

Procedure

Warm-up trial

After a brief warm-up phase where the experimenter (E) encouraged children to engage in a conversation with her, she introduced the warm-up video. This warm-up trial was used to acclimatise children to the procedure. E introduced the video without making any references to gender or geography. She showed children a slide with two triangles and said, 'The first video tells the story of two children. Look, here is one child' and pointed to the big triangle and continued, saying, 'And here is another child,' and pointed to the smaller triangle. She informed children that after watching the video, they could tell her what they thought was happening. E then played the relevant video twice. Following this, a screenshot image of the two triangles from the video appeared on the screen and E asked children four questions to elicit descriptions of what had happened. E first asked, 'What do you think was happening in the video?', and once the child had responded, 'What do you think the children were doing?' These questions were followed by two further probes in which E asked, 'Tell me about this child,' pointing first to the bigger character, then to the smaller character. If the child did not respond to a test question, E prompted him or her again. If the child did not respond to the prompt, then E moved onto the next question. If the child responded to the test questions with a response like 'I don't know' or 'I already told you', E moved onto the next question without using the prompt. The children were not given any specific

feedback on their performance; the experimenter responded 'All right!' or 'Okay!' to their statements regardless of what they said.

Gender groups

In the gender group condition, E introduced the test videos by saying 'Now I am going to show you two more videos- one of them is going to be about two boys and the other one is going to be about two girls'. The procedure for the test trials was identical to that of the warm-up trial with the exception that E specified the gender of the characters for the test questions (e.g., 'What do you think the boys were doing?', 'Tell me about this girl').

Geographically based groups

In this condition, E introduced the ingroup test video by saying that it concerned 'two children who live in the same town as you. They go to a school just like your school and they talk just like you do'. The children were told that the outgroup video, in comparison, involved 'two children who live in a country a long way away from here. They go to a school quite different from your school and they talk in a different language to you'. The test questions were identical to those of the warm-up trial except that the geographical origin of the characters was specified (e.g., 'What do you think the children from your town were doing?', 'Tell me about this child from the country far away').

Explicit preference

Once the videos were over, E introduced participants to the 4-point measurement scale and asked them to point to how much they liked children belonging to their own and the other social group. This was done to check that they

preferred their own group (Dunham et al., 2011). At the end of the session, children were thanked for their participation and debriefed in a way as to ensure that they left the experiment in a positive frame of mind.

Coding

Coding scheme

We developed a coding scheme based on previous research investigating the mental state content of adult and children's speech (Abell et al., 2000; Meins, Fernyhough, Arnott, Leekam, & de Rosnay, 2013; Nielsen & Dissanayake, 2000). Words were counted as referring to mental states if they referenced a character's thoughts and desires (e.g., 'to want', 'to try', 'to like', 'to know', 'to decide', 'to look for'), emotions (e.g., 'angry', 'scared', 'upset'), intentions (e.g., 'to be naughty', 'to be cheeky') or current states (e.g., 'to be funny', 'to be shy'). References to mental states involving interactions between the two characters were also coded in this category (e.g., 'pretending', 'tricking', 'arguing', 'surprising', 'spying'). We coded the total number of mental state words children produced to describe each group and the diversity of mental state terms they used in each description. For example, a child who twice said a character was 'trying to' do something produced two mental state terms in total but only one unique mental state term. Alternatively, when a child used two mental state words in conjunction with each other, for example, saying that a character "'wanted to scare' someone, they were coded as producing two mental state terms and two unique mental state terms.

Occasionally, in the gender group condition, children used an incorrect gender pronoun when referring to one of the characters (for e.g., referring to a

character E had introduced as female as 'he'). Mental state words produced in combination with the incorrect pronoun were excluded from the analyses (*n* = 2).

Reliability

Children's responses for both test videos were transcribed and coded by the first author. A second rater, unaware of condition, recoded 100% of the data from the transcripts. Reliability between the two coders was very high for the number of mental state terms in the ingroup (intraclass correlation coefficient (ICC) = .99, 95% CI [.99, .99]) and outgroup condition (ICC = .99, 95% CI [.99, .99]). Reliability was also very high for the diversity of mental state words produced in both conditions (ICC = .99, 95% CI [.98, .99] and ICC = .98, 95% CI [.98, .99] respectively). The few disagreements between the coders were resolved by discussion.

Results

Preliminary Analyses

In our preliminary analyses, we inspected the data to see if there were any main effects of participant gender on the dependent variables. There were not (all *p*'s > .145) and, as a result, we collapsed across this variable and do not consider it further.

Number of Mental State Words Produced

We conducted a three-way mixed ANOVA with group membership associated with the video (ingroup, outgroup) as a within-subjects factor and age (5-year-old, 6-year-old) and group type (gender, geographical location) as between-subject factors. In line with our predictions, this result revealed a main effect of group membership: Participants used significantly more mental state words in the

ingroup condition ($M = 2.44$, $SD = 2.55$) than in the outgroup condition, ($M = 1.77$, $SD = 1.92$), $F (1, 124) = 8.50$, $p = .004$, partial $\eta2 = .06$, 95% CI $= [.22, 1.13]$ (see Figure 5, panel A). There was also a main effect of age; 6-year-olds produced more mental state terms ($M = 2.49$, $SD = 2.37$) than 5-year-olds did ($M = 1.71$, $SD = 2.12$), $F (1, 124) = 5.96$, $p = .016$, partial $\eta^2 = .05$, 95% CI $= [.15, 1.42]$, presumably because older children are generally more proficient in the use of these terms (Hughes & Dunn, 1998). There was no main effect of group type ($F (1, 124) = 1.49$, $p = .225$), no interaction between group membership and age ($F (1, 124) = .46$, $p > .250$) and no interaction between group type and group membership or between group membership and age (all F's < 1.15, all p's $> .250$). There was also no three-way interaction among these variables ($F (1, 124) = .02$, $p > .250$). Thus, children produced a greater number of mental state terms when describing their ingroup than their outgroup and this effect held across both types of social group – gender and geographically based groups.

Having run these analyses, we wanted to check that this effect was not driven by a tendency for children to talk more about the ingroup overall. We therefore analysed how many words participants spoke in total in each condition. Children did not produce significantly more words in the ingroup condition ($M = 61$) than in the outgroup condition ($M = 57$; $t (127) = 1.64$, $p = .104$). Although the results of this analysis did not reach statistical significance, we adopted a conservative approach and reran our original analyses using the proportion of children's speech that referenced mental states as the dependent variable. This analysis showed that children used proportionally more mental state words when talking about the ingroup video ($M = .05$, $SD = .07$) than when talking about the outgroup video ($M = .03$, $SD = .03$), $F (1, 124) = 7.60$, $p = .007$, partial $\eta2 = .06$, 95% CI $= [.00, .02]$. There was

no main effect of age *(F (1, 124) = 2.72, p = .102)* or group type *(F (1, 124) = .01, p > .250)* and no interactions of group type and the other critical variables (all *F*'s < 1.09, all *p*'s > .250) on the proportion of mental state words children produced. The group membership × age interaction was also not significant *(F (1, 124) = 3.61, p = .060)*.

