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Attributing Human Uniqueness and Human Nature to Cultural Groups: Distinct Forms of Subtle Dehumanization

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Research on subtle dehumanization has focused on the attribution of human uniqueness to groups (infrahumanization), but has not examined another sense of humanness, human nature. Additionally, research has not extended far beyond Western cultures to examine the universality of these forms of dehumanization. Hence, the attribution of both forms of humanness was examined in three cross-cultural studies. Anglo-Australian and ethnic Chinese attributed values and traits (Study 1, $N = 200$) and emotions (Study 2, $N = 151$) to Australian and Chinese groups, and rated these characteristics on human uniqueness and human nature. Both studies found evidence of complementary attributions of humanness for Australians, who denied Chinese human nature but attributed them with greater human uniqueness. Chinese denied Australians human uniqueness, but their attributions of human nature varied for traits, values, and emotions. Study 3 ($N = 54$) demonstrated similar forms of dehumanization using an implicit method. These results and their implications for dehumanization and prejudice suggest the need to broaden investigation and theory to encompass both forms of humanness, and examine the attribution of both lesser and greater humanness to outgroups.

KEYWORDS Australia, China, cross-cultural, dehumanization, human nature, human uniqueness, infrahumanization

RECENT research has identified an insidious and common way in which people's humanness is subtly denied, even in the absence of hostility or overt dehumanization. 'Infrahumanization' occurs when people attribute more uniquely

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human characteristics to their own group than to outgroups (Leyens et al., 2000; Leyens et al., 2003). It is a motivated process (Demoulin et al., 2005) that has important consequences, such as reducing forgiveness between groups in conflict (Tam et al., 2007), reducing intergroup helping (Cuddy, Rock, & Norton, 2007), and absolving ingroups of responsibility for harsh treatment of outgroups (Castano & Giner-Sorolla, 2006).

Although the denial of human uniqueness (HU) to outgroups is undoubtedly a way that groups show prejudice, we argue that the denial of humanness may take other subtle forms, involving different conceptions of what it means to be human. In particular, human nature (HN) is a different conception of humanness that has important social consequences (e.g. Bain, Kashima, & Haslam, 2006). Whereas HU refers to what is distinctive to the human species, and is associated with culture, refinement, intelligence and moral responsibility, HN refers to what is believed to be fundamental, shared or essential to humans, and is associated with emotionality, depth, openness and individuality (N. Haslam, 2006). HU and HN construals of humanness are usually independent (N. Haslam, Bain, Douge, Lee, & Bastian, 2005).

Like HU, HN may be involved in subtle dehumanization processes, in which greater humanness is attributed to the ingroup than to outgroups, even when outgroups are not denied humanness outright or overtly. HN is denied to others relative to the self in interpersonal comparisons (N. Haslam & Bain, 2007; N. Haslam et al., 2005), but has not been systematically examined in intergroup contexts. Hence, the research described below was designed to examine how both HU and HN are involved in intergroup dehumanization across different cultural groups, motivated in part by Leyens et al.'s (2007) call for research to determine whether different cultures adopt different conceptions of humanness in their perceptions of groups.

Examining the attribution of two senses of humanness to groups raises an intriguing possibility. People may evaluate their ingroup relative to outgroups separately on each humanness dimension, and may be willing to acknowledge an outgroup's equality or superiority on one dimension so long as the ingroup is superior on the other. Such complementarity in attributions to groups has been identified in related domains, such as the stereotype dimensions of warmth and competence (e.g. Fiske, Cuddy, Glick, & Xu, 2002; Judd, James-Hawkins, Yzerbyt, & Kashima, 2005). Although HN and HU are distinct from warmth and competence (N. Haslam, Loughnan, Kashima, & Bain, 2008), an analogous process may occur. If this complementarity were identified, it would indicate that subtle intergroup dehumanization is more complex and nuanced than previously theorized.

To explore these possibilities, we examined attributions of humanness for two cultural groups (Australians and Chinese) that may have different patterns of humanness attribution, based on links between humanness dimensions and characteristics identified in stereotyping research. The selection of these cultural groups also broadens the geographical reach of research on subtle dehumanization, particularly to Asia where very little research in this field has been conducted.

Anglo-Australians (the white ethnic majority in Australia with predominantly British/Irish ancestry; for simplicity, we will use the term 'Australians' for this group) have auto-stereotypes that emphasize emotionality (high HN), such as 'pleasure-loving' and 'happy-go-lucky', but also a lack of refinement (low HU), such as 'straightforward' (S. A. Haslam, Oakes, Reynolds, & Turner, 1999). Similarly, values of 'enjoyment', 'self-fulfilment' and 'exciting life', which denote high HN features of individualism and openness (N. Haslam, Bastian, & Bissett, 2004), were perceived to be strongly held by Australians by both Australians themselves and an Asian (Japanese) outgroup (Soutar, Grainger, & Hedges, 1999). This evidence suggests that Australians are likely to be seen as relatively high in HN and low in HU by both the ingroup and Asian outgroups.

In contrast, there is evidence to suggest that Chinese people are seen by themselves and others as having relatively high HU but low HN. In an

unpublished study of Chinese and American students in Hong Kong, Bond (1984, cited in Bond & Hwang, 1986) found that Chinese students attributed openness and extraversion (which signal HN, see N. Haslam, 2006) less to their ingroup than to American students, but attributed their ingroup with relatively greater emotional control (indicative of higher HU). Asians more generally have been stereotyped by white Americans as having low warmth, suggesting low HN (Lin, Kwan, Cheung, & Fiske, 2005). In contrast, Chinese (as well as Asians generally) were regarded as highly intelligent by an American sample (Madon et al., 2001), an aspect of higher cognition associated with HU. When Chinese directly compared their group with Australians, they viewed their ingroup as more sophisticated (Kashima et al., 2003), reflecting higher HU aspect of refinement. Thus, the profile of Chinese compared to Australians is likely to involve relatively high HU and low HN.

