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Essentialist beliefs predict automatic motor-responses to social categories

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Abstract

Essentialist thinking has been implicated in producing segregation between social groups even in the absence of negative attitudes. This mode of category representation brings social group information to the fore in social information processing, suggesting that the social consequences of essentialism are associated with basic categorization processes. Drawing on recent work demonstrating that automatic approach and avoidance behaviors are directly embedded in intergroup categorization, we show that people who hold essentialist beliefs about human attributes are faster to approach their ingroup. Moreover this relationship is not accounted for by explicit prejudice towards the outgroup and essentialist beliefs were unrelated to implicit evaluation of either group. The findings demonstrate that essentialist beliefs are associated with immediate behavioral responses attached to social category exemplars, highlighting the links between these beliefs and basic categorization processes.

Keywords

automatic motor-behaviour, embodiment, intergroup categorization, psychological essentialism

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Essentialist thinking—representing human categories as having deep, hidden and unchanging properties—is a mode of category representation that makes social categories more apparent in social perception (Gelman, 2003; Hirschfeld, 1996; Medin & Ortony, 1989; Rothbart & Taylor, 1992). The consequences of this over-reliance on categorization in social perception has been widely documented (Prentice & Miller, 2007), however there has been little research investigating the relationship between essentialist beliefs and automatic categorization processes. Viewing social categories as real and meaningful increases people's sensitivity to social category-related information, and is likely to have consequences for automatic responding. Specifically we investigate whether holding essentialist beliefs is associated with increased automatic motor-responses to ingroup and outgroup stimuli.

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Psychological essentialism and social categorization

Psychological essentialism has provided insight into the basis from which people provide coherence and meaning to the categorization process (Medin, 1989; Murphy & Medin, 1985). It has also contributed to our understanding of when and why categorization is likely to be particularly powerful. People often treat members of social categories as if they share an underlying nature that gives rise to observable differences (e.g., Gelman, 2003; Rothbart & Taylor, 1992). In the same way that a tigers' stripes can be traced back to underlying causes (e.g., genes) perceived features of social groups (e.g., stereotypes) are believed to arise from underlying natural differences (e.g., Gil-White, 2001). This tendency to view social group members as sharing distinct and underlying similarities leads to the accentuation of between-category differences and within-category similarities (Miller & Prentice, 1999; Prentice & Miller, 2006; Yzerbyt, Corneille, & Estrada, 2001) and to an increased dependency on social category information in making sense of the social environment.

Many of the socially relevant consequences of essentialist thinking arise from this emphasis on social categorization. Essentialist beliefs have been shown to promote the use of stereotypes in social information processing (Bastian & Haslam, 2006, 2007; Williams & Eberhardt, 2008) and increase reliance on group membership in self-understanding (Bastian & Haslam, 2008). Thinking in terms of category differences produces social environments characterized by division and segregation, leading to reduced motivations for interacting with members of racial outgroups (Williams & Eberhardt, 2008), less perceived similarity and reduced motivations to assimilate to other groups (No et al., 2008), and greater difficulty shifting between cultural frames (Chao, Chen, Roisman, & Hong, 2007). In short, essentialist beliefs promote a partitioning of the social environment into inductively potent categories that have implications for social cognition and behavior. However, whether these implications extend to basic or automatic processes linked to categorization has yet to be explored.

Automatic motor-behavior and social categorization

In recent work highlighting the embodied nature of social concepts, Paladino and Castelli (2008) have shown that social categorization has immediate consequences for automatic motor-behavior. Motor systems are directly involved in basic inter-group categorization and thinking in terms of group membership predisposes individuals to approach ingroup members and avoid outgroup members. Whereas previous work has demonstrated that implicit prejudice attached to intergroup categorization has implications for nonverbal behavior (e.g., Dotsch & Wigboldus, 2008; Dovidio, Kawakami, & Gaertner, 2002; McConnell & Leibold, 2001), this work has focused on behaviors that are—at least potentially—controllable. However, work on automatic motor behavior demonstrates that approach and avoidance tendencies can be directly activated simply by making social category information salient. Automatic responses are therefore indicative of the efficiency of motor behavior activation as an automatic response to social categorization.