Diversity of Mental State Words Produced

We carried out a mixed ANOVA with the group membership of the video (ingroup, outgroup) as a within-subjects factor and age (5-year-old, 6-year-old) and group type (gender, geographical location) as between-subject factors. This analysis yielded a main effect of group membership, $F (1, 124) = 4.41$, $p = .038$, partial η2 = .03, 95% CI = [.01, .47]. Again, consistent with our predictions, children produced a greater diversity of mental state terms in the ingroup condition ($M = 1.35$, $SD = 1.25$) than in the outgroup condition, ($M = 1.11$, $SD = 1.05$). There was also a main effect of age; 6-year-olds used a more diverse range of mental state words ($M = 1.48$, $SD = 1.20$) than did 5-year-olds ($M = .98$, $SD = 1.06$), $F (1, 124) = 9.07$, $p = .003$, partial η2 = .07, 95% CI = [.17, .82], most probably because older children have a wider vocabulary (Hughes & Dunn, 1998). These main effects were qualified by a significant group membership × age interaction, $F (1, 124) = 4.41$, $p = .038$, partial η2 = .03. Follow-up tests showed that 6-year-olds used a greater diversity of mental state words for the ingroup video ($M = 1.72$, $SD = 1.25$) than for the outgroup video ($M = 1.23$, $SD = 1.11$), $t (63) = 2.86$, $p = .006$, $d = .36$, 95% CI [.15, .82] (see Figure 5, panel B), whereas 5-year-olds did not ($t (63) = .00$, $p > .250$). As in the previous analysis, there was no main effect of group type ($F (1, 124) = .83$, $p > .250$), no interaction between group type with either age or group membership (all *F*'s < .37, all *p*'s > .250), and no significant three-way interaction ($F (1, 124) = 1.33$, $p > .250$).

These findings suggest that older children's bias to generate a greater diversity of mental state terms in the ingroup condition held across both gender and geographically based groups.

In order to control for any possible influence of the total number of words spoken by the children in the two conditions, we also reran these analyses with proportional scores. In these analyses, there was also a significant main effect of group membership, F (1, 124) = 4.06, p = .046, partial η2 = .03, 95% CI = [.00, .02], and a significant interaction between group membership and age F (1, 124) = 6.71, p = .011, partial η2 = .05. Again, follow-up tests showed that 6-year-olds produced a greater diversity of mental state words when describing ingroup interactions (M = .04, SD = .08) than when describing outgroup interactions (M = .02, SD = .02), t (63) = 2.49, p = .016, d = .31, 95% CI = [.00, .04]. Five-year olds' responses did not differ significantly between conditions (t (31) = - .75, p > .250). There was no significant main effect of age (F (1, 124) = 2.69, p = .103) or group type (F (1, 124) = .01, p > .250) and no other interactions were significant (all F's < 2.17, all p's > .143).

Explicit Preference

Finally, we conducted a three-way mixed ANOVA with children's group membership (ingroup, outgroup) as a within-subjects factor and age (5-year-old, 6-year-old) and group type (gender, geographical location) as between-subjects factors on explicit preference ratings. This analysis confirmed that children liked members of their own group (M = 2.63, SD = .72) significantly more than members of the other group (M = 1.76, SD = 1.01), F (1, 124) = 60.14, p < .001, partial η2 = .33, 95% CI = [.65, 1.09]. There was no main effect of age on children's explicit

preference (F (1, 124) = .90, $p > .250$) and no interaction between group membership and age (F (1, 124) = .01, $p > .250$). There was no main effect of group type (F (1, 124) = 1.93, $p = .168$) and this variable did not interact with group membership and/or age (all F's < 2.15, all p's > .145). Hence, it seems that children felt similarly positive about both their own gender and geographically based group and their explicit preference did not vary by age.
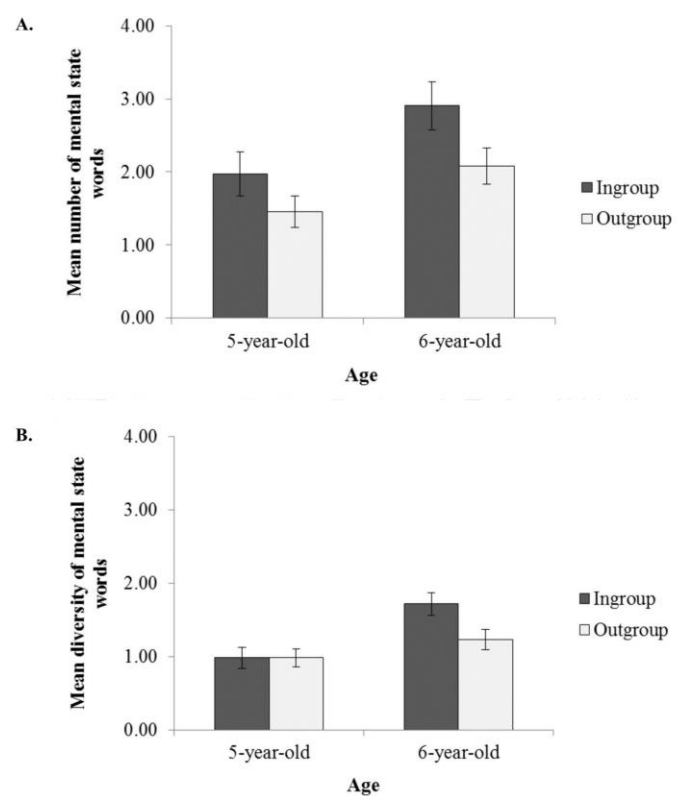
Figure 5. The results for the mean number of mental state words (panel A) and for the mean diversity of mental states words (panel B) that 5- and 6-year-old children produced in each condition. Error bars represent the standard error of the mean.

Discussion

Our results reveal that young children use mental state terms more often when describing members of their own social group. Furthermore, 6-year-old, but not 5-year-old, children use a greater diversity of mental state words when talking

about their ingroup. This effect held across two different social categories – one based on gender and the other on geography. Importantly, these results cannot be explained by an increased motivation to talk more about the own group in general, because they held even when we reran the analyses with the proportion of mental state words children produced for each video. Overall, our findings demonstrate that young children are selective in the way they attribute mental states to others.

This study has important implications for our understanding of the origins of intergroup bias. Previous developmental research has concentrated on children's relative preferences for members ingroup members (Dunham et al., 2011) and has established that children show both explicit and implicit preferences (Baron & Banaji, 2006) from early in development. Here, in contrast, we focus on mental state attribution. This topic is closely related to the concept of dehumanisation (Harris & Fiske, 2006). Prior studies with adults have found that they are less likely to attribute a mind to outgroup members (Hackel et al., 2014) and that this tendency has significant consequences for moral judgements (Gray et al., 2007). Relevant work in philosophy and sociology has shown that dehumanisation is pervasive within the media and other social domains (Esses, Medianu, & Lawson, 2013; Redeker, 2007) and could thus have wide-ranging repercussions for group relations. Research into the development of dehumanising biases may therefore enhance our general understanding of intergroup harm and prejudice. However, until now, this subject has received relatively little attention. Recent studies have suggested that children perceive less humanness in outgroup faces (McLoughlin et al., 2017) and rate the emotions of outgroup members to be less intense than those of the ingroup (Martin et al., 2008). Our results inform work in this related field by showing that, at least from

the age of 5, children are less likely to spontaneously reference the mental states of individuals belonging to another group.

Our findings also have interesting implications for research on theory of mind. Since Wimmer and Perner's seminal 1983 article, the study of mental state understanding has blossomed within developmental psychology. This work has primarily been dedicated to when children first develop the ability to reason about the minds of others, including their feelings (Hughes & Dunn, 1998) and beliefs (Onishi & Baillargeon, 2005). The current findings underline the importance of considering the situations in which children are more or less motivated to deploy this skill, in addition to investigating when this ability emerges (Over, 2016).