Three studies were conducted to examine the attributions of HU and HN to Australians and Chinese, by both Australians and Chinese, using diverse attributes and both explicit and implicit methodologies. All studies were guided by the following basic hypotheses. We predicted that Chinese participants would differentiate themselves from Australians using the HU sense of humanness, consistent with infrahumanization theory, but would attribute the Australian outgroup with similar or greater levels of HN. We predicted that Australian participants would, in contrast, attribute greater HN to their ingroup than to the Chinese outgroup, but would attribute the Chinese outgroup with similar or greater levels of HU.

A final issue concerns the role of desirability in attributions of humanness. While HU characteristics are not necessarily more desirable, HN characteristics tend to be positively valenced (N. Haslam et al., 2005). Controlling for desirability is important to ensure subtle dehumanization can be distinguished from ingroup favoritism or positivity bias (Leyens, Demoulin, Vaes, Gaunt, & Paladino, 2007; Leyens et al., 2000). In the studies below, we follow convention and control for valence wherever possible.

Study 1

Study 1 examined how Australians and Chinese groups attributed HN and HU to each other. As attributions of HN have received little attention within an intergroup context, we used two types of characteristics, values and traits, where HN beliefs are known to be relevant. For values, Bain et al. (2006) showed that HN beliefs were crucial in explaining why values were important and how people applied them. Values have been shown to be important indicators of dehumanization (Struch & Schwartz, 1989), and although not directly examined within infrahumanization theory, Demoulin, Rodríguez-Torres et al. (2004) suggested that infrahumanization could occur for values, as their attribution should not be influenced by group power and status. For traits, research on interpersonal dehumanization found that people differentiated themselves from others more strongly on HN than on HU (N. Haslam et al., 2005). Using values and traits also broadens the range of characteristics examined in research on subtle intergroup dehumanization, which has generally focused on the attribution of emotions.

Method

Participants Two hundred university students participated, comprised of 126 Anglo-Australians born in Australia (64% female; age, $M = 21.8$, $SD = 6.2$) and 74 participants who self-identified as ethnic Chinese (45% female; age, $M = 22.8$, $SD = 3.2$), from China (including Hong Kong), Singapore or Malaysia. Ethnic Chinese participants had lived in Australia for an average of five years (SD = 5.2).

Materials

Participants were asked to complete a questionnaire about their impressions of students at their university. To conceal the purpose of the study, questionnaire instructions indicated that students were being asked about many cultural groups, but each participant would be asked about only two cultures to reduce their workload. The questionnaire contained two main sections plus demographics.

Group typicality Part A involved rating the relative typicality of 48 characteristics for Australian and Chinese students attending their university. These characteristics included 24 traits (12 positive, 12 negative) selected from Haslam et al. (2005, e.g. relaxed, insecure), and 24 values (e.g. loyal, helpful) selected from all 10 domains of Schwartz's (1992) model of values (as values are positively valenced by definition, valence was not controlled). These characteristics were rated on a five-point comparative rating scale, labeled 1 = 'More typical of Chinese students', 3 = 'Equally typical of both groups', and 5 = 'More typical of Australian students'.

Humanness ratings Part B involved rating the values/traits on HN and HU using items from Haslam et al. (2005), with one type of rating per page. HU was assessed by the item 'Are the following characteristics exclusively experienced by human beings, or can animals also experience them?' (1 = 'Not at all exclusive to humans' to 5 = 'Very exclusive to humans'). HN was measured by the item 'To what extent is each characteristic an aspect of 'human nature'?' (1 = 'Not at all an aspect of human nature', 5 = 'Very much an aspect of human nature'). Additional items were included as distractors, which were on separate pages before and after the humanness ratings. The order of HN and HU items was counterbalanced, and they were always separated by at least one distractor item.

Procedure

Participants were recruited on a university campus and completed questionnaires in a quiet, supervised room in groups of up to 12 people. Questionnaires typically took around 40 minutes to complete and participants received either one-hour research participation requirement credit or were reimbursed 10 Australian dollars.

Results

Humanness attribution indices Mean ratings of characteristics on HN and HU were uncorrelated, $r(46) = .16$, $p = .288$, indicating that these dimensions of humanness were independent. There were very high correlations across Anglo-Australian and ethnic Chinese samples in mean ratings of characteristics on HN ($r = .85$, $p < .001$) and HU ($r = .95$, $p < .001$) (see Table 1 in the Appendix for examples of characteristics high and low on each dimension).

Indices of the relative attribution of humanness to groups were computed separately for HN and HU, separately for traits and values, and separately for each cultural sample. Each index represented the extent to which characteristics rated high on one dimension of humanness were attributed to groups more than those rated low, based on a tripartite split. To illustrate, the HN attribution index for traits was computed by identifying the eight traits (four positive, four negative, using the categorization from N. Haslam & Bain, 2007) with the highest mean HN rating in the cultural sample ('High-HN'), and the eight traits (four positive, four negative) with the lowest mean ratings of HN ('Low-HN'). The mean group typicality ratings for High-HN and Low-HN characteristics were computed for each person, and then the mean on Low-HN was subtracted from the mean on High-HN. A positive HN attribution index indicates that HN characteristics were attributed more to Australian students, a negative score indicates that they were attributed more to Chinese students, and a zero score indicates equal attribution to both groups. The HU-attribution index was computed using the same method using HU ratings. Attribution indices for values were created in the same way, except that valence was not controlled.

Attributions of humanness to groups

Using these indices, attributions of humanness to groups for traits and values are shown in Figure 1. As predicted, Anglo-Australians attributed relatively more HN to Australian students for both traits and values, both $ts(125) > 15.00$, both $ps < .001$ (one-sample t-tests with zero as reference value). Ethnic Chinese attributed similar levels of HN to both groups for traits, $t(73) = 0.76$, $p = .450$, and greater HN to Australian students for values, $t(73) = 3.43$, $p = .001$. A direct comparison of both groups on HN attribution showed that Anglo-Australians attributed greater HN to Australian students than ethnic Chinese did for both traits and

