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Facial Expression Recognition and Social Competence Among African American Elementary School Children: An Examination of Ethnic Differences

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The purpose of the present study was to investigate the potential for cross-ethnic miscommunication of facial expressions. The ability of elementary school children to identify emotion in African American and European American facial expressions and how this ability relates to social competence was examined. African American (n = 37) and European American (n = 37) children were administered African American and European American faces. Sociometric ratings also were obtained. The ability to read faces differing in ethnicity did not differ by children's ethnicity. However, ability to read facial expressions of one's own ethnic group, but not the other, was significantly related to social competence.

For the past three decades, there has been increasing interest in determining the role of culture and race in the recognition of emotion in facial expressions. These studies, however, primarily used European American participants and European American facial expressions of emotion. When facial expression stimuli other than European American were used, they most often were either Japanese (Matsumoto & Ekman, 1988) or African American (Nowicki, Glanville, & Demertzis, 1998), and they were administered to adults. A separate body of nonverbal research has examined the role of facial expressions in the regulation of children's social interaction and their subsequent development of peer relationships (Feldman, Philippot, & Custrini, 1991; Monfries & Kafer, 1987; Nowicki et al., 1998). With few exceptions (e.g., Collins & Nowicki, 2001; Glanville, 1997), the majority of these studies focused primarily on European American children and used European

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American facial expressions of emotion. Thus, information concerning the role of culture and race in the association between the ability to recognize facial expressions of emotion and the peer relationships of African American children is almost nonexistent.

Although some researchers view the contribution of culture as relatively slight in the identification of emotion in facial expressions (Ekman & Friesen, 1971; Ekman & O'Sullivan, 1991), others believe it is more important (Elfenbein & Ambady, 2002; Matsumoto, 1993; Nowicki et al., 1998). For example, Elfenbein and Ambady (2002) propose that although the identification of emotion in facial expressions tends to be universally recognized, there exists an in-group advantage where emotions are more accurately understood when judged by members of the same cultural group. In other words, they argue that a match between the cultural background of the expressor and the judge is very important. In a meta-analytic review, Elfenbein and Ambady (2002) found that although facial expressions were generally recognized equally across cultural and ethnic groups, there was slightly greater accuracy when members of a cultural or ethnic group identified facial expressions of individuals from their own ethnic or cultural group. In explaining this in-group advantage, Elfenbein and Ambady draw on the idea that some culture-specific elements of emotional behavior must be learned (Scherer, Banse, & Walbott, 2000). Therefore, they suggest that experience and learning play a part in the judgment of emotion in facial expressions (O'Toole, Deffenbacher, Valentin, & Abdi, 1994; O'Toole, Peterson, & Deffenbacher, 1996).

In a similar nature, Nowicki et al. (1998) examined whether African American and European American college students would be more accurate at identifying facial expressions of emotion of their own cultural group. These results revealed that African American participants performed more consistently across the two tasks than did European American participants. In other words, African American college students were as accurate at identifying both sets of facial expressions, whereas their European American counterparts were more accurate at identifying the facial expressions of their own ethnic group. In explaining these results, Nowicki et al. make the case that as members of a minority group, African Americans have more pressure to learn to recognize the nonverbal messages of emotion of European Americans.

Despite the fact that the contribution of culture and race in the identification of facial expressions of emotions has been widely debated and explored over the past three decades, it has not been explored in nonverbal research conducted with African American children. Specifically, a large body of research has suggested that facial expressions provide information that is necessary in the regulation of social interaction and, subsequently, in the

development of peer relationships (Feldman et al., 1991; Monfries & Kafer, 1987). For example, Nowicki and Duke (1994) found that children between the ages of 6 and 10 who were less accurate in identifying facial expressions received more negative peer nominations than did children who were more accurate at identifying facial expressions of emotion. Similarly, Monfries and Kafer (1987) found that children classified as unpopular (i.e., children who received the least nominations as someone to eat, work, play, and be best friends with) performed more poorly on a facial decoding task than did their more popular counterparts. As previously stated, most of this research has only investigated this relation in European American children responding to European American facial expressions of emotion. Thus, there is little or no evidence regarding this association available for African American children. More important, research examining this association when the facial expression stimuli differ in ethnicity from the participant is almost nonexistent.