A valuable question for future inquiry is whether our results would extend beyond children in WEIRD (Western, Educated, Industrialised, Rich and Democratic) cultures (Henrich, Heine, & Norenzayan, 2010). Previous research has revealed systematic differences in the emphasis that cultural groups place on mental states as explanations for other people's behaviour (Lillard, 1998). Cultural variations in both mental state attribution (Lillard, 1998) and intergroup dynamics (Fischer & Derham, 2016) could influence the relationship we observed in this study.

The present report addresses a surprising disconnect between the literatures examining the development of intergroup cognition and theory of mind (Rakoczy, 2014). The combination of these research areas is of potential interest to academics working in applied settings. For example, future research could explore the social consequences of biased mental state attribution and whether encouraging children to attribute a mental life to outgroup members may increase their readiness to engage in

prosocial behaviour (Drummond, Paul, Waugh, Hammond, & Brownell, 2014) in Western contexts and beyond. In this way, investigation into the development of dehumanisation may ultimately inform research-led interventions to foster positive intergroup relations.

Chapter 4 : Improving Children's Intergroup Relations

Reference:

McLoughlin, N., & Over, H. (2017). *Encouraging young children to mentalise about a perceived outgroup increases empathic helping towards them.* Manuscript submitted for publication.[4]

Abstract

We investigated whether encouraging young children to discuss the mental states of an immigrant group would impact on their perception of a group member's emotional experience and elicit more positive behaviour towards them. 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 helped a novel member of the immigrant group who was the victim of a minor transgression. Interestingly, this manipulation did not lead to greater helping towards a victim from the children's own culture and did not influence their perception of a victim's negative emotions. These results may have implications for interventions aimed at fostering positive intergroup relations.

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[4] The author, Niamh McLoughlin, designed the experiment, collected the data, analysed the results, and wrote the article under the supervision of Dr. Harriet Over.

Introduction

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 (Vieten & Poynting, 2016). In the current political climate, particular emphasis has been placed on negative attitudes towards immigrants (Sanneh, 2016; 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; Leyens, 2009; Smith, 2012). This generally refers to the perception that a person is not entirely human as a consequence of their group membership (Vaes et al., 2012). In its subtle form, dehumanisation is associated with attributing fewer mental states and uniquely human traits to outgroup than to ingroup members (Demoulin et al., 2009; Hackel et al., 2014; Haslam, 2006). 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 ingroup members. This latter phenomenon is referred to as 'infrahumanisation' within the social psychological literature (Boccato et al., 2007; Vaes et al., 2012). 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 et al., 2014; Čehajić et al., 2009; Cuddy et al., 2007).

Previous research with children has shown that the psychological origins of intergroup bias are present early in development (Banaji et al., 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 et al., 2015; Kinzler et al., 2007). Furthermore, they are often more prosocial towards members of their own social groups (for a review, see Over, 2018). Recent research has begun to explore the developmental origins of dehumanisation. Children, aged between 6 and 12 years, attribute more uniquely human qualities (e.g., creativity, politeness, trustworthiness) to their own racial (Costello & Hodson, 2014) and peer groups (Van Noorden et al., 2014). In a related study, McLoughlin et al. (2017) 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 they rate the secondary emotions of national outgroup members to be less intense than those of the ingroup (Martin et al., 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. 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 scare', 'to be sad') in their description of the ingroup video compared to the outgroup video. 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 place of origin or geographical location.

It is not yet clear whether children's tendency to attribute fewer mental states to the outgroup has a causal influence on their understanding of a group member's mental experiences or in their behaviour towards them. Processing the mind of another person appears to be an important step in the attribution of humanness and in motivating an empathic view of others (Bruneau et al., 2015; Harris & Fiske, 2006; Waytz et al., 2010). We were, therefore, interested in whether a mentalising manipulation would first affect children's perception of an outgroup individual's emotions.

We were also interested in the potential impact of mentalising about social outgroup members on children's prosocial intergroup behaviour. Shih, Wang, Trahan Bucher, and Stotzer (2009) found that prompting predominately White adults to imagine how an Asian individual was feeling increased instrumental helping towards another Asian person in an independent situation. Also pertinent to this hypothesis, Bruneau et al. (2015) revealed that reading individuating information about team members belonging to a minimal outgroup, especially when this information referred to their mental states, considerably reduced the empathy gap between the in- and the outgroup. More generally, research with children has shown that hearing a parent talk about mental states and emotions predicts the likelihood that toddlers and young children engage in prosocial activities (Brownell, Svetlova, Anderson, Nichols, & Drummond, 2013; Garner, Dunsmore, & Southam-Gerrow, 2008) and that this is particularly true in empathic helping situations (i.e., offering the experimenter a blanket when she indicated she was cold; Drummond, Paul, Waugh, Hammond, &

Brownell, 2014). In a study more closely related to an intergroup context, Sierksma, Thijs, and Verkuyten (2015) examined whether inducing empathy would overcome children's propensity to help their ingroup peers more often than outgroup peers. They found that when 8- to 13-year-old children were prompted to reflect on how a peer felt in a distressing situation, they reported similar intentions to help that child regardless of whether they were a friend or a non-friend.

We investigated whether encouraging young children to think about the mental states of a perceived outgroup in a range of everyday situations would alter their understanding of a novel outgroup child's distress and increase the level of empathic helping shown towards them. We chose to investigate this question in the context of immigration; this decision was based on the significance of this social group in current political debates. Participants were presented with a picture book containing images of children who were described as coming from a country very far away but who have recently moved to the UK. In the experimental condition, the children were encouraged to talk about what the immigrant group were thinking and feeling. In the control condition, participants were asked the same number of questions about the immigrant group but these questions encouraged them to discuss the group's actions rather than their mental states. Following this manipulation, the children were introduced to two novel group members who were the victims of minor harm. We measured the children's perception of one victim's emotional experience, as well as their prosocial behaviour towards the other victim. To examine if any effect of the manipulation was specific to the immigrant group or if it also generalised to other children who had always lived in the UK, 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, instead, were told that the two victims presented after the storybook lived close to them.

We tested 5- to 6-year-olds because children in this age range exhibit intergroup biases (Dunham et al., 2011; Kinzler & Spelke, 2011), including a tendency to dehumanise members of outgroups (Martin et al., 2008; McLoughlin & Over, 2017; McLoughlin et al., 2017), and sometimes report negative attitudes towards immigrants (Cameron, Rutland, Brown, & Douch, 2006) . In addition to this, they 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 et al., 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 6, panel A).
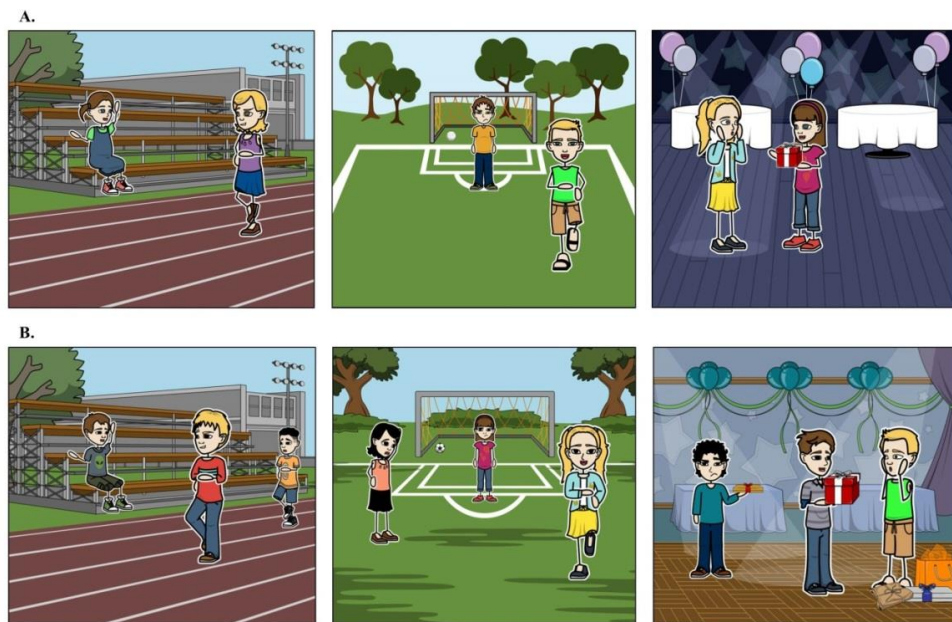
Figure 6. Examples of the storybook images (created at www.storyboardthat.com) from Study 1 (panel A) and Study 2 (panel B).