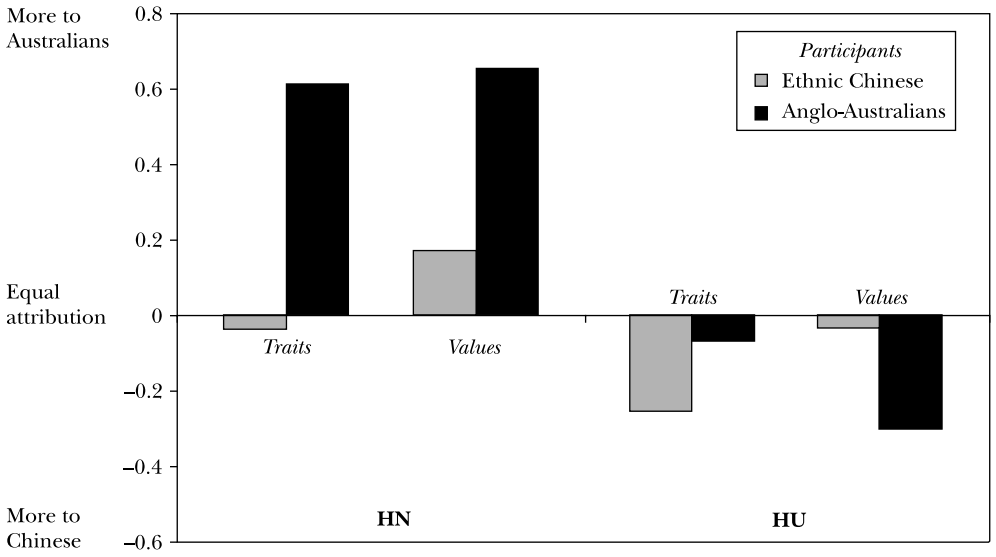

Figure 1. Mean humanness indices on traits and values attributed to Australian and Chinese groups, rated by Anglo-Australians and ethnic Chinese (Study 1).

values, both ts(198) > 7.05, both ps < .001. These findings show that Anglo-Australians attributed their ingroup with greater HN, and ethnic Chinese attributed Australians with either greater or similar levels of HN as the ingroup.

Figure 1 also shows the findings for HU. For traits, Chinese students were attributed with greater HU by both ethnic Chinese, $t(73) = 5.74$, $p < .001$, and Anglo-Australians, $t(125) = 2.07$, $p = .041$, with the strength of HU attribution to Chinese students significantly greater for ethnic Chinese, $t(198) = 3.35$, $p = .001$. For values, ethnic Chinese attributed similar HU to both groups, $t(73) = 0.73$, $p = .470$, but Anglo-Australians attributed greater HU to Chinese, $t(125) = 8.55$, $p < .001$, with the strength of HU attribution significantly stronger for Anglo-Australians than for ethnic Chinese, $t(198) = 4.62$, $p < .001$.

As ethnic Chinese were predominantly sojourners or immigrants to Australia, it is possible that their attributions of humanness were influenced by the length of time that they had been living in Australia. However, none of the HN or HU attribution measures in the ethnic Chinese sample were correlated with length of time in Australia (all rs < .14, all ps > .12).

Discussion

The results showed evidence of distinct cultural patterns of subtle dehumanization, and some evidence of complementarity. Anglo-Australians denied Chinese students HN, but ethnic Chinese denied Australian students HU. Each cultural sample attributed their ingroup with more of one sense of humanness while attributing the outgroup with equal or greater humanness in the other sense. Thus, Anglo-Australians attributed Chinese with greater HU on both traits and values, and ethnic Chinese attributed Australians with greater HN on values. Members of these national groups appear able to acknowledge their human strengths and weaknesses relative to other nations, in a context where their understanding of the two senses of humanness are very similar.

To date, the attribution of greater humanness to other entities or groups has only been identified in comparisons of humans with nonhumans, such as gods and other supernatural beings

(Demoulin, Saroglou, & Van Pachterbeke, 2008; N. Haslam, Kashima, Loughnan, Shi, & Suitner, 2008). We suspect that the present findings do not equate to seeing outgroup members as god-like, but rather reflect a recognition that the ingroup does not always represent the sole epitome or ideal of humanness, or at least not on every dimension. The findings more broadly suggest that 'humanity' is not a unidimensional concept in the intergroup domain, and cannot be assumed to be reserved for ingroups.

The difference in findings on values and traits for the ethnic Chinese sample may be related to valence, which could only be controlled for traits. Ethnic Chinese have been shown to attribute equally or more positive characteristics to outgroups in some cultural comparisons (Hewstone & Ward, 1985). As values are positive by definition, they may have been associated more than traits with Australians due to this outgroup favoritism, raising new possibilities for links between these phenomena. However, as previous research has been concerned with distinguishing these phenomena (Leyens et al., 2007), in subsequent studies we used characteristics that could be controlled for valence.

The fact that subtle dehumanization occurs for values and traits extends the field by showing that the phenomenon is not restricted to emotions (e.g. Leyens et al., 2000; Vaes, Paladino, & Leyens, 2002), and human/animal terms (Viki et al., 2006; Zebel, Zimmermann, Viki, & Doosje, 2008). This is also the first study to use attributions of multiple types of human characteristics to groups by the same participants. The findings for Anglo-Australians were reassuring, suggesting consistency in humanness attributions for traits and values. For ethnic Chinese, however, the findings suggest that evidence of dehumanization may depend on the types of characteristics used, as they attributed Australians with fewer HU traits but not values.

As ratings of groups were explicitly comparative, it was not possible to assess whether these findings were due primarily to associations of humanness with the ingroup, the outgroup, or both groups. The explicit comparative rating may also have led people to search for differences between groups, and hence may have inflated the extent to which certain groups were associated with particular values and traits. To avoid this possible bias, in Study 2 participants rated the typicality of characteristic for each group separately, which also provides a way to determine whether differentials are mainly due to humanness being attributed to an ingroup or denied to outgroups (Viki & Calitri, 2008).

Other limitations of Study 1 also require attention. First, judgments were made about students, whom participants may perceive as having different characteristics from their cultural group in general, so that it may not be appropriate to generalize these perceptions of humanness to cultural groups as a whole. Second, the findings may be specific to traits/values, and not extend to other types of characteristics, specifically emotions, which form the core of infrahumanization research. Hence, in light of the novel findings and these limitations, Study 2 was conducted as a replication test that addressed these issues.

