Race-related Facial Qualities Contribute to Stereotyping by White, Black, and Korean Judges

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Abstract

Four studies assessed recent bottom-up theories of stereotyping by examining the contribution of race-related appearance qualities to impressions of Black, White, and Korean faces by Black, White, and Korean participants. Results supported the *feature-trait association (FTA) hypothesis* (Blair, Judd, Sadler, & Jenkins, 2002) and the *familiar face overgeneralization (FFO) hypothesis* (Zebrowitz, Bronstad, & Lee, 2007), but not the *colorism hypothesis* (Maddox & Gray, 2002). Impressions of own and other-race faces were shaped by racial prototypicality, with more prototypical group members more likely to be stereotyped. For White perceivers, these impressions tended to mirror cultural stereotypes of the particular racial group, supporting the FTA hypothesis. For non-White perceivers, impressions tended to be mediated by familiarity, with more positive impressions of more familiar-looking targets and more negative impressions of less familiar-looking targets, supporting the FFO hypothesis.

Keywords: Face, Race Prototypicality, Familiarity, Stereotypes

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Dual process models of impression formation and stereotyping have focused both on a top-down path, in which judgments of people are based on the perceiver's prior concept of the category to which that person belongs, and a bottom-up path, in which judgments are based on the specific features of a person (Fiske & Pavelchak, 1986; Brewer, 1988). In top-down processing, which has received the most research attention, perceptions of other-race individuals are shaped by categorization; perceivers make a racial categorization of a target, stereotype-relevant knowledge is activated, and then applied to that target (Bodenhausen & Macrae, 1998; Brewer, 1988; Fiske & Neuberg, 1990). In this account, the appearance of a target plays a role only insofar as it is used for categorization, and category members are stereotyped to the same degree, regardless of the category-typicality of their features (Secord, 1959; Secord, Bevan, & Katz, 1956; Fiske & Taylor, 1991).

In contrast to categorization models, recent bottom up approaches suggest that individuals are stereotyped to different degrees based on their physical features even if they are all perceived to belong to the same category. Several such approaches have been put forward including the *feature trait association hypothesis* (Blair, Judd, Sadler & Jenkins, 2002), *the familiar face overgeneralization hypothesis* (Zebrowitz, Bronstad, & Lee, 2007), and the colorism hypothesis (Maddox & Gray, 2002). The purpose of the present research was to assess the utility of these hypotheses in predicting first impressions of own- and other-race faces by White, Black, and Korean judges..

According to the feature-trait association hypothesis (FTA), category stereotypes provide the opportunity and social context for certain physical features to become associated with specific traits (Blair et al. 2002). Through this process, the features come to serve as direct cues

for the trait. Consistent with this hypothesis, both African Americans and European Americans with more prototypically Black features were judged by White perceivers to possess more stereotypic African American traits (Blair et al. 2002), received harsher prison sentences (Blair, Judd & Chapleau, 2004), and were more likely to receive the death penalty (Eberhart, Davies, Purdie-Vaughns, & Johnson, 2006).

Grounded in an ecological approach to perception (Gibson, 1966, 1979; McArthur & Baron, 1983), the familiar face overgeneralization hypothesis (FFO) holds that the utility of differentiating known individuals from strangers has produced a tendency for responses to strangers to vary as a function of their resemblance to known individuals (Zebrowitz, 1996; 1997). Consistent with this hypothesis, not only were the faces of own-race strangers judged to be more familiar than faces of other-race strangers by Koreans, White Americans, and Black Americans, but also the lower familiarity of other-race faces mediated ingroup favoritism in the judged likeability of faces. Moreover, the lower familiarity of other-race than own-race faces mediated negative stereotypes of other-race faces and partially suppressed positive ones (Zebrowitz, Bronstad, & Lee, 2007). These negative reactions to unfamiliarity are consistent with data reported by Livingston & Brewer (2002) who found that highly prototypical Black faces presented to White perceivers primed faster reaction times to negative nouns (e.g., poison, despair) than did low prototypical Black faces or White faces. Since this effect was shown for stereotype-irrelevant words, it is more consistent with a tendency to react negatively to unfamiliar faces than with stronger stereotyped associations to more prototypical other-race faces.

In contrast to both the FTA and FFO hypotheses, the colorism hypothesis (Maddox & Gray, 2002) points to a historical perspective whereby darker-skinned African-Americans

received harsher treatment than their lighter-skinned peers. This also represents a bottom-up approach to stereotyping since skin tone variations are present within-race. According to the hypothesis, darker skin will elicit more negative stereotypes from perceivers, even for traits not normally associated with a particular racial group.

We conducted four studies to investigate the contribution of feature trait associations, face familiarity, and colorism to race stereotyped first impressions of own- and other-race faces. Study 1 provided a conceptual replication and extension of the Blair et al. (2002) research, examining White perceivers' impressions of both Black faces and White faces as a function of how African or White they looked. Study 2 extended the Blair et al. (2002) research with White perceivers to examine Black perceivers' impressions of White faces and Black faces as a function of their race-related appearance qualities. Studies 3 and 4 provided an extension to White and Korean perceivers' impressions of Asian faces and White faces as a function of their race-related appearance qualities. All studies extended the research by Zebrowitz et al. (2007) that had documented effects of face familiarity on differences in impressions of faces *between* race categories to examine the contribution of familiarity to differences in impressions of faces *within* race categories. To accomplish these aims, we used perceivers' impressions of faces that were previously reported by Zebrowitz et al., (2007) together with new ratings of the racial prototypicality of the faces.

Study 1

Blair et al. (2002) provided support for the FTA hypothesis when examining White judges' impressions of Black or White faces that varied in how African they looked. Study 1 extended Blair's research to include how White the facial features looked, skin tone, and hair quality as predictors of impressions in addition to how African the facial features looked. One

goal was to see whether some facets of a more African appearance contribute to appearance-trait associations more than others. Study 1 also used a different paradigm from Blair et al. (2002), asking directly for impressions of each face rather than matching differentially prototypical faces to stereotypic and non-stereotypic vignettes. This allowed us to gauge how race-related appearance qualities affected particular stereotypes rather than assessments of general personality.

Previous research using the same faces (Zebrowitz et al., 2007) found that White judges perceived Black faces as more dangerous, less competent, more athletic, less reserved, and less likeable than White faces, effects consistent with other evidence concerning White Americans' racial stereotypes and prejudice (Devine & Elliot, 1995). Based on these results, the FTA hypothesis predicts that White judges will perceive either Black or White faces with a more African-looking appearance as more dangerous, less competent, more athletic, and less reserved, while the reverse will be true for faces with a more White-looking appearance.

In addition to stereotypes of other-race faces, there is prejudice, and Zebrowitz et al. (2007) found that White Americans perceived own-race faces as more likeable than Black faces. Moreover, as predicted by familiar face overgeneralization, this effect was mediated by the greater familiarity of own-race faces. Study 1 tested the hypothesis that more African-looking faces of either race would be judged less likeable by White Americans, while the reverse would be true for more White-looking faces. The FFO hypothesis does not predict particular stereotypes. However, it does predict more negative reactions to less familiar other-race faces. Consistent with this, previous research revealed that the lesser familiarity of other-race faces mediated negative race stereotypes and suppressed positive ones (Zebrowitz et al., 2007). Study 1 tested the hypothesis that the same would be true for impressions of faces within race categories. More

specifically, we predicted that the greater familiarity of more White-looking faces of either race would partially mediate a tendency for White perceivers to form more positive impressions of them, while the lesser familiarity of more African-looking faces would partially mediate more negative impressions of them.

Method

Judges

White American college undergraduates rated either Black and White male faces (N = 21) or Black and White female faces (N= 18) on race-related and emotion appearance scales, with approximately equal numbers of male and female judges in each group. Participants received either $10 or course credit in their Introductory Psychology course for their participation. Six additional male participants provided ratings of hair quality. Ratings of the same faces on trait and general appearance scales by a different set of White participants were taken from the research by Zebrowitz et al. (2007).

Faces

The same 60 White and 60 Black facial images used by Zebrowitz et al. (2007) were employed. The faces of each race were equally divided between men and women, and all had neutral expressions. The facial images of Black men were selected from a set of faces that had been used by Blair et al. (2002). The facial images of Black women were selected from the website http://americansingles.com by searching for Black women ages 18-25. (See Zebrowitz et al., 2007, for a fuller description).

Race-Related Appearance and Emotion Ratings

Faces were rated on 7-point appearance scales assessing: *Skin tone* (light – dark), *African appearance* (not at all African – very African), and *White appearance* (not at all

White/Caucasian – very White/Caucasian). Hair quality was rated on three 7-point scales: Not at all coarse - Very coarse; Not at all straightened - Very straightened; and Not at all African-looking - Very African-looking. A composite African hair score was created by averaging these three ratings, which were highly correlated, mean $r = .72$.[1]

Judges received the following instructions for rating how African a Black face from that group looks. (When asked to rate how White a Caucasian face looks, the words 'White/Caucasian' and 'White' replaced 'African-American' and 'African', respectively.)