Collins and Nowicki (2001) conducted one of the few studies that examined the association between facial expression recognition ability and peer relationships in African American children (see also Glanville, 1997). Although African American children were the focus of the study, similar to previous studies, Collins and Nowicki (2001) used a measure that was composed of European American facial expressions of emotions. The results of this study revealed that African American children did not differ in their ability to identify facial expressions from norms established with European American children. In addition, individual differences in the ability to identify facial expressions of emotions were not related to indices of peer popularity as would be expected. Consistent with Elfenbein and Ambady (2002), these authors suggest that identifying emotion in same-race adults and children may be more predictive of personality, social, and achievement outcomes.

Given the theoretical and empirical importance of nonverbal communication in the regulation of social interaction and relationship development, the question of this in-group advantage becomes important, especially pertaining to social interactions between individuals of different cultures. For example, Hanna (1984) discusses what she calls the "intercultural dissonance" between African Americans and European Americans for several nonverbal behaviors and the potential this intercultural dissonance has for miscommunication during social interactions. If in fact there is an in-group advantage concerning the identification of facial expressions of emotion as Elfenbein and Ambady (2002) suggest and there is the potential for cross-ethnic miscommunication of nonverbal behaviors during social interactions, two issues must be addressed.

Similar to the adult sample in the Nowicki et al. study (1998), Collins and Nowicki (2001) found that African American children were as accurate at identifying facial expressions of emotion of European American adults. However, because Collins and Nowicki did not include European American children in their study, and they did not use African American facial expressions of emotion, Nowicki et al.'s (1998) findings cannot be generalized to children. Therefore, it remains unclear as to whether African American children would perform more consistently than European American children when identifying facial expressions of their own and another ethnic or cultural group. The lack of a significant association between African American children's ability to identify facial expressions of emotion and indices of peer popularity raises the question of whether a match between the ethnic background of the expressor and the judge is an important element (Elfenbein & Ambady, 2002) when evaluating how social competence is related to the ability of African American children to identify facial expressions of emotion.

The present study was a first step in evaluating two questions of interest related to the ability of African American children to identify facial expressions of emotion. First, will the same pattern of results be found with African American children as is found with European American children and adults? In other words, will African American children perform consistently on both tasks and European American children perform better with facial expressions of their own ethnic group? Second, and more exploratory in nature, is a match between the ethnic background of the expressor and the judge important when evaluating how social competence is related to the ability of African American children to identify facial expressions of emotion.

In the present study, African American and European American children had the opportunity to view and judge both European American and African American facial expressions. This design enabled clarification of the results obtained in the Collins and Nowicki (2001) study. This study also extended the results of Nowicki et al. (1998) to African American children.

METHOD

PARTICIPANTS

Seventy-four African American (boys $n = 20$, girls $n = 17$) and European American (boys $n = 23$, girls $n = 14$) children in the second through fourth grade participated in the present study (second grade $n = 31$, third grade $n = 37$, fourth grade $n = 6$). A letter explaining the study was sent home with

students of a predominately African American private elementary school and a predominately European American private elementary school in a large southeastern city in the United States. Approximately 70% of the parents agreed to allow their child to participate. None of the African American school population or the European American school population was receiving free or reduced lunches or academic scholarships. The two elementary schools were chosen on the basis of their ethnic composition.

