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The Effects of Facial Expression on Out-Group Discrimination

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The University of Southern Mississippi

THE EFFECTS OF FACIAL EXPRESSION
ON OUT-GROUP DISCRIMINATION

by

Charles Brendan Clark

A Dissertation
Submitted to the Graduate School
of The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

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May 2011

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ABSTRACT

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The current paper sought to test the hypothesis that the facial expression of smiling would mitigate the effects of out-group discrimination. Study 1 examined the influence of facial expression (smiling or frowning), gender (man or woman), and race (Black or White) on resource allocation decisions. Participants were shown arrays of facial photographs. The arrays all contained eight photographs and were counterbalanced to contain all combinations of the variables of interest (i.e., each group had a smiling man of each race, a smiling woman of each race, a frowning man of each race, and a frowning woman of each race). The participants were asked to imagine that the photographs were taken of other college students. They were then asked to allocate hypothetical extra credit points among the photographs. The Black participants tended to show out-group discrimination regardless of the facial expression of the photographs. The White participants demonstrated no form of discrimination when the targets were smiling, but actually favored the frowning Black targets over the frowning White targets. In Study 2, a second group of participants rated the photographs used in Study 1 across 15 different attributes. The number of points allocated to each photograph in Study 1 and the ratings from Study 2 were then explored through bivariate correlations. All of the attributes with the exception of Dominance were highly correlated with the number of points the

photographs received in Study 1. The results are discussed in terms of halo effects and cultural display rules for emotions.

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CHAPTER I

INTRODUCTION

Out-group discrimination is the tendency for individuals to show a preference for members of their in-group over members of out-groups in both verbal appraisals and behavioral interactions (Koomen & Bahler, 1996; Liu, Campbell, & Condie, 1995; Singh, Poh, & Chang, 2008; Voci, 2006; Zebrowitz, Bronstad, & Lee, 2007). This relatively universal process appears to be driven by implicit cognitive mechanisms that are involved in the perception and appraisal of others (Baron & Banaji, 2006; Gawronski, 2002; Greenwald, McGhee, & Schwartz, 1998). Out-group discrimination has been documented to occur between a variety of groups including those differing in political beliefs (Furnham, 1996), gender (Furnham, Meader, & McClelland, 1998), religion (Nosek et al., 2007) and race (Wittenbrink, Judd, & Park, 1997). The perception that one is a member of an out-group has been shown to have detrimental psychological effects, such as increased levels of depression and anxiety (Lam, 2007). As a result of the damages caused by out-group discrimination, considerable resources have been allocated toward ameliorating this problem. A variety of approaches have been utilized including: changing national laws (Bleich, 2007), creating educational programs and curriculums for school aged children (see Camicia, 2007 for a review), creating television advertisements (Vrij, Van Schie, & Cherryman, 1996), and researching interpersonal behaviors and characteristics that influence out-group discrimination (Beaupre & Hess, 2003). A number of different interpersonal factors have been shown to influence out-group discrimination, many of which may have the potential to mitigate its detrimental effects. As simple as it may seem, one interpersonal behavior that has been found to exert a

remarkable influence on out-group discrimination is the facial expression of smiling. For example, viewing smiling out-group members reduces a pattern of brain activity associated with out-group discrimination (Chiu, Ambady, & Deldin, 2004), and being induced to smile at members of an out-group reduces discrimination against that group (Ito, Chiao, Devine, Lorig, & Cacioppo, 2006). Furthermore, when people smile they are perceived more positively across a number of traits (i.e., sincerity, kindness, and reliability) that are typically lowered when one is a member of an out-group (Otta, Lira, Delavati, Cesar, & Pires, 1994). Because smiling appears to have a positive influence on many of the perceived characteristics and behaviors that are negatively influenced by out-group discrimination and prejudice, it would follow that smiling could mitigate the effects of out-group discrimination.

A study designed to test the hypothesis that smiling would mitigate the effects of out-group discrimination has never been conducted, even though extensive research in both the fields of facial expression and out-group discrimination point to this possibility. Research in this area is needed, and its absence has been noted (e.g., Ambady, Chiao, Chiu, & Deldin, 2006). The current paper sought to address this gap in the literature by examining the effects of smiling on out-group discrimination in a resource allocation task. Resource allocation tasks, as a research paradigm, have a history of being used in the study of discrimination (e.g., Furnham, Thomson, McClelland, 2002; Hodson, Dovidio, & Esses, 2003). After relevant literature is discussed, two studies will be described in detail. The first used a sample of Black and White college students. These racial groups have an established history of out-group discrimination (Crosby, Bromley, & Saxe, 1980; Liu et al., 1995; Madon et al., 2001; McConnell, Rydell, Strain, & Mackie,

2008; Zebrowitz et al., 2007). The participants were asked to allocate a limited resource (extra credit points) to various members of different groups. Each group contained in-group and out-group members who were either smiling or frowning. The percentage of the resource designated to the in-group and out-group members as a function of their facial expression was used to evaluate the validity of the hypothesis that smiling would reduce the effects of out-group discrimination. In Study 2, the photographs used in Study 1 were displayed online and rated across a variety of perceived personality attributes including the Big-Five personality dimensions. These ratings were then correlated with the number of points the targets received in Study 1. This was done for exploratory purposes to investigate what sorts of prejudice may be influencing resource allocation decisions. The development and maintenance of out-group discrimination is likely a dynamic process involving a multitude of components. An analysis of the role of facial expression and the other perceived attributes is likely only a small step toward a more complete understanding of this process. However, research has already demonstrated that small changes in the way that members of out-groups are portrayed can lead to meaningful improvements in the way they are perceived (Small, Loewenstein, & Slovic, 2007). The identification of smiling may be such a factor.

Out-group Discrimination

The term out-group discrimination refers to a very stable social pattern characterized by a tendency to show a preference for members of one's in-group over members of out-groups in both perceptions (Koomen & Bahler, 1996; Wittenbrink et al., 1997; Zebrowitz et al., 2007; also see Brewer, 2007; or Dasgupta, 2004 for a review) and behaviors (McConnell & Leibold, 2001). Although this concept has gone by many names

(e.g., in-group favoritism, out-group degradation, out-group prejudice, and ethnocentrism), it will be referred to throughout this paper as out-group discrimination. This process seems to begin at a very early age and is apparent throughout the lifespan. Infants show a preference for viewing faces of their own race (Kelly et al., 2007) and children as young as six years old have been documented to show an implicit preference for their in-group (Baron & Banaji, 2006). This process has also been documented to occur in a variety of cultures (i.e., Furnham et al., 1998; Greenwald et al., 1998; Sanchez-Mazas, Roux, & Mugny, 1994), and it appears to influence perception in a negative way across multiple domains. These domains include evaluations of ability (Singh et al., 2008), sexual attraction, perception of social status (Liu et al., 1995), perceptions of approval, and perceptions of safety (Zebrowitz et al., 2007). Essentially, out-group discrimination is a fairly universal phenomenon that begins at an early age and is characterized by discriminatory behaviors and comparatively lower evaluations of out-group members.

Identifying examples of out-group discrimination and describing its characteristics are easy enough tasks, understanding the development and the psychological mechanics involved has proven to be much more difficult. There appear to be several interacting processes at work. The literature documents that people will identify associations between the behavior of individuals and the groups to which they belong even when no association actually exists (Schaller, 1991). This pattern of categorizing people is theorized to simply be a natural outcome of how people organize and simplify information. This categorization heuristic is certainly a component of the process, yet it does not explain the lowered perceptions of out-group members. The

explanation for this appears to be twofold. First, people tend to have positive associations with groups to which they are a part; they show greater emotional reactivity when viewing members of their in-group, which is indicative of higher levels of compassion, empathy, and relatableness (Brown, Bradley, & Lang, 2009). Second, they tend to have negative associations with groups to which they do not belong, and demonstrate more negative reactions to viewing out-group members (Livingston & Brewer, 2002). These two processes may seem so similar that they exist on a continuum; however, they are likely related, but distinct processes. It is also important to realize that these processes tend to be implicit, meaning that they are spontaneous reactions that occur below the threshold of conscious awareness (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Gawronski, 2002). Evidence for the implicit nature of these processes comes from experiments that examine implicit associations and nonverbal behavior. The literature has documented that observing nonverbal communication appears to be a reliable method of detecting out-group discrimination, and these processes are linked to implicit associations (McConnell & Leibold, 2001) but not necessarily to conscious verbal reports (Dovidio, Kawakami, & Gaertner, 2002). In summary, out-group discrimination seems to involve cognitive processes related to the implicit categorization of information; further, people tend to have negative associations with out-group members while concurrently having positive associations with in-group members.

Many of the cognitive processes involved in out-group discrimination have been studied using “minimal criteria groups.” These studies are designed to analyze the development of out-group discrimination by creating groups which are formed based on criteria that have little or no meaning beyond the fact that they indicate that an individual

is or is not a member of a group. The fact that these groups are based on arbitrary criteria allows for an examination that is free from historical, cultural, economic, and other factors. The results of these studies typically demonstrate that discrimination against out-group members simply emerges whenever group differences are made relevant. For instance, Yamagishi, Mifune, Liu, and Pauling (2008) divided participants into groups based on their preferences for the artists Kandinsky and Klee. They found that the two groups exhibited a higher level of trust with members of their own group than with members of the other group. A more extreme example of minimal criteria groups was conducted by Schaller (1991). He randomly assigned participants to one of two groups. The participants were told that their responses to a questionnaire had determined which group they would be assigned to, but they were not informed as to what criteria had determined the groups. They were then asked to rate other imaginary in-group and out-group members. The participants demonstrated out-group discrimination as they attributed more negative characteristics to out-group members. Out-group discrimination in minimal criteria groups demonstrates a process that is similar to out-group discrimination between groups when meaningful social distinctions are present. Yet, the meaninglessness of their criteria indicates just how flexible the identification of groups and the ensuing discrimination can be. By creating minimal groups, researchers are able to separate an individual from their learned allegiances and rivalries with groups and demonstrate that out-group discrimination appears to be a universal process that naturally emerges in human behavior.