> "All of the faces in this set are of African-American descent. Some of the faces have features that are more typical of African faces than other faces do, such as eye shape and size, nose shape and size, cheeks, lips etc. Ignoring color of skin, eyes, and hair, please rate each face according to how African the facial features are."

Judges received the following additional instructions for rating how African a White/Caucasian face from the other group looks:

> "It is also possible for White/Caucasian faces to vary in how African their features are. Some faces could look moderately White/Caucasian and moderately African while others might look moderately White/Caucasian and not at all African or vice versa. Ignoring color of skin, eyes, and hair, please rate each face according to how African the facial features are."

The faces also were rated on two emotion expression scales. First, participants judged whether each face had a neutral expression. If they answered 'no', they then specified which emotion that face reflected, choosing among *happy, sad, angry, fearful, disgust, surprise*. A smile score was created for each face by dividing the number of times it had been identified as happy by the total

number of participants. Other emotions were not controlled, since they were rarely detected, identified on average in only 4% of the faces.[2]

Traits and General Appearance Ratings

Trait and general appearance ratings on 7 point scales were taken from Zebrowitz et al. (2007), where they had shown acceptable reliability. These scales included six trait dimensions (unintelligent – intelligent; not very hardworking – very hardworking; not at all hostile – very hostile; not at all trustworthy – very trustworthy; reserved/quiet – expressive/loud; not at all athletic – very athletic). As in Zebrowitz et al. (2007), a *competence* composite was created by averaging ratings of intelligent and hardworking, and a *danger* composite was created by averaging ratings of hostile and trustworthy, with the latter reverse scored. The likeability of faces (not at all likeable – very likeable) and their f*amiliarity* (not at all familiar – very familiar) were also rated. Judges received the following instructions for rating familiarity: "Although you haven't seen any of the following faces before, please rate how familiar each one looks to you." Finally, general appearance qualities (babyfaced – maturefaced and unattractive – attractive) were rated and used as control variables.

Procedure

Judges viewed images and input responses on Pentium 4 personal computers with Windows XP and 19" CRT displays; they were seated within 36" of the monitors. MediaLab 2004.2.1 (Empirisoft, 2004) was used to display images and collect ratings. Faces were displayed for 5 seconds, or until a rating was made. For the appearance ratings, faces were blocked within race, and the order of the races was counterbalanced across participants[3]. An exception was ratings of hair quality for which faces of both races were presented in a random order. The same was true for the trait and general appearance ratings collected by Zebrowitz et al. (2007): A

random order of all Black and White faces was rated on one scale before judges proceeded to the next scale with a different random order of faces for each rating scale in order to minimize carryover effects in ratings from one scale to another. All judges rated familiarity first followed by likeability, and then the trait ratings, with attractiveness and babyfacedness rated after the traits. Familiarity was always rated first because we were interested in the relative familiarity of own- and other-race strangers who had never before been seen.

Results

Reliability of Race-Related Appearance Ratings

For the race-related appearance ratings, the Cronbach alpha was .92 for Black men's and .87 for Black women's African appearance, .82 for White men's and .70 for White women's African appearance, .91 for Black men's and .86 for Black women's White appearance, .87 for White men's and .91 for White women's White appearance.

Validity of Race-related Appearance Ratings

ANOVAs confirmed that White judges perceived significant differences between White and Black faces on the race-related appearance variables. They rated Black faces as having less White-looking features (M_{black} = 2.86, SD = 0.74; M_{white}= 5.02, SD = 0.80), F (1, 118) = 235.17, $p < .0001$, more African-looking features (M_{black} = 4.99, SD = 0.75; M_{white}= 2.19, SD = 0.43), F (1, 118) = 627.92, $p < .0001$, darker skin (M_{black} = 4.62, SD = 1.36; M_{white}= 3.15, SD = 0.99), F (1, 118) = 46.34, $p < .05$, and more African hair quality (M_{black} = 4.49, SD = 0.40; M_{white}= 1.84, SD = 0.32), F = 1656.41, $p < .0001$.

Overview of Primary Analyses

We computed mean ratings of each face across perceivers on each of the dependent variables. We then performed a series of regression analyses predicting trait impressions and

likeability of faces of each race, using face as the unit of analysis. In Step 1 of the regression, we entered one of the race related appearance variables (African-looking features, White-looking features, African hair quality, or skin tone) with face sex, attractiveness, babyfaceness and smile controlled. At step 2 of the regression, we entered familiarity and applied the Sobel test to see whether it mediated the effects of race-related appearance qualities, as predicted by the FFO hypothesis. The effects of the control variables were consistent with research on Attractiveness and Babyfaceness, and they are shown in Table 1, which provide correlations between the predictor and criterion variable ratings for Black and White faces. The control variable effects are not included in the regression Tables 2 and 3 or reported in the text both to avoid redundancy and because they are not directly relevant to our hypotheses.

White Judges' Impressions of Black Faces

Consistent with the FTA hypothesis, Black faces with more African-looking features were perceived as more athletic, $\beta = .24$, $p<.05$, and marginally less reserved, $\beta = -.15$, $p<.10$. African appearance did not significantly influence other impressions (Table 2). Familiarity did not qualify as a mediator of athletic ratings, nor ratings of reserve. Paralleling the effect of more African-looking features, Black faces with more African-looking hair were perceived as marginally less reserved, $\beta = -.20$, $p<.10$. Familiarity also did not qualify as a mediator of this effect. Hair quality had no other effects on impressions, and skin tone had no effects (Table 2). Complementing the effect of an African appearance, Black faces with more White-looking features were seen as marginally less athletic, $\beta = -.22$, $p<.10$, also consistent with the FTA hypothesis. Familiarity did not qualify as a mediator of athletic ratings, and White appearance did not significantly influence other impressions (Table 2).

Whites Judges' Impressions of White Faces

Consistent with the FTA hypothesis, White judges perceived White faces with more African-looking features as marginally less reserved, $\beta = -.13$, $p<.10$. Familiarity did not qualify as a mediator of this effect, and African appearance had no other significant effects on impressions of White faces (Table 3). Also consistent with the FTA hypothesis, White judges rated White faces with a darker skin tone as significantly more athletic , $\beta = .27$, $p<.05$. Familiarity did not qualify as a mediator of this effect, and skin tone did not influence any other impressions. White appearance and African hair quality did not affect any impressions (Table 3).

Discussion

Study 1 provided evidence consistent with the FTA hypothesis, successfully replicating the Blair et al. (2002) evidence that White judges' impressions of Black or White faces with a more 'Afrocentric' appearance parallel race stereotypes. Black faces with more African-looking features were rated as significantly more athletic and less reserved, consistent with documented race stereotypes (Zebrowitz, 2007). Black faces with a more 'African-looking' hair quality also were rated as less reserved. A complementary effect was found for Black faces with more White-looking features, which were perceived as *less* athletic. White judges' impressions of White faces also supported the FTA hypothesis for impressions of reserve: More African-looking White faces were perceived as less reserved, paralleling race stereotypes on this dimension.

Although there were no significant effects of skin color on Whites judges' impressions of Black targets, they perceived darker-skinned White targets as more athletic. Insofar as athleticism is a positive attribute, it is difficult to explain this effect in terms of 'colorism', which predicts more negative impressions of darker-skinned individuals (Maddox & Gray, 2002). Rather, it is better accommodated by the FTA hypothesis, since darker skin is a feature that may activate trait impressions stereotypic of Black individuals.

The failure of familiarity to mediate the effects of race-related appearance qualities on impressions of reserve and athleticism within faces of each race is consistent with the between race results of Zebrowitz et al. (2007). The impression of the same Black targets as less reserved and more athletic than the White ones was not influenced by face familiarity in that study. This result was attributed to the fact that the traits of social reserve and athletic are less affectively valenced than danger and competence, impressions that differed between races and were partially mediated by familiarity. Correlations of these traits with likeability in the present study revealed that the former two traits are also less affectively valenced (mean r = .39) than then latter two (mean r = .73) when considering within race impressions.

The fact that the within race effects of race-related appearance qualities in the present study were restricted to more favorable impressions of reserve and athleticism in faces with a more African appearance is surprising. For one thing, Zebrowitz et al. (2007) found that White judges did perceive more danger in these Black targets than in the White ones. Although it is possible that those between race stereotypes are not paralleled by effects of a more African appearance on within race judgments, other research has found effects on within race judgments. Regardless of actual race, more African-looking individuals received more severe prison sentences (Blair et al., 2004) and were more likely to be given the death penalty (Eberhardt et al., 2006). One possible explanation for the difference between the present within race findings and those involving judicial decisions is that the activation of danger stereotypes in White judges requires not only African appearance cues, but also some relevant behavior.[4] This would be consistent with research on priming. For example, Higgins, Rholes, and Jones (1977) found that priming people with the concepts reckless vs. adventurous differentially influenced impressions of a target person only when he had performed behaviors that could be construed as reflecting

one of these qualities. If this is the explanation for our results, it suggests that African appearance cues chronically prime the concepts of 'athletic' and 'unreserved', but not the concepts of 'dangerous' and 'incompetent', which require some additional behavioral priming. A caveat to this conclusion is that it applies only to impressions of targets within the same race; differences in actual race do elicit different impressions of danger and competence (Zebrowitz et al., 2007).

