The cross-race effect in face recognition memory by bicultural individuals☆

Benjamin U. Marsh [a,b,*], Kathy Pezdek [a], Daphna Hausman Ozery [a]

[a] Claremont Graduate University, 150 East 10th Street, Claremont, CA 91711, United States
[b] Azusa Pacific University, 901 E Alosta Ave, Azusa, CA 91702, United States

ABSTRACT

Social-cognitive models of the cross-race effect (CRE) generally specify that cross-race faces are automatically categorized as an out-group, and that different encoding processes are then applied to same-race and cross-race faces, resulting in better recognition memory for same-race faces. We examined whether cultural priming moderates the cognitive categorization of cross-race faces. In Experiment 1, monoracial Latino-Americans, considered to have a bicultural self, were primed to focus on either a Latino or American cultural self and then viewed Latino and White faces. Latino-Americans primed as Latino exhibited higher recognition accuracy (A') for Latino than White faces; those primed as American exhibited higher recognition accuracy for White than Latino faces. In Experiment 2, as predicted, prime condition did not moderate the CRE in European-Americans. These results suggest that for monoracial biculturals, priming either of their cultural identities influences the encoding processes applied to same- and cross-race faces, thereby moderating the CRE.

1. Introduction

A strong and consistent body of research has demonstrated that individuals are more accurate at recognizing faces of their own race than faces of another race,[1] a phenomenon known as the cross-race effect (CRE) or own-race bias (Malpass & Kravitz, 1969). In a meta-analysis by Meissner and Brigham (2001), the CRE was supported to be a robust influence ($d = 0.30$) on eyewitness memory and identification. Over the last decade, researchers have increasingly focused on the socio-cognitive mechanisms underlying the CRE and how these mechanisms can be moderated by making salient a meaningful social-category to which the viewer belongs (Hugenberg & Sacco, 2008). For example, the CRE has been moderated in biracials by making salient one of their two racial identities (Gaither, 2015; Pauker, Ambady, & Freeman, 2013). However, these effects have yet to be extended to individuals who are monoracial but bicultural due to identification with an ethnic

minority group (e.g., Latino) and with a nationality (e.g., American). Furthermore, it has not been established that these priming techniques are implicitly influencing the cognitive mechanisms involved in the CRE, and not explicitly directing attention towards a particular type of face. Our study addresses both of these issues.

Several theoretical explanations have been proposed to account for the CRE (see Meissner, Brigham, & Butz, 2005 and more recently, Hugenberg, Young, Bernstein, & Sacco, 2010, and Susa, Meissner, & de Heer, 2010). Most of these accounts focus on processing differences that occur at the encoding stage for same- and cross-race faces (although processing differences at recognition have also been reported; Ho & Pezdek, 2015). However, to account for encoding differences between same- and cross-race faces some models focus on perceptual mechanisms and others focus on socio-cognitive mechanisms. Research has shown that the CRE can be moderated by non-perceptual factors such as exogenous application of Oxytocin (Blandón-Gitlin, Pezdek, Saldivar, & Steelman, 2014) and by presenting faces in groups (Pezdek, O'Brien, & Wasson, 2011) and altering the perceived social cohesiveness of the groups (McGuire & Pezdek, 2014). Moreover, Michel, Corneille, and Rossion (2010) reported that manipulating the perceived race of a face moderated the CRE. They reported that more holistic face processing, important for discriminating one face from another (see Rossion & Michel, 2011 for a review), occurred when racially-ambiguous face stimuli were manipulated to be perceived as same-race faces rather than cross-race faces. They concluded that a process of race-categorization occurred at the perceptual level, triggering one pattern of processing for same-race faces and another for cross-race faces, but

[1] Consistent with Chiao, Heck, Nakayama, and Ambady (2006), we use the terms race and ethnicity to refer to a social group whose members share a common ethnic heritage, a country of origin, a set of values, cultural practices, a native language, or physical features (e.g., skin tone, facial and body shape). Thus defined, race/ethnicity and culture are considered inter-related.

their findings further suggest that non-perceptual factors can also influence the degree of individuating features encoded for cross-race faces. In light of this research, we rely on social-cognitive models of the CRE effect in this research rather than exclusively perceptually-based models, recognizing that of course these two classes of models are related.

Social-cognitive mechanism such as those proposed in Sporer's (2001) In-Group/Out-Group Model (IOM) and Hugenberg et al.'s (2010) Categorization Individuation Model (CIM) play an important role in the CRE. According to the CIM, face processing is in part dependent on cognitive mechanisms that categorize whether the identity of a face is important to encode. When the identity of a face is categorized as important to encode, selective attention is directed towards individuating facial features necessary for discriminating one face from another, a process commonly applied to faces of same-race individuals and in-group members (Hugenberg et al., 2010). In contrast, when the identity of a face is categorized as less relevant to encode, selective attention is directed towards category-diagnostic facial features (e.g., race) and away from individuating facial features, a process commonly applied to faces of cross-race individuals and out-group members. As a result, same-race faces are better recognized than cross-race faces. In addition, the CIM proposes that contextual cues can influence the categorization process and redirect selective attention from category-diagnostic features of cross-race faces to more individuating facial features. Our study tests if cultural priming can moderate whether same- or cross-race faces are categorized as important to encode thereby influencing whether category-diagnostic features or individuating features are processed.