Study 2

Study 2 used the same basic approach as Study 1. Participants from the same groups were sought, but they made judgments about ethnic groups in general (Australians, Chinese) rather than students from these groups. Typicality ratings for characteristics were made for each group separately, allowing examination of how both ingroups and outgroups were associated with humanness. Finally, the attributes that participants rated were emotions, to enable more direct comparisons with infrahumanization research.

Method

Participants One hundred and fifty-one students participated in this study, comprised of 71 Anglo-Australians born in Australia (48% female; age, $M = 20.0$, $SD = 4.3$) and 80 participants who self-identified as ethnic Chinese (69% female; age, $M = 21.1$, $SD = 5.2$), with similar backgrounds to Chinese participants in Study 1. Ethnic Chinese participants had lived in Australia for an average of 5.3 years (SD = 6.2).

Materials

Participants completed a two-part questionnaire, plus a demographics section, which was similar in design to the questionnaire in Study 1.

Group typicality Part A involved rating the typicality of Australians and ethnic Chinese on a list of 40 emotions selected from Demoulin, Leyens et al. (2004). Ratings of each group were made on a separate page, and the order of presentation was counterbalanced. Ratings were made on five-point scales: 1 = 'Not typical of [Anglo-Australians/ethnic Chinese]', 3 = 'Moderately typical of [Anglo-Australians/ethnic Chinese]', and 5 = 'Extremely typical of [Anglo-Australians/ethnic Chinese]'.

Humanness ratings HN and HU ratings were the same as in Study 1, with the term 'emotion' substituted for 'characteristic'. The order of presentation of HN and HU ratings was counterbalanced, and in all cases HN and HU items were separated by at least one distractor item.

Procedure

Participants were recruited on a university campus and completed questionnaires in a quiet, supervised room in groups of up to 15 people. The questionnaire took around 25 minutes to complete for most participants, and was followed by other surveys in a one-hour session. After completing the session, participants received their choice of one-hour credit in a course research participation requirement or reimbursement of 10 Australian dollars.

Results

Mean HU and HN ratings for the 40 emotions in each sample were calculated. HU and HN were uncorrelated in the Anglo-Australian sample, $r(38) = -.20$, $p = .209$, and were negatively correlated in the ethnic Chinese sample, $r(38) = -.36$, $p = .023$. However, there was very high correspondence in ratings across cultural samples: HN, $r(38) = .92$, $p < .001$; HU, $r(38) = .93$, $p < .001$, indicating that both samples had very similar beliefs about the humanness of emotions.

To control for valence, emotions were categorized as positive or negative based on Appendix A of Demoulin, Leyens et al. (2004), excluding emotions near the midpoint (i.e. with means between 3 and 5 on their 1–7 valence scale). High and low HN and HU categories were then created using equal numbers of positive and negative emotions per category (six positive and six negative), approximating a tripartite split as in Study 1. Mean typicality ratings were computed for the High and Low categories for each group, which were used to calculate humanness indices using the following formulae (using HN as an example):

HN Index (Australia) = (High HN Australian – Low HN Australian)

HN Index (China) = (High HN Chinese – Low HN Chinese)

A positive score indicates that the group is ascribed emotions high on the humanness dimension more than those low on it (i.e. greater humanness). The difference between the two indices is equivalent to the indices used in Study 1.

Figure 2 shows the mean humanness indices for each target group and sample. Anglo-Australians attributed HN to both Australians and Chinese, all ts > 3.08, all ps < .003 (one sample t-tests (reference value = 0), but the attribution to the ingroup was significantly stronger, $t(69) = 2.09$, $p = .040$, indicating subtle denial of HN to Chinese by Anglo-Australians, replicating Study 1. Ethnic Chinese attributed HN to the ingroup, $t(79) = 6.08$, $p < .001$, but did not associate Australians with HN, $t(78) = 1.31$, $p = .196$, and attributed HN more strongly to the ingroup than to Australians, $t(78) = 3.95$, $p < .001$, meaning that, unlike Study 1, they subtly dehumanized Australians on HN.

Figure 2 also shows mean responses for HU, which were consistent across both samples. Both Anglo-Australians and ethnic Chinese showed a significant attribution of low HU to Australians, both ts > 4.23, both ps < .001, but neither group attributed Chinese with high or low HU, both ts < 0.43, both ps >.672. Thus, both samples subtly dehumanized Australians

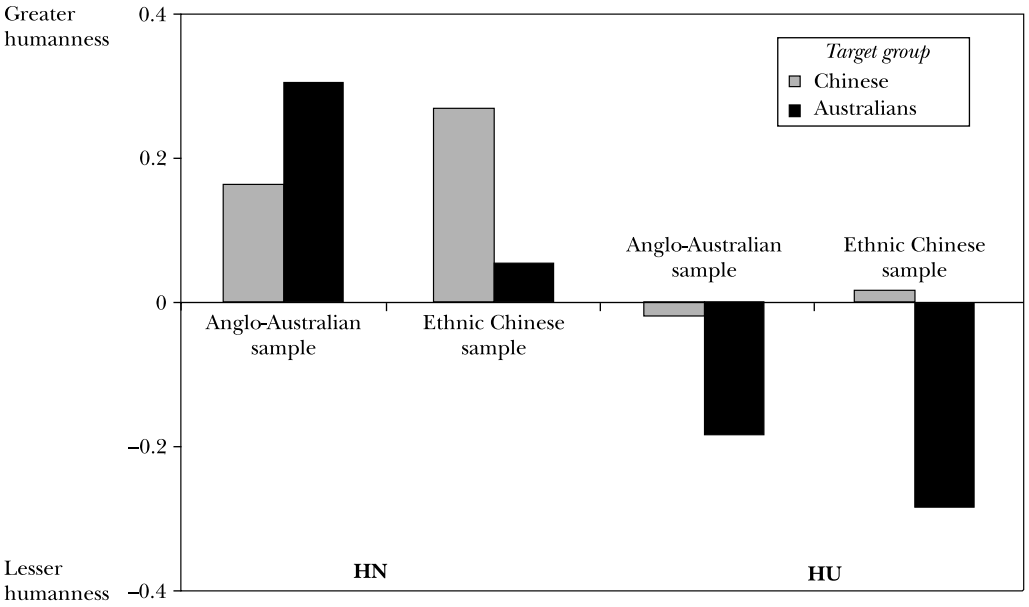

Figure 2. Mean humanness indices on emotions attributed to Australian and Chinese target groups, rated by Anglo-Australian and ethnic Chinese (Study 2).

relative to Chinese on HU, both *t*s > 2.66, both *p*s < .01.