In summary, Study 1 provided support for the FTA hypothesis, successfully replicating the Blair et al. (2002) research with ratings of how African the facial features looked and extending that research to ratings of how White the features looked, how 'African' the hair looked, and the darkness of the skin. At the same time, the results suggest that FTA effects on certain trait impressions may require some behavioral priming in addition to the associated feature. On the other hand, Study 1 provided no support for the colorism or the FFO hypotheses, with the latter failure attributable to the particular trait impressions that were influenced by race-related appearance qualities.

Study 2

The purpose of study 2 was to test the FTA, FFO, and colorism hypotheses for impressions formed by Black judges, who have not previously been tested. Zebrowitz et al. (2007) found some differences in the race stereotypes of Black and White Americans that have implications for our predictions concerning effects of race-related appearance qualities within target race. Like White judges, Black judges perceived Black faces as less reserved and more athletic and than White ones. However, in contrast to White judges, they perceived Black faces as less dangerous than White ones, albeit not when their perception of Black faces as more attractive was controlled. They also judged Black faces more likeable than White ones. These

effects on perceived danger and likeability are consistent with recent research suggesting that Blacks, like Whites, evaluate their own group more favorably (Allen, 1996; Judd et al., 1995). Study 2 tested the hypothesis that Black judges would perceive either Black or White faces with a more African-looking appearance as less reserved, more athletic, less dangerous, and more likeable, while the reverse would be true for faces with a more White-looking appearance. We further expected that the effects on likeability and danger would be mediated by the greater familiarity of more African-looking faces and the lesser familiarity of White-looking ones, consistent with the FFO hypothesis, whereas effects on the less affectively valenced impressions of reserve and athletic would not be mediated by familiarity.

Method

The method employed in Study 2 was identical to Study 1 except as described below.

Judges

26 Black American college undergraduates rated the faces on the race-related appearance and emotion scales, with approximately equal numbers of male and female judges in each group. Ratings of the faces on the trait and general appearance scales by a different group of 26 Black participants were taken from Zebrowitz et al. (2007).

Procedure

Whereas White judges rated either male or female faces, Black judges rated both male and female faces in two counterbalanced sessions. Also, some Black judges viewed images and input responses on a Dell Latitude D800 computer with a 15.4" screen rather than the Desktop computer used in Study 1.

Results

Correlations between the predictor and criterion variable ratings for Black and White faces are presented in Table 4, and the results of the regression analyses predicting impressions of Black and White faces from race-related appearance qualities with other appearance variables controlled are presented in Tables 5 and 6, respectively.

Reliability of Race-Related Appearance Ratings

The Cronbach alpha was .86 for Black faces' African appearance, .50 for White faces' African appearance, .79 for Black faces' White appearance, and .83 for White faces' White appearance. Although the reliability of ratings of White faces' African appearance was low, we nevertheless examined its predictive power in order to parallel the analyses in Study 1.

Validity of Race-Related Appearance Ratings

ANOVAs confirmed that Black judges perceived significant differences between White and Black faces on the race-related appearance variables. They rated Black faces as having less White-looking features (M_{black} = 2.41, SD = 0.72; M_{white}= 5.25, SD = 0.91), F (1, 118) = 359.68, p < .0001, more African-looking features (M_{black} = 4.96, SD = 0.99; M_{white}= 2.23, SD = 0.66), F (1, 118) = 315.76, p < .0001, darker skin (M_{black} = 4.21, SD = 1.54; M_{white}= 2.29, SD = 0.83), F (1, 118) = 71.95, p < .05, and more African hair quality (M_{black} = 4.68, SD = 0.69; M_{white}= 1.95, SD = 0.57), F (1, 118) = 556.19, p < .0001.

Black Judges' Impressions of Black Faces

Black faces with more African-looking features were perceived as more competent, β =.27, p<.05, whereas the influence of a more African appearance on ratings of likeability, danger, athleticism and reserve were not significant, all ps >.10 (Table 5). The effect of an African appearance on impressions of competence was not predicted by the FTA hypothesis, since Black judges did not stereotype Black targets as more competent than White targets (Zebrowitz et al.,

2007). On the other hand, consistent with the FFO hypothesis, familiarity qualified as a potential mediator of this effect, which lost significance when familiarity was entered at step 2. The Sobel test indicated that the greater familiarity of more African-looking faces was a marginally significant mediator of the tendency to view them as more competent, $z = 1.84$, $p = .06$. Consistent with the FTA hypothesis, Black judges perceived Black targets with more White-looking features as more reserved, $\beta = .27$, $p<.05$, and they perceived those with darker skin or more African-looking hair as marginally less reserved, $\beta = -.20$ and $\beta = -.22$, respectively, both *p*s <.10. Familiarity did not qualify as a mediator of the effects on impressions of reserve. White appearance, skin tone, and hair quality had no other significant effects on impressions (Table 5).

Black Judges Rating White Faces

Contrary to the FTA hypothesis, more African-looking features did not significantly influence Black judges' trait impressions of White faces. However, consistent with the FFO hypothesis, they did perceive White faces with more African-looking features as more likeable, $\beta = .17$, $p<.05$ (Table 6). Familiarity qualified as a potential mediator of this effect, and the Sobel test indicated that the greater familiarity of more African looking faces was a marginally significant mediator of the tendency to view them as more likeable, $z = 1.71$, $p = .08$. Black judges rated White faces with a more White-looking appearance as marginally less competent, $\beta = -.26$, $p<.10$. As noted above, this was not predicted by the FTA hypothesis inasmuch as Black perceivers previously showed no race stereotypes on this measure. However, FFO also failed to account for this effect because familiarity did not qualify as a mediator. White appearance had no other significant effects on impressions (Table 6).

Although hair quality had no significant effects, skin tone did (Table 6). Black perceivers rated White faces with a darker skin tone as more competent, $\beta = .31$, $p<.05$, and marginally

more likeable, $\beta = .17$, $p<.10$, effects predicted by FFO, but not FTA or colorism. They also rated darker-skinned White faces as marginally less dangerous, $\beta = -.26$, $p<.10$, which was consistent with the FTA hypothesis inasmuch as Black judges stereotyped Black targets as less dangerous than White ones. Skin tone did not influence any other impressions. Familiarity qualified as a mediator of all the effects of skin tone, which lost significance when it was entered at step 2 of the regression. Sobel tests revealed that the greater familiarity of a darker skin tone to Black perceivers was a significant mediator of its positive effects on the likeability of White faces, $z = 1.94$, $p = .05$, and a marginally significant mediator of its positive effects on perceived competence, $z = 1.64$, $p = .10$, while there was only a non-significant tendency for familiarity to mediate the perception of less danger in darker-skinned White faces, $z = -1.51$, $p = .13$.

Discussion

The effects of race-related appearance qualities on Black judges' impressions of Black and White faces partially replicated and extended the effects shown by White judges in Study 1, with support for the FFO as well as the FTA hypothesis. Like White judges, Black judges perceived Black faces with a more African or less White appearance as lower in reserve, a trait on which both groups gave Black targets lower ratings than White ones (Zebrowitz et al., 2007). These effects supported the FTA hypothesis, and they were not mediated by familiarity, consistent both with the results of Study 1 and the between race effects reported by Zebrowitz et al (2007). However, whereas White judges showed a parallel effect for White faces, Black judges did not. Unlike White judges, Black judges also failed to show appearance effects in their ratings of the athleticism of Black or White faces, even though they had judged White targets as less athletic than Black ones (Zebrowitz et al., 2007). For Black judges, then, the stereotype that 'White men can't jump' does not appear to be moderated by race-related appearance qualities.

The finding that Black judges rated White faces with darker skin as less dangerous supported the FTA hypothesis inasmuch as it was not mediated by familiarity and it mirrored the finding that Black judges perceived White individuals as more dangerous than Black ones[5] (Zebrowitz et al., 2007). This effect contrasts with the failure to find effects of race-related appearance qualities on White perceivers' impressions of danger in Study 1. We suggested that the latter failure may be due to the necessity of some additional behavioral cue to prime this impression. On that account, it appears that lighter skin in White faces is sufficient to elicit impressions of greater danger in Black perceivers without any evocative behavior.