The universality of out-group discrimination may cause one to wonder why out-group discrimination is a problem between some groups more than others. A large part of

this question can be answered by a set of factors that have been shown to influence and exacerbate out-group discrimination. The first influence and likely the most influential is threat. Simply put, if a group feels threatened, its members are more likely to demonstrate out-group discrimination (Voci, 2006). The second influence is status. Groups with higher social status typically demonstrate higher levels of discrimination. Dasgupta (2004) theorized this to be a means of preserving conventional social norms. In fact, groups that are extremely low in social status, such as the obese, the elderly, and the handicapped, have actually been documented to show an out-group preference and prefer those who are not a part of their in-group (Nosek et al., 2007). These groups are certainly the exception to the norm and they tend to experience very high and consistent levels of out-group discrimination. For example, obese individuals exhibit negative evaluations of the obese, but non-obese individuals tend to exhibit more negative evaluations of the obese (Schwartz, Vartanian, Nosek, & Brownell, 2006). The third influence is communal awareness of in-group identity. The literature indicates that people tend to believe that other members of their in-group will demonstrate out-group discrimination. For example, in a sample of college students, Liu and colleagues (1995) found that groups of White, Black, Asian, and Latin Americans all believed that their families and friends, as well as other members of their respective racial groups, would prefer that they date a member of their own race, these expectations and pressures may largely contribute to the development of discriminatory attitudes and behaviors. In-group members have been shown to increase their levels of out-group discrimination when they are working with another member of their in-group and when the other in-group member has knowledge of their in-group identity as opposed to when the other in-group member is blind to their in-

group identity (Yamagishi et al., 2005). The fourth influence is extremity of difference between in-group and out-group. The more individuals differ from the in-group, the stronger the out-group discrimination becomes (Livingston & Brewer, 2002). The fifth influence involves an individual's level of affiliation with the in-group. Although there is less evidence in support of this point, minimal groups paradigm research does support that the more an individual affiliates himself or herself with a particular in-group, the more discrimination he or she is likely to show (Hodson et al., 2003).

One issue with special relevance to the current study is the role that race plays in the formulation of out-group discrimination. Much of the literature on out-group discrimination focuses on discrimination and prejudice between racial and ethnic groups (e.g., Cunningham, Nezlek, & Banaji, 2004; Greenwald et al., 1998; Wittenbrink et al., 1997). The current studies also focus on a racial discrimination and prejudice. The literature's emphasis on race, may make it easy to underscore the contribution of social factors to this process. This focus on racial differences can lead to the perception that out-group discrimination is exacerbated or even driven by the perception of physical differences. It has been proposed that out-group discrimination is a biologically driven process, stemming from an evolved preference to place greater trust in people who appear to be similar to us than those who appear to be different (Brewer, 1999). Computer generated models of human evolution have supported that identifying and discriminating against out-group members who could have different values and customs may have been a necessary component of protecting one's in-group and promoting in-group cooperation (Hammond & Axelrod, 2006). The consistency of racially based out-group discrimination incited by instances of interracial mating, marriage, and reproduction is an especially well

documented phenomenon (Killian, 2003; Yancey, 2007). And the documentation of infants preferring the faces of their own race certainly points to the influence of an innately driven preference; although, a higher degree of familiarity with one's own race may also contribute to the explanation of this behavior. Essentially, the emphasis of racial and ethnic discrimination in the literature can lead to a view that people discriminate against those who look physically different; however, using racial differences in isolation to explain out-group discrimination is an oversimplification that underestimates the contribution of social and cultural factors.

The very concept of race itself is often defined by social and cultural distinctions (for reviews, see Fish, 2002; Smedley & Smedley, 2005). An extreme, but very well known example is the Hutu/Tutsi Rwandan genocide of 1994. The majority of Rwandan's believed at the time that multiple races existed in their country and that the genocide was being committed along racial boundaries that corresponded to physical differences between the groups. However, most current histories question the existence of racial differences, and propose that the group distinctions were either artificially imposed or that differences in social groups were exacerbated when the area was made into a colony (see Zorbas, 2004 for a review). Most of the discussion on race in the United States focuses on Black and White individuals where more recognizable physical distinctions exist than in other parts of the world; however, because of its unique history of immigration, the United States is an exception and not the norm. In many areas of the world where out-group discrimination takes place the distinctions between in-group and out-group are influenced by race and ethnicity, but also by a host of social, cultural, and historical factors.

An empirical examination of the influence of social factors on the perception of out-groups was illustrated by Singh and colleagues (2008). These authors examined the effects of priming out-group discrimination in the racially diverse nation of Singapore. The participants were of mixed racial makeup (Chinese and Malay). Although all of the participants were from Singapore, the study looked at discriminatory attitudes between Singapore and Malaysia. Priming involved having the participants read a newspaper article that either primed for cooperation or competition between the two nations. After priming cooperation or competition, the participants were then asked to rate the attractiveness and competence of a stranger who was either racially and nationally the same, racially the same and nationally different, racially different and nationally the same, or racially and nationally different. When national competition was primed, the participants rated members of their own nationality (Singapore) as being significantly more attractive and competent than members of the out-group nationality (Malaysia). Singh and colleagues (2008) found no significant differences based on race for either attractiveness or competence. However, when national cooperation was primed, the participants tended to rate members of their own racial group as more attractive than those of the other racial group. In this case, nationality did not have an effect on the ratings of attractiveness. There were also no significant differences for ratings of competence based on either the nationality or race of the participants. The results of this study demonstrate that the formation of a socially contrived in-group can override the influence of a more physiologically derived in-group when specific social pressures are made relevant.

Gender is another issue that seems to have a unique influence on out-group discrimination. Essentially, this is a rare area where out-group favoritism often occurs. Men tend to favor women. It has been found that both men and women tend to evaluate women more positively than men (Eagly, Mladinic, & Otto, 1991), and women are typically the recipients of help and assistance more often than men (Eagly & Crowley, 1986). In studies examining the allocation of medical resources, women also tend to receive better allocations (Furnham, 1996; Furnham et al., 1998). When gender is not being used as grouping criteria, research indicates that neither gender is more likely to engage in out-group discrimination (Hughes & Tuch, 2003). Regarding facial expression, women tend to smile more frequently than men, (LaFrance, Hecht, & Paluck, 2003), and evidence suggests that this is due to the social expectation that it is more important for women to adhere to social norms (Hess, Adams, & Kleck, 2005). Essentially, women tend to be seen in a more positive light, yet they do not differ from men in terms of a tendency to demonstrate discrimination against out-groups when gender is not a factor.

Black/White Out-group Discrimination in America

This study will focus specifically on out-group discrimination between Black and White Americans. Discrimination between these groups has been well documented to occur in both directions. White Americans show out-group discrimination against Black Americans (Dovidio et al., 1997; McConnell et al., 2008), and Black Americans show out-group discrimination against White Americans (Liu et al., 1995). Members of the two groups have been shown to hold negative perceptions of each other. For example, Zebrowitz and colleagues (2007) required Black and White participants to rate photographs of Black and White men and women across a number of different attributes.

Their findings were congruent with a pattern of out-group discrimination. Specifically, the participants each rated members of the out-group as less likable, less competent, and more dangerous than members of their in-group. In regard to how the two groups behave toward each other, a literature review of 43 studies on helping behavior indicated that Black and White Americans both demonstrate out-group discrimination when they are placed in situations that require them to help out-group members (Crosby et al., 1980). Despite these findings, there appears to be a prevailing social attitude that out-group discrimination between these two groups has diminished in recent years. The bulk of this discussion has focused on a reduction in anti-Black racism, and this position is supported by some empirical investigations (e.g., Madon et al., 2001; also see Utsey, Ponterotto, & Porter, 2008 for a review).

Several researchers, such as Altemeyer (2006) and McConahay (1986) have hypothesized that a desire not to appear racist has reduced explicit displays of anti-Black discrimination; however, this prejudice can still be observed through other means such as implicit measures. The literature has confirmed that such a contrast may exist. Implicit and explicit accounts of anti-Black prejudice and discrimination have been shown to be inconsistent with each other (Baron & Banaji, 2006; Cunningham et al., 2004; Devos & Banaji, 2005; Dovidio et al., 2002). Implicit measures have been demonstrated to be valid indicators of prejudice (Heider & Skowronski, 2007) and they have been demonstrated to coincide with culturally observed patterns of out-group discrimination (Gawronski, 2002). McConahay (1986) proposed that White Americans still hold many beliefs that are consistent with out-group discrimination, yet they attempt to refrain from exhibiting these beliefs and behaviors in ways that are publicly observable. This construct, which has

been labeled “modern racism,” appears to be at least partially driven by feelings of guilt relating to not adhering to appropriate social norms (Zuwerink, Devine, Monteith, & Cook, 1996). In addition to implicit investigations, several other lines of research, that do not target verbal accounts, also add support to the concept of modern racism. For example, examinations of brain activity (Chiu et al., 2004), non-verbal behavior (see Crosby et al., 1980 for a review), facial electromyography (EMG) markers of experiencing negative affect (Vanman, Paul, Ito, & Miller, 1997), and amygdala activation (Cunningham et al., 2004) all seem to confirm that anti-Black out-group discrimination still exists. In summary, implicit as well as several other lines of research support the existence of modern racism; although explicit accounts of racism may have decreased in recent years, anti-Black out-group discrimination can still be observed through other means.