Emotion perception scale. 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 illustrated with a basic pictorial depiction of that emotion (Over & Uskul, 2016; see Figure 7, panel A).

Empathic helping measure. Children's tendency to help 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 of a minor transgression; see Figure 7, panel B).
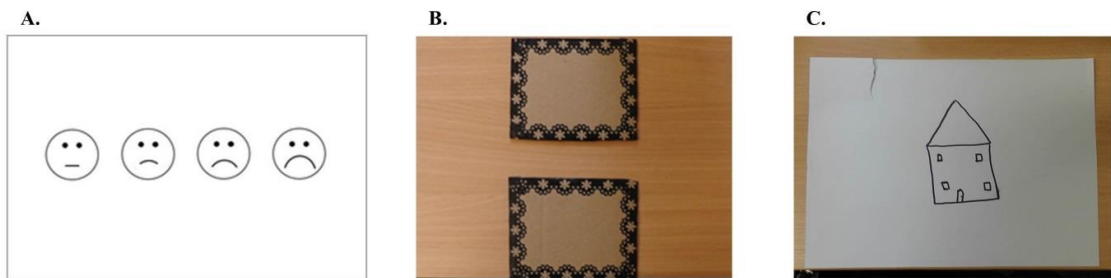
Figure 7. Materials: (A) the four-point scale that measured children's ratings of emotion intensity, (B) the cardboard trays that were part of the helping task (note that the tray belonging to the participant was placed nearer to them while the one belonging to the victim was placed slightly further away) and (C) the 'ruined' drawing used as a prop for the emotion intensity measure in Study 1.

Design and counterbalancing

The main independent variables were the condition assigned in the picture book phase (experimental, control) and the group membership of the victims (own cultural group, immigrant group). This led to four between-subject conditions: experimental 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 children's perception of a novel member's sadness and the number of stickers children donated to the victim in the empathic helping task. The order in which these two dependent measures were presented was counterbalanced.

Procedure

Picture book phase. The experimenter (E) introduced children to the immigrant group. She showed them a picture of a group of illustrated child

characters (on the front of the storybook) 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 experimental 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.

Dependent measures. After the picture book phase, children were told of two scenarios that happened to two different individuals. In the immigrant group victim condition, E immediately proceeded to administer the tasks, however, in the condition in which the victim was from the participant's own culture, E first mentioned that she would be asking about 'children who come from your own town and who live close to you'.

For the emotion perception measure, E showed children a drawing with a relatively small tear in the upper left corner of the page (see Figure 7, 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*). We decided to talk about this transgression retrospectively to avoid the ceiling effects observed during the piloting of this task (see also Over & Uskul, 2016).

In the empathic helping measure, E said 'I am going to see a child (again, 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. 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, did not correctly identify the trays or if they 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.

Coding

The children's responses on the emotion intensity measure could range between 0 (*Okay*) and 3 (*Very sad*) and the number of stickers they donated for the helping measure could range between 0 and 5. 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 on

one participant's response on the emotion and helping measures meaning they agreed in 98.96% of cases. The two disagreements were resolved through discussion.

Results and Discussion

Preliminary analyses

As a manipulation check, we coded the number of mental state words children used in response to the test questions during the picture book phase (for e.g., how often they used terms like 'to try', 'to be happy' and 'to remember'). A between subjects *t*-test confirmed that children produced significantly more mental state words in the experimental condition ($M = 18.94$, $SD = 11.30$) compared to the control ($M = 1.50$, $SD = 2.54$), $t(51.72) = 10.43$, $p < .001$ (the degrees of freedom were modified because the assumption for equality of variances was violated).

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.

Emotion perception

A 2 (Condition: Experimental, 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 experimental manipulation did not affect children's perception of a basic negative emotion experienced by a novel group member.

Empathic helping

A 2 (Condition: Experimental, control) × 2 (Group membership of victim: Own cultural group, immigrant group) between-subjects ANOVA on children's helping behaviour showed that the experimental 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 η2 = .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 helped a victim from their own town ($t(46)$ = 1.49, p = .144; see Figure 8, 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).

Study 2

Our main aim for Study 2 was to investigate whether we could replicate the observed increase in children's empathic helping for an immigrant group member. Furthermore, since the mentalising manipulation did not alter children's perception of a basic emotion (sadness), we wanted to examine if it could impact 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 uniquely human emotions than in how they experience or express primary emotions (Leyens et al., 2000; Martin et al., 2008). We also added a third character to each image in the picture book. We reasoned that a slightly more complex social situation with three characters might lead children to engage in more conversation about mental states and so increase the strength of the observed effect.

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 (see Figure 6, panel B).

Emotion perception scale. 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. For each picture, we asked children to identify the character that they thought was disappointed. Children's performance was at 100%.

Empathic helping measure. In Study 1, children's helping levels were quite low. To try to encourage greater helping overall, children were given slightly less attractive stickers to distribute for the helping task (i.e., five yellow circles as opposed to yellow stars) on the same trays used in Study 1.

Design and counterbalancing

As in Study 1, the independent variables were the condition associated with the picture book (experimental, control) and the group membership of the victims (own cultural group, immigrant group). The dependent variables were children's ratings of disappointment and the number of stickers they chose to donate to the victim. Again, 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 intensity 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

Children's responses 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 few inconsistent trials in the latter measure were discussed between coders.

Results and Discussion

Preliminary analyses

Like in Study 1, the experimental test questions led children to produce more mental state words ($M = 16.15$, $SD = 10.88$) than did the control questions ($M = 1.23$, $SD = 1.81$), $t(49.61) = 9.37$, $p < .001$ (again, the degrees of freedom were modified due to the violation of the assumption of equal variance). There was no effect of the counterbalancing variable (all p's > .145) or gender (all p's > .054) on the children's responses.

### *Emotion perception*

A 2 (Condition: Experimental, control) × 2 (Group membership of victim: Own cultural group, immigrant group) between-subjects ANOVA revealed no significant effect of condition although children's perception of how disappointed the victim felt was slightly higher after the experimental manipulation ($M = 1.96$, SD

90

= 1.30) than the control manipulation ($M = 1.48$, $SD = 1.32$), $F(1, 92) = 3.14$, $p = .080$, partial $\eta2 = .03$. 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 ($F(1, 92) = .05$, $p = .818$). Thus, prompting children to talk about the mental states of immigrant group members does not impact upon their perception of a primary (Study 1) or secondary negative emotion (the present study) a victim experienced after a minor transgression.