Also differing from White judges was the influence of race related appearance qualities on Black judges' impressions of likeability, with more favorable evaluations of White faces with darker skin or more African features. Consistent with the FFO hypothesis, these effects were mediated by the greater familiarity of these facial qualities to Black perceivers. The finding that likeability within face race was influenced by race related appearance qualities for Black but not White judges whereas both showed ingroup favoritism in their between race evaluations suggests that White judges respond more to racial category and less to nuances in race-related appearance when judging likeability.

Black judges' also attributed greater competence to White faces with darker-skin or more African features. These effects cannot be accommodated by the FTA hypothesis, because Black judges did not perceive actual Black faces as more competent than White ones (Zebrowitz et al. 2007). Rather, like the effect on likeability, the effects were mediated by the greater familiarity of darker-skin and more African features, supporting the FFO hypothesis that people respond more positively to more familiar-looking faces.

In summary, a more African facial structure, a less White facial structure, or a darker skin tone each had a positive influence on Black perceivers' impressions of the likeability, competence, dangerousness, or reserve of either Black or White faces. Effects on impressions of danger and reserve are best explained by the FTA hypothesis: The effects of race-related appearance qualities on these within race impressions echoed stereotypes of faces that differed in actual race, and they were not mediated by their greater familiarity. On the other hand, the effects on impressions of likeability and competence are best explained by the FFO hypothesis. The FTA hypothesis does not make predictions for impressions of likeability, which reflects a prejudice rather than a trait association. It also does not make predictions for impressions of competence because Black judges did not perceive differences in the competence of faces that differed in actual race. Moreover, the greater familiarity of more African-looking faces mediated impressions of their greater likeability and competence. Finally, there was no support for the colorism hypothesis in ratings of Black faces, and ratings of White faces showed an opposite effect, with darker skin tone eliciting more positive impressions.

Study 3

Whereas previous research examining the effects of race-related appearance qualities on impressions has focused on 'African' qualities, Study 3 examined the influence of an Asian appearance. In U.S. culture, Asians are stereotyped by White Americans as law abiding, competent, and socially reserved (Ho & Jackson, 2001; Kawai, 2005; Lin, Kwan, Cheung, & Fiske, 2005). We tested the hypothesis that these positive Asian stereotypes would be activated more by a more Asian-looking appearance and activated less by a more White-looking appearance either in Asian faces or in White faces, consistent with the FTA hypothesis.

Since White judges showed ingroup favoritism in their likeability ratings in the study by Zebrowitz et al. (2007), Study 3 also tested the hypothesis that more White-looking faces of either race would be judged more likeable by White Americans, while the reverse would be true for more Asian-looking faces. We expected these effects to be mediated by the greater familiarity of more White-looking faces and the lesser familiarity of more Asian-looking ones, as predicted by the FFO hypothesis. We also examined whether the tendency for stereotype activation to yield more positive impressions of Asian-looking faces of either race would be partially suppressed by their lesser familiarity to White perceivers, while the tendency for stereotype activation to yield more negative impressions of White-looking faces of either race would be partially suppressed by their greater familiarity. Such effects would parallel the mediation of between race stereotypes reported by Zebrowitz et al. (2007). Finally, we tested the colorism hypothesis for impressions of Asian faces to determine whether darker skin would be associated with more negative impressions.

Method

Judges

Twenty-four White participants (13 men) rated the faces on the race-related appearance and emotion scales,[6] receiving course credit or $10 for their participation. Ratings of the same faces on trait and general appearance scales by a different set of White participants were taken from the research by Zebrowitz et al. (2007).

Facial Stimuli

The same 60 White and 60 Korean faces used by Zebrowitz et al. (2007) were employed. The faces of each race were equally divided between men and women, and all had neutral expressions. The White faces were the same as those used in Studies 1 and 2.

Ratings

Ratings of the facial features of all target faces on the quality of *Asian appearance* (not at all Asian - very Asian) replaced the ratings of *African appearance* used in Studies 1 and 2. There were no ratings of hair quality or the trait 'athletic'.

Results

Correlations between the predictor and criterion variable ratings for Korean and White faces are presented in Table 7, and the results of the regression analyses predicting impressions of Korean and White faces from race-related appearance qualities with other appearance variables controlled are presented in Tables 8 and 9, respectively.

Reliability of Race-Related Appearance Ratings

For White raters the Cronbach alpha was .86 for Korean men's and .71 for Korean women's Asian appearance, .68 for White men's and .79 for White women's Asian appearance, .87 for Korean men's and .59 for Korean women's White appearance, .87 for White men's and .91 for White women's White appearance.

Validity of Race-Related Appearance Ratings

ANOVAs confirmed that White judges perceived differences between White and Korean faces on the race-related appearance variables. They rated Korean faces as having less White-looking features (M_{korean} = 3.12, SD = 0.54; M_{white}= 5.16, SD = 0.81), F (1, 118) = 264.19, p < .0001, more Asian-looking features (M_{korean} = 5.56, SD = 0.52; M_{white}= 2.26, SD = 0.38), F (1,118) = 1553.11, p<.0001, and marginally darker skin (M_{korean} = 3.43, SD = 0.90; M_{white}= 3.15, SD = 0.99), F = 2.77, p<.10.

White Judges' Impressions of Korean Faces

More Asian-looking facial features did not influence White judges' impressions of Korean faces. However, consistent with the FTA hypothesis, White judges perceived Korean faces with more White-looking features as marginally less reserved, $\beta = -.20$, $p < .10$. Familiarity did not qualify as a mediator of this effect (Table 8), and a more White-looking appearance did not significantly influence other impressions. Consistent with the colorism hypothesis, darker-skinned Korean faces were perceived as marginally more dangerous, $\beta = .19$, $p < .10$, an effect that is consistent with the colorism hypothesis. This effect cannot be explained by FFO because familiarity did not qualify as a potential mediator. It also cannot be explained by FTA, because Korean faces were both darker-skinned than White ones and perceived as *less* dangerous (Zebrowitz et al., 2007).

White Judges' Impressions of White Faces

More Asian-looking facial features did not influence White judges' impressions of White faces (Table 9). However, White judges perceived White faces with more White-looking features as more dangerous, $\beta = .28$, $p < .05$, and less competent, $\beta = -.38$, $p < .05$, consistent with the FTA hypothesis. Familiarity did not qualify as a mediator of these effects. A more White-looking appearance did not influence any other impressions and neither did skin tone.

Discussion

Like Study 1, Study 3 lent support to the FTA but not the FFO hypothesis. Although Asian appearance did not predict impressions, a Whiter appearance in either Korean or White faces did. More specifically, White judges rated Korean faces with more White-looking features as marginally less reserved, consistent with their stereotypes of White targets as less reserved than Korean ones. Similarly, they rated White faces with more White-looking features as less competent and more dangerous, consistent with their stereotypes of Whites as less competent and

more dangerous than Koreans (Zebrowitz, et al., 2007). All of these results support the FTA hypothesis.

It is interesting to note that the same White faces were shown in Study 1, which found no effects of a more White appearance on White judges' impressions. It thus appears that utilizing a comparison group of Korean targets elicited impressions of Whiter-looking White faces that contrasted with the Asian stereotype. 'Whiter-looking' White targets appeared more dangerous and less competent when compared to their Korean counterparts. On the other hand, when the comparison group was Black targets, Whiter-looking White faces did not contrast more with the Black stereotype, being viewed as no less dangerous and no more competent than other White faces. These results indicate that the comparison group can have an effect on trait perceptions even when the original White faces remain constant.

Study 3 provided some support for the colorism hypothesis, with darker skinned Korean faces perceived as more dangerous. Although Korean faces were darker-skinned than White ones, this effect cannot be attributed to stereotype activation, because Korean faces were previously shown to be stereotyped as *less* dangerous than White ones (Zebrowitz et al., 2007). It also cannot be attributed to FFO, as it was not mediated by the lesser familiarity of darker skin. The effects of skin color on the perceived danger of Korean faces provides an interesting contrast to Study 1 which showed no tendency for darker-skinned Black faces to be perceived as more dangerous. It appears that the tendency to perceive Black targets as relatively dangerous (Zebrowitz et al., 2007) is not moderated by within race variations in skin tone, whereas the tendency to perceive Koreans as relatively harmless is.

Study 3 provided little support for the FFO hypothesis, as familiarity did not qualify as a mediator of any effects. In the case of impressions of reserve, this finding parallels the results for

within race impressions in Study 1 as well as the between race impressions reported by Zebrowitz et al. (2007). On the other hand, the failure of familiarity to influence the effect of appearance qualities on impressions of competence and danger contrasts with its role in mediating Black judges' impressions of these traits in Study 2. The possibility exists that familiarity plays a stronger role in impressions formed by Black or Asian perceivers, who represent a racial minority, and for whom it may be a more salient cue. If it is the case that familiarity plays a stronger role for non-White than White judges, we would expect to find familiarity mediating more relationships in Study 4 just as it did in Study 2.