The recent shift from explicit to implicit displays of prejudice by White Americans is not the only factor influencing anti-Black out-group discrimination. White Americans hold several negative stereotypes of Black Americans. Stereotypes are simplified depictions of out-group members that tend to over emphasize specific traits while diminishing others. Stereotypes can be positive; however, many of the stereotypes that White Americans hold of Black Americans are negative. The interaction between out-group discrimination and these stereotypes often leads to specific and fairly predictable perceptions of Black Americans. For example, negative stereotypes of Black men include depictions of aggression, violence, and criminal behavior (Harrison & Esqueda, 2001; Quillian & Pager, 2001). These stereotypes of increased violence have been shown to negatively affect the way that Black men are viewed and treated by White

Americans and the way that they view themselves (Dottolo & Stewart, 2008; Quillian & Pager, 2001). The interaction between out-group discrimination and the violent stereotypes of Black men can serve as a barrier to contact with this demographic, and this stereotype has the potential to become especially damaging to Black men in legal situations (Harrison & Esqueda, 2001) and assessments of criminal activity (Greenwald, Oakes, & Hoffman, 2003). Although they are not as well documented as the stereotypes of Black men, the stereotypes of Black women also tend to be negative. These stereotypes have included depictions of hyper-sexuality and dependence on welfare (Brown-Givens & Monahan, 2005; Monahan, Shtrulis, & Brown-Givens, 2005), and these stereotypes have been shown to have a negative impact on the feelings and behaviors of Black women (Childs, 2005). To reiterate, the stereotypes of Black Americans have been documented to play a very consistent and potent role in shaping how this demographic is perceived by others.

Facial Expression

One of the major reasons that facial expression may influence out-group discrimination is the level of stability with which facial expressions are displayed both within and across cultures. Facial expressions are the arrangement of various facial muscles into uniform stereotyped positions that have been associated with various emotions. For example, smiles involve three major muscles: the *zygomaticus major*, the *orbicularis oculi*, and the *pars lateralis* (Ekman & Davidson, 1993). These muscles have been demonstrated to move in a highly mechanized fashion, assuming set positions for specific amounts of time (Frank, Ekman, & Friesen, 1993). There are relatively limited individual differences in the expression of various emotions; the anatomy associated with

facial expressions has been demonstrated to be remarkably uniform across different people. There exist considerable individual differences in the development of human muscles including facial muscles, yet the muscles involved in facial expression show very little variation compared to other muscles (Waller, Cray, & Burrows, 2008). Further evidence demonstrating that facial expressions are universal displays comes from cross cultural studies of emotion that have demonstrated a link between various emotions and corresponding facial expressions (Matsumoto & Willingham, 2006; also see Ekman, 1992; or Ekman & Oster, 1979 for a review). Smiles have also been associated with self-reports of positive emotion (Laird, 1974). Another associated finding is that not only do various cultures tend to exhibit the same emotions, but the recognition of various emotions also tends to be stable across cultures (Krauss, Curran, & Ferleger, 1983). It should be noted that many of the features associated with facial expressions are influenced by culture. Research indicates that the magnitude and duration of various facial expressions change from culture to culture (Camras, Chen, Bakeman, Norris, & Cain, 2006). Elfenbein, Beaupre, Le'vesque, and Hess (2007) found remarkable similarities between the facial expressions of individuals in Quebec, Canada and the nation of Gabon; however, they also found minor variations involving such things as posture and head position. They described these minor differences through the analogy of "dialects." Ekman, (1992) discusses cross cultural differences in terms of what he labels "display rules" (p. 34). Display rules are internalized expectations of which facial expressions are appropriate in a given context. For example, smiling at a funeral would violate a display rule in many parts of the United States. Although many of the features associated with facial expressions have been shown to vary depending on culture, the

type of emotion displayed has been demonstrated to be remarkably stable. In summary, facial expressions have been found to be remarkably stable stereotyped displays of emotion that seem to be both displayed and interpreted in a very uniform manner across various cultures.

In addition to reaching across cultures, facial expressions appear to be a form of communication that influences the emotions and behaviors of others. Facial expressions have been hypothesized to promote group cohesion (Philippot, Yabar, & Bourgeois, 2007). Evidence for this hypothesis comes from studies demonstrating that facial expressions occur more often in the presence of others than in isolation (Ansfield, 2007; Jakobs, Manstead, & Fischer, 1999). Possibly the two most influential facial expressions, and the two most well studied, are smiles and frowns. Smiling has been demonstrated to increase the positive perception of individuals, leading others to rate smiling individuals more positively than non-smiling individuals (Otta et al., 1994). This effect has been observed at an implicit level. Baldwin, Carrell, and Lopez (1990) found that subliminally exposing individuals to a smiling face positively affected self-evaluations, whereas subliminally exposing individuals to a frowning face negatively affected self-evaluations. Seeing smiles and frowns does have an effect on the observers' emotions, yet observing facial expressions seems to evoke distinct appraisals of the entities linked to the facial expressions that are specific beyond broad emotional reactions. One group of researchers found that viewing frowns actually led to increased evaluations of personal performance when these frowns were subliminally imposed over the performance of a competitor (Tamir, Robinson, Clore, Martin, & Whitaker, 2004). The participants rated their own performance higher when a frown was linked to the performance of their competitor. As

a whole, this research supports the notion that facial expressions, specifically smiles and frowns, are forms of communication that have a meaningful effect on human emotions and behavior.

One of the most important effects with regard to the current study is the ability of facial expression to increase trust, a construct which is typically decreased as a product of out-group discrimination (Voci, 2006). One of the best documentations is Krumhuber and colleagues' (2007) examination of the impact of facial expression on the selection of partners for a trust game. Participants watched short video clips of each possible partner before choosing. In the game there was a dichotomous trust or not to trust decision involving the investment of a monetary amount with the other person. The variable of interest was the facial expressions of the people in the videos. Individuals in the videos exhibited a neutral facial expression, a genuine smile, or a non-genuine smile.

Genuineness of the smiles was determined by the duration of time that the smile was held and the duration of the apex of the smile. Genuine smiles were held longer with a shorter apex. The results indicated that approximately 60% of the participants chose to play the trust game with a person who was genuinely smiling. Approximately a third chose to play with someone who was exhibiting a non-genuine smile, and approximately 6% chose to play with someone who had a neutral expression. A similar pattern was observed when the participants were asked to rate aspects of trustworthiness via questionnaire. The videos containing the genuine smiles were rated highest, the videos containing the non-genuine smiles were rated second highest, and the videos containing the neutral expressions were rated lowest. This lack of preference for people who exhibit neutral facial expressions has also been seen in previous research (Forbes & Jackson, 1980).

These studies illustrate the ability of smiles, whether genuine or not, to generate a perception of trustworthiness.

Interestingly, some evidence suggests that smiling may actually be linked to trustworthiness. Porter, Doucette, Woodsworth, Earle, and MacNeil (2008) conducted an examination of the differences between non-criminals and criminals in behaviors associated with lying. They asked a sample of college students and a sample of criminal offenders to tell four stories relating emotional events. Two of these stories were to be true stories from their lives and the other two were to be lies. The sessions were then videotaped and raters coded them across nonverbal behaviors, such as head nodding, hand gestures, and smiling; and across verbal behaviors, such as number of pauses, rate of speech, and number of details included in their stories. One of their findings was that the criminal offenders smiled significantly less when lying than did the college students. The authors offered two interpretations of this result. The first was that the criminals were more experienced with manipulating people and deliberately attempted to appear more serious. The second was that lying was associated with more stress for criminals and this increased association with stress interfered with the criminals' ability to smile. Although both groups were telling lies in this study, individuals typically have more to fear from the lies told by criminals than by non-criminals. The fact that criminals smile less when they lie, and people associate a lack of smiling with diminished trustworthiness may represent a very adaptive perceptual ability.

Another study examining the effect of facial expression and goodwill was conducted by Clark (2008). This study examined the effect of facial expressions in an internet infomercial asking for charitable contributions. The infomercials contained the

photograph of either a Black or a White man and a verbal message that was identical across all conditions. The facial expressions of the two men in the photographs varied (i.e., smiling, neutral affect, or frowning). The participants were divided by race so that Black individuals viewed Black targets, and White individuals viewed White targets. The participants only viewed one video and rated it across a number of attributes. Large mean differences were found in the sample of Black individuals. The infomercial containing the smiling target was rated as significantly more effective than the infomercial containing the neutral or frowning targets. No significant differences were found in the sample of White individuals. However, there were trends which were approaching significance in the opposite direction. The White participants tended to rate the infomercial containing the frowning target as being more effective than either the neutral or smiling targets. Unfortunately, the generalizability of the results from this study is limited by the fact that participants only saw a single individual as the target and by the lack of ratings by the out-group.

