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Categorization and individuation in the cross-race recognition deficit: Toward a solution to an insidious problem

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Abstract

Recent theory and evidence suggest that the Cross-Race Effect (better recognition for same-race (SR) faces than for cross-race (CR) faces) is due to social-cognitive processes of categorization of out-group members, causing perceivers to attend to category-specifying information of CR faces at the expense of individuating information. Three experiments seek to extend this social-cognitive explanation of the CRE by investigating the extent to which the Cross-Race Effect can be reduced by inducing perceivers to individuate rather than categorize CR faces. In all three experiments, participants who received warning of the Cross-Race Effect prior to encoding, and instructions to individuate out-group members, showed no CRE. Experiment 2 suggests that this elimination of the CRE was not due merely to increased motivation to process all stimuli. This is one of few empirical displays of an elimination of the CRE outside of visual training. Moreover, these results are congenial with Levin's (2000) feature-selection model, which suggests that the CRE is due to differential social cognitions about in-group and out-group members, rather than to differences in perceptual expertise. By eliciting individuation of out-group members at encoding, the CRE can be eliminated.
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Introduction

The cross-race recognition deficit, known more simply as the Cross-Race Effect (CRE), is one of the best-replicated phenomena in face perception (Chance & Goldstein, 1996), and has been of interest to social psychologists for more than half a century (Allport, 1954). Explained simply, the CRE is a tendency to have better recognition accuracy for same-race (SR) faces than for cross-race (CR) faces, an effect that has been shown to be surprisingly robust across numerous research paradigms (Meissner & Brigham, 2001). From recognition memory tasks in the laboratory to suspect line-ups in police stations, the tendency to have better recognition of SR than CR faces has shown troubling consistency. Although this phenomenon is interesting in its own right, the high degree of interest in the CRE is due, at least in part, to the potentially deleteri-

ous consequences of misidentifying members of racial out-groups (Brigham & Malpass, 1985). For the perceiver, consequences of misidentification may include feelings of embarrassment or social opprobrium. For the victim of misidentification, the consequences may be more problematic, leading to feelings of insult or the threat that accompanies the knowledge of being stereotyped. Perhaps more serious still, however, are the potential legal consequences of misidentification. Given the reliance of the criminal justice system on eyewitness identification, and the substantial weight that eyewitnesses have on juridic decisions, understanding the mechanisms underlying the CRE and how to ameliorate these effects are clearly important goals for social psychological investigation.

Mechanisms underlying the Cross-Race Effect: Percept versus concept

Despite the robustness of the CRE across experimental contexts, coming to agreement on a satisfying theoretical

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account for this troubling effect has proven difficult. Perhaps the longest standing explanation for the CRE is the *perceptual expertise hypothesis* (see Meissner & Brigham, 2001). Although there are many different variations of this hypothesis (Ng & Lindsay, 1994), the core argument is that perceivers have differential expertise in processing SR versus CR faces, and that this differential expertise leads to differential recognition accuracy. Given that people typically have substantial contact with individuals of the same-race, extensive expertise is gained at distinguishing between SR faces. The comparatively lesser contact with individuals of other races, however, yields fewer opportunities for distinguishing between CR faces. As such, we are relatively inexpert at distinguishing between CR faces. The specific mechanism by which this differential expertise elicits differential recognition of CR faces is a matter of some debate. For example, in line with popular models of recognition memory (e.g., McClelland & Chappell, 1998), a lack of contact may lead to a lack of expertise with the dimensions on which CR faces actually vary (see McLin & Malpass, 2001). Alternately, lower levels of expertise with CR faces may elicit less holistic and relatively more feature-based processing of CR faces (Rhodes, Brake, Taylor, & Tan, 1989).