Study 4

Study 4 tested the generalizability of the results of Study 3 to Korean judges. Zebrowitz et al. (2007) found that the stereotypes of Asians as more socially reserved, competent, and less dangerous than Whites were endorsed by Koreans as well as by White Americans.[7] According to the FTA hypothesis, the effects of Asian and White appearance cues on these trait ratings therefore should be the same for Korean judges as for White American judges. However, the effects on likeability ratings should differ, since Koreans perceived Korean faces as more likeable than White ones, whereas White Americans found White faces more likeable. Consistent with the FFO hypothesis, we expected the effects of an Asian or White appearance on likeability ratings to be mediated by the greater familiarity of more Asian-looking faces to Korean judges and the lesser familiarity of more White-looking ones. We also predicted that the more positive impressions of more Asian-looking faces of either race would be partially mediated by their greater familiarity to Korean perceivers, while the more negative impressions of White-looking faces of either race would be partially mediated by their lesser familiarity. Finally, we

investigated whether Koreans would show negative impressions of darker-skinned faces, consistent with the colorism hypothesis.

Method

The method employed was identical to Study 3 except as indicated below.

Judges

48 Korean college undergraduates (24 men) rated the specific appearance qualities, including Asian appearance and White appearance, and skin tone. Ratings of the faces on the trait and general appearance scales by a different group of 40 Korean participants (20 men) were taken from Zebrowitz et al. (2007).

Korean Translation

All rating scales were translated into Korean by a native Korean speaker. A second native Korean speaker translated the Korean back into English and these results were compared to the original English language scales. For any discrepancies, the native Korean speakers were consulted to retranslate the scales so that the meaning in Korean was as close as possible to the meaning in English.

Results

Correlations between the predictor and criterion variable ratings for Korean and White faces are presented in Table 10, and the results of the regression analyses predicting impressions of Korean and White faces from race-related appearance qualities with other appearance variables controlled are presented in Tables 11 and 12, respectively.

Reliability of Race-Related Appearance Ratings

For Korean raters the Cronbach alpha was .91 for Korean men's and .79 for Korean women’s Asian appearance, .83 for White men's and .86 for White women’s Asian

appearance, .94 for Korean men's and .74 for Korean women's White appearance, .89 for White men's and .92 for White women's White appearance.

Validity of Race-Related Appearance Ratings

ANOVAs confirmed that Korean judges perceived significant differences between White and Korean faces on the race-related appearance variables. They rated Korean faces as having less White-looking features (M_{korean} = 3.10, SD = 0.80; M_{white}= 4.56, SD = 0.96), F = 81.93, p < .05, more Asian-looking features (M_{korean} = 4.82, SD = 0.76; M_{white}= 3.33, SD = 0.78), F = 112.88, p < .001, and darker skin (M_{korean} = 3.86, SD = 1.06; M_{white}= 3.24, SD = 1.20), F = 9.12, p < .05.

Korean Judges Impressions of Korean Faces

Korean judges perceived Korean faces with more Asian-looking features as less dangerous, β=-.32, p<.01, and more reserved, β=.34, p<.05, consistent with the FTA hypothesis. A more Asian-looking appearance did not significantly influence any other impressions. Familiarity qualified as a potential mediator of the effect on danger, but not on reserve. The Sobel test indicated that the greater familiarity of more Asian- looking faces was a significant partial mediator of the tendency to view them as less dangerous, z = 2.26, p<.05, but it did not mediate impressions of their greater reserve, z = .94, p>.10 (Table 11).

Complementing the effect of Asian appearance, Korean judges perceived more White-looking Korean faces as more dangerous, β=.29, p<.05, consistent with the FTA hypothesis. Familiarity qualified as a potential mediator of this effect, which lost significance when familiarity was entered at step 2 of the regression. Consistent with the FFO hypothesis, the Sobel test indicated that the lesser familiarity of more White-looking faces was a significant mediator of the tendency to view them as more dangerous, z = 2.51, p<.05. A more White-

looking appearance did not significantly influence any other impressions, and there were no significant effects of skin tone (Table 11).

Korean Judges' Impressions of White Faces

Consistent with the FTA hypothesis, Korean judges perceived more Asian-looking White faces as marginally more competent, $\beta = .16$, $p < .10$. Familiarity did not qualify as a potential mediator of this effect, and a more Asian-looking appearance did not significantly influence any other impressions (Table 12). Also consistent with the FTA hypothesis, Korean judges perceived more White-looking White faces as marginally more dangerous, $\beta = .17$, $p < .10$. A more White-looking appearance did not significantly influence any other impressions, and familiarity did not qualify as a mediator of the effect of a White appearance on perceived danger. White faces with darker skin were perceived as marginally less dangerous, $\beta = -.18$, $p < .10$. Familiarity did not qualify as a mediator of this effect, which was consistent with the FTA hypothesis and contrary to colorism.

Discussion

Like Black judges in Study 2 and unlike White judges in Studies 1 and 3, Korean judges' impressions of own and other races faces provided support for both the FTA and the FFO hypotheses. Support for FFO was provided by the finding that Koreans perceived less danger in more Asian-looking Korean faces and more danger in Whiter-looking ones, with both of these effects mediated by the familiarity of these facial qualities. Support for FTA was provided by the finding that Koreans perceived Korean faces with more Asian-looking features as more reserved, White faces with more Asian-looking features as more competent, and White faces with Whiter-looking features or lighter skin as more dangerous. These effects not only paralleled stereotypes of Korean vs. White faces (Zebrowitz et al., 2007), thereby supporting the FTA hypothesis, but

also were not mediated by familiarity. It is noteworthy that Koreans' positive response to darker skin, while consistent with FTA because Koreans had darker skin than Whites did, was contrary to the colorism hypothesis.

The fact that the impressions of reserve were not mediated by familiarity paralleled the results in Studies 1-3 as well as the between race differences in perceived reserve reported by Zebrowitz et al. (2007). However, the failure of familiarity to mediate effects of race-related appearance qualities on impressions of the competence and danger of White faces contrasted with its mediation of Koreans' stereotyping of Koreans more positively than Whites on these traits (Zebrowitz et al., 2007). On the other hand, familiarity did mediate the effect of race-related appearance qualities on impressions of the danger of Korean faces. While the finding that the mediation of danger impressions by familiarity was restricted to own-race faces is intriguing, it does not appear to be a general phenomenon, since familiarity mediated Black judges' impressions of the danger of other–race faces in Study 2.

General Discussion

The purpose of the present research was to extend recent evidence for bottom-up processes in stereotyping, whereby race-related appearance qualities influence impressions apart from racial categorization. To that end, we examined the generalizability of previous research demonstrating that variations in 'African appearance' influence White judges' stereotypes of Black and White targets. We investigated whether there is a similar influence on Black judges' stereotypes, and whether variations in 'Asian appearance' influence White and Korean judges' stereotypes of Korean and White targets. Finally, we included measures of 'White appearance' as well as hair quality and skin tone. Four experiments revealed that variations in race-related facial qualities among faces of a single race yielded impressions that paralleled impressions of

faces of different races. The findings supported both the feature trait association (FTA) hypothesis that there is an effect of physical features on activating stereotypes directly, (Blair et al,, 2002; Blair et al., 2004) and the familiar face overgeneralization (FFO) hypothesis that target familiarity serves to reinforce positive stereotypes and suppress negative ones (Zebrowitz et al., 2007), but not the colorism hypothesis that darker skin elicits negative stereotypes (Maddox & Gray, 2002).

Support for the FTA hypothesis was provided by impressions of own- and other-race faces by judges of all races. White judges perceived Black faces with more African features as more athletic and less reserved, while they perceived those with Whiter features as less athletic, effects that paralleled White judges' stereotypes of Black vs. White faces (Zebrowitz et al., 2007). Similarly, White judges perceived Korean faces with Whiter features as less reserved, more dangerous, and less competent, effects that paralleled their stereotypes of Korean vs. White faces. Race stereotypes were also echoed in the within race impressions of Black judges. They perceived Black faces with Whiter features or less African hair as more reserved, and those with darker skin as less reserved and marginally less dangerous, which paralleled their stereotypes of Black vs. White faces (Zebrowitz et al., 2007). Korean judges also provided support for the FTA hypothesis. They perceived Korean faces with more Asian features as less dangerous and more reserved, White faces with more Asian features as more competent, Korean or White faces with Whiter features as more dangerous, and darker-skinned White faces as less dangerous. All of these effects paralleled Korean judges' stereotypes of Asian vs. White faces (Zebrowitz et al., 2007). In evaluating these results, it is important to note that the effects of race-related appearance qualities on impressions held true with other significant appearance qualities – attractiveness, babyfaceness, and smiling, statistically controlled.