The Effect of Facial Expression on Out-group Discrimination

As previously discussed, social processes seem to be some of the causal factors leading to out-group discrimination, and facial expressions seem to be a component of these processes. Although significant research exists on both the topics of facial expression and out-group discrimination, very little research exists examining the influence of one topic on the other, but the research that does exist suggests a relationship. A smile possesses several characteristics that may enable it to reduce out-group discrimination. First, smiling has been hypothesized to be a means of promoting and maintaining group cohesion (Johnson & Fredrickson, 2005; Voci, 2006). Significant

research exists in support of this point. The literature has shown that individuals typically smile more when engaging in tasks with their in-group than with out-group members (Vanman et al., 1997), and they believe that other members of their in-group smile more than out-group members (Beaupre & Hess, 2003). The frequency of smiling between group members may act as a means of maintaining harmony within the group by communicating approval and positive affect. Viewing smiling faces also seems to influence the perception of group membership. A study by Hugenberg and Bodenhausen (2004) found that White participants were more apt to categorize racially indistinct male faces as Black as opposed to White when the faces held an expression of anger. This pattern disappeared when the faces were smiling. Taken as a whole, this research adds support to the hypothesis that smiling may promote group cohesion. The second characteristic of a smile that may enable it to reduce out-group discrimination is its apparent capacity to generate a halo effect (Krumhuber et al., 2007; Mehu, Little, & Dunbar, 2007). The term halo effect refers to a general increase in positive perception due to the possession of a single positive trait. The literature has shown that if an individual is recognized as possessing one positive attribute, he or she is then likely to be perceived by others as possessing a host of other, often unrelated, positive attributes (Fink, Neave, Manning, & Grammer, 2006; Mulford, Orbell, Shatto, & Stockard, 1998; Surawski & Ossoff, 2006). As a general rule, smiling individuals are received more favorably than non-smiling individuals regardless of the criteria which are being assessed. The third relevant characteristic of a smile is its ability to reduce threat. People are more attentive to members of out-group races and to negative emotions; this finding has been theorized to be a result of sensitivity to the detection of threat (Kubota & Ito,

2007). However, people's tendency to pay greater attention to out-group faces has been shown to disappear when members of the out-group are smiling (Richeson & Trawalter, 2008). Fourth, people are conditioned to smile in response to viewing a smiling face, and even if the face is not smiling directly at them, they are still conditioned to smile (Schilbach, Eickhoff, Mojzisch, & Vogeley, 2008; Sloan, Bradley, Dimoulas, & Lang, 2002; Wild, Erb, Eyb, Bartels, & Grodd, 2003). The ability of smiling to induce a smile response in others may influence out-group discrimination in a number of ways. Most directly, research has shown that when people are induced to smile at members of their out-group, they show less out-group discrimination against them (Ito et al., 2006). Smiling correlates with an increase in positive affect (Laird, 1974), and positive affect has been shown to influence out-group discrimination. The literature on social dynamics and cognitive associations has shown that people increase discriminatory patterns of thought when negative emotions are activated and decrease discriminatory patterns of thought when positive emotions are activated (Ric, 2004). These characteristics may allow smiles to disrupt the social processes associated with out-group discrimination.

If smiles do disrupt these social processes, then this disruption should be observable at a neurological as well as a behavioral level, and some evidence suggests that it is. Neurological research has confirmed that smiles do influence the regional brain activity associated with out-group discrimination. Chiu and colleagues (2004) divided participants (33 White participants and 2 Asian participants) into two groups composed of low and high prejudice individuals. These classifications were made based on the participants' explicit responses to a questionnaire. The participants were shown pictures of angry White and Black faces, as well as smiling White and Black faces. They were

then asked whether they would like to work with the person in the photograph. The participants' reaction times in answering whether they would enjoy working with the person in the photograph were recorded as well as their contingent negative variation (CNV). The term CNV is a measure of electroencephalogram (EEG) activity that is monitored across 10 sites believed to produce a measure of neural activity designated towards the suppression of lower brain regions. Increased CNV and longer reaction times have both been associated with the suppression of automatic responses. The authors indicated with symbols whether the next photograph would be a smiling or frowning Black or White individual. This technique was used to amplify the EEG data; however, it revealed the purpose of the study, and as a result the participants' responses to whether they would like to work with the targets were given very little attention. When reaction times were analyzed, the authors found that individuals who exhibited a low level of explicit prejudice demonstrated longer reaction times when looking at angry Black faces, compared to individuals who exhibited a high level of explicit prejudice. Because longer reaction times are associated with the suppression of automatic responses, the authors concluded that the low explicit prejudice participants were suppressing discriminatory responses. However, this difference in reaction times disappeared when the Black targets were smiling. The low and high prejudiced individuals did not differ in reaction time. In fact, the only significant difference that was found was for the angry Black faces. A similar pattern was observed for the CNV data. The low prejudiced individuals showed the highest level of CNV activity when viewing a frowning Black face, and the high prejudiced group showed the highest level of activation for smiling White faces. The authors drew several conclusions from this study, the most notable was that prejudiced

reactions occur in low prejudiced individuals, but they work to suppress them. The second was that the facial expression of out-group members affects the way others view them. One interpretation of these results is that at a neurological level, smiling appears to off-set automatic tendencies to discriminate against out-groups.

Although the study deals more with out-group perception than with out-group discrimination, Beaupre and Hess (2003) provide a powerful documentation of the perception of facial expression within in-group and out-group members. These authors asked White, Black, and Asian Canadian participants to listen to a story and attribute a facial expression to the person in the story. The stories were emotionally neutral in nature, such as a story of a person walking to a grocery store. The protagonist of the story was White, Black, or Asian. After the story finished, the participants were shown multiple pictures of the story's protagonist. These pictures varied by facial expression. The results indicated that the participants chose a smiling face more often when they were shown a protagonist that belonged to their racial in-group, but they chose a neutral face more often when they were shown a protagonist belonging to their racial out-group. The results suggest that individuals believe that in-group members smile more frequently than out-group members.

Resource Allocation

The study of resource allocation examines the strategic methods people use to distribute materials and energy to alternative or competing sources. This area of study has existed since the work of Dodge (1918) and has diversified to include examinations of how people distribute cognitive resources such as memory and attention (Gray, Sims, Fu, & Schoelles, 2006; Smiler, Gagne, & Stine-Morrow, 2003), their money (Rieskamp,

Busemeyer, & Laine, 2003), medical resources to those in need (Furnham & Briggs, 1993), financial resources to the needy (Furnham & McClelland, 2004), and the parental distribution of resources to their offspring (Hertwig, Davis, & Sulloway, 2002). Regardless of the type of resource, the basic rules which govern allocation are the same, and they are contingent on the type of resource being allocated. If the resource is owned by the individual, or represents the potential of being owned, such as attention or money; then people try to maximize the productivity or output of their allocation choices, and learning effects have been shown to govern the decision making process (Rieskamp et al., 2003). The dynamics are different if people are allocating resources among other people in situations where there is nothing to be gained for the person who is doing the allocating. This category of resource allocation relates more closely to the design of the current studies. Examples of this form of resource allocation include distributing medical or financial resources among others. Allocation choices of this nature often lack a feedback loop to report to the allocator how effective their choices were, thus learning effects which take place during the study are not present. The mechanisms of action that determine how resources are allocated in these situations are personal values about what is fair. The justice heuristic, equity heuristic, and prejudice are typically all involved and often in conflict (Diekmann, Samuels, Ross, & Bazerman, 1997; Hertwig et al., 2002; Jost & Azzi, 1996). It should be noted that these sorts of questions have been studied by a number of fields across several years and the terminologies that authors have used to describe their ideas have differed. Currently, the justice heuristic is defined as the idea that individuals should receive resources in proportion to their need or contribution. The equity heuristic is the idea that all parties who participate in an event deserve similar or

equal resources. Prejudice enters into this process when people begin attributing resources based on the recipient's characteristics and not the recipient's performance or contribution, or the structure of the task. The study of resource allocation is very broad; however, for the current study it is important to recognize that the research has identified a difference in the psychological mechanisms that govern the way people allocate their own resources and the way they allocate resources to groups. When people allocate resources to groups, some combination of the justice heuristic, the equity heuristic, and prejudice are typically set against each other.

Recent studies, focusing specifically on the conflict between the justice and equity heuristics, have demonstrated that people typically try to find a compromise between the two, a balance that Singh, Chong, Leow, and Tan (2002) refer to as "ordinal equity" (p. 21). This balance tends to be influenced by culture. For example, the Western portrayal of ordinal equity tends to lean toward the justice heuristic; in contrast the Eastern portrayal of ordinal equity tends to lean toward the equality heuristic (see Singh et al., 2002 for a review). Ordinal equity is also influenced by whether people are allocating to individuals or to groups, and by the type of resource being allocated. Jost and Azzi (1996) found that people tend to think differently about what is fair when they are allocating resources to groups or to individuals. This distinction is linked to whether the resource is a symbol of social power or one that is used by people. Resources of social power tend to be allocated in closer alignment with the justice heuristic between groups regardless of the size of the group. However, resources of individual use are allocated in closer alignment with the equality heuristic. Essentially, they demonstrated that people's notion of fairness differs based on what the resource being allocated is and

to whom it is being allocated. Understanding the conflict between the equity and justice heuristics is essential to understanding resource allocation, and currently it appears that several factors interact with these heuristics to influence choices.

Prejudice may be the most documented influence on resource allocation (see Furnham & McClelland, 2004 for a review). For instance, in resource allocation tasks people have been shown to discriminate against: the mentally ill (Furnham & McClelland, 2004), men (Furnham, 1996; Furnham & Briggs, 1993; Furnham et al., 1998), the elderly, (Furnham & Briggs, 1993), foreigners (Sanchez-Mazas et al., 1994), members of the opposite political party (Furnham, 1996), persons who identify themselves as gay or lesbian (Furnham, Ariffin, & McClelland, 2007), and the rich (Furnham et al., 1998). The only authors to examine the effects on race and resource allocation in the United States were Murphy-Berman, Berman, and Campbell (1998). They examined a sample of college students and did not list the race of the participants so conclusions regarding out-group discrimination cannot be made. Their general results were that Black individuals were discriminated against only when they were also unemployed. When individuals self-report their motivations for resource allocation they rarely list prejudice as an influence but Hertwig and colleagues (2002) have proposed that even when people's motivations are highly influenced by heuristics related to fairness, their behavior often may be biased over long periods of time. Other research has confirmed that prejudice often has an implicit influence that may not be easily observable (McConnell & Leibold, 2001). In summary, prejudice is a well documented and very powerful influence on resource allocation; individuals are not always aware of their prejudice, but research has confirmed that it plays a large role in resource allocation.

