

BRIEF REPORT

More Than Meets the Eye: The Role of Self-Identity in Decoding Complex Emotional States

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Folk wisdom asserts that “the eyes are the window to the soul,” and empirical science corroborates a prominent role for the eyes in the communication of emotion. Herein we examine variation in the ability to “read” the eyes of others as a function of social group membership, employing a widely used emotional state decoding task: “Reading the Mind in Eyes.” This task has documented impaired emotional state decoding across racial groups, with cross-race performance on par with that previously reported as a function of autism spectrum disorders. The present study extended this work by examining the moderating role of social identity in such impairments. For college students more highly identified with their university, cross-race performance differences were not found for judgments of “same-school” eyes but remained for “rival-school” eyes. These findings suggest that impaired emotional state decoding across groups may thus be more amenable to remediation than previously realized.

Keywords: interpersonal communication, social categorization, self-identity, complex emotion decoding

After meeting Vladimir Putin for the first time in 2001, George W. Bush exclaimed, “I looked the man in the eye. I found him to be very straightforward and trustworthy.” He went on to add “I was able to get a sense of his soul,” fitting with folk wisdom that “the eyes are the window to our souls.” Examples like this beg two questions. First, is there a language of the eyes? And, second, if so, to what extent is this language readily translatable across cultures and groups? With respect to the first question, the ability to perceive others’ thoughts, intentions, and feelings is widely regarded as a highly evolved human attribute (Brüne & Brüne-Cohrs, 2006; Allison, Puce, & McCarthy, 2000), and the eyes feature prominently in the ability to communicate emotional information (Baron-Cohen et al., 2001). Recently, Adams et al. (2010) demonstrated a robust cross-cultural impairment in native Japanese and White participants from the United States when decoding complex emotional states from the eyes of others, suggesting limits to just how translatable complex emotional communication is across cultures. The cause of this impairment, and thus insights to its potential remediation, however, remains unclear. The present study examined the role of social identity in this process.

The nonverbal communication of emotional states is critical for smooth communication and social adaptability (Adams, Ambady, Nakayama, & Shimojo, 2010), especially when considered in the context of intercultural and interethnic interactions already imbued with the potential for mutual unease (e.g., Trawalter & Richeson, 2006; Dovidio, Kawakami, & Gaertner, 2002). One component of nonverbal communication, facial expressions of emotion, has been studied extensively, dating to the pioneering work of Charles Darwin (Darwin, 1872/1965). Since that time, several studies have provided support for the notion that facial expressions of basic emotions (see Ekman, Friesen, & Ellsworth, 1982), as well as of the valence and intensity of emotions (Soto & Levenson, 2009), can be accurately recognized across different cultures and ethnic groups. However, this is juxtaposed against evidence that individuals also show greater accuracy in decoding emotional states expressed by others of the same culture/race (Elfenbein & Ambady, 2002, 2003; Elfenbein, Beupré, Lévesque, & Hess, 2007). These findings have been at least partially understood as learned attunements to cultural dialects in facial expressions of emotion that require expertise gained through exposure to accurately decode (Elfenbein & Ambady, 2002, 2003; Elfenbein et al., 2007; Marsh, Elfenbein, & Ambady, 2003).

Another influence on this phenomenon can be understood through the lens of social identity theory (Tajfel & Turner, 1979) and social categorization (Hugenberg & Sacco, 2008; Macrae & Bodenhausen, 2000). From this perspective, social categorization refers to greater allocation of attentional resources to the processing of ingroup versus outgroup members. For example, Thibault, Bourgeois, and Hess (2006) found that basketball players were more accurate in decoding the emotions of black and white targets randomly given the label of “basketball player” than were participants who were not basketball players, highlighting the impor-

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tance of the decoder's social group membership, relative to that of target stimuli, in the emotion decoding process. Additionally, Young and Hugenberg (2010) examined the recognition of facial expressions in which facial targets were arbitrarily assigned to meaningful ingroups or outgroups relative to the participants. When participants believed they shared a salient group membership with another individual (i.e., a shared personality type), they were more accurate in recognizing the facial expressions of that individual relative to when they were told that the same individual was an outgroup member (different personality type). Further, they concluded that this performance difference was attributable to a motivated utilization of different processing strategies between groups, providing compelling evidence that social categorization may also contribute to cross-group difficulties in decoding complex emotional states.

Study Overview

The current study examined students' self-identification with a salient ingroup—in this case, their university—on their ability to decode complex emotions from the eyes of same- versus other-race faces. We used a modified cross-cultural Reading the Mind in the Eyes Task (RME; Adams et al., 2010), which includes the original Eyes Task (Baron-Cohen et al., 2001), as well as an Asian version of the task constructed to match the RME in all ways except for target race. The use of these stimuli is important in that it allowed us to assess the influence of ingroup identification on cross-race differences previously found using these same stimuli.