Mechanisms for the perceptual expertise hypothesis aside, support for this perceptual expertise hypothesis in explaining the CRE has been mixed (Brigham & Malpass, 1985). On the supportive side, practice distinguishing between CR faces can reduce the CRE. For example, Malpass, Lavigueur, and Weldon (1973) found that practice at perceptual discrimination between SR and CR faces in the laboratory can at least temporarily reduce the magnitude of the CRE (see also Elliott, Wills, & Goldstein, 1973; Goldstein & Chance, 1985). More recently, work by Sangrigoli and colleagues (Sangrigoli, Pallier, Argenti, Ventureyra, & de Schonen, 2005) has found that extensive, lifelong training with CR faces can even reverse the direction of the CRE. In their study, individuals of Korean heritage who were adopted as children by Caucasian families in Europe showed a reversal of the CRE by adulthood. That is, despite their Korean heritage, these adopted participants who grew to maturity among Caucasian families showed effects similar to their adoptive Caucasian parents, finding it more difficult to correctly recognize Asian than White faces.

Thus, there is some evidence that the magnitude of the CRE decreases as the amount of expertise with CR faces increases, and with extensive practice can even reverse. However, some studies have failed to find empirical support for the perceptual expertise hypothesis, finding no relationship between the amount of expertise with CR faces and the magnitude of the CRE (e.g., Malpass & Kravitz, 1969; Ng & Lindsay, 1994). For example, Ng and Lindsay (1994) easily replicated the typical CRE with White and Asian participants, however, across two studies they found no relationship between the magnitude of the CRE and self-reported contact with members of the relevant racial out-group. Ng and Lindsay also studied racial minorities among racial majorities, specifically White participants

living in Singapore and Asian participants living in Canada, who would presumably be forced by dint of their minority status to have extensive experience at distinguishing between CR faces. Even such extensive real-life experience seemed to have no effect on the magnitude of the CRE. Similarly, attending schools with large numbers of out-group members has shown to have differential effects on the CRE (see Levin, 2000, for a review), in some cases reducing the effect (Feinman & Entwhisle, 1976), in other cases, having no effect (Malpass & Kravitz, 1969), and in still other cases even exacerbating the effect (Lavarkas, Buri, & Mayzner, 1976). Thus, despite some confirmatory evidence, the conflicting evidence that real world contact with out-group members does not reliably show a negative relationship with the magnitude of the CRE suggests that something more than mere perceptual expertise may be at play.

In response to the sometimes checkered evidence for the expertise hypothesis in explaining the CRE, Levin (1996, 2000) proposed his *feature-selection* model as an alternate explanatory mechanism for the CRE. This feature-selection model argues that the CRE is due not to differential expertise with CR faces per se, but rather to differences in social cognitions typically elicited when processing in-group and out-group members (see also Anthony, Copper, & Mullen, 1992). At the core of Levin's feature-selection hypothesis is the ubiquitous tendency of perceivers to think categorically about out-group members (e.g., Bodenhausen, Macrae, & Hugenberg, 2003). Categorical thinking involves reliance on social categories (e.g., race, sex, age) rather than on individual characteristics of a target. Levin (1996, 2000) argues that this tendency to think categorically about out-group members, but to individuate in-group members, leads to an asymmetrical search for features in SR versus CR faces (see also McLin & Malpass, 2001). The individuation of in-group members leads perceivers to search for facial features that distinguish one in-group member from another. The tendency to think categorically about out-group members leads to a different search pattern: perceivers search for category-specifying features (e.g., skin tone, brow strength) rather than individuating features. Whereas people encode individuating features in SR faces, they encode race-specifying features at the expense of this individuating information in CR faces. Having only encoded the race-specifying features of CR faces, this leads to real difficulty distinguishing one CR face from another CR face at recognition, resulting in the well-established CRE.

Toward a social-cognitive understanding of the Cross-Race Effect

The feature-selection model is, at its core, a social-cognitive model of a seemingly perceptual phenomenon, which aligns it with a number of analogous effects in the social cognition literature. For example, the well-replicated within-category confusions in the "Who said what?" paradigm (Klauer & Wegener, 1998; Taylor, Fiske, Etcoff, & Ruderman, 1978) show a similar pattern, such that