Correlations were used to examine relationships between length of time in Australia and humanness indices for the ethnic Chinese sample. The only significant correlation was between time in Australia and attribution of HU to Australians, $r(77) = -.24$, $p = .036$, indicating that ethnic Chinese who had lived longer in Australia attributed less HU to Australians. However, after including time in Australia as a covariate, the Chinese sample still attributed greater HU to their ingroup, $F(1,77) = 5.91$, $p = .017$.

Discussion

The findings for the Anglo-Australian sample replicated Study 1, showing greater attribution of HN to Australians and greater attribution of HU to Chinese. For the ethnic Chinese sample, as in Study 1, there was greater attribution of HU to the ingroup, but, unlike Study 1, ethnic Chinese also attributed greater HN to the ingroup. Thus, Anglo-Australians displayed the pattern of complementary attribution of humanness observed in Study 1, but the ethnic Chinese sample attributed lesser humanness to Australians on both humanness dimensions.

Obtaining separate ratings of each target group allowed these effects to be understood more clearly. HN-dehumanization appears to primarily reflect a positive association of the ingroup with HN, rather than a negative association of the outgroup with HN. In contrast, HU-dehumanization appears to arise in both samples from a perception that Australians are particularly low on HU, and not because Chinese were positively associated with HU.

Our finding for the Anglo-Australian sample—attribution of *greater* HU emotions to the outgroup—runs contrary to the infrahumanization phenomenon. However, the findings for both samples point to a new form of subtle dehumanization involving the denial of HN to outgroups. Just as infrahumanization effects may not always occur, this form of subtle dehumanization also appears not to be universal, as *greater* HN was attributed to an outgroup by the ethnic Chinese sample in Study 1. Together, the findings suggest that subtle dehumanization is not a unitary phenomenon, and that the

two forms that we have observed may occur in independent or complementary ways.

Study 3

Studies 1 and 2 were generally consistent in showing complementary forms of humanness attribution (except for the ethnic Chinese sample in Study 2), using different attributes (traits, values and emotions) and different kinds of judgments (comparative and noncomparative). However, they both relied on explicit ratings. Given that infrahumanization has been shown to act at an implicit, nonconscious level (Boccato, Cortes, Demoulin, & Leyens, 2007; Paladino et al., 2002), examining whether attribution of HN also occurs implicitly would strengthen the argument that the novel findings of Studies 1 and 2 are not restricted to explicit methodologies. Thus, in this study, we examined implicit or nonconscious associations people hold between their ingroup and outgroup and the two senses of humanness.

Additionally, Studies 1 and 2 were limited in their focus on these senses of humanness, excluding the two forms of nonhuman with which they are linked. According to Haslam's (2006) model, groups that are denied HU attributes tend to be associated with animals, and groups that are denied HN attributes tend to be associated with machines, robots, or inanimate objects. It would therefore be a useful extension of Studies 1 and 2 to show that the differential associations between groups and nonhumans predicted by the model occur.

Study 3 closely resembled the previous studies in employing Anglo-Australian and ethnic Chinese participants and examining their ingroup and outgroup perceptions on HU and HN attributes. However, it employed a widely used implicit social cognition methodology, the Go–No-Go Association Task (GNAT) (Nosek & Banaji, 2001), instead of explicit ratings, and also examined perceived associations between groups and animal and robot stimuli. We predicted that ethnic Chinese participants would associate HU attributes with Asians more than with Australians, and would associate animals with Australians more than with Asians. We further predicted that Anglo-Australian participants would associate HN traits more with Australians than with Asians, and would associate robots with Asians more than with Australians.

Method

Participants Fifty-four university students, 24 ethnic Chinese (12 males, 12 females) and 30 Caucasian Australians (7 males, 23 females) participated in the study. Chinese participants ranged from 18 to 32 years ($M = 22.3$, $SD = 3.9$), came from Mainland China (20), Hong Kong (3), or Taiwan (1) and had lived in Australia for an average of 2.0 years ($SD = 1.6$). The Anglo-Australian participants ranged from 18 to 38 years ($M = 20.4$, $SD = 4.7$).

Materials

The GNAT involved three pairs of target categories. One pair involved the two types of humanness (HN/HU), which were each represented by 10 traits (five positive, five negative) validated as high on one humanness dimension in Haslam et al. (2005). A second category pair involved the two types of nonhuman (animal, robot), which were each represented by 10 words (e.g. animal, ape, mammal, pig, rabbit *vs.* android, computer, cyborg, machine, robot). Half of these were employed by Loughnan and Haslam (2007) and a further 10 words were added. The online linguistic database WordNet (University of Princeton, 2005) was used to match word familiarity and frequency between categories within each pair. For Chinese participants, all words were translated into two types of Chinese characters (simplified and traditional) by native Chinese speakers, using back translation procedures. Only eight of the 112 characters that were employed differed between the two versions.

The third pair of categories used in the GNAT were ethnic groups ('Australian' and 'Asian'), and these were represented by pictures. Twenty facial images used in previous research (Michel, Rossion, Han, Chung, & Caldara, 2006) were employed, including five men and five women in each group. All faces were unfamiliar to participants, cropped to be hairless, and posed with a neutral expression. The 'Asian' faces were all of

people with East Asian ethnicities (i.e. Chinese, Japanese and Koreans) and the 'Australian' faces were all of Caucasian appearance.

The GNAT was run using Inquisit™ Software (Draine, 1989) on PCs. English and Chinese language versions were assigned to participants from the two subsamples, and Chinese participants selected the traditional or simplified Chinese version. In all versions, instructions appeared on the screen before the tasks, and participants were asked to read them carefully. The instructions indicated that the GNAT involved the classification of stimuli as targets or distracters, and that participants had to classify these stimuli as rapidly and accurately as possible. If a stimulus was a target (i.e. belonged to a target category), they should hit the space bar, and if it was a distracter (i.e. did not belong to a target category), they should do nothing and let the trial time out.