MEASURES

Adult Facial Expressions: African American

The Diagnostic Analysis of Nonverbal Accuracy–Form 2, African American Adult Facial Expressions (DANVA2-AAAF) (Nowicki et al., 1998) consists of 32 photographs of an equal number of female and male adult facial expressions that are equally distributed across high and low intensity of happy, sad, angry, and fearful emotions. College-age adults (M age = 20.5 years) were read vignettes with happy, sad, angry, and fearful themes and then were asked to respond with the appropriate facial expression. In addition, spontaneous photos were taken at the beginning of the interaction. The final 32 photographs were selected from a larger sample of 172 photographs that were presented to African American college students ($n = 54$) and fourth-grade students ($n = 42$) who viewed each photograph and judged whether it was happy, sad, angry, or fearful and how intense the emotion was on a 5-point scale. Photographs in which the emotion was agreed upon by 80% of the participants were included in the final form of the test.

Initial construct validity has been obtained for the test (Nowicki et al., 1998). DANVA2-AAAF scores increase with age. The mean accuracy score for African American fifth graders ($M = 20.64$) was significantly lower than that of African American college students ($M = 27.44$), $t(67) = 7.86$, $p < .01$. Cronbach's coefficient alphas for fifth-grade students ($n = 32$, $\alpha = .71$) and college students ($n = 36$, $\alpha = .79$) were acceptable. The test-retest reliability over a 4-week period for fifth graders, $r(28) = .70$ and college students, $r(27) = .81$ also was acceptable. DANVA2-AAAF accuracy scores were correlated positively with self-esteem scores within their own age group for African American fifth graders, $r(31) = .41$, $p < .05$, and for African American college students, $r(34) = .44$, $p < .05$. DANVA2-AAAF scores also were correlated with internal locus of control for African American fifth graders, $r(34) = .47$, $p < .05$, and African American college students, $r(34) = .39$, $p < .05$.

Adult Facial Expressions: European American

The Diagnostic Analysis of Nonverbal Accuracy–Form 2, Adult Facial Expressions (DANVA2-AF) consists of 24 photographs of an equal number of female and male adult facial expressions of happy, sad, angry, and fearful emotions (Nowicki & Carton, 1993). College-age adults ($n = 21$) ranging in age from 18 to 29 were read vignettes with happy, sad, angry, and fearful themes and then were asked to respond with the appropriate facial expression. In addition, spontaneous photos were taken as the participant talked. The final 24 photographs were selected from a larger sample of 108 photographs that were presented to samples of college students ($n = 102$) and fourth-grade students ($n = 48$), who viewed each photograph and judged whether it was happy, sad, angry, or fearful and how intense it was on a 5-point scale. Photographs in which the emotion was agreed on by 80% of the participants were included in the final form of the test. Photographs included an equal number of male and female and high and low intensity faces.

Construct validity data have been obtained in a series of studies (Nowicki, 1997). Convergent validity was shown by scores from the DANVA2-AF subtest to be correlated significantly with those from the original DANVA adult facial expression subtest, $r(64) = .34, p < .01$, in a sample of European American college students (Nowicki, 1997). Linear trend analysis based on the results of 10 studies showed that DANVA2-AF accuracy scores increase with age up to age 33 (Nowicki, 1997). Scores have been found to be internally consistent as measured by coefficient alpha in children as young as age 4 (Verbeek, 1996; $n = 34, .71$) and as old as age 15 (Baum, 1997; $n = 27, .78$). The average coefficient alpha across 10 studies was .78 (Nowicki, 1997). Higher accuracy scores have been found to be significantly correlated with higher social competence as rated by teachers (Collins, 1996; Maxim & Nowicki, 1996; Nowicki & Mitchell, 1998) and parents (McClanahan, 1996) as well as with higher internal control expectancies (McClanahan, 1996; Nowicki & Halpern, 1996) and lower depression scores (Nowicki & Rowe, 1996).