Empathic helping

A 2 (Condition: Experimental, control) × 2 (Group membership of victim: Own cultural group, immigrant group) between-subjects ANOVA on empathic helping scores yielded a marginal main effect of condition, $F(1, 92) = 3.81$, $p = .054$, partial $\eta2 = .04$. On average, children gave somewhat more stickers to the victim in the experimental picture book condition ($M = 1.46$, $SD = 1.25$) than in the control ($M = .98$, $SD = 1.19$). There was no main effect of the group membership of the victim ($F(1, 92) = .87$, $p = .353$). Replicating 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 $\eta2 = .05$. Follow-up tests showed that children were more helpful towards the immigrant group victim 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 again no difference between conditions in children's helping behaviour towards the victim from their own culture ($t(46) = -1.18$, $p = .906$; see Figure 8, panel B). Again, these findings suggest that, in this specific intergroup context, mentalising about a perceived outgroup may only have benefits for a victim belonging to this group.
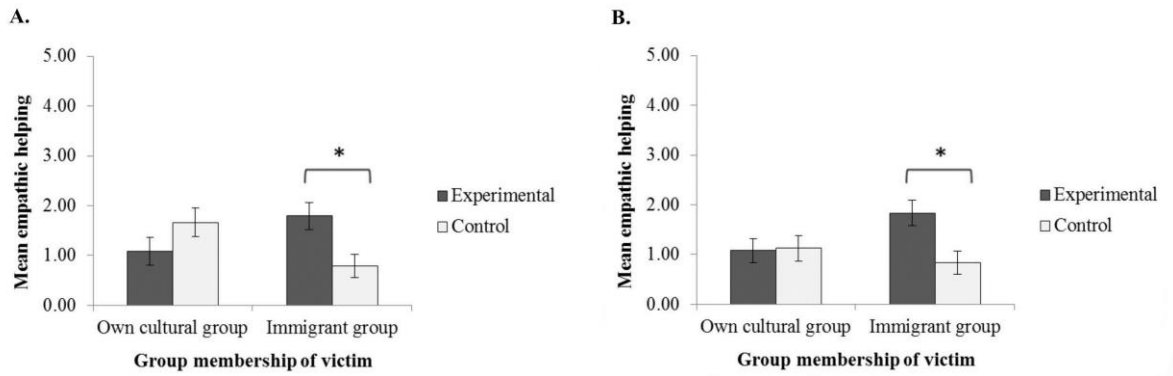
Figure 8. The results from Study 1 (panel A) and Study 2 (panel B) for the mean number of stickers that children donated to the victim. Error bars represent standard error of the mean.

General Discussion

These two studies show that encouraging children to discuss the mental states of a perceived outgroup leads to increased empathic helping towards a novel member of that group. Our research contributes to understanding the role that mental state attribution has in shaping intergroup interactions. Previous research has demonstrated that children in this age range use mental state terms more often when describing the interactions of social ingroup members compared to outgroup members (McLoughlin & Over, 2017). The present studies suggest that the attribution of mental states plays a causal role in eliciting prosocial behaviour within intergroup settings. This finding aligns with other developmental research that found thinking about the experience of an individual in a difficult situation fosters a greater willingness to help them (Sierksma et al., 2015). It extends this work by showing that motivating children to mentalise about another group more generally increases empathic helping towards other members of that group in an unrelated situation.

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. From a more applied perspective, they indicate that interventions designed to encourage mentalising about outgroups do not necessarily risk discouraging prosociality towards ingroup members, at least in this particular context.

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). This suggests the interesting possibility that the observed increase in helping behaviour was not driven by a change in children's understanding of the victim's emotions but rather by an increased motivation to assist them. However, further research is needed to test this question more directly.

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 thoughts and feelings of members belonging to an immigrant group, children in our study referenced a range of mental states including happiness, anger, desire, confusion and surprise. Drawing sharp distinctions between different types of mental states is not straightforward and researchers disagree on how this ought to be done (McLoughlin & Over, 2017; Meins et al., 2013). Yet, it would still be worthwhile for future research to assess whether the observed effect is

driven more by a specific aspect of mentalising (e.g., emotions vs. decisions) or whether the complexity of the terms that are produced during this process matters (e.g., primary vs. secondary emotions or intentions vs. beliefs).

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 helping children showed towards 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 interventions, it is vital to examine the length of the observed effects and if they generalise to more ecologically valid situations, as well as to different cultural and intergroup contexts. Another important question is whether this effect will have any influence over and above existing effective interventions that focus on vicarious contact with outgroup members (Brown et al., 2007; Cameron et al., 2006; Vezzali, Capozza, Stathi, & Giovannini, 2012). Finally, it will be crucial to investigate the prospect that encouraging children to mentalise about an outgroup can sometimes have adverse effects, for example, when the group in question is perceived as a potential threat (Hackel et al., 2014).

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 help another immigrant child who was a victim of an unfair life event. Thus, this line of research could be potentially valuable in increasing aid towards vulnerable social groups in Western societies and beyond.

Chapter 5: General Thesis Discussion

The present empirical studies reveal some interesting, and potentially important, findings for the developmental origins of dehumanising biases. In Chapter 2, 6-year-old, but not 5-year-old, children perceived less humanness in faces that belonged to their gender outgroup (Study 1) and to a geographically based outgroup (Study 2). The developmental pattern of children's responses was very similar in both of these intergroup contexts; the tendency to judge outgroup faces to be less human relative to ingroup faces increased gradually between the ages of 5 and 6 and was not related to children's preference for the social groups. The results from Chapter 3 also suggest that young children may not be inclined to consider the humanity of in- and outgroup members to the same extent. In this study, 5- and 6-year-old children spontaneously referred to mental states more often when describing the actions of ingroup characters compared to characters belonging to a different group. Moreover, 6-year-olds provided a more detailed description of their own group's mental states. These findings held across two types of social categorisation (gender and geographically based) and even in an analysis that controlled for the number of words children spoke overall. Lastly, Chapter 4 showed that directly addressing this bias in mental state attribution can have positive outcomes for children's intergroup behaviour. In two studies, children who were encouraged to mentalise about the behaviour of immigrant group members (through discussion of their thoughts and feelings) were more helpful towards a novel member of that group who was the victim of a minor transgression.

This work offers insight into how children may perceive outgroups as less human and identifies a possible strategy that could combat a negative consequence

of this phenomenon. However, given that the concept of dehumanisation has only recently been investigated from a developmental perspective, there are a great many questions that need to be explored in future research. Thus, in the following sections, I will discuss the implications of my doctoral studies for this and related topics, and what I consider to be particularly important routes for future work.

The Nature and Trajectory of Dehumanisation in Development

The first question concerns the appearance of dehumanising tendencies in development. In Chapters 2 and 3, I examined two proposed forms of dehumanisation, one relating to biases in the way we perceive physical humanness (Castano et al., 2009; Hackel et al., 2014; Krumhuber et al., 2015) and the other relating to the denial of mind to other people (Gray & Wegner, 2009; Harris & Fiske, 2011). The results of these studies were complementary in some respects but also produced some interesting differences. Most notably, 5-year-old children perceived in- and outgroup faces as equally human in Chapter 2 whereas similarly aged children in Chapter 3 were more likely to attribute mental states to their own versus another social group. The apparent discrepancy in the emergence of this bias raises important questions regarding the nature of dehumanisation in a developmental context, such as how this phenomenon should be operationalised.