This research demonstrates that thinking in terms of social groups directly affects people's automatic approach and avoidance behavior, challenging the notion that motor behavioral tendencies are an epiphenomenon of evaluative processing (see also Barsalou, 1999; Carlston, 1992, 1994; Neidenthal, Barsalou, Winkielman, Krauth-Gruber, & Ric, 2005). Simply making an intergroup context salient activates motor-level responses such that people are prepared to approach their ingroup and avoid the outgroup. In this way social categorization is embodied in physical responses to social category exemplars.

By extension, this work suggests that having a dispositional tendency to think in terms of social categories may be associated with automatic motor responses. If social categorization is emphasized in social perception then one would expect embodied responses to social category-based information to also be exaggerated.

Specifically, essentialist beliefs may be associated with accentuated automatic bodily responses to social category exemplars.

Essentialist beliefs about human kinds

Essentialist beliefs have been studied in relation to specific social categories (e.g., Haslam, Rothschild, & Ernst, 2000; Williams & Eberhardt, 2008) or in relation to a specific type of social category (e.g., race; Chao et al., 2007; No et al., 2008). These approaches assess the tendency to hold essentialist beliefs about, and therefore emphasize, particular kinds of social categories in social perception. However, essentialist beliefs can also be measured as generalized individual differences in the tendency to understand human attributes as immutable, biological, discrete and informative. These relatively abstract beliefs about the nature of human attributes have implications for the extent to which people rely on social category information in social perception and can be conceptualized as broadly defined lay theories. Just as beliefs about the immutability of person attributes (Levy, Stroessner, & Dweck, 1998) have been shown to have implications for group-related social cognition (Hong, Levy, & Chiu, 2001), other essentialist beliefs are also implicated.

Previous work has demonstrated that lay theories regarding the immutability, biological basis, discreteness and informativeness of human attributes form a constellation of essentialist beliefs that have implications for social categorization processes relating to stereotyping (Bastian & Haslam, 2006, 2007) and social identification (Bastian & Haslam, 2008). This work also demonstrates that together these beliefs form a reliable uni-factorial measure of essentialism that is not reducible to the effects of one or other of the beliefs on their own. Individuals who hold these essentialistic lay theories about human attributes demonstrate a chronic tendency to rely on social categorization in social perception. By linking essentialist lay theories to motor-behavior, we aim to highlight that this dependency on social categorization is embodied in automatic reactions to social category-related information. Moreover this would provide the first evidence that abstract lay theories regarding human differences have immediate implications for automatic behavioral responses.

We investigate this relationship in the current study, predicting that individuals who hold essentialist beliefs about human attributes will be especially prone to exhibit automatic motor-response to social category exemplars. Specifically we predict that essentialist beliefs will be associated with an accentuation of the ingroup bias found by Paladino and Castelli (2008), however whether this bias is evident in stronger tendencies to approach the ingroup or to avoid the outgroup or both is unclear. Importantly, as noted, motor-behavioral tendencies are not viewed simply as a consequence of evaluative processes (Förster & Stepper, 2000; Neumann & Strack, 2000; Wentura, Rothermund, & Bak, 2000) and instead are theorized to be directly embedded in social category representations (Paladino & Castelli, 2008). Essentialist beliefs are also directly involved in social categorization and their effects are largely independent of prejudice (Haslam, Rothschild, & Ernst, 2002). As such, we also control for explicit prejudice against the outgroup or implicit evaluation of either group to determine whether evaluation rather than a reliance on categorization could account for the essentialism-automatic motor behavior association.

Method

Participants

One hundred and two (70 female) Caucasian Australians participated in the research as part of a larger study and were paid $15 for their time. Their ages ranged from 18 to 51 years ($M = 23.12$, $SD = 1.69$).

Materials

Questionnaire Participants completed the ES+, a measure of essentialist beliefs about human attributes that has been extensively validated in previous research (Bastian & Haslam, 2006, 2008).

Based on work which demonstrates that essentialist thinking employs a constellation of related beliefs (Haslam et al., 2000), the ES+ is a 23-item measure that captures four related essentialist beliefs about the nature of human attributes. Together these four related beliefs form a comprehensive assessment of psychological essentialism that has been shown to have important consequences for social categorization processes. The scale includes 8 items from the Implicit Person Theory scale (Levy et al., 1998) assessing beliefs about immutability (e.g., "*The kind of person someone is, is something very basic about them, and it can't be changed very much*") and 3 additional subscales: Biological Basis (4 items: e.g., "*Whether someone is one kind of person or another is determined by their biological make-up*"), Discreteness (6 items: e.g., "*The kind of person someone is, is clearly defined; they either are a certain kind of person or they are not*"), and Informativeness (5 items: e.g., "*When getting to know a person it is possible to get a picture of the kind of person they are very quickly*"). Ratings were provided on a scale from 1 (*strongly disagree*) to 6 (*strongly agree*). Participants also completed the Asian Modern Racism Scale (AMRS; Son-Hing, Chung-Yan, Hamilton, & Zanna, 2008). Participants then completed two computer tasks.