While the preceding findings may read as consistent support for the FTA hypothesis, some of the effects can be explained just as well by the FFO hypothesis, and there are additional results that are better explained by FFO. More specifically, the tendency for Korean judges to perceive more Asian-looking Korean faces as less dangerous and more White-looking ones as more dangerous not only mirrored their stereotypes of Koreans vs. Whites, but also were mediated by the greater familiarity of more Asian-looking features and the lesser familiarity of Whiter-looking ones. Thus, these effects are consistent both with FTA and FFO. In addition, the tendency for Black judges to perceive more African-looking Black faces and darker-skinned White faces as more competent is not predicted by FTA, because Black judges did not stereotype the same Black faces as more competent than the White ones in previous research (Zebrowitz et al., 2007). However, the greater familiarity of more African features and darker skin mediated these effects, consistent with an FFO explanation. Also consistent with FFO was the tendency for Black judges to perceive White faces as more likeable when they were darker-skinned or had more African-looking features. Not only were these effects mediated by the greater familiarity of these appearance qualities, but also FTA pertains more to stereotypes evoked by facial appearance rather than to affective evaluations, such as likeability, which are predicted by FFO.

In contrast to the significant role played by both FTA and FFO, there was little support for the colorism hypothesis, which predicts that darker skin will elicit more negative impressions. On the contrary, darker skin tended to elicit more positive impressions. White judges perceived darker-skinned White targets as more athletic, which is, if anything, a positive rather than a negative characteristic. Black judges also found darker-skinned White faces to be less dangerous and more competent. The only support for the colorism hypothesis came from White judges, who found darker skinned Koreans more dangerous. This effect is not consistent with the FTA

hypothesis, because Korean faces have been previously stereotyped as less dangerous than White ones (Zebrowitz et al., 2007). Although this one effect is consistent with the colorism hypothesis, there was no general tendency for darker skin to be associated with negative impressions, particularly in the case of Black judges or Black faces, where colorism effects have been hypothesized to exist (Maddox & Gray, 2002).

In addition to supporting both the FTA and the FFO hypotheses, the present experiments revealed some interesting, albeit unpredicted, variations across judges of different races. The effects of race-related appearance qualities on White judges' impressions were limited to the relatively neutral traits of athletic and reserved. The effects on these less valenced traits were not mediated by familiarity, which is consistent with the premise of the FFO hypothesis. The lack of effects on the more highly valenced impressions, like danger and likeability, suggest that White judges may rely largely on racial category when forming these impressions rather than responding to within race variations in facial appearance. However, as noted earlier, this conclusion is inconsistent with previous research on criminal justice decisions (Blair et al., 2004; Eberhart et al., 2006), which showed that White judges' impressions on such dimensions were shaped by race-related appearance qualities. A significant difference between our study and that research is that we provided no relevant behavioral information about the targets, something that may be necessary for their appearance to activate judgments of danger or likeability (Higgins et al., 1977). Interestingly, however, behavioral evidence relevant to athleticism or reserve was not necessary for the appearance cues to activate these impressions for White judges.

In contrast to the failure of race-related appearance qualities to influence White judges' impressions of highly-valenced attributes, they did influence Black and Korean judges' impressions of these attributes as well as more neutral ones. These effects indicate that Black and

Korean judges do not rely only on race category when judging highly valenced traits. Rather, they form more fine grained impressions within face race even in the absence of any behavior to activate them. It appears that Black and Korean judges may be more vigilant about detecting friend or foe, scrutinizing race-related facial features within race more carefully than do White judges. The fact that the effects of race-related appearance qualities on Black and Korean judges' impressions of likeability and danger were often mediated by familiarity is consistent with this suggestion. On the other hand, like White judges, their impressions of athletic or reserved were not mediated by familiarity.

In summary, four experiments provided evidence that White, Black, and Korean perceivers' impressions of own- or other-race faces that showed more resemblance to a particular race paralleled stereotypes of that racial category, consistent with the FTA hypothesis. In addition, some of these impressions, particularly highly valenced ones, were mediated by the familiarity of the race-related appearance qualities, consistent with the FFO hypothesis. In only one case were impressions of darker skinned faces more negative, thus providing little support for the colorism hypothesis. Variations in the effects across the three groups of perceivers revealed that Black and Korean judges responded to racial prototypicality across a broader range of trait impressions. This suggests that White judges may have a greater tendency to respond to faces on the basis of their racial category than do Black and Korean judges, who are more sensitive to within category variations in race-related appearance qualities. Nevertheless, all judges showed variations in impressions of faces within a single race, demonstrating that stereotyping by White, Black, and Korean judges derives not just from the effects of race-related appearance qualities on racial categorization, but also from their finer-grained effects on impressions of people within the same category.

References

Allen, B.P. (1996). African Americans' and European Americans' mutual attributions: Adjective generation technique (AGT) stereotyping. *Journal of Applied Social Psychology, 26,* 884-912.

Blair, I. V., Judd, C. M., Sadler, M. S. & Jenkins, C. (2002). The role of Afrocentric features in person perception: Judging by features and categories. *Journal of Personality and Social Psychology, 83*(1), 5-25.

Blair, I. V., Judd, C. M. & Chapleau, K. M. (2004). The influence of Afrocentric facial features in criminal sentencing. *Psychological Science, 15*(10), 674-679.

Bodenhausen, G. V., & Macrae, C. N. (1998). Stereotype activation and inhibition. In R. S. Wyer, Jr. (Ed.), *Stereotype activation and inhibition* (pp. 1-52). Mahwah, NJ: Lawrence Erlbaum Associates

Brewer, M. B. (1988). A dual process model of impression formation. In T. K. Srull, & Wyer, R. S., Jr. (Ed.), *A dual process model of impression formation* (pp. 1-36). Hillsdale, NJ, England: Lawrence Erlbaum Associates.

Brown, T. D., Dane, F. C., & Durham, M. D. (1998). Perception of Race and Ethnicity. *Journal of Social Behavior and Personality, 13*(2), 295-306.

Devine, P. G.; Elliot**,** A. J. (1995). Are racial stereotypes really fading? The Princeton trilogy revisited. *Personality and Social Psychology Bulletin*, *21*, 1139-1150

Eberhardt, J. L., Purdie, V. J., Davies, P.G., & Johnson, S. L. (2006). Looking Deathworthy: Perceived stereotypicality of black defendants predicts capital-sentencing outcome. *Psychological Science, 17,* 383-386.

Fiske, S. T., & Pavelchak, M. A. (1986). Category-based versus piecemeal-based affective responses: Developments in schema-triggered affect. In R. M. Sorrentino, &Higgins, E. T. (Ed.), *Handbook of motivation and cognition: Foundations of social behavior* (pp. 167-203). New York, NY: Guilford Press.

Fiske, S. T., & Neuberg, S. L. (1990). A continuum of impression formation, from category-based to individuating processes: Influences of information and motivation on attention and interpretation. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 23, pp. 1-74). New York: Academic Press.

Fiske, S. T., & Taylor, S. E. (1991). *Social cognition* (2nd ed.). New York, NY, England: Mcgraw-Hill Book Company.

Gibson, J. J. (1966). *The senses considered as perceptual systems*. Boston, MA: Houghton Mifflin.

Gibson, J. J. (1979). *The ecological approach to visual perception*. Boston, MA: Houghton Mifflin.

Higgins, E.T., Rholes, W.S., & Jones, C.R. (1977). Category accessibility and impression formation. *Journal of Experimental Social Psychology, 13,* 141-154.

Ho, C., & Jackson, J. W. (2001). Attitudes toward Asian Americans: Theory and measurement. *Journal of Applied Social Psychology, 31*, 1553-1581.

Judd, C.M., Park, B., & Ryan, C.S., Brauer, M., & Kraus, S. (1995). Stereotypes and ethnocentrism: Diverging interethnic perceptions of African American and White American youth. *Journal of Personality and Social Psychology, 69,* 460-481.

Kawai, Y. (2005). Stereotyping Asian Americans: The dialectic of the model minority and the yellow peril. *Howard Journal of Communications, 16,* 109-130.

Kim, B. S. K., Atkinson, D. R., & Yang, P. H. (1999). The Asian values scale: Development, factor analysis, validation, and reliability. *Journal of Counseling Psychology, 46*, 342-352.

Lin, M. H., Kwan, V. S. Y., Cheung, A., & Fiske, S. (2005). Stereotype content model explains prejudice for an envied outgroup: Scale of anti-Asian American stereotypes. *Personality and Social Psychology Bulletin, 31*, 34-47.

Livingston, R. W., & Brewer, M. B. (2002). What are we really priming? Cue-based versus category-based processing of facial stimuli. *Journal of Personality and Social Psychology, 82*(1), 5-18.

Maddox, K. B., & Gray, S. A. (2002). Cognitive representations of Black Americans: Re-exploring the role of skin tone. *Personality and Social Psychology Bulletin, 28*(2), 250-259.

McArthur, L. Z., & Baron, R. M. (1983). Toward an ecological theory of social perception. *Psychological Review, 90*, 215-238.

Secord, P. F., Bevan, W., & Katz, B. (1956). The Negro stereotype and perceptual accentuation. *The Journal of Abnormal and Social Psychology, 53*(1), 78-83.