Defining Dehumanisation

All of the previous research on this topic has either implied or explicitly stated that children must first understand what it means to be human before they are able to engage in dehumanising thought (Costello & Hodson, 2014; Martin et al., 2008; Van Noorden et al., 2014). For example, Chas et al. (2015) reasoned that recruiting older children (11- to 12-year-olds) was necessary for the study of

infrahumanisation because some researchers have argued that the understanding of secondary emotions is not reliably observed until about this age (Bennett, 1989; Harris et al., 1987; Tangney & Fischer, 1995). This may be a true prerequisite for dehumanising another person but, if this is so, then the developmental trends of this harmful phenomenon would vary depending on the definition that is adopted.

Let's look at this dilemma in the context of mental state attribution. Some psychological theories exclusively conceptualise dehumanisation as the failure to consider the mental life of outgroup members (Fiske, 2009; Majdandžić et al., 2012; Waytz et al., 2010). Relevant developmental research has shown that infants and young children are able to infer the minds of other people (Onishi & Baillargeon, 2005; Southgate et al., 2007; Tomasello, 1995) and demonstrate discriminatory behaviour towards outgroup members (Over, 2018; Richter et al., 2016). Therefore, it could be that children show signs of this tendency before they can explicitly reason about the traits that are considered uniquely human. Alternatively, it could be that, contrary to these mind-related accounts, the denial of mental states is not the sole factor involved in considering a person to be less human.

I have discussed the relationship between dehumanisation and mental state attribution throughout my empirical work (most prominently in Chapters 2 and 3) but I believe it is important I take the opportunity to reflect on the role that mental states may play in children's dehumanising biases. On one hand, there are situations in which denying the mind of another person and thinking of them as unhuman do not co-occur. Research examining how adults perceive the minds of others on the continua of agency (i.e., the ability to act of one's own accord) and experience (i.e., the ability to sense and to feel) show that babies are considered to have less of a mind (Gray et al., 2007), yet, they are presumably not seen as inherently less human

compared to other ingroup members (Smith, 2012). Furthermore, there is no evidence to suggest that individuals who find it more difficult to understand the mental states of others (e.g., in autism; Baron-Cohen, 2000) are more likely to dehumanise them. In addition, recent research suggests that the ability to contemplate the minds of other beings is not uniquely human (Buttelmann, Buttelmann, Carpenter, Call, & Tomasello, 2017; Krupenye, Kano, Hirata, Call, & Tomasello, 2016) - great apes show a form of false belief understanding.

On the other hand, it may be that (similar to work on infrahumanisation) the complexity of the mental states that are attributed matter, for example, basic intentions versus more abstract reasoning skills. Taking both cases into account, it is not evident whether children's biases in attributing mental state to group members shown in Chapter 3 is an illustration of dehumanisation per se. Pinning down the exact role mental state attribution has in young children's dehumanising perceptions is an imperative aim for future endeavours and perhaps for how this phenomenon should be conceptualised in general.

Dehumanisation and Preference

An interesting finding in Chapter 2 was that the gradual increase in the relative dehumanisation of outgroup faces was not associated with the participants' preference for their ingroup versus their outgroup. This result was initially surprising because previous research with adults suggest that humanised targets are generally more liked than dehumanised targets (Bastian & Haslam, 2010; Harris & Fiske, 2007; Kozak et al., 2006; Vaes & Paladino, 2009). However, further inspection of the literature provided some compelling explanations for why these attitudes were not correlated. One possibility is that because our dehumanisation measure captured

discrete perceptions of humanness, the subsequent results were a reflection of an implicit form of prejudice (Haslam & Loughnan, 2014). Research employing measures of children's explicit and implicit attitudes has shown that they are rarely empirically related (Heiphetz, Spelke, & Banaji, 2013) which may be because explicit biases peak and then steadily decline across development (due to the influence of social norms) while implicit biases remain stable through to adulthood (Banaji et al., 2008; Dunham, Baron, & Banaji, 2008). Hence, our measures of dehumanisation and preference might still tap into respective implicit and explicit elements of the same construct of social bias.

A more probable explanation (explored in the General Discussion of Chapter 2) is that dehumanisation is a completely separable process and not reducible to basic preference. Other studies on related concepts in children (e.g., essentialism, pain perception) have similarly found no associations with explicit liking (Dore et al., 2014; Rhodes, Leslie, Saunders, Dunham, & Cimpian, 2017) and work with adults revealed that ingroup preference occurs when groups are based on random assignment but participants do not infra-humanise the outgroup in that context. Relatedly, it could be that the origins of dehumanisation are uniquely associated with the development of outgroup negativity and not ingroup favouritism. In other words, dehumanisation could be conceived as the flipside of the 'like me' hypothesis of social affiliation (Meltzoff, 2007). This idea is supported to some extent by the observation that dehumanising metaphors (e.g., comparisons to 'rats' and 'beasts'; Jahoda, 1999; Kteily, Bruneau, Waytz, & Cotterill, 2015) are inherently designed to create explicitly negative beliefs about outgroup members (e.g., that they are 'disgusting' or 'dangerous'; Buckels & Trapnell, 2013; Smith, 2012; Tirrell, 2012). Moreover, the developmental change in children's responses in Chapter 2 has a

similar trajectory to the emergence of outgroup derogation seen in previous work (Aboud, 2003; Buttelmann & Böhm, 2014). Further research is required to clarify the associations between preference, explicit negativity and dehumanisation in development.

Dehumanisation and Essentialism

To my knowledge, social essentialism - the belief that the expression of a social group's traits and behaviour relies on a shared, underlying 'essence' (Allport, 1954; Gelman, 2004) - has not been directly studied with relation to dehumanisation in young children. Leyens et al. (2000) posit that ingroup members are perceived to have a more human 'essence' than outgroup members, suggesting a relationship between these two concepts. David Livingstone Smith (2012) too emphasises the role of psychological essentialism in his philosophical account of dehumanisation in which he considers essentialist thought as a *necessary* step in dehumanising another person. He argues that the attribution of a 'subhuman' essence to others (see Smith, 2014, for conceptual differences between and Leyens et al. (2001) 'infra-human' essence) can explain why we are able to perceive other individuals, who physically appear to be human, as unhuman. He defines dehumanisation as the perception that outgroup members lack an essential human quality and thus constitute a different, lower category to humans. Previous studies have shown that essentialist beliefs predict reduced sharing (Rhodes et al., 2017) and stereotyping (Pauker, Ambady, & Apfelbaum, 2010) in children. Therefore, it would be interesting to explore whether the conception of social groups as different essential 'kinds' and the perception that other people are more or less human interact in development.

A related phenomenon that could also be involved in this relationship is the belief that outgroup members are more homogenous in their traits compared to ingroup members who are considered to possess more unique, idiosyncratic traits (i.e., the 'outgroup homogeniety' effect; Quattrone & Jones, 1980; Simon, 1992). For instance, Smith (2012) specifies that the subhuman view of a social group extends to every member of that group. There is some evidence that children exhibit this tendency (Bennett et al., 2004; McGlothlin & Killen, 2005; McGlothlin, Killen, & Edmonds, 2005) but its origins have been relatively understudied.

Dehumanisation and Status

Similarly to essentialism, I did not explore the role social status may play in children's dehumanising biases in my doctoral studies. Researchers from several different traditions argue that perceived lower status is integral to perceiving some groups as less human than others (Capozza et al., 2011; Fiske, 2009; Kteily et al., 2015; Viki & Calitri, 2008). Livingstone Smith (2012) states that dehumanised outgroups are not just *un*human but *less than* human and, in a recent advance on the study of blatant dehumanisation, Kteily et al. (2015) propose the belief some groups are 'less evolved' than others is a consistent predictor of discriminatory outgroup attitudes (e.g., support for punitive anti-Muslim policies).