Go No-go Association Task (GNAT) The GNAT (Nosek & Banaji, 2001) examined implicit attitudes towards Asians and Caucasian Australians. Participants completed four blocks of trials, each corresponding to one of four concept pairings: Asian-Good, Asian-Bad, Caucasian-Good, and Caucasian-Bad. Each concept was represented by eight stimuli. The Caucasian and Asian categories were represented using images of Caucasian and Asian faces matched for orientation, expressiveness, and attractiveness and drawn from previous research (Michel, Rossion, Han, Chung, & Caldara, 2006). The positive and negative categories were represented by positive (e.g., good, warm, romantic) and negative (e.g., bad, ugly, maggot) terms also drawn from previous research (Bellezza, Greenwald, & Banaji, 1986) and matched for familiarity and frequency (Baayens, Piepenbrock, & van Rijn, 1995). In each GNAT trial, a stimulus term that either did (target) or did not (distractor) belong to one of two target categories appeared briefly in the center of the screen. Participants were required to press the spacebar as quickly as possible for a target and press nothing for a distractor. We imposed a 700 ms response deadline (see Nosek & Banji, 2001) and matched target categories with their corresponding distractor categories (e.g., Asian distractors for Caucasian targets). Each stimulus was repeated twice, resulting in 64 trials per block. Block and trial order were randomized between participants.

The Approach/Avoid Task Our measure of automatic motor behavior was directly modeled on that of Paladino and Castelli (2008). The procedure consists of a categorization task in which participants are instructed to either move their hand towards or away from a stimulus presented on a computer screen. Participants respond using a keyboard modified so that only four buttons are present: the "A", "G", "L", and "SPACEBAR". The keyboard is placed perpendicular to the computer screen on the participant's dominant side, such that the "A" key is furthest from the participant and the "L" key closest, with "G" equidistant from both keys. Participants are instructed that they commence each trial by pressing the "G" key, ensuring that the location of the participant's responding hand is identical for all trials. In this task approach tendencies are measured by response times for moving ones hand toward (approach) or away from (avoid) the image, consistent with other procedures where the stimulus (and not the self) is the point of reference (De Houwer, Crombez, Baeyens, & Hermans, 2001; Markman & Brendl, 2005; Wentura et al., 2000). This approach has been demonstrated as reliable measure of peoples automatic behavioral responses to a range of targets (Castelli, Zogmaister, Smith, & Arcuri, 2004; Paladino & Castelli, 2008; Vaes, Paladino, Castelli, Leyens, & Giovanazzi, 2003).

In the current study the approach-avoid task consisted of five Asian cultural primes (e.g., Dragon, Great Wall of China) and five Australian cultural

primes (e.g., Kangaroo, Sydney Harbor Bridge). Whereas Paladino & Castelli (2008) created an intergroup context by having participants respond to ingroup and outgroup stimuli concurrently (i.e., approach ingroup stimuli in the same trial where they were required to avoid outgroup stimuli), we used five cloud images to act as comparison stimuli when responding to each group. Therefore participants were required to respond to ingroup and outgroup relevant stimuli in separate trials. The Asian and cloud images were drawn from previous research (Chao et al., 2007), and the Australian images were selected to both match the Asian images and unambiguously represent Australia.

Participants completed four blocks of trials requiring them to approach or avoid Australian and Asian cultural primes. As with Paladino and Castelli (2008) the design allows for comparison of approach tendencies relative to avoidance tendencies for both ingroup and outgroup targets. In the approach blocks the "A" key was assigned to the ethnic group and the "L" key to clouds (distractors). This was the "approach" block because participants were required to approach the ethnic group image by moving their hand towards the key denoting the group. The "avoid" blocks employed the opposite key mapping (i.e., "A" = clouds, "L" = ethnic group). This constituted the "avoid" block as participants were required to move their hand away from the key denoting the group. Participants were instructed to respond as quickly and as accurately as possible and the terms "approach" and "avoid" were not used. The order of blocks and trials was randomized between participants.