Sociometric Status

Participants were given a class roster and asked to rate how much they liked each child using a 5-point Likert-type scale, with 1 being the lowest and 5 being the highest. Peer ratings are more advantageous than the more widely used peer nominations in that they avoid forcing children to make “dislike” nominations (Williams & Gilmour, 1994), they provide information about how children feel about all of the other children in their class, and

they eliminate the possibility of children only nominating their best friends (Malik & Furman, 1993; Williams & Gilmour, 1994). In addition, peer ratings have a test-retest reliability of .82 to .84 and correlates well with other methods of sociometric assessment (Kennedy, Spence, & Hensley, 1989).

PROCEDURE

Participants from the European American private school were tested individually by a European American research assistant and the primary investigator, an African American graduate student, in a small meeting room during the school day. Participants from the African American private school were tested in a similar manner by the primary investigator. Children were given a class roster of the students in their class and asked to rate how much they liked each child using a 5-point scale. It was explained that a rating of 1 meant they did not like the person at all and a rating of 5 meant they liked the person a lot. The participants were then assured that no one else would know how they rated each child with the statement, "No one else will see how you rate your classmates. This information is strictly between the two of us." Once this information was obtained, the participants were presented with the DANVA2-AAAF and the DANVA2-AF. Half of the participants received the DANVA2-AAAF first and the other half of the participants received the DANVA2-AF first. Participants were shown the photographs for 2 seconds each and were instructed to guess as to whether they thought the person was happy, sad, angry, or fearful. The investigator noted the response on the data sheet.

RESULTS

Preliminary analysis revealed that the data were normally distributed and no outliers were detected. Means and standard deviations of the number of errors on the DANVA2-AF and the DANVA2-AAAF are provided in Table 1.

To examine whether African American and European American children differed in their ability to read facial expressions of emotion as a function of ethnicity of the facial expression, a 2 (gender) \times 2 (ethnicity) \times 2 (DANVA test) mixed analysis of variance (ANOVA) was conducted. The analyses revealed that African American girls and boys and European American girls and boys did not differ in their ability to read African American or European American faces, $F(3, 71) = .60, p = .44$.

TABLE 1
Means and Standard Deviations of Errors on
the DANVA2-AAAF and the DANVA2-AF

	<i>DANVA2-AAAF</i>				<i>DANVA2-AF</i>			
	<i>African American</i>		<i>European American</i>		<i>African American</i>		<i>European American</i>	
	M	SD	M	SD	M	SD	M	SD
Men	13.9	2.0	13.4	3.2	8.4	3.6	7.5	3.4
Women	14.6	3.6	13.3	2.9	8.0	3.6	7.9	2.7

NOTE: DANVA2-AAAF = Diagnostic Analysis of Nonverbal Accuracy–Form 2, African American Adult Facial Expressions; DANVA2-AF = Diagnostic Analysis of Nonverbal Accuracy–Form 2, Adult Facial Expressions.

To examine whether the ability to read emotion in facial expressions in one's own as well as from another ethnic group would be related to sociometric status for African American girls and boys and European American girls and boys, exploratory analyses using Pearson product moment correlation coefficients were conducted. For African American girls and boys, higher errors on the African American faces were related to lower sociometric status; African American girls: $r(17) = -.55, p = .01$, African American boys: $r(20) = -.56, p = .01$. However, errors on the European American faces were not significantly related to sociometric status for African American girls, $r(17) = .18, p = .48$, or for African American boys, $r(20) = .11, p = .64$. For European American boys, more errors on the European American faces was significantly related to lower sociometric status, $r(23) = -.43, p = .04$, but more errors on the African American faces was not, $r(23) = -.03, p = .88$. Neither errors on the European American, $r(14) = -.12, p > .05$, or African American, $r(14) = -.09, p > .05$, were related to sociometric status for European American girls.