Each experimental block of GNAT trials involved a pair of target categories (i.e. an ethnic group and either a type of humanness or a type of nonhuman). The names of these target categories remained in the upper left and right corners of the computer screen throughout the block, and stimulus words representing the target categories were presented to participants before each block. Following the target/distracter format proposed by Nosek and Banaji (2001), the distracters were stimuli representing the alternative category in the relevant category pair. For example, a block with the targets 'Asian' and 'Robot' would have Asian faces and Robot words as targets and Australian faces and Animal words as distracters. The facial stimuli were 6 × 8cm in size and the terms were printed in 36 font in white against a black background, all stimuli appearing in the center of the computer screen. Accuracy feedback was provided following each trial (green circle = correct, red cross = incorrect), further serving as a focal point for the next stimulus. As recommended by Nosek and Banaji (2001), the response deadline for each trial was 700 ms, and the inter-stimulus interval (ISI) between trials was 120ms.

Eight experimental blocks of 120 trials were employed, representing all pairings of the two ethnic groups with the two humanness types and two types of nonhuman. Each block therefore assessed the implicit association between one ethnic group and one humanness or nonhuman category. The blocks were randomized to adjust for practice, familiarity and fatigue, and to minimize order effects.

The GNAT methodology allows every trial response to be represented by the four categories of signal detection theory (SDT) (Gesheider, 1997; Nosek & Banaji, 2001). Participants may either press the space bar in the presence of a target (a 'hit') or a distracter (a 'false alarm'), or not press the space bar in the presence of a target (a 'miss') or a distracter (a 'correct rejection'). Also, d′, a joint function of the hit and false positive rates, is then calculated for each block. Higher values indicate better discrimination between targets and distractors and hence greater association between the target categories.

Procedure

Participants completed the experiment individually or in small groups in a laboratory setting under the supervision of an experimenter. All participants completed the study within approximately 40 minutes.

Results and discussion

Ethnic Chinese sample Participants' average d′ values for the GNAT blocks ranged from –0.69 to 1.41; d′ values of 0 or below indicate that participants were either unable to discriminate any signal from noise or were not performing the task as instructed (Nosek & Banaji, 2001), so one participant with an average d′ below 0 was excluded from the analysis. Two additional d′ values below 0 led to further participants being removed from specific analyses. A multiple analysis of covariance (MANCOVA) with d′ scores as within-subject variables and age and immigration duration as covariates revealed no significant multivariate effect for block, $F(7, 12) = 2.52$, $p = .07$, $\eta^2 = .59$, and found no interaction between block and either age, $F(7, 12) = 1.16$, $p = .38$, $\eta^2 = .40$, or immigration duration, $F(7, 12) = 1.57$, $p = .23$, $\eta^2 = .47$.

Paired sample/*t*-tests were conducted to examine the hypotheses. Consistent with the

prediction, the HU traits were more strongly associated with the 'Asian' than 'Australian' categories, $t(22) = 2.51$, $p = .02$. However, 'Animal' stimuli were not associated with 'Australian' more than 'Asian', $t(20) = -.0.34$, $p = .73$. The ethnic categories did not significantly differ in their associations with HN, $t(22) = 0.11$, $p = .91$, or 'Robot' $t(22) = -0.42$, $p = .67$ (see Figure 3). Thus, the Chinese participants differentiated their ingroup from the outgroup in terms of HU rather than HN, but this was not extended to greater implicit association between Australians and animals.

Anglo-Australian sample Participants' average d′ values for the GNAT blocks ranged from 1.44 to 5.11. This range indicates that participants were able to discriminate accurately but not perfectly, thereby avoiding both floor and ceiling effects (Nosek & Banaji, 2001).

Paired sample *t*-tests were again conducted to examine the hypotheses. Consistent with the prediction, HN traits were marginally more associated with the 'Australian' category than the 'Asian' category, $t(29) = -1.32$, $p = .09$, and the 'Robot' category was associated more with the 'Asian' category than the 'Australian' category, $t(29) = 2.74$, $p = .01$. There were no differential associations between the ethnic groups and HU, $t(29) = 0.23$, $p = .26$, or Animals, $t(29) = 0.08$, $p = .70$ (see Figure 4). Thus, Australian participants tended to differentiate themselves from the Chinese outgroup using HN traits, and this finding extended to associating the Chinese outgroup with the linked form of nonhuman.

General discussion

The main hypotheses that Anglo-Australians would differentiate themselves from Chinese using HN, and ethnic Chinese would differentiate themselves from Australians using HU, were confirmed with both questionnaire and