This begs the question – when, if ever, are individuals belonging to high status groups vulnerable to dehumanising perceptions? Interestingly, in their theorising about the infrahumanisation effect, Leyens et al. (2001) suggest both majority and minority groups are more likely to believe ingroup members experience secondary emotions. Empirical support for this assumption has been mixed thus far with some cross-cultural work on infrahumanisation finding no influence of status

(Rodríguez Pérez et al., 2011) and other studies showing that less stereotypically competent outgroups are infrahumanised to a greater degree (Vaes & Paladino, 2009). Some research has illustrated that high status groups can be viewed as less human, but in a different way to perceived lower social classes (Andrighetto et al., 2014). For example, Martinez et al. (2012) found that Spanish participants linked more animal-related words (animalistic dehumanisation) to surnames typically associated with a marginalised social outgroup (i.e., Gypsy community) and, in contrast, were more likely to link machine-related terms (mechanistic dehumanisation) to those commonly associated with a high status outgroup (i.e., German people). Longitudinal research examining the perception of in- and outgroup humanness amongst children from majority/high SES groups compared with those from minority/lower SES backgrounds could discern the impact of status on the nature of this phenomenon.

Dehumanisation in Different Intergroup Contexts

The present results demonstrate that the developmental pattern for dehumanising tendencies were similar for both gender and geographically based groups while other work has suggested that children as young as 6 years of age think that national and racial outgroup members possess fewer uniquely human characteristics (Costello & Hodson, 2014; Martin et al., 2008). Yet, further investigation is needed to corroborate the emergence of dehumanisation within these and other intergroup dimensions, for example, across religious (Chalik et al., 2017; Heiphetz et al., 2013) and ethnic (Diesendruck & HaLevi, 2006; Nesdale, Maass, Griffiths, & Durkin, 2003) divisions. This investigation is warranted because past research has shown that children prioritise group markers in their social evaluations (Kinzler et al., 2009; Shutts et al., 2010; Shutts et al., 2013) and that the appearance

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of certain social biases is prevalent cross-culturally (i.e., relating to gender and native language; DeJesus et al., 2017a; Kinzler & Dautel, 2012; Rhodes & Gelman, 2009; Shutts et al., 2011). Little is known, however, about whether children are more likely to dehumanise members of particular outgroups more than others and whether the development of dehumanisation differs across cultures..

My research addressed this issue to some extent: the main effects held across two different social categories (Chapters 2 & 3) and, in the second study of Chapter 2, children's responses were influenced by the most salient group marker (geographic location vs. the gender of the faces) but future studies could investigate this research question more directly. Research with children whose social identity is not exclusive to one group (for e.g., mulitiracial and multilingual children;DeJesus, Hwang, Dautel, & Kinzler, 2017b; Gaither, 2015; Margie et al., 2005; Roberts, Williams, & Gelman, 2017) would also be informative for understanding the importance of categorisation in the origins of dehumanisation.

Dehumanisation in the context of gender

It is important to mention the significance of the current findings with regards to previous research on the development of gender bias. I focused on gender because of its relevance in how young children reason about their social environment (Bussey & Bandura, 1999; Levy & Haaf, 1994; Martin & Ruble, 2004) and found that they sometimes dehumanise their gender outgroup. Although, compared to the other intergroup distinctions mentioned above, gender-based attitudes have a unique developmental trajectory. It is commonly observed that both young girls and boys favour members of their own gender group but that boys' ingroup preference tends to weaken throughout development (Dunham et al., 2015; Verkuyten & Thijs, 2001).

Male adolescents and adults even favour females over other males (Dunham et al., 2015; Eagly, Mladinic, & Otto, 1991; Fiske et al., 2002) whereas women consistently display ingroup positivity (Rudman & Goodwin, 2004).

The opposite trend is seen for children's judgements of relative status. Six-year-old, but not 5-year-old, girls are less likely than boys to say that ingroup members are 'really really smart' (Bian et al., 2017) and children expect that more powerful and prestigious positions are held by males (Liben et al., 2001; Ruble, Martin, & Berenbaum, 2007). These findings are especially interesting when bearing in mind that dehumanised outgroup members are often perceived as lower in status (Haslam, Kashima, Loughnan, Shi, & Suitner, 2008; Smith, 2012, 2014). Therefore, the development of dehumanisation in the context of gender needs to be paid special research attention. Investigating this group dynamic with relation to the warmth and competence dimensions of the stereotype content model (Fiske et al., 2002) could be particularly useful.

Summary and Final Thoughts

In sum, the current findings suggest that children show dehumanising biases from around the age of 6; however, it is possible that younger children exhibit tendencies that are akin to or precipitate dehumanisation (i.e., the attribution of fewer mental states to outgroup members). A final, and perhaps crucial, question for future research in this vein concerns the nature of the developmental trajectory of dehumanisation itself. First, it could be that children's perception of in- and outgroup humanity may always differ. In line with the "like me" account of social affiliation (Meltzoff, 2013), infants and young children use their own mental and physical experiences as a model for those of similar others and thus socially dissimilar others

are always perceived as qualitatively different on this dimension. Alternatively (or perhaps in combination with "like me" preferences), children come to dehumanise members of perceived outgroups over time as a consequence of social learning. The results from Chapter 2 provides some evidence for the latter effect – 5-year-olds judged in- and outgroup faces to be similarly human and the observed age differences were driven by a *decrease* in 6-year-olds' outgroup humanness ratings. The testing of these hypotheses has added implications for confirming whether the origins of dehumanisation involve attributing elevated humanness to ingroup members or degrading the human status of outgroup members (Haslam et al., 2008; Viki & Calitri, 2008).

If dehumanising outgroup perceptions are primarily driven by social learning mechanisms, it would then be vital to explore the environmental influences that could contribute to its development. Before discussing ideas on the cultural transmission of the dehumanising percept, I would like to briefly outline the potential implications of my doctoral studies for research areas beyond (but related to) the study of dehumanisation.

Theory of Mind Research

The majority of previous work on theory of mind has placed emphasis on how core social cognitive skills explain the typical (Flavell et al., 1990; Moore & Frye, 1991; Wellman, 2002) and atypical (Abell et al., 2000; Baron-Cohen et al., 1985; Frith, 2001) development of this ability. A recent argument has highlighted the additional role of children's level of social motivation in explaining the emergence of this skill (Over, 2016). Chevallier et al. (2012) proposes that social motivational deficits (e.g., less likely to orient towards and to find social cues rewarding; Dawson

et al., 2004; Demurie, Roeyers, Baeyens, & Sonuga-Barke, 2011) could underlie the social cognitive deficits observed in autism. The study in Chapter 3 provides some support for the importance of social motivation in children's reasoning about the mental states of other people; participants were perhaps more motivated to talk about the mind of socially relevant agents (i.e., ingroup members). This finding does not rule out the possibility, however, that group differences were due to some reduced capacity in which the mental states of outgroup members may be trickier to simulate than ingroup members (Robbins & Krueger, 2005). Further research is necessary to understand the interaction between the cognitive and motivational drives of mental state attribution. This line of inquiry could also enhance our general interpretation of dehumanising biases. Some empirical evidence has illustrated how chronically and situationally lonely people humanise other agents to a greater extent (Epley, Waytz, Akalis, & Cacioppo, 2008; Powers, Worsham, Freeman, Wheatley, & Heatherton, 2014), but current psychological theory has not comprehensively delineated whether dehumanisation is a simple cognitive bias (Fiske, 2009; Harris & Fiske, 2009; Vaes et al., 2003) or the result of increased motivation to see others as more or less human (for e.g., to permit violence; Bandura, 1999; Bar-Tal, 1989; Schwartz & Struch, 1989; Smith, 2012) or an amalgamation of both.