To do this, we randomly assigned eyes stimuli from both the Asian and White version of the RME to represent same- versus other-university affiliation. Accuracy in the decoding of complex emotional states was assessed in a 2 (race of target: Asian, White) \times 2 (target school-affiliation: other, same) factorial design with ingroup identification included as a continuous independent variable. Ingroup identification was included because of wide variability likely found in how much one personally identifies with the university they attend. Self-identification research has shown that group membership effects are most powerful in those highly identified with the group of interest (Aronson et al., 1999; Maass, Cadinu, Guarnieri, & Grasselli, 2003; Steele & Aronson, 1995) and ingroup identification is linked to a sense of ingroup distinctiveness, ingroup prestige, and a lack of intragroup competition (Mael & Ashforth, 1992).

We hypothesized that the arbitrary assignment of faces to represent same- versus other-school affiliates would influence accuracy in decoding complex emotional states, but *only* among those high in ingroup identification, for whom school affiliation represented a salient and meaningful group membership (i.e., a two-way interaction between school affiliation and ingroup identification). Further, although we expected to find better performance for same-race stimuli, overall (see Adams et al., 2010), we predicted that it would be remediated for cross-race eyes sharing a school affiliation, but again *only* for those high in ingroup identification (i.e., a three-way interaction between school affiliation, target race, and ingroup identification).

Methods

Participants

One hundred two White undergraduate participants (84 female, 18 male; mean age = 18.95 years, SD = 1.08) were recruited at

Penn State University. Participants were recruited via an undergraduate research participant pool and were compensated for their participation with partial course credit.

Stimuli

The modified cross-cultural RME is based on a well-validated complex emotional state decoding task, the RME (featuring only White stimuli; Baron-Cohen et al., 2001) with the addition of an Asian version of the task normed at Kyoto University (see Adams et al., 2010). The test is reliable and has been used to examine impairments in decoding of complex emotional states in populations characterized by general difficulties with reciprocal social communication such as those found in autism spectrum disorders (Baron-Cohen et al., 2001) and in individuals with borderline personality disorder traits (Scott, Levy, Adams, & Stevenson, 2011).

Our cross-cultural RME consists of 72 stimuli (the original 36 along with 36 Asian stimuli) displaying the rectangular region around the eyes, each accompanied by four complex emotion terms (one target word and three foils). The stimuli were split into two equal groups (half Asian and half White) matching each group for overall accuracy using data collected from a separate sample of 60 U.S. White participants at Penn State. Then, university affiliation markers (Penn State was the meaningful ingroup) were applied to these stimuli as a border around each set of eyes (constructed from tiles of the school's logo) and the phrase "Property of Penn State" below. Likewise, meaningful outgroup (Notre Dame or Michigan) markers were applied to the remaining stimuli in the same manner (see Figure 1). These particular outgroups were chosen as a between-subjects factor, as data were collected around two Penn State football games against those rival schools. Initial analyses showed no effect of specific rival school, therefore we collapsed across rival schools, making one outgroup for further analysis. The presentation of stimulus sets was counterbalanced across an even number of participants, such that each was seen an equal number of times when designated as same-university affiliation and as other-university affiliation, controlling for potential stimulus-driven effects.

Procedure

Participants were brought into the laboratory individually or in groups of two to four per session. After providing informed consent, participants were seated at cubicles containing a PC with a 17-inch CRT display, separated by dividers for response privacy. Participants were told that they were going to see pictures of faculty, staff, and students from Penn State and Notre Dame (or Michigan) and then completed the cross-cultural version of the RME task with university markers. Stimuli were presented randomly, with race of face and school-affiliation being intermixed. After the RME task, participants rated three-items that were averaged to create a measure of ingroup identification. Participants were asked to rate how important each item (university identification, national university ranking, and university membership) was to their sense of self-identity using a seven-point Likert scale, where 1 = *not important* and 7 = *extremely important*. Other items were included to mask the intent of these questions. Items were presented randomly.