To determine whether the correlations reported above were significantly different from one another, a series of Fisher's z analyses was conducted. The results revealed that for African American girls and boys, the correlations between errors on the African American faces and sociometric status were significantly different from the correlation between errors on the African American faces and sociometric status for European American boys (African American girls–European American boys: $z = 3.76, p = .05$; African American boys–European American boys, $z = 3.34, p = .05$). Furthermore, the

correlation between errors on European American faces and sociometric status for European American boys was significantly different than the correlation between European American faces and sociometric status for African American girls, $z = 3.80$, $p = .05$, and African American boys, $z = 4.95$, $p = .05$.

DISCUSSION

By giving African American and European American children the opportunity to view both African American and European American facial expression stimuli, we found that African American and European American children did not differ in their ability to read the facial expressions of the other ethnic group. These results are inconsistent with the Nowicki et al. (1998) study that found African American college students were more accurate at identifying both African American and European American facial expressions of emotion, whereas European American college students were better at identifying European American facial expression only. These results are also somewhat inconsistent with Elfenbein and Ambady's (2002) idea of an in-group advantage where emotions are more accurately understood when judged by members of the same cultural group.

Although not directly examined in the current study, one explanation of the current findings may be that culture-specific elements of emotional behavior must be learned (Scherer et al., 2000). Thus, it is possible that experience and learning may play a part in the judgment of emotion in facial expression (O'Toole et al., 1994; O'Toole et al., 1996). Following this line of reasoning, it is possible that African American children did differ from European American children in their ability to read the facial expressions of their own and the other ethnic group because at a young age children have not yet learned these culture-specific elements of emotional behavior.

Exploratory analyses also revealed that for both African American and European American children, the ability to read facial expressions of their own ethnic group was significantly related to social competence. The ability of both groups of children, however, to read facial expressions of the other ethnic group was not significantly related to social competence within their own ethnic group. These results suggest that although there was not an in-group advantage in the ability of both African American and European American children to accurately identify facial expressions of emotion, the match between the cultural background of the expressor and the judge is important (Elfenbein & Ambady, 2002) to social interactions within a

cultural group. Therefore, it is possible that while young children may be able to accurately identify facial expressions across cultural groups, they are reinforced for focusing on, and for learning to identify, the emotional behavior of their own cultural group in order to have successful social relations. Thus, the in-group advantage seen in the Elfenbein and Ambady meta-analysis may be due to a process. Over the course of development, individuals may learn to be more aware of, and more accurate at identifying, facial expressions of emotion from their own ethnic group due to experience and learning in social interactions.

Given that the ability to read facial expressions of emotion is an important aspect in the development of peer relations for African American children, the implications of this study are twofold. First, from a clinical perspective, knowing that facial expression recognition ability is related to relationship development is useful given that children who experience poor peer relations are more likely to suffer from depression and to engage in antisocial behavior (Parker & Asher, 1987) than are children who experience positive peer relations. Clinical interventions designed to reduce depression and antisocial behavior in African American children should focus on improving the ability of African American children to accurately identify facial expressions of emotion. Second, as with African American college students, there was not a significant difference in the ability of African American children to identify African American or European American facial expressions of emotion. Therefore, it appears that although African American children may be reinforced for focusing on, and for learning, the emotional behavior of their own cultural group to have successful social relations, African American children maintain their ability to read facial expressions of other ethnic groups into adulthood.

Although this study was a first step in gaining a more comprehensive understanding of the role of culture and race in the ability of children to identify facial expressions of emotion, several limitations are noteworthy. First, a more stringent examination of the importance of the match between ethnicity of the judge and expressor to social interactions would be to obtain peer ratings by both African American and European American children. Such a research design would allow for the comparison of the association between children's ability to identify facial expressions of emotions and their peer relationships when there is a cultural match among judge, expressor, and peer, as well as when there is not such a match. Second, future studies should include both child and adult facial expressions of emotion. The inclusion of children's faces would provide important information regarding whether age of the expressor influences the association between children's ability to

identify facial expressions of emotion and peer relationships. Finally, future studies should include a larger sample size and obtain participants from multiple schools.

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