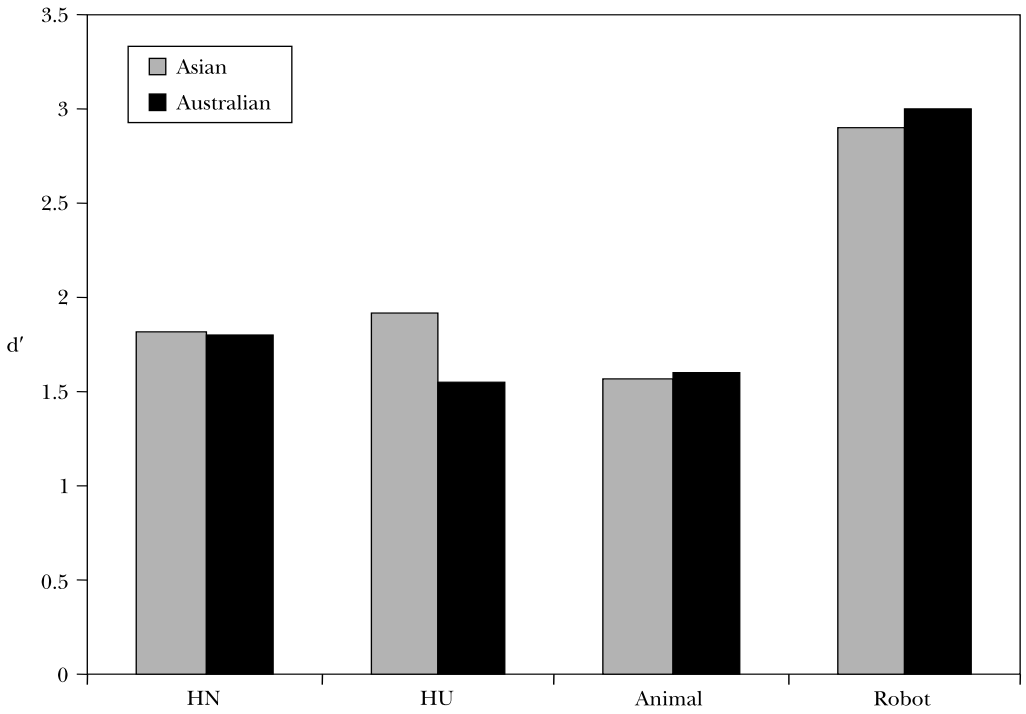

Figure 3. Mean d′ values for Asian and Australian targets, ethnic Chinese sample (Study 3).

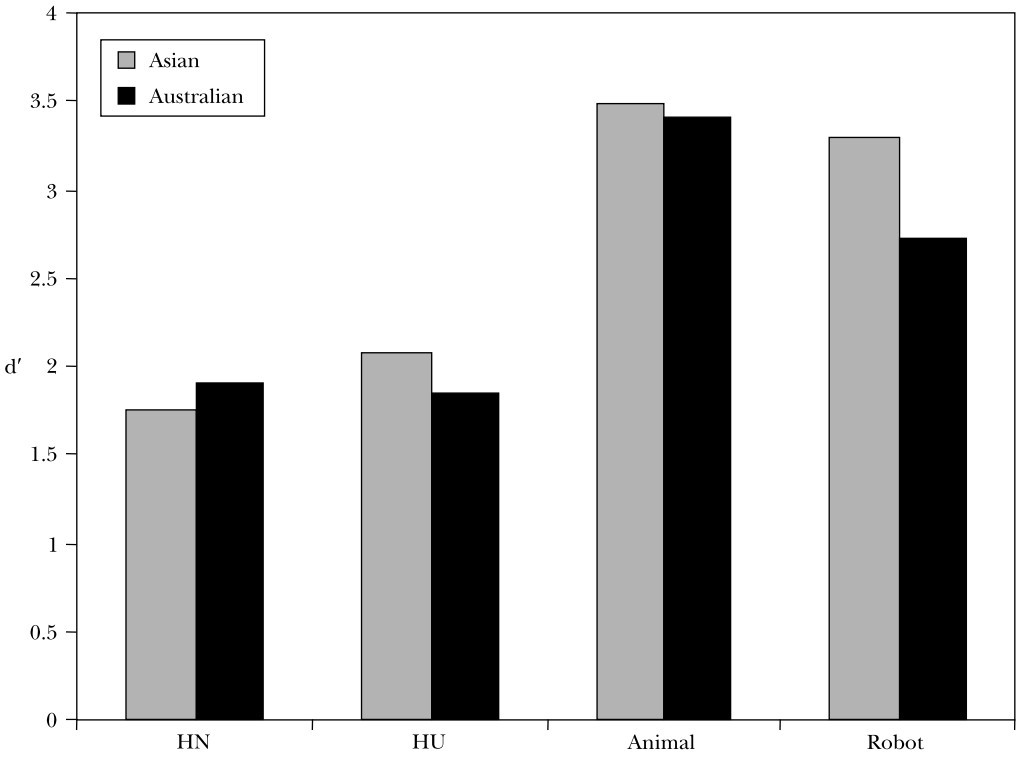

Figure 4. Mean d′ values for Asian and Australian targets, Anglo-Australian sample (Study 3).

implicit measures, using traits, values and emotions. Anglo-Australians also implicitly associated Chinese with robots, consistent with their use of HN to differentiate themselves. The studies also found some evidence for the predicted complementarity effect, with Anglo-Australians attributing lesser HN but greater HU to Chinese in Studies 1 and 2, and ethnic Chinese attributing lesser HU but greater HN to Australians for values in Study 1. Although Chinese samples were immigrants or sojourners in Australia, their length of time in Australia did not affect the major findings.

These findings broaden the scope of subtle dehumanization beyond the well-established phenomenon of infrahumanization (i.e. attribution of lesser HU to outgroups). They show that, under some circumstances, greater HU can be ascribed to an outgroup, that a different sense of humanness (HN) can also be involved in subtle dehumanization, and that the attribution of HN and HU can be complementary, with one form of humanness granted to outgroups at the same time the other is denied. The findings are consistent with the view that people assess their own group and others on HU and HN dimensions independently, with the ingroup not invariably seen as superior on both. People appear not to consistently reserve humanness for their ingroup. However, it is likely that groups place greater emphasis on the dimension of humanness on which they believe their ingroup is superior.

Given that infrahumanization is commonly observed in many countries, and by ethnic Chinese participants in our studies, why would Anglo-Australians not deny HU to Chinese people (and to other outgroups including Britain, Indonesia, the USA and Singapore; Bain, Haslam, DeSouza, & Kashima, 2008)? A possible explanation is

that most infrahumanization research has been conducted in and on Western European cultural groups (e.g. Spanish, Dutch, French, Italians, British) that have a long history of colonization, often perceived as bringing culture and civility to more primitive societies (Jahoda, 1999). This history may support and reflect these groups' views of themselves as having high levels of HU. Although infrahumanization was also identified in the USA (Castano & Giner-Sorolla, 2006; Study 3), this too was in the context of colonization (by White Americans of Native Americans). Without a comparable history of exporting 'civilization', Australians are likely to compare themselves unfavorably with other cultural groups on HU, with the possible exception of colonized groups such as indigenous Australians (Saminaden, Loughnan, & Haslam, in press). This explanation in terms of cultural auto-stereotypes and histories of colonialism does not explain all extant findings (e.g. Canarians' infrahumanization of mainland Spaniards; Leyens et al., 2001), but it may be a contributing factor to variations in the attribution of HU to national groups. Regardless of the explanation, the results indicate that ingroup superiority on HU should not be considered a universal phenomenon. Australians could be a solitary exception, but it is also possible that infrahumanization effects are less reliably obtained among national groups with similar colonial histories (e.g. New Zealand, Brazil, South Africa).