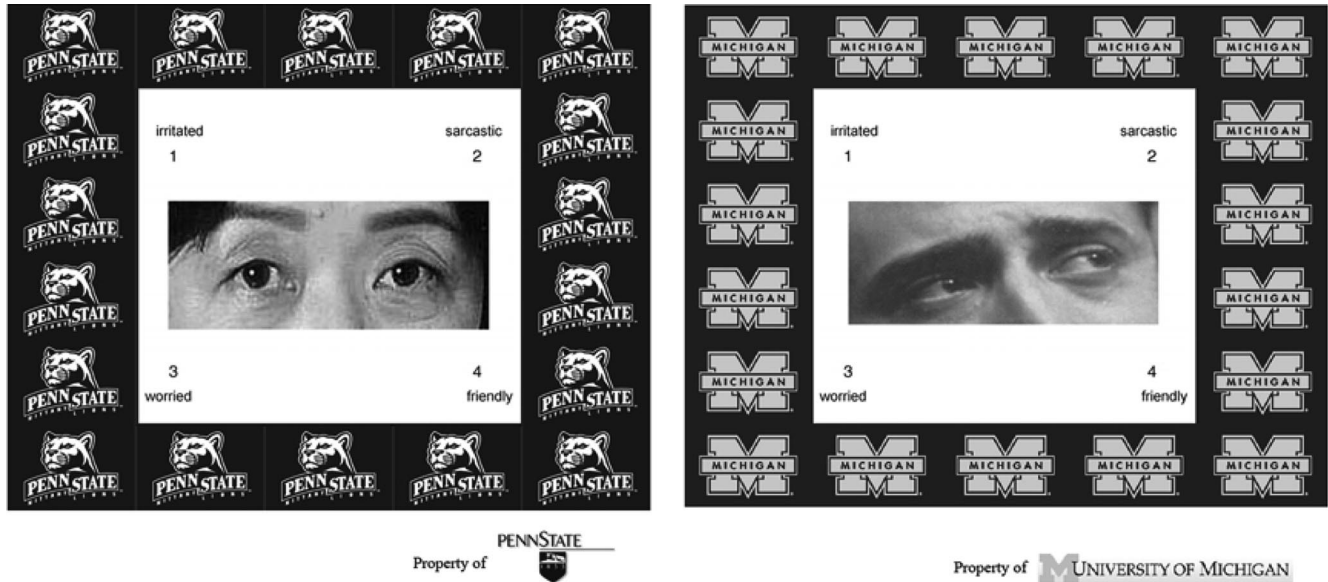


Figure 1. Example cross-cultural RME stimuli with university markers applied, where “worried” is the target response.

Results

To accommodate the two categorical, within-subjects independent variables (race and school), and the continuous, between-subjects independent variable (mean centered ingroup identification; Aiken & West, 1991), data were analyzed using a linear mixed models analysis package (lme4; Bates, Maechler & Bolker, 2011) in the R statistical software (Ver. 2.13.0; The R Foundation for Statistical Computing, 2011). Each independent variable and all interaction terms were included in the model (only significant effects are reported). The analysis revealed a main effect of race (fixed-effect estimate = .08, $SE = .02$, $t = 5.08$, $p < .01$), such that participants showed greater accuracy (percent correct) for White versus Asian eyes, replicating previous findings (Adams et al., 2010). As predicted, a two-way interaction between ingroup identification and school-affiliation was also observed (fixed-effect estimate = .03, $SE = .01$, $t = 2.15$, $p < .05$), such that as ingroup identification increased, accuracy on the RME for same-school eyes (but not other-school eyes) also increased. Critically, these effects were further qualified by the predicted three-way interaction between race, school-affiliation, and ingroup identification (fixed-effect estimate = -.04, $SE = .02$, $t = -.216$, $p < .05$). As ingroup identification increased, so too did performance on RME for Asian eyes believed to represent Penn State (i.e., the ingroup school). Ingroup identification did not affect performance on the Asian eyes when they were believed to represent outgroup members (i.e., other university), thus effectively eliminating cross-race difficulties in decoding the complex emotions found previously (see Figure 2). Direct comparisons between same-school/same race, and same-school/other race faces in the +1 SD identification group, $t = -.91$, $p = .38$ and the -1 SD identification group, $t = -3.45$, $p < .01$ confirm this. Importantly, this effect was driven specifically by an increase in accuracy for Asian eyes (as opposed to a decrease in any other comparison group), providing evidence for remediation of the relative im-

pairment in performance apparent in the other conditions (see Line 3 of Figure 2).