CHAPTER II

STUDY 1 OVERVIEW AND PREDICTIONS

The purpose of Study 1 was to determine if the facial expression of smiling could mitigate the effects of out-group discrimination. Based on the body of research reviewed, this study made 5 hypotheses: (a) smiling will negate the effects of out-group discrimination, (b) smiling targets will be treated more favorably than frowning targets, (c) female targets will be treated more favorably than male targets, (d) frowning Black male targets will be treated less favorably than all the other groups, and (e) frowning Black male targets will be treated less favorably than all the other groups, and this effect will be stronger for the White participants than for the Black participants. To test these hypotheses, the study required Black and White participants to view groups of targets, which were arrays of photographs of Black and White individuals. The participants were asked to imagine that these arrays of photographs represented groups of students who worked together on a class project. The arrays were counterbalanced by race, gender, and facial expression, so that each array contained a smiling man and woman of each race and a frowning man and woman of each race. The participants were then asked to allocate extra credit points to the targets. For the purpose of testing the first hypothesis, this study operationally defined out-group discrimination as the allocation of a significantly higher number of extra credit points to in-group than to out-group targets. It was hypothesized that out-group discrimination would emerge when the frowning targets were analyzed. This means that the White participants would allocate significantly more extra credit to the frowning White targets than to the frowning Black targets, and that the Black participants would allocate significantly more extra credit to the frowning Black targets

than to the frowning White targets. This pattern was hypothesized to disappear for the smiling targets. This means that the White participants would allocate equal extra credit to smiling White and smiling Black targets, and the Black participants would allocate equal extra credit to smiling White and smiling Black targets. This hypothesis is supported by research demonstrating that smiling at an out-group member induces a more positive perception of that out-group (Ito et al., 2006) and that viewing a smiling out-group member reduces regional brain activity associated with out-group discrimination (Chiu et al., 2004).

For the purpose of testing the remaining four hypotheses, this study operationally defined the favorable treatment of a group as receiving greater allocations in comparison with a contrasting group or groups. This means the second hypothesis predicted that the smiling targets would receive more extra credit points than the frowning targets from both the Black and White participants. This hypothesis is supported by research demonstrating that smiling individuals typically receive more favorable evaluations than non-smiling individuals (Otta et al., 1994). Research that supports this hypothesis is extensive; as a result this hypothesis was included as a manipulation check to ensure the validity of the procedure.

The third hypothesis predicted that the female targets would receive more extra credit than the male targets from both the Black and White participants. This hypothesis is supported by research indicating that women typically receive more positive evaluations than men (Eagly et al., 1991), and women typically receive more help and assistance than men (Eagly & Crowley, 1986). As with the second hypothesis, the third

hypothesis is well supported in the literature and was again included as a manipulation check to ensure the validity of the procedure.

The fourth hypothesis predicted that the frowning Black male targets would receive fewer extra credit points than the other seven target conditions from both the Black and White participants. This hypothesis is supported by literature demonstrating that the act of bringing stereotypes into awareness leads to discriminatory behavior (Brown-Givens & Monahan, 2005; Monahan et al., 2005). Black men are stereotypically depicted as being hostile (Harrison & Esqueda, 2001; Quillian & Pager, 2001). The facial expression of frowning is associated with dissatisfaction and disapproval (Baldwin et al., 1990), and the combination of frowning in conjunction with the violent stereotype of Black men is expected to bring this stereotype to mind and consequently lead to the least favorable treatment.

The fifth hypothesis predicted that the frowning Black male targets would receive fewer extra credit points than the other seven target conditions from the Black participants, yet they would receive even fewer extra credit points from the White participants. This hypothesis is supported by literature documenting the effects of out-group discrimination by White Americans against Black Americans (McConnell et al., 2008). Further, it is believed that viewing a frown, a facial expression communicating disapproval (Baldwin et al., 1990), in conjunction with stereotypes of violent Black men (Harrison & Esqueda, 2001; Quillian & Pager, 2001) will exacerbate the White participants' out-group discriminatory behavior.

CHAPTER III

STUDY 1 METHOD

Participants

The participants were 208 undergraduate students from a mid-sized southern university. Of the 208 participants, 6 participants' data were not included in the analyses due to an error in recoding their responses. Eight participants recoded their race as Hispanic, Asian, or listed themselves under multiple racial categories; as a result, their data were not included in the analyses. Nine participants were unable to complete the study as instructed; as a result their data were not included in the analyses. The data of the remaining 185 participants were included in the study. Sixteen of these participants made at least one counting error in allocating credit, the rounds which contained the errors were removed from analysis; however, the rest of the participants' data were not removed. Four of these participants allocated 4 points instead of 5 on 1 of the 10 arrays. Five participants allocated 6 points instead of 5 on 1 of the 10 arrays. Three participants allocated 6 points instead of 5 on 2 of the 10 arrays. Two participants allocated 7 points instead of 5 on 1 of the 10 arrays. One participant allocated 8 points instead of 5 on 1 of the 10 arrays, and another participant allocated 6 points instead of 5 on 1 of the 10 arrays and 4 points instead of 5 on 4 of the 10 arrays. These mistakes were considered to be accidents that resulted from the fact that the participant only had 30 seconds to make their allocation decision. As compensation for participating in the study, the participants received credits which either served to partially fulfill a class research requirement or acted as extra credit. There were 33 (18%) White men, 73 (39%) White women, 16 (9%) Black men, and 63 (34%) Black women. The mean age was 20.57 years, with a range of

18-59. Eleven (6%) people did not indicate their age. There were 81 (44%) freshman, 37 (20%) sophomores, 42 (23%) juniors, 25 (14%) seniors.

Materials

The photographs were produced by the Productive Aging Laboratory at the University of Texas in Dallas for the purpose of studying aging as well as other topics (Minear & Park, 2004). The photographs were originally taken as 2.0 mega pixel digital images, under neutral lighting conditions with flash photography by identical cameras. They were reformatted to 640 by 480 pixel images to make the clarity of the images more standardized. The participants were asked to display specific facial expressions, such as a smile. Multiple pictures were then taken of each individual. A total of 80 photographs of 80 different individuals were used in this experiment. There were 10 photographs of smiling White men, 10 of smiling Black men, 10 of smiling White women, 10 of smiling Black women, 10 of frowning White men, 10 of frowning Black men, 10 of frowning White women, and 10 of frowning Black women. The Microsoft PowerPoint program was used to display the 903 KB bitmap images on slides. See Figure 1 for an example of a slide. The slides were then displayed in classrooms by a digital video projector. The slideshows were viewed in the dark and expanded to approximately cover a square 1.5 by 1.5 meter projection screen.



Figure 1. Sample Slide of Targets from Study 1. This slide is from arrangement 4 array 7 of the PowerPoint presentation. The numbers in the upper left hand corner of each picture corresponded to the answer row on the participants' answer sheet. The label "Round 7" corresponded to the answer column. The number 30 located in the center of the slide was programmed to count down in 1 second increments from 30 to 1 to inform the participants how much time remained for them to make their allocation decisions.

These photographs were viewed eight at a time. The participants had 30 seconds to view the photographs and allocate points. All of the participants viewed the same photographs. However, the arrangement and ordering of the photographs differed. There were a total of nine different arrangements of the photographs. Each arrangement was composed of 10 arrays, and each array was composed of eight photographs. The arrangements were intended to be as random as possible to minimize order effects. The first step in this process was accomplished by assigning each photograph a random number via a computerized random number generator (www.random.org). The lowest

numbered photographs representing each race, gender, and facial expression were then included in the first array, the second lowest numbered photographs were included in the second array, and so on. These numbers were also utilized to determine the specific positioning of the photographs within the first array. The photographs were positioned by number starting at the top left position, then moving across and down. Therefore, the lowest number was positioned in the top left corner, and the highest number was positioned in bottom right corner. In the second array each position contained a photograph that was its opposite in regard to the independent variables (race, gender, facial expression). For example, the top left position which contained a frowning Black woman in the first array contained a smiling White man in the second array. In the third array, each condition was rotated one position to the left (i.e., in the second array a picture of a frowning White woman was top center, in the third array the picture of the frowning White woman was top left). In the fourth array, the conditions were reversed again, and in the fifth array they were rotated again to the left. This pattern of reversing the positions of the photographs across the variable conditions and then rotating them to the left continued through the remaining five arrays.

In the second and third arrangements, the specific photographs within each array remained the same; however, their positioning within the arrays differed, and the order in which the arrays were presented also differed. The order of the arrays was determined by random number assignment via a random number generator (www.random.org). Each array was assigned a number to determine its position in the second arrangement and a second number to determine its position in the third arrangement. For example, the first array in the first arrangement was the seventh array in the second arrangement and the

third array in the third arrangement. Within each array of the second arrangement, the photographs were rotated counterclockwise two positions. In the third array they were rotated clockwise two positions. Therefore, a photograph that was positioned in the top left corner of the first array would be positioned in the bottom left corner of the second array and the top right corner of the third array. These steps were taken to minimize ordering effects.

This entire process was repeated twice. To construct the fourth arrangement, the photographs were again assigned random numbers. The lowest numbered photographs representing each race, gender, and facial expression were then included in the first array, the second lowest numbered photographs were included in the second array, and so on. Arrays were constructed with new combinations of photographs to further minimize ordering effects. The positioning of the photographs was then determined by the process of reversing the positioning of the photographs across all three variable conditions and then rotating them one position to the left. The specific photographs within the individual arrays of the fifth and sixth arrangements remained the same as the sets used in the fourth array, but the positioning of the photographs within the arrays differed, and the order in which the arrays were presented also differed. The order of the arrays was again determined by random numbers. Within each array the position of the photographs was rearranged by rotating each photograph two spaces counterclockwise or clockwise respectively in the fifth and sixth arrangements.