The complementary attributions of HN and HU, most consistently by Anglo-Australians, may have been influenced by social norms that dissuade people from totally disparaging the outgroup, especially when comparisons are made with only one outgroup (Judd et al., 2005). Complementarity can be used deliberately to avoid perceptions of outright prejudice or racism. This possibility is consistent with the absence of evidence of complementary group perception in Study 3, where implicit methods were employed. Anglo-Australians do appear to resist expressing uniformly negative views about Asians, holding negative attitudes towards them but also describing them using positive characteristics (Islam & Jahjah, 2001). We expect that this would be similar for ethnic Chinese participants, who were all residing in Australia and would be less likely to be able to express unbridled prejudice or negativity towards the majority group. What is notable, though, is that each group perceived their superiority on a different sense of humanness.

Even if humanness attributions are sometimes complementary, we do not claim that complementarity will occur in all contexts or for all groups. For example, the denial of both forms of humanness to Australians by ethnic Chinese may be more likely when they are in China, where they are no longer the cultural minority and exposed to the outgroup's social norms, and it was observed even in our sojourner sample in Study 2. Other groups may also be denied both HN and HU, such as drug addicts and the homeless, who have been found not to activate areas of the brain associated with social cognition (Harris & Fiske, 2006). In another domain, we have found cases where outgroups have been granted greater humanness on both dimensions, with men attributing greater HN and HU to women (Bain et al., 2008).

Denying or ascribing either form of humanness can have distinct and important implications for the treatment of groups. The denial of HN to others denotes distance or separateness (N. Haslam, 2006). Thus, believing that outgroup members lack HN features, such as emotionality and depth, is likely to make ingroup members attempt to maintain social distance, such as resisting friendship, or at a national level, supporting restrictions on immigration. In contrast, there is likely to be greater willingness to engage personally with members of high HN groups. The denial of HU to an outgroup may denote its perceived lower status, and could lead to the denial of equal treatment and authority to outgroup members, for instance, due to perceptions of their lack of maturity and rationality. However, high HU groups may be seen as people who are rational, mature and reliable, and deserving of trust and responsibility. For Chinese and Australians, this suggests that each culture would place restrictions on the roles and types of relationships outgroup members are allowed to fulfill. Thus, Anglo-Australians may be willing to accept Chinese as (non-competitive)

work colleagues due to their greater HU, but would resist forming personal friendships due to their perceived lower HN. In contrast, ethnic Chinese may resist having Australians as work colleagues, but may desire them as acquaintances and friends on the basis of Australians' values and traits, although they may resist very close personal friendships with Australians due to the denial of HN emotions.

The complementary attribution of humanness leads to intriguing possibilities for reducing prejudice and discrimination. It may be possible to counteract the denial of HU (e.g. seeing the outgroup as uncivilized and unrefined) by emphasizing the outgroup's superior HN (e.g. openness and depth), that is, by making a different dimension of humanness salient in the intergroup context. As both HU and HN represent a group's 'humanness' in different ways, group treatment may improve if they can be shown to belong to the human category in another way.

Although previous research has focused on the denial of humanness to groups, the effects of attributing *greater* humanness to outgroups is a phenomenon that requires further attention. Although this might be assumed to be positive, it is important to note that it could still be used in prejudicial ways. For instance, high prestige domains such as business can be described in dehumanizing 'dog-eat-dog' ways (e.g. Klein, 2003). Thus, ascribing greater humanness to outgroups may function to portray them as less suitable for such domains, and justify denying them access to these domains of power.

Together, the three studies provide evidence that two distinct senses of humanness operate in group perception, and that humanness is attributed and denied to groups in complex and sometimes complementary ways, with distinct implications for prejudice and discrimination. They suggest that researchers may gain important insights by changing focus from the denial of humanness to the broader question of the effects of denying *and* granting humanness to groups. Overall, the identification of these forms of subtle dehumanization as distinct and complementary opens new avenues for research, and for a more nuanced and comprehensive understanding of subtle dehumanization and its effects.

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Appendix

Table 1. Examples of most typical HN, HU and group characteristics in Studies 1 and 2

	Humanness				Group typicality ratings			
					Australia (target)		China (target)	
Sample	High HN	Low HN	High HU	Low HU	Most typical	Least typical	Most typical	Least typical
STUDY 1								
Anglo-Australian								
Values	Exciting life	Detachment	Wealth	Obedience	Pleasure	–	Tradition	–
	Meaning in life	Obedience	National security	Loyalty	Protect	*(comparative*	Obedience	
	Pleasure	Moderation	Social justice	Enjoy life	environment	*rating)*	Politeness	
					Exciting life			
Traits	Passionate	Unemotional	Imaginative	Active	Impulsive	–	Shy	–
	Imaginative	Uncooperative	Rude	Friendly	Irresponsible		Reserved	
	Friendly	Reserved	Conscientious	Nervous	Relaxed		Thorough	
Ethnic Chinese								
Values	Meaning in life	Obedience	Wealth	Loyalty	Protect	–	Tradition	–
	Power	Protect	Spirituality	Obedience	environment		Obedience	
	Wealth	environment	Social justice	Pleasure	Enjoy life		Wealth	
		Detachment			Broadminded			
Traits	Imaginative	Unemotional	Imaginative	Active	Relaxed	–	Shy	–
	Impulsive	Uncooperative	Sympathetic	Comfortable	Active		Reserved	
	Sympathetic	Rude	Conscientious	Relaxed	Friendly		Conscientious	
STUDY 2								
Anglo-Australian	Love	Wrath	Optimism	Fear	Excitement	Wrath	Happiness	Wrath
	Desire	Dread	Embarrassment	Fright	Happiness	Shame	Hope	Rage
	Happiness	Irritation	Disgust	Affection	Love	Dread	Love	Anger
Ethnic Chinese	Love	Wrath	Optimism	Fear	Excitement	Shame	Embarrassment	Wrath
	Desire	Resignation	Embarrassment	Affection	Happiness	Embarrassment	Anxiety	Affection
	Happiness	Dread	Guilt	Fright	Love	Panic	Shame	Surprise