Design and procedure

Participants completed the questionnaire in groups of five to ten under the supervision of an experimenter. Following the questionnaire, participants were moved to individual computer terminals where they completed the GNAT and approach-avoid task. These tasks took approximately 30 min to complete. Participants were then fully debriefed and thanked.

Results

Consistent with our previous work, factor analysis revealed the four subscales of the ES+ all loaded above .58 on a single factor explaining 52% of the variance. On this basis they were combined to provide a measure of essentialist beliefs ($\alpha = .69$). Reaction time data for the approach avoid task was windsorised to remove outliers (Ratcliff, 1993) and d' statistics for the GNAT were calculated, correcting for perfect scores (Green & Swets, 1966). The ES+ was moderately correlated with the AMRS ($r = .29$, $p < .01$).

In order to determine whether the ES+ was associated with implicit prejudice a repeated measures ANCOVA with a 2 (Group: Caucasian vs. Asian) x 2 (Valence: Positive vs. Negative) as within-subjects factors was used with the ES+ entered as a continuous covariate in the model. This revealed a main effect of group, $F(1, 100) = 8.09$, $p = .005$, $\eta^2 = .08$, and valence, $F(1, 100) = 36.06$, $p < .001$, $\eta^2 = .27$, however this was qualified by a group by valence interaction, $F(1, 100) = 5.78$, $p = .018$, $\eta^2 = .06$. Contrasts showed that participants were faster to respond to positive than negative stimuli overall ($p < .05$), but that they were faster to respond to negative stimuli when paired with Asian faces, indicative of implicit prejudice. This tendency did not interact with the ES+, $F(1, 100) = 2.84$, $p = .131$, $\eta^2 = .02$.

To assess whether the ES+ was associated with automatic motor behavior, the same repeated measures ANCOVA was employed with a 2 (Group: Australian vs. Asian) x 2 (Behavior: Approach vs. Avoid) as within-subjects factors and the ES+ entered as a continuous covariate in the model. This revealed no main effects of group, $F(1, 100) = 2.16$, $p = .145$, $\eta^2 = .02$, or behavior, $F(1, 100) = 1.59$, $p = .210$, $\eta^2 = .02$, and no interaction of group x behavior, $F(1, 100) = .05$, $p = .826$, $\eta^2 = .001$. However, as predicted there was a three-way Group x Behavior x ES+ interaction, $F(1, 100) = 4.50$, $p = .036$, $\eta^2 = .04$. In order to interpret this three-way interaction effect, ANOVA's testing main effects for group and behavior were run for low ($n = 51$) and high ($n = 51$) scorers on the ES+ separately.

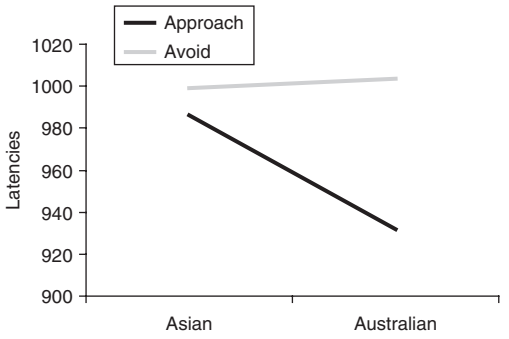

Figure 1. Approach/avoidance latencies for Australians and Asians for high scorers on the ES+.

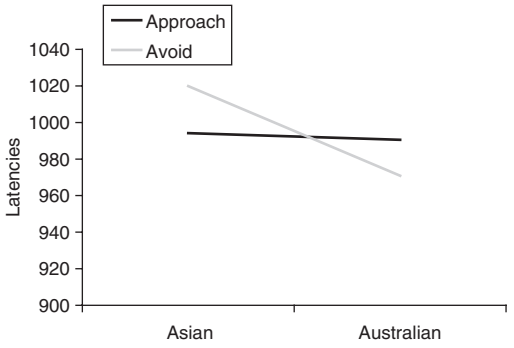

Figure 2. Approach/avoidance latencies for Australians and Asians for low scorers on the ES+.