This same process was repeated to generate the seventh, eighth, and ninth arrangements. This set process was thought to minimize ordering and positioning effects. By partially randomizing the presentations of photographs, but methodically rotating the

variable conditions across the positions, each variable condition was thought to receive adequate exposure to each position, while the ordering still appeared random enough to fit with the cover story.

Procedure

Participants were recruited from psychology classes. They signed-up for the study via an internet website, where a brief description of the study, times, location, and requirements for participation were provided.

Participants were run in groups of 5 to 16 at a time. Upon entering the classroom where the experiment was to take place, the experimenter explained the procedure by reading the following script:

You are about to view several series of photographs. If these photographs were taken of students who worked on a group project and earned extra credit points, how would you distribute the credit? You will be able to view eight photographs at a time. You will be able to assign five points of extra credit at a time, divided any way you choose across the eight people. However, you will only have 30 seconds to make your decisions. After 30 seconds, the first array of eight people will disappear and any credit not assigned will be lost. After you assign credit to the first array of eight people, a new array of eight people will appear, and you will again be asked to assign five points of extra credit. There will be a total of 10 arrays and each one will be composed of eight people. You will have 30 seconds to assign credit to each of the 10 arrays. Do you have any questions?

After the directions were explained, the experimenter answered any questions which arose in response to the instructions. After all questions were answered, the experimenter

began the experiment by dimming the lights and starting the slideshow. As the instructions indicated, the participants saw 10 different arrays of eight photographs for 30 seconds each. They allocated five points amongst the eight photographs of each array. The participants marked their allocation choices on their response forms. The arrays were numbered 1 through 10 on the response form. Before each array was shown, a slide indicating the number of the array was displayed for 2 seconds to help orientate the participants. The slideshow took exactly 5 minutes and 10 seconds. After the participants finished with this study, they then completed several other psychological measures which were not a part of this study.

CHAPTER IV

STUDY 1 RESULTS

A 2 X 2 X 2 within-subjects analysis of variance (ANOVA) was performed to examine point allocation by Target Facial Expression (smiling, frowning) by Target Gender (man, woman) by Target Race (White, Black). The ANOVA table can be seen in Appendix A, and the average allocations for each target condition are displayed in Figure 2. It should be noted that the results of a Kolmogorov-Smirnov test indicated that the assumption of normality had been violated. As a result a Friedman test with a post-hoc Wilcoxon signed-ranks test and a Bonferroni correction were performed. The results did not differ from that of the ANOVA, and therefore only the ANOVA results will be reported. There is an established precedence for this procedure (Furnham, 1996; Furnham, Simmons, & McClelland, 2000); ANOVA tends to be robust to violations of normality when a large enough sample is used (Stevens, 1996). The influence of extreme scores for specific photographs was also examined. The average points allocated to each photograph were calculated. An examination of the histogram indicated a bimodal distribution for the frowning and smiling targets. Outliers did not appear to be influencing the mean. In addition trimming the top and bottom 5% of scores only resulted in an overall mean change of .6253 to .6077 for an overall change of .0176. Therefore, outliers did not appear to be exerting a meaningful influence on the results. The main effects were significant for Target Facial Expression, $F(1, 184) = 1093.90, p < .001$, partial $\eta^2 = .86$, observed power = 1.00; Target Gender, $F(1, 184) = 39.26, p < .001$, partial $\eta^2 = .18$, observed power = 1.00; and Target Race, $F(1, 184) = 11.16, p < .01$, partial $\eta^2 = .06$, observed power = .91. These main effects indicate that the participants allocated more

points to the smiling targets ($M = 10.73$, $SD = 1.96$) than the frowning targets ($M = 1.62$, $SD = 1.84$), more points to the female targets ($M = 6.64$, $SD = 1.06$) than the male targets ($M = 5.70$, $SD = 1.07$), and more points to the Black targets ($M = 6.45$, $SD = 1.20$) than the White targets ($M = 5.89$, $SD = 1.18$).

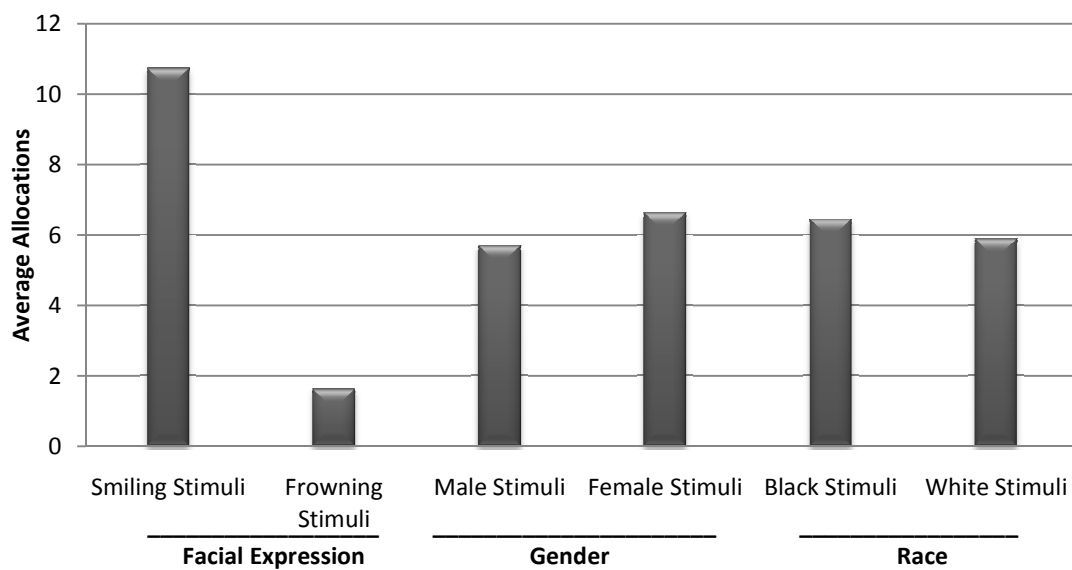


Figure 2. Mean Allocations Made to Target Conditions for Study 1. $N = 185$. Allocations made to each target condition, the values represent the average number of points allocated by all participants in Study 1.

These main effects for Target Facial Expression and Target Gender were qualified by a significant 2-way interaction, $F(1, 184) = 46.27$, $p < .001$, partial $\eta^2 = .20$, observed power = 1.00. The plots of this interaction can be seen in Figure 3. Follow-up pair-wise comparisons indicated a significant difference between the two genders when the targets were smiling, $t(1, 184) = 7.33$, $p < .001$. The smiling female targets ($M = 11.66$, $SD = 2.86$) received more points than the smiling male targets ($M = 9.79$, $SD = 2.34$), but no

significant differences were found between the frowning female targets ($M = 1.63$, $SD = 2.04$) and the frowning male targets ($M = 1.61$, $SD = 2.05$).

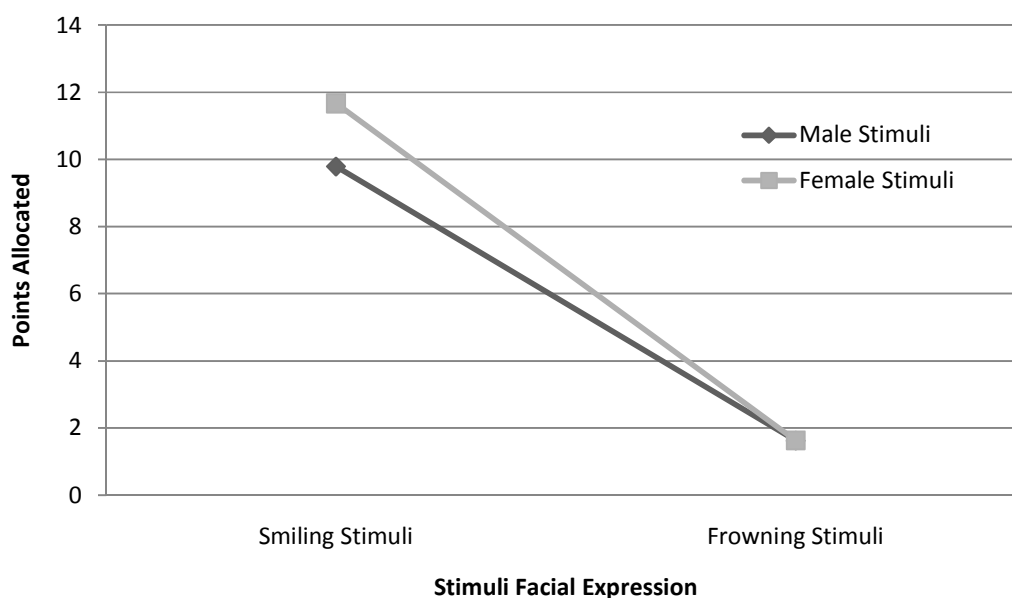


Figure 3. Target Gender by Target Expression Interaction for Study 1. The figure demonstrates that the smiling female targets received significantly more points than the smiling male targets. No differences were found between the number of points allocated to the frowning female targets and the frowning male targets.