Children's Perception of Non-Human Agents

In order to measure children's subtle attribution of humanness to social group members, I employed stimuli that were not completely or not at all human (ambiguous doll-human faces in Chapter 2 and geometric shapes in Chapter 3), therefore, the present work has interesting implications for how children perceive non-human agents. Due to the ever increasing presence of modern technology (Kahn et al., 2011), a recent wave of research has investigated adults (Cross, Ramsey,

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Liepelt, Prinz, & Hamilton, 2015) and children's (Kahn et al., 2012; Woods, Dautenhahn, & Schulz, 2004) perception of robots. One of the key aims of this research involves finding ways to increase people's comfort with robots (for e.g., see Asada, 2015; Tung, 2016), such that children would be willing to interact with them in medical and educational settings (Blanson Henkemans et al., 2013; Fridin, 2014; Scassellati, Henny, & Matarić, 2012). Previous research has observed that adults feel closer to and like a robotic agent more when it spoke in a same-gender voice (Eyssel, Ruiter, Kuchenbrandt, Bobinger, & Hegel, 2012) while the findings in Chapters 2 and 3 suggest children humanise agents who have been denoted as ingroup members. Thus, it is possible that attributing robots with ingroup characteristics could help children to be more tolerant of these entities in their everyday lives.

On the whole, it is important to consider the theoretical links between work on the development of anthropomorphic and dehumanising thought (Waytz et al., 2010). Children anthropomorphise other beings (e.g., animals) to a greater extent than do adults (Severson & Lemm, 2016) but they are still careful to discriminate between the moral standing afforded to humans and non-human agents. For example, 9-year-olds believed an interactive robot deserves fair treatment and should be protected from harm but should not have other civil entitlements, like the right to vote or to be compensated for performed work (Kahn et al., 2012). This discriminatory view of humanness could perhaps be equated to the subtle dehumanisation of outgroup members, who benefit from some human privileges but not all.

The Cultural Transmission of Dehumanisation

As mentioned above, the fact that only older children in Chapter 2 perceived less humanness in outgroup faces lends support to the assumption that dehumanisation is an acquired bias. The power of imagery and language to disseminate and to exacerbate dehumanising perceptions has been documented throughout history (Bytwerk, 1983; O'Brien, 2003; Smith, 2012; Tirrell, 2012; Zimbardo, 2007) and highlighted in recent portrayals of immigrant groups (Bleiker, Campbell, Hutchison, & Nicholson, 2013; Esses et al., 2013; Shah, 2015; Vaes, Latrofa, Suitner, & Arcuri, 2017). It is not known whether the differences in the way adults talk about in- and outgroup members (Harris & Fiske, 2011; Moscatelli, Albarello, & Rubini, 2008; Segall, Birnbaum, Deeb, & Diesendruck, 2015) can induce relative dehumanisation in young children. Other developmental research has shown that parents' use of generic language (e.g., "girls wear pink" vs. "the girl wears pink") can lead to an increase in children's essentialist beliefs about real-life and novel groups (Gelman, Taylor, Nguyen, Leaper, & Bigler, 2004; Rhodes et al., 2012). Similarly, in a phenomenon known as the 'linguistic intergroup bias', adults and older children tendency to describe the positive actions of ingroup members and the negative actions of outgroup members to a higher degree of abstraction (Maass, Salvi, Arcuri, & Semin, 1989; Werkman, Wigboldus, & Semin, 1999) can promote positive ingroup stereotypes and negative outgroup stereotypes (Maass, 1999).

Future work should concentrate on whether implicit differences exist in adults' expression of in- and outgroup humanity (e.g., use of complex vs. basic mental state verbs) during their interactions with children and investigate the consequences this type of input may have for the attitudes of young observers. Focusing on parent-child interactions is particularly beneficial given the importance

of parental testimony in how children learn about social and cognitive concepts (Harris, 2015) and the potential implications for home-based interventions. On another note, it has been recently suggested that young children are not just passive recipients of social information but can also actively seek out biased accounts of group behaviour (Over et al., 2017). Certainly, Chapter 2 demonstrated that they are more likely to refer to the mind of ingroup members in their spontaneous descriptions - it is possible then that dehumanising biases could be spread within children's own social networks.

Reducing Prejudice

In Chapter 4, the participants who were encouraged to talk about the mental states of immigrant outgroup members were more helpful towards another member of that group in a situation of need. Prompting children to reflect on the emotions and thoughts of others could therefore combat a potentially damaging behaviour that is intimately connected to dehumanisation (Andrighetto et al., 2014; Čehajić et al., 2009; Cuddy et al., 2007). Future investigation would need to test the generalisability of this strategy (it did not affect children's emotion perception and did not transfer across group boundaries in this case) and to extend its application to the problems that children face in their social lives. For instance, components of dehumanisation have been empirically linked to incidents of bullying (Menesini et al., 2003; Obermann, 2011; Pozzoli, Gini, & Vieno, 2012) and the experience of social ostracism (Bastian & Haslam, 2010, 2011; Harris & Fiske, 2009).

With regards to prejudice and discrimination more generally, Haslam and Loughnan (2014) acknowledge that the reduction of dehumanisation has received modest research attention. There is some evidence that intergroup contact can reduce

dehumanising perceptions in adults (Capozza, Trifiletti, Vezzali, & Favara, 2013; Tam et al., 2007) and older children (Brown et al., 2007; Vezzali et al., 2012). Vezzali et al. (2012) found that increased imagined contact with immigrant children had a positive indirect effect, through levels of outgroup trust, on 9-year-olds' attribution of uniquely human emotions. Another approach with adults that has provided some successful results is pointing out a common identity among groups such as a national group identity for rival geographically based groups (Capozza et al., 2013) and even a superordinate human identity (Albarello & Rubini, 2012). It would be interesting to examine the relative efficacy of all of these approaches on children's attitudes and behaviour.

There remains, however, a demand for further techniques to reduce dehumanisation and, in particular, investigation into the appearance and reduction of this bias in non-WEIRD cultures should become a priority (Henrich et al., 2010). The findings in Chapter 4 offer a potential route to tackle the negative effects of dehumanisation before they become deeply entrenched. Yet, the denial of mental states is only one aspect of this complex social phenomenon (Smith, 2012) and may not be as integral in explaining the behaviour of other people within certain non-WEIRD societies (Lillard, 1998). It is thus critical that future studies explore whether the humanity of perceived outgroups can be reinforced via more universally appropriate methods.

Conclusion

Dehumanisation continues to be a pervasive social problem. For example, throughout Western Europe and the US, media and political campaigns have often explicitly questioned the human status of immigrant groups. The detrimental

outcomes of undermining a person's humanity have, too, been recently stressed by activists in the Black Lives Matter movement. This phenomenon is treated as an important issue in social psychology (Bain, Vaes, & Leyens, 2014; Bandura, 1991; Kelman, 1973; Kteily et al., 2015) philosophy (Rorty, 1993; Smith, 2014; Tirrell, 2012) and in its implications for social policy (Esses, Veenvliet, Hodson, & Mihic, 2008). I hope the research presented in my doctoral thesis represents some of the ways developmental psychology can contribute to our understanding of dehumanisation and urges future inquiry into the origins of this harmful social bias.

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