Findings revealed that high scorers were quicker to approach Australian than Asian images, $F(1, 50) = 4.07$, $p = .049$, $\eta^2 = .08$, and quicker to approach than avoid Australian images, $F(1, 50) = 5.95$, $p = .018$, $\eta^2 = .11$, indicating that essentialist beliefs were associated with faster approach behavior towards the ingroup compared to the outgroup and faster approach than avoidance behavior towards the ingroup (see Figure 1). There were no significant effects for low-scorers scorers, $Fs < 1.95$, $ps > 0.169$ (see Figure 2).

In order to determine whether this effect could be accounted for by prejudice towards the outgroup, we ran the same model with the AMRS entered as covariate alongside the ES+. The three way interaction of Group x Behavior x ES+ remained significant, $F(2, 99) = 6.36$, $p = .013$, $\eta^2 = .06$. However there was no comparable interaction involving the AMRS, $F(2, 99) = 2.61$, $p = .11$, $\eta^2 = .03$.

Discussion

Our findings demonstrate that individual differences in the tendency to essentialize human kinds are associated with automatic motor responses to social category exemplars. This is evident in faster approach behavior towards ingroup stimuli compared to outgroup stimuli and also faster approach than avoidance behavior towards ingroup stimuli. The findings indicate that holding essentialist beliefs about the nature of human attributes—viewing them as distinct, stable and informative—is associated with bodily reactions to other individuals on the basis of their group membership. Essentialist thinking is linked to a heightened awareness of social category information in social information processing and the current findings demonstrate that this awareness is associated with greater automatic motor activation in response to social category exemplars.

Importantly, our results demonstrate that the relationship between essentialist beliefs and automatic motor behavior is not accounted for by prejudice towards the outgroup or implicit evaluation of either group. To this extent we demonstrate that essentialist beliefs are associated with basic categorization processes and this relationship is independent of group-based evaluation. As noted, essentialist beliefs have been linked to preferences for ingroup affiliation and this is evident even in the absence of explicit prejudice (Williams & Eberhardt, 2008). The current study adds to this work by showing essentialist beliefs are also associated with automatic preferences for approaching the ingroup, and this is not due to prejudice towards the outgroup.

In light of the findings for faster approach tendencies toward the ingroup it is tempting to conclude that essentialist beliefs may be particularly associated with ingroup preference. This conclusion would be consistent with past work showing that essentialist beliefs are associated with a passive disregard, rather than aversion for other groups (Williams & Eberhardt, 2008) and would suggest

that essentialist beliefs may produce inter-group segregation primarily by facilitating relations with similar others, rather than by inhibiting interactions with dissimilar others. However, essentialist beliefs were moderately associated with explicit prejudice in the current study and have been linked to outgroup prejudice in past research (e.g., Jayaratne et al., 2006). This suggests that essentialist beliefs are both associated with an automatic preference for the ingroup and explicit prejudice toward the outgroup. Of interest is the notion that attachment and preference for the ingroup comes prior to development of prejudiced attitudes toward specific outgroups (Allport, 1954; Brewer, 1999). Given that essentialist beliefs do not involve explicit evaluations or attitudes it may be that they are primarily associated with a preference for the ingroup, with outgroup prejudice a consequence of this attachment. Future research might aim to disentangle these relationships.

We note a number of limitations to the current study. First, although we found the predicted association of essentialist beliefs and automatic motor behavior, we did not replicate the two-way group x behavior interaction obtained by Paladino and Castelli (2008). We believe this was the result of differences in our procedure compared to theirs. Whereas they asked participants to respond to ingroup and outgroup stimuli within the same trials, we used non-group related stimuli as controls within each trial. This would have reduced the salience of the intergroup comparison being made. Also whereas Paladino and Castelli (2008) used faces or names, we used cultural symbols as social category exemplars. Cultural symbols are not as clearly related to the intergroup context and may have reduced our ability to replicate their effects. Second, although our focus was on an individual difference measure of essentialist beliefs, our findings are correlational and as such do not allow for causal conclusions. Indeed, it seems plausible that holding beliefs about group differences leads to automatic responses to those groups. Establishing the nature of these relationships represents an important direction for future research, highlighting important pathways in the essentialism-social segregation relationship.

In conclusion, we show that psychological essentialism is associated with automatic motor behavior attached to social category exemplars. Specifically, we demonstrate this relationship using an abstract measure of individual differences in beliefs about human attributes, highlighting their role in basic categorization processes. In this way, we bring together two bodies of work associated with causes and consequences of a reliance on social categorization, demonstrating that beliefs about the nature of social categories are associated with embodied responses to exemplars of those categories.

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