Discussion

Decades of research on the accurate decoding of emotion across cultural and racial boundaries has illustrated the complexity of this

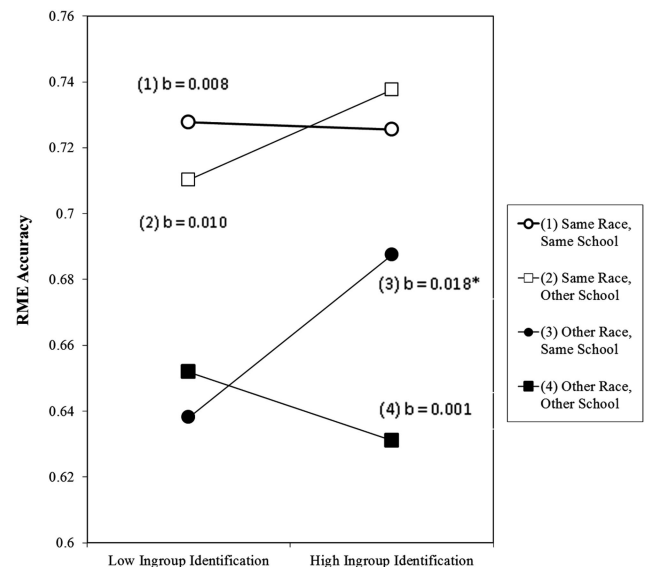


Figure 2. Low and high ingroup identification groups represent -1 and +1 SD , respectively, from the ingroup identification mean. Slope comparisons show that only slopes (3) and (4) differ from each other ($t = 2.15$, $p < .05$). Simple slopes analyses show that the interaction effects are driven by increased accuracy for other race, same school faces as a function of ingroup identification (one-tailed t -tests were used, based on our *a priori* hypotheses). * $p < .05$.

process, with evidence marshaled in favor of both universality and cultural relativity (Ekman, Friesen, & Ellsworth, 1982; Elfenbein & Ambady, 2002). One finding that appears to be fairly robust is that accurate decoding of complex emotional states may be particularly difficult when reading cross-race others (Adams et al., 2010). This cross-cultural/racial difference in performance was replicated here as evidenced by an overall main effect of race. Additionally, a two-way interaction displayed that as ingroup identification increased, accuracy on the RME for same-school eyes (but not other-school eyes) also increased. This was further qualified by a significant three-way interaction revealing that this relative impairment for decoding other-race eyes was improved for White individuals high in school identification when rating the Asian eyes that were represented as sharing a same-school-affiliation. In fact, when perceived as affiliated with Penn State, Asian eyes were decoded as accurately as the White eyes stimuli, thereby effectively erasing the apparent decrease in cross-race accuracy seen in the other conditions, but again *only* in those for whom school-affiliation was a self-relevant identity.

Our findings strongly underscore the necessity of considering social psychological processes such as self-identification and categorization when examining emotional processes. In fact, how the emotions of others are understood might be intricately linked to our basic desire to divide the world into “us” versus “them” (Allport, 1954). Recent advances in social categorization theory have amply demonstrated that this distinction, even when arbitrarily assigned, motivates a different level of face processing, in which ingroup members are processed as unique individuals and outgroup members are seen as homogenous representatives of their group. At the level of visual processing, this individuation results in deeper encoding of the subtle nuances of facial information, an insight that has recently been extensively examined as an underlying cause of cross-race and cross-group difficulties in facial identification (Hugenberg & Sacco, 2008).

The current work advances this line of inquiry in two major ways. First, we demonstrate that social categorization yields downstream consequences on high-level emotion decoding. Second, our findings demonstrate a critical role of one’s self identification with a social group. The improvement observed in those high in school identification when viewing perceived same-school but other-race faces suggests categorization-based processing attunements are an underlying cause of these effects. Interestingly, contrary to previous work examining cross-group face memory (Hehman, Mania, & Gaertner, 2009) and emotion recognition (Young & Hugenberg, 2010), our group manipulation (in this case same- vs. other-school) affected only other-race but not same-race performance. Future work investigating the specific mechanisms of social visual processing (i.e., configural vs. featural processing) that potentially underlie such differences is clearly warranted.

Importantly, our findings point to a potential source of remediation of cross-cultural, cross-race, and other cross-group difficulties in accurate decoding of complex emotional states. The common ingroup identity model (Gaertner & Dovidio, 2000) posits that recategorizing perceived outgroup members into a broader, more inclusive ingroup (thus eliminating the sense of an outgroup) can temper problems between groups. While this model has focused on more social-interactional processes (a logical domain for future examination), the same principle can likely be applied to the more basic act of determining what someone else is feeling.

Because social categorization is a fluid process, increasing the salience of a more inclusive social group (one that allows more members) at any given time can result in fewer negative consequences of exclusive categorization. The manipulation of the salience and inclusiveness of a social category has yet to be examined in the context of emotion decoding and thus may be a fruitful avenue for future work.

Successful cross-cultural and cross-racial interactions are of profound importance, necessary for navigating political and economic affairs on a global and domestic level. When this type of communication breaks down, consequences can be severe. The present work supports a potential social-cognitive mechanism behind complex emotional state decoding that suggests detriments are both more pervasive than previously realized, but also potentially more malleable and subject to remediation.

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