The second analysis was a 2 X 2 X 2 mixed design ANOVA, that examined point allocation by the between-subjects factor of Perceiver Race (Black, White) by the within-subjects factors of Target Facial Expression (smiling, frowning) by Target Race (Black, White). The ANOVA table can be seen in Appendix A, and the average points allocated to the targets by the two races can be seen in Figure 4. Again, the data produced a significant main effect for the within-subject comparisons for Target Facial Expression, $F(1, 184) = 1067.29$, $p < .001$, partial $\eta^2 = .85$, observed power = 1.00; and for Target Race, $F(1, 184) = 18.38$, $p < .001$, partial $\eta^2 = .09$, observed power = .99. These main

effects indicate that the participants allocated more points to the smiling targets ($M = 10.73$, $SD = 1.96$) than the frowning targets ($M = 1.62$, $SD = 1.84$), and more points to the Black targets ($M = 6.45$, $SD = 1.20$) than the White targets ($M = 5.89$, $SD = 1.18$).

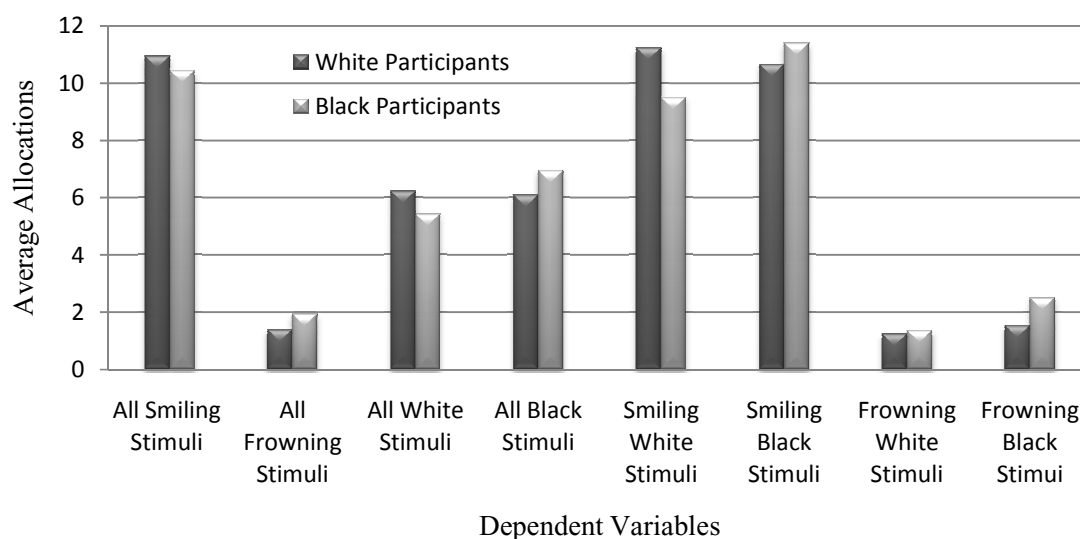


Figure 4. Mean Allocations Made to Target Conditions for Study 1 by Perceiver Race. $N = 185$. Allocations made to each targets condition by the Black and White participants.

However, the main effects were qualified by a 2-way and a 3-way interaction. The interaction between the Perceiver Race and Target Race was significant, $F(1, 184) = 26.91$, $p < .001$, partial $\eta^2 = .13$, observed power = .99. The plots of this interaction can be seen in Figure 5. Follow-up pair-wise comparisons indicated that the Black participants allocated a significantly larger number of points, $t(1, 78) = 5.80$, $p < .001$, to the Black targets ($M = 6.94$, $SD = 1.18$) than to the White targets ($M = 5.43$, $SD = 1.18$). The White participants' data revealed no significant differences, $t(1, 105) = .74$, $p = .463$, between the number of points allocated to the White targets ($M = 6.23$, $SD = 1.07$) and the Black targets ($M = 6.09$, $SD = 1.08$). The 3-way interaction was also significant, $F(1,$

184) = 8.34, $p < .01$, partial $\eta^2 = .04$, observed power = .82. The plots of this interaction can be seen in Figure 6. Follow-up pair-wise comparisons indicated that this interaction was driven by a difference between the two races in their allocation patterns to the smiling targets. Specifically, the Black participants allocated significantly more points, $t(1, 78) = 4.66$, $p < .001$, to the smiling Black targets ($M = 11.39$, $SD = 2.62$) than to the smiling White targets ($M = 9.50$, $SD = 2.71$), the White participants demonstrated a trend of allocating more points, $t(1, 105) = 1.70$, $p < .1$, to the smiling White targets ($M = 11.23$, $SD = 2.69$) than to the smiling Black targets ($M = 10.65$, $SD = 2.53$).

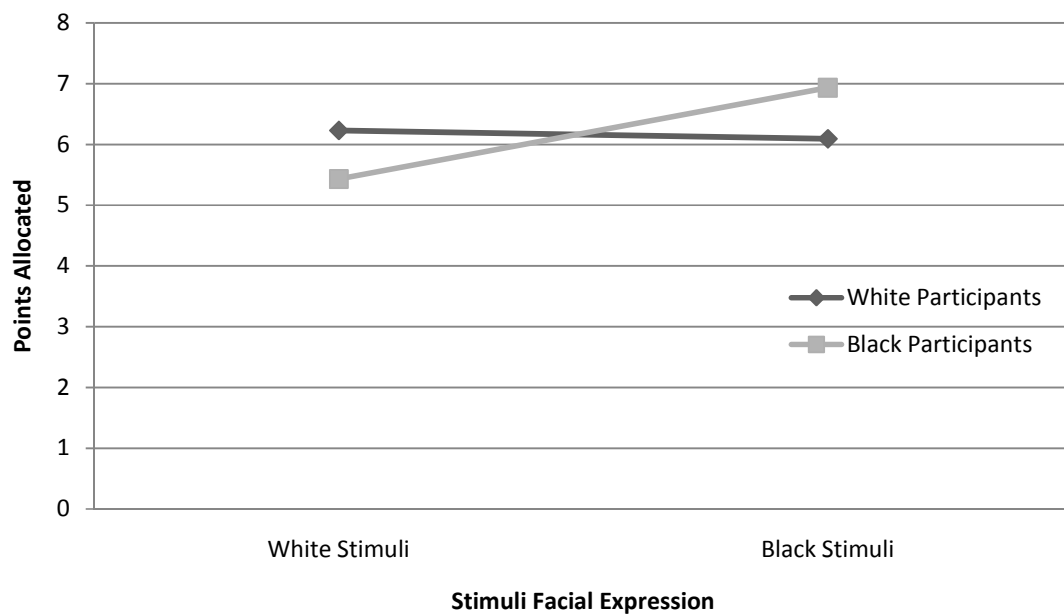


Figure 5. Perceiver Race by Target Race Interaction for Study 1. The figure illustrates that the Black participants allocated more points to the Black targets than to the White targets, while no significant differences were found for the White participants.

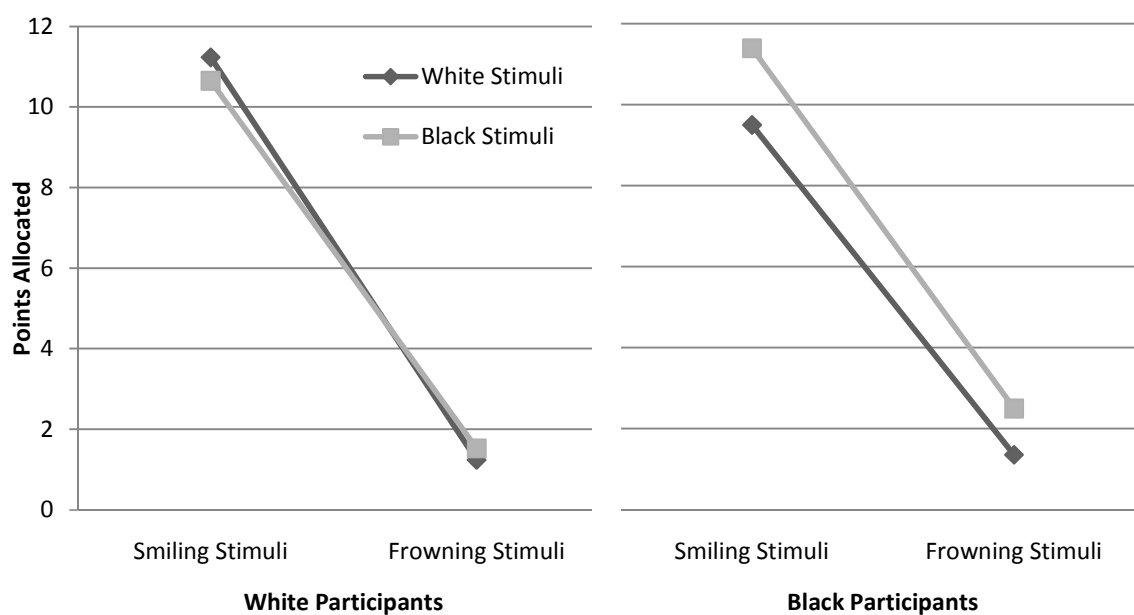


Figure 6. Perceiver Race by Target Facial Expression Interaction for Study 1. The figures illustrate the differences in the allocation patterns between the White and Black participants. The Black participants allocated more points to the smiling Black targets than to the smiling White targets. The White participants showed no significant differences between the number of points allocated to the smiling Black and smiling White targets. Both groups of participants allocated more points to the frowning Black targets than the frowning White targets.

Although the results indicated that the two races differed in their allocation patterns for the smiling targets, a complete evaluation of Hypothesis 1 (i.e., the two racial groups will demonstrate out-group discrimination when the targets are frowning, but group differences will disappear when the targets are smiling) required two additional planned pair-wise comparisons to assess the frowning targets after the 3-way interaction was found to be significant. The White participants allocated significantly more points, $t(1, 105) = 2.02, p < .05$, to the frowning Black targets ($M = 1.53, SD = 1.96$) than to the frowning White targets ($M = 1.24, SD = 1.93$). Similarly, the Black participants allocated significantly more points, $t(1, 78) = 4.21, p < .001$, to the frowning Black targets ($M = 2.50, SD = 2.49$) than to the frowning White targets ($M = 1.36, SD = 1.90$).