Secord, P. F. (1959). Stereotyping and favorableness in the perception of Negro faces. *The Journal of Abnormal and Social Psychology, 59*(3), 309-314.

Zebrowitz, L.A. (1996). Physical appearance as a basis of stereotyping. In N. MacRae, M. Hewstone, & C. Stangor (Eds.) *Foundations of stereotypes and stereotyping* (pp. 79-120). New York: Guilford Press.

Zebrowitz, L. A. (1997). *Reading faces: Window to the soul?* Boulder, CO, US: Westview Press.

Zebrowitz, L. A., & Bronstad, P. M., & Lee, H. K. (2007). The contribution of face familiarity to ingroup favoritism and stereotyping. *Social Cognition, 25*(2), 306-338.

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Footnotes

[1] Asian appearance was rated for each set of faces in Studies 1 and 2 and African appearance was rated for each set in Studies 3 and 4; these ratings, which were not analyzed, were always last in the respective studies.

[2] All faces were also rated as to how masculine/feminine they looked.

[3] Asian faces were rated in Studies 1 and 2 and Black faces were rated in Studies 3 and 4; these faces, for which the data were not analyzed, were always presented last in the respective studies.

[4] It should be noted, in this regard, that the paradigm employed by Blair et al. (2002) did provide behavioral primes, inasmuch as participants were asked to determine which faces went with which set of behaviors rather than to independently assess whether a particular trait was characteristic of each face.

[5] That effect was significant only when between race differences in attractiveness were not controlled.

[6] In an initial study, 63 U.S. White college undergraduates and 48 Korean college undergraduates rated how *European* the faces looked (in addition to rating how Asian they looked and their skin tone). We initially used the term 'European' in order to replicate ratings collected by Blair et al. (2002). However, the results were very odd. For example, the White faces that White judges rated as higher in European appearance were also judged as less familiar looking. An inspection of the White faces that received high scores on European appearance suggested that our participants may have taken this scale to mean not prototypically American in appearance. For this reason, we changed the scale to 'White/Caucasian'.

[7] We recognize our ethnocentrism in calling these 'Asian' stereotypes because one could instead refer to stereotypes of 'White' faces as high in danger and low in competence and reserve.

Table 1

Correlations among Predictor and Criterion Variables for White Judges Rating Black and White Faces in Study 1

	Black Faces					White Faces				
	Likeable	Dangerous	Reserved	Competent	Athletic	Likeable	Dangerous	Reserved	Competent	Athletic
African Appearance	.17	-.13	-.21*	.08	.30**	-.14	.19	-.26**	-.08	.16
White Appearance	.01	.08	.00	.00	-.30**	.28**	-.20	-.02	.07	-.10
Darker Skin Tone	-.05	-.01	.17	.01	.16	-.03	.10	-.18	.01	.32***
African Hair Quality	.02	.14	-.42***	-.05	-.21	.05	-.11	.01	.05	-.09
Attractiveness	.80***	-.46***	-.70***	.54***	.01	.74***	-.32***	-.75***	.33***	.58***
Babyfaceness	.21	-.31**	.19	.17	-.05	.36***	-.53***	-.29**	.28**	-.17
Smile	.60***	-.63***	-.22*	.55***	.27**	.55***	-.36***	-.35***	.14	-.06
Face sex	-.13	.04	.35***	-.14	.27**	.07	-.00	-.04	.05	-.07

Note. Positive betas for face sex signify higher values for male faces.

*$p \leq .10$ **$p \leq .05$ ***$p \leq .01$

Table 2.

Effects of Race-Related Appearance Qualities on White Judges' Impressions of Black Faces in Study 1

	Impression				
Predictors	Likeable	Dangerous	Reserved	Competent	Athletic
	β	β	β	β	β
Regressions a-d (controlling sex, smile, attractiveness, babyface)					
a. African Appearance. Block 1.	.05	-.03	-.15*	-.02	.24**
a. African Appearance. Block 2.	.02	-.02	-.15	-.06	.20
a. Familiar. Block 2.	.12	-.03	-.02	.21	.17
b. White Appearance. Block 1.	-.03	.06	.10	-.01	-.22*
b. White Appearance. Block 2.	.00	.06	.10	.04	-.19
b. Familiar. Block 2.	.13	-.01	.05	.20	.18
c. Skin Tone. Block 1	-.03	.05	.09	-.01	.14
c. Skin Tone. Block 2	-.03	.05	.09	-.01	.14
c. Familiar. Block 2	.13	-.04	-.10	.18	.27
d. Hair Quality. Block 1	-.07	.14	.20*	-.16	-.07
d. Hair Quality. Block 2	-.08	.14	.20*	-.18	-.10
d. Familiar. Block 2	.14	-.06	.07	.21	.29

Note. Positive betas signify higher values for Black faces. Regressions a, b, c, and d predict impressions from African appearance, White Appearance, Skin Tone, and Hair Quality, respectively. Within each regression, Familiarity is entered in Block 2.

*$p \leq .10$ **$p \leq .05$ ***$p \leq .01$

Table 3

Effects of Race-Related Appearance Qualities on White Judges' Impressions of White Faces in Study 1

	Impression				
Predictors	Likeable	Dangerous	Reserved	Competent	Athletic
	β	β	β	β	β
Regressions a-d (controlling sex, smile, attractiveness, babyface)					
a. African Appearance. Block 1	-.04	-.01	-.13*	.06	.17
a. African Appearance. Block 2	-.07	.04	-.14	-.02	.17
a. Familiar. Block 2	.25***	-.45***	.02	.60***	.01
b. White Appearance. Block 1	-.05	.14	.00	-.15	-.15
b. White Appearance. Block 2	-.03	.12	.00	-.13	-.15
b. Familiar. Block 2	.23**	-.43***	-.01	.59***	.03
c. Skin Tone. Block 1	.05	-.15	.09	.16	.27**
c. Skin Tone. Block 2	.01	-.07	.10	.06	.27**
c. Familiar. Block 2	.24**	-.42***	-.04	.00	-.04
d. Hair Quality. Block 1	.05	-.05	-.12	.03	.01
d. Hair Quality. Block 2	.03	-.02	-.12	-.01	.01
d. Familiar. Block 2	.23**	-.44***	.01	.60***	.04

Note. Positive betas signify higher values for Black faces. Regressions a, b, c, and d predict impressions from African appearance, White Appearance, Skin Tone, and Hair Quality, respectively. Within each regression, Familiarity is entered in Block 2.

*$p \leq .10$ **$p \leq .05$ ***$p \leq .01$

Table 4

Correlations among Predictor and Criterion Variables for Black Judges Rating Black and White Faces in Study 2

	Black Faces					White Faces				
	Likeable	Dangerous	Reserved	Competent	Athletic	Likeable	Dangerous	Reserved	Competent	Athletic
African Appearance	.15	-.17	-.25*	.33***	.00	.08	.05	-.18	.13	-.08
White Appearance	-.11	.13	.26**	-.18	-.11	.20	-.05	-.03	-.11	.06
Darker Skin Tone	.12	-.10	-.27**	.16	.12	-.01	-.08	-.12	.19	.15
African Hair Quality	.01	.12	-.26**	-.08	.08	-.08	-.17	.21	.15	-.05
Attractiveness	.79***	-.33***	-.48***	.39***	-.27**	.77***	-.17	-.67***	.16	.33***
Babyfaceness	.22*	-.42***	-.13	.10	-.13	.09	-.32***	-.42***	.03	-.28**
Smile	.50***	-.56***	-.29**	.34***	.20	.48***	-.21*	-.25*	-.09	-.17
Face sex	-.26**	-.02	.18	-.18	.36***	.12	.21*	.17	.00	-.19

Note. Positive betas for face sex signify higher values for male faces.

*$p \leq .10$ **$p \leq .05$ ***$p \leq .01$

Table 5.

Effects of Race-Related Appearance Qualities on Black Judges' Impressions of Black Faces in Study 2

	Impression				
Predictors	Likeable	Dangerous	Reserved	Competent	Athletic
	β	β	β	β	β
Regressions a-d (controlling sex, smile, attractiveness, babyface)					
a. African Appearance. Block 1	.03	-.10	-.18	.27**	.03
a. African Appearance. Block 2	-.04	-.05	-.15	.19	-.00
a. Familiar. Block 2	.29***	-.23	-.12	.34**	.15
b. White Appearance. Block 1	-.05	.06	.27***	-.16	-.06
b. White Appearance. Block 2	-.03	.01	.27**	-.11	-.06
b. Familiar. Block 2	.06	-.21	-.03	.22	.02
c. Skin Tone. Block 1	.00	.01	-.20*	.09	.09
c. Skin Tone. Block 2	-.04	.05	-.18	.03	.08
c. Familiar. Block 2	.28***	-.27*	.14	.43**	.12
d. Hair Quality. Block 1	.01	.01	-.22*	-.11	-.02
d. Hair Quality. Block 2	-.01	.03	-.21*	-.14	-.02
d. Familiar. Block 2	.27***	-.26*	-.17	.46***	.15

Note. Positive betas signify higher values for Black faces. Regressions a, b, c, and d predict impressions from African appearance, White Appearance, Skin Tone, and Hair Quality, respectively. Within each regression, Familiarity is entered in Block 2.