Cultural priming is the sub-threshold activation of mental representations that reflect aspects of one's cultural identity (e.g., ethnicity or nationality). If one's cultural identity, such as being Latino, triggers the encoding processes that are applied to same-race/in-group (Latino) versus cross-race/out-group (White) faces, then making salient a superordinate identity such as nationality (American) that is shared by the participant and the cross-race face could trigger processing the cross-race face as important to encode similarly to how same-race faces are normally processed. To test this hypothesis, cross-race face recognition memory was examined with monoracial bicultural Latino-Americans (each had two Latino parents). Bicultural individuals cognitively develop within two distinct socio-cultural contexts, represented in separate networks of domain-specific knowledge. Hong, Morris, Chiu, and Benet-Martínez (2000) described bicultural individuals as "people who have internalized two cultures to the extent that both cultures are alive inside of them" (p. 710). As a result, bicultural individuals develop a flexible identity and can change their cultural identification in different contexts according to social and environmental cues (Pauker & Ambady, 2009). Given the definition of biculturalism, it is important to note that a variety of individuals are considered bicultural including biracials and some monoracials (see Benet-Martínez, 2012 for a full review). Using both implicit and self-report measures of cultural identity, Devos (2006) reported that Latino-Americans in particular, typically have a bicultural self or "double-identity;" as they identify with both their ethnic group (Latino) and their nationality (American). The dynamic nature of the Latino-American bicultural self presents a unique opportunity for examining the socio-cognitive influence of different cultural self-views on memory for in-group (Latino) versus out-group (White) faces. Further, this work has important implications for predicting real-world eyewitness identification accuracy among bicultural individuals, specifically Latino-Americans who currently compose 16.7% of the U.S. population (U.S. Census Bureau, 2010).

Racial identity priming has been shown to influence biracial individuals' cognitive processing of in-group and out-group faces. Chiao et al. (2006) primed biracial individuals with their Black identity or their White identity and then had them do a visual search task for Black or White faces. Black faces were detected faster than White faces, and this difference was greater for Black-primed than White-primed biracial

individuals. Thus, one's racial identity influences the cognitive mechanisms underlying visual search for faces of different races. Pauker, Ambady, and Freeman (2013) reported that this effect extends to recognition memory and moderates the CRE. They primed White/Black biracial individuals as White or Black, and then presented to them White, Black and racially ambiguous faces to study. Subjects primed as White recognized White faces better than Black faces; subjects primed as Black did not differ in their recognition of White and Black faces. These results suggest that biracial individuals primed as White likely categorized White faces as an in-group, resulting in the encoding of individuating facial features of White faces but not Black faces. On the other hand, biracial individuals primed as Black likely categorized Black faces as an in group, resulting in the encoding of individuating facial features of Black faces. However, despite being primed as Black, biracial individuals recognized White faces as well as Black faces, suggesting that they may categorize the identity of faces from the majority culture as important to encode by default (Hugenberg et al., 2010).

In sum, Pauker et al. (2013) suggested that the cognitive mechanism responsible for signaling that the identity of faces is important to encode is a flexible one in White/Black biracial individuals, at least as it pertains to Black faces. In a recent review of the research on multiple racial identities, Gaither (2015) claimed that the flexibility in face processing and the CRE was "unique to people with multiple racial identities" (p. 110). However, based on the CIM framework, the CRE can be moderated whenever a meaningful social category shared by the subject and the to-be-remembered face is made salient (see Hugenberg & Sacco, 2008), suggesting that the CRE is also malleable in monoracials. For example, if a social category common to the participant and the cross-race face is made salient, a process of categorizing the cross-race face as important to encode may be signaled. Typically, same-race faces are automatically categorized as important to encode and cross-race faces are not, but making salient a social category shared between the subject and the cross-race face may lead to cross-race faces being processed similarly to same-race faces.

We primed monoracial bicultural Latino-American subjects to focus on either their Latino or American identity (varied between subjects) prior to being presented a series of Latino and White faces (varied within subjects). The method developed by Wang (2008) was used for cultural priming; this method is described below. If the social cue used to categorize out-group faces – typically racial/ethnic membership – can be moderated by cultural priming, then it would be predicted that Latino-Americans primed with their Latino cultural self would exhibit the CRE with higher face recognition accuracy for Latino than White faces. It is important to note that the CRE would also be expected in a sample of non-primed Latino-Americans as in Gross (2009) and Platz and Hosch (1988). On the other hand, for those primed with their American self, if the Latino and White faces are interpreted to be American faces, the CRE would be eliminated; but if the Latino faces are not interpreted as American faces the CRE would be reversed.

2. Pilot study

A pilot study was conducted to assess race typicality of each face (Corneille, Huart, Becquart, & Brédart, 2004) so that White or Latino faces were clearly perceived as being White or Latino, respectively. From the database of faces maintained by Meissner (http://iilab.utep.edu/stimuli.htm), we selected a subset of 35 White and 35 Latino faces. We specifically selected pictures of faces that did not have distinctive features (e.g., unusual hairdo, glasses, jewelry, clothing, etc.). Using the methods of Meissner et al. (2005), 19 Latino adults indicated whether each of the 70 faces were Latino or White and rated each face with a neutral expression on physical attractiveness ("How attractive is this person?"), memorability ("How likely are you to remember this person if you saw him on the street?"), and ethnic typicality ("How typical is this person of his race?") using a 7-point scale. Of the 70 faces, 14 Latino