*$p \leq .10$ **$p \leq .05$ ***$p \leq .01$

Table 6

Effects of Race-Related Appearance Qualities on Black Judges' Impressions of White Faces in Study 2

	Impression				
Predictors	Likeable	Dangerous	Reserved	Competent	Athletic
	β	β	β	β	β
Regressions a-d (controlling sex, smile, attractiveness, babyface)					
a. African Appearance. Block 1	.17**	-.12	-.04	.23	-.15
a. African Appearance. Block 2	.11	-.05	-.07	.11	-.19
a. Familiar. Block 2	.26***	-.31*	.15	.50***	.14
b. White Appearance. Block 1	-.08	.16	.01	-.26*	.10
b. White Appearance. Block 2	-.05	.11	.04	-.19	.11
b. Familiar. Block 2	.22**	-.31**	.19**	.51***	.06
c. Skin Tone. Block 1	.17**	-.26*	-.06	.31**	.05
c. Skin Tone. Block 2	.12	-.19	-.11	.19	.04
c. Familiar. Block 2	.19**	-.27*	-.22**	.48***	.03
d. Hair Quality. Block 1	.05	-.16	.06	.19	.03
d. Hair Quality. Block 2	.01	-.12	.04	.13	.02
d. Familiar. Block 2	.29***	-.30*	.12	.51***	.07

Note. Positive betas signify higher values for Black faces. Regressions a, b, c, and d predict impressions from African appearance, White Appearance, Skin Tone, and Hair Quality, respectively. Within each regression, Familiarity is entered in Block 2.

*$p \leq .10$ **$p \leq .05$ ***$p \leq .01$

Table 7

Correlations among Predictor and Criterion Variables for White Judges Rating Korean and White Faces in Study 3

	Korean Faces				White Faces			
	Likeable	Dangerous	Reserved	Competent	Likeable	Dangerous	Reserved	Competent
Asian Appearance	-.29**	.29**	.22*	-.05	-.09	.13	-.13	-.03
White Appearance	.25**	-.32***	-.21*	.04	.18	.09	-.08	-.29**
Darker Skin Tone	-.05	.27**	-.13	-.16	-.01	.03	-.10	.09
Attractiveness	.54***	-.36***	-.39***	.21*	.79***	-.31**	-.51***	.15
Babyfaceness	.17	-.48***	.37***	.19	.37***	-.38***	.20	.11
Smile	.57***	-.52***	-.25**	.33***	.36***	-.13	-.39***	-.15
Face sex	.60***	-.16	-.40***	.51***	.09	.22*	.19	-.12

Note. Positive betas for face sex signify higher values for male faces.

*$p \leq .10$ **$p \leq .05$ ***$p \leq .01$

Table 8

Effects of Race-Related Appearance Qualities on White Judges' Impressions of Korean Faces in Study 3

	Impression			
Predictors	Likeable	Dangerous	Reserved	Competent
	β	β	β	β
Regressions a-c (controlling sex, smile, attractiveness, babyface)				
a. Asian Appearance. Block 1	-.08	.08	.18	.08
a. Asian Appearance. Block 2	-.09	.08	.18	-.06
a. Familiar. Block 2	.15*	-.05	-.02	.32**
b. White Appearance. Block 1	-.03	-.06	-.20*	-.16
b. White Appearance. Block 2	-.02	-.06	-.20	-.14
b. Familiar. Block 2	.14	-.05	-.01	.32**
c. Skin Tone. Block 1	-.05	.19*	-.05	-.17
c. Skin Tone. Block 2	-.06	.19*	-.05	-.19*
c. Familiar. Block 2	.15	-.06	.00	.34***

Note. Positive betas signify higher values for Korean faces. Regressions a, b, and c predict impressions from Asian appearance, White Appearance, and Skin Tone, respectively. Within each regression, Familiarity is entered in Block 2.

*$p \leq .10$ **$p \leq .05$ ***$p \leq .01$

Table 9

Effects of Race-Related Appearance Qualities on White Judges' Impressions of White Faces in Study 3

	Impression			
Predictors	Likeable	Dangerous	Reserved	Competent
	β	β	β	β
Regressions a-c (controlling sex, smile, attractiveness, babyface)				
a. Asian Appearance. Block 1	-.04	.08	-.07	-.00
a. Asian Appearance. Block 2	-.07	.09	-.06	-.02
a. Familiar. Block 2	.38***	-.18	-.03	.35*
b. White Appearance. Block 1	-.10	.28**	-.12	-.38***
b. White Appearance. Block 2	-.05	.27**	-.13	-.34**
b. Familiar. Block 2	.36***	-.11	-.07	.28
c. Skin Tone. Block 1	.03	-.18	.07	.18
c. Skin Tone. Block 2	-.00	-.16	.07	.15
c. Familiar. Block 2	.37***	-.15	-.05	.33*

Note. Positive betas signify higher values for Korean faces. Regressions a, b, and c predict impressions from Asian appearance, White Appearance, and Skin Tone, respectively. Within each regression, Familiarity is entered in Block 2.

*$p \leq .10$ **$p \leq .05$ ***$p \leq .01$

Table 10

Correlations among Predictor and Criterion Variables for Korean Judges Rating Korean and White Faces in Study 4

	Korean Faces				White Faces			
	Likeable	Dangerous	Reserved	Competent	Likeable	Dangerous	Reserved	Competent
Asian Appearance	-.23*	-.06	.33***	-.27**	-.03	-.09	.05	.12
White Appearance	.39***	-.16	-.11	.50***	.43***	-.16	.01	.27**
Darker Skin Tone	-.29**	.26**	-.00	-.27**	-.19	-.02	-.08	-.05
Attractiveness	.89***	-.64***	-.13	.88***	.93***	-.67***	-.24*	.78***
Babyfaceness	.44***	-.50***	-.04	.25*	.52***	-.41***	-.05	.48***
Smile	.47***	-.55***	-.36***	.31**	.43***	-.27**	-.54***	.21*
Face sex	-.14	-.08	.20	-.10	.07	.25**	.16	.05

Note. Positive betas for face sex signify higher values for male faces.

*$p \leq .10$ **$p \leq .05$ ***$p \leq .01$

Table 11

Effects of Race-Related Appearance Qualities on Korean Judges' Impressions of Korean Faces in Study 4

	Impression			
Predictors	Likeable	Dangerous	Reserved	Competent
	β	β	β	β
Regressions a-c (controlling sex, smile, attractiveness, babyface)				
a. Asian Appearance. Block 1	.08	-.32***	.34***	.02
a. Asian Appearance. Block 2	-.04	-.19*	.27*	-.01
a. Familiar. Block 2	.31***	-.35***	.19	.09
b. White Appearance. Block 1	-.11	.29***	-.11	.04
b. White Appearance. Block 2	.03	.11	.08	.10
b. Familiar. Block 2	.30***	-.41***	.44**	.15
c. Skin Tone. Block 1	-.05	.09	-.14	-.08
c. Skin Tone. Block 2	-.06	.10	-.15	-.08
c. Familiar. Block 2	.29***	-.49***	.39**	.09

Note. Positive betas signify higher values for Korean faces. Regressions a, b, and c predict impressions from Asian appearance, White Appearance, and Skin Tone, respectively. Within each regression, Familiarity is entered in Block 2.

*$p \leq .10$ **$p \leq .05$ ***$p \leq .01$

Table 12.

Effects of Race-Related Appearance Qualities on Korean Judges' Impressions of White Faces in Study 4

	Impression			
Predictors	Likeable	Dangerous	Reserved	Competent
	β	β	β	β
Regressions a-c (controlling sex, smile, attractiveness, babyface)				
a. Asian Appearance. Block 1	.02	-.14	-.02	.15*
a. Asian Appearance. Block 2	-.01	-.11	-.02	.15*
a. Familiar. Block 2	.33***	-.30**	.06	.11
b. White Appearance. Block 1	.02	.17*	.18	-.08
b. White Appearance. Block 2	.03	.16	.18	-.07
b. Familiar. Block 2	.33***	-.31**	.07	.14
c. Skin Tone. Block 1	-.05	-.18*	-.12	.12
c. Skin Tone. Block 2	-.05	-.18*	-.12	.12
c. Familiar. Block 2	.33***	-.33**	.05	.15

Note. Positive betas signify higher values for Korean faces. Regressions a, b, and c predict impressions from Asian appearance, White Appearance, and Skin Tone, respectively. Within each regression, Familiarity is entered in Block 2.

*$p \leq .10$ **$p \leq .05$ ***$p \leq .01$