CHAPTER V

STUDY 1 DISCUSSION

Manipulation Checks

The findings from this study were consistent with the hypotheses that the smiling targets would receive more points than the frowning targets (Hypothesis 2) and that the female targets would receive more points than the male targets (Hypothesis 3). Both hypotheses were included in the current design as manipulation checks as they have both been consistently supported in the literature. For example, women are typically perceived more positively than men by both genders (Eagly et al., 1991) and they are more likely to be the recipients of help and assistance (Eagly & Crowley, 1986). They also tend to receive larger allocations of resources in resource allocation studies (Furnham, 1996; Furnham et al., 1998). Similarly, smiling individuals are perceived more positively than frowning individuals across a variety of traits (Otta et al., 1994), and individuals are more prone to desire interaction with those who are smiling (Krumhuber et al., 2007). The data supported both of these hypotheses. The smiling targets received more points than the frowning targets and the female targets received more points than the male targets. The effect size for smiling was remarkably large and its effects on the rest of the relationships found in the data will be discussed further because of the influence that it had on other hypotheses. The consistency between the current findings and previous research adds supports to the validity of the manipulation used in this study.

The Effect of Facial Expression on Out-group Discrimination

The goal of this study was to evaluate the hypothesis that out-group discrimination would be demonstrated against frowning out-group members, but not

against smiling out-group members (Hypothesis 1). The data did not support this hypothesis. Specifically, it was predicted that the participants would demonstrate out-group discrimination when allocating points to the frowning targets as evidenced by allocating a greater number of points to one's own race. It was also predicted that they would not demonstrate out-group discrimination when allocating points to the smiling targets as evidenced by allocating equal points to both races. To find support for this hypothesis the data would have had to first produce a significant Perceiver Race X Target Facial Expression X Target Race 3-way interaction, and follow-up pair-wise comparisons would have had to demonstrate existence of four relationships. The White participants would have had to allocate significantly more points to the frowning White targets than to the frowning Black targets. The Black participants would have had to allocate significantly more points to the frowning Black targets than to the frowning White targets, and neither group would have demonstrated significant differences in the number of points allocated to either racial group when the targets were smiling. This pattern was not found. Instead the Black participants showed out-group discrimination regardless of the facial expression of the targets, and the White participants showed no significant differences when the targets were smiling, but actually showed out-group favoritism when the targets were frowning. In other words, the White participants allocated more points to the frowning Black targets than to the frowning White targets. Essentially, facial expression had no effect on out-group discrimination for the Black participants, and the White participants demonstrated a very rare pattern of out-group favoritism for the frowning targets.

Allocation to the Black Male Targets

It was hypothesized that the frowning Black male targets would be allocated fewer points than the other groups (Hypothesis 4), and that they would be allocated even fewer points from the White participants than from the Black participants (Hypothesis 5). The hypothesis that the frowning Black men would be allocated fewer points than the other demographics was based on the stereotype literature. Black men are stereotypically depicted as being aggressive and threatening (Harrison & Esqueda, 2001), and this research has been linked to the perception of the individual as a whole (Greenwald et al., 2003) as well as to the perception of facial characteristics. For example, White Americans are more apt to classify racially indistinguishable faces as Black than White (Hugenberg & Bodenhausen, 2004). It was believed that viewing frowning Black male faces would bring this stereotype into active awareness. The awareness of this stereotype was thought to lead to the lowest overall attributions for frowning Black male targets, and the interaction of this stereotype in conjunction with the out-group discrimination expressed by the White participants was expected to lead to the lowest attributions of all. However, neither of these hypotheses was supported by the data. There was no significant interaction between the Target Facial Expression, Target Race, and Target Gender. The lack of a significant interaction negated the necessity of any follow-up analyses. However, both racial groups tended to favor the frowning Black targets over the frowning White targets.

Other Findings

Possibly the most interesting finding produced by the data of Study 1 is that the Black targets received more points than the White targets. The majority of the

participants in Study 1 were White, and racial groups typically demonstrate out-group discrimination. Taken together, this made it very unlikely that the Black targets would receive more points from the overall sample. The fact that the Black targets did receive more points than the White targets is a result of the effect size between the number of points allocated to the Black targets over the White targets by the Black participants. The White participants did not favor either racial group of targets, the Black participants tended to make greater allocations to their own race than did the White participants and this resulted in the Black targets receiving more allocations overall.

CHAPTER VI

STUDY 2 OVERVIEW AND PREDICTIONS

Overview and Predictions

Study 2 was designed for exploratory purposes. Study 2 was intended to explore the perceived characteristics of the targets that may have influenced the allocation decisions of the participants in Study 1. A new set of participants was used for Study 2 because it was believed that the allocation decisions of the participants in Study 1 would influence their ratings of the targets. In other words, participants may feel compelled to evaluate the targets consistently. The photographs were displayed on the internet. The participants viewed them one at a time and answered a series of questions about what they perceived the personality characteristics of the people in the photographs were like. Literature exists to support the influence of a number of different characteristics on allocation decisions. For instance, people tend to show a halo effect for physical attraction (e.g., Mulford et al., 1998; Surawski & Ossoff, 2006). Because no performance data were included in the design of Study 1, and the perception of the target's face was the only data on which decisions were to be based, it seemed probable that physical attraction would become especially relevant. Because the cover story for Study 1 asked participants to allocate extra credit points to students for a group project, it also seemed likely that traits related to academic achievement such as perceived intelligence would be relevant. A number of other perceived characteristics could have influenced the way that points were allocated. As a result, Study 2 looked at 15 different attributes. Specifically, correlations between the number of points allocated to different photographs in Study 1 and ratings of the photographs on the Big-Five personality dimensions of Extroversion,

Agreeableness, Conscientiousness, Emotional Stability, and Openness were examined. Correlations between number of points allocated and perceptions of Diligence, Dominance, Friendliness, Attractiveness, Genuineness, Unthreateningness, Similarity of Values, Intelligence, Approachability, and Trustworthiness were also examined.

Studies 1 and 2 were designed and conducted at the same time; however, the results of Study 1 influenced the expected results of Study 2. Much of the variance in Study 1 could be explained by the remarkably large effect size for smiling. Halo effects for smiling are well documented in the literature (Krumhuber et al., 2007; Mehu et al., 2007; Otta et al., 1994). Because of the large effect for smiling and the ability of smiling to generate a halo effect, which influences the perception of unrelated variables in a positive way, it was predicted that all of the variables examined in Study 2 would be positively correlated with the number of points allocated to the photographs in Study 1.

CHAPTER VII

STUDY 2 METHOD

Participants

The participants for the second study were 520 undergraduate psychology students from a midsized southern university. Of the 520 participants, 103 did not finish the experiment. Therefore, only the data of 417 participants were included in the analyses. As compensation for participating in the study, the participants received credits which either served to partially fulfill a class research requirement or acted as extra credit. There were 71 (17 %) White men, 177 (42 %) White women, 36 (9 %) Black men, 115 (28 %) Black women, and 18 (4 %) participants that did not fit into either racial category. The average age was 20.84 years of age with a range of 18-51 years of age.

Measures

The 10-Item Personality Inventory (TIPI; Gosling, Rentfrow, & Swann, 2003) is a brief measure of the Big-Five personality dimensions of Extroversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness. The scale is a self-report measure in which responders are asked to rate how well sets of adjectives describe them. There are two sets of adjectives that correspond to each of the Big-Five personality dimensions. Responses are made on a 7-point Likert-type scale, which is anchored at *strongly disagree* and *strongly agree*. Evidence of reliability is acceptable internal consistency. Chamorro-Premuzic, Bennett, and Furnham, (2007) identified Cronbach alphas of .59 for Extroversion, .67 for Agreeableness, .67 for Conscientiousness, .68 for Emotional Stability, and .56 for Openness. Further evidence of reliability is good 6-week test-retest reliability (average $r = .72$; Gosling et al., 2003). The Cronbach alphas for the current

study were .41 for Extroversion, .65 for Agreeableness, .62 for Conscientiousness, .62 for Emotional Stability, and .55 for Openness. Evidence of validity is significant correlations between subscales (Extroversion, Agreeableness, Conscientiousness, & Emotional Stability) and related measures of psychological functioning such as happiness and emotional intelligence (Chamorro-Premuzic et al., 2007). Further evidence of validity is good correlations between the subscales of the TIPI and another measure of the Big-Five personality dimensions, such as the Big-Five Inventory (BFI; John & Srivastava, 1999): Extroversion (.87), Agreeableness (.70), Conscientiousness (.75), Emotional Stability and (.81), and Openness (.65; Gosling et al., 2003). This questionnaire was modified to fit the current study. The instructions were changed so that the instrument would apply to the photographs that were being rated instead of asking the individuals to rate themselves. The prompt for the original instrument stated “I see myself as,” and then listed the sets of two adjectives. This version of the instrument showed a picture of a person, stated “This person is likely to be,” and then listed the sets of two adjectives.

A Photograph Perception Questionnaire was designed to assess for specific attributes which were hypothesized to influence the number of points attributed to the photographs in the first study. This questionnaire was designed to assess perceptions of Diligence, Dominance, Friendliness, Attractiveness, Genuineness, Unthreateningness, Similarity of Values, Intelligence, Approachability, and Trustworthiness. The prompt was the same for all 10 items. It was: “This person is likely to be...” Only the response options differed. The participants were required to respond using a 5-point Likert-type scale. The anchors for the 10 items were: Hardworking-Lazy, Dominant-Submissive, Friendly-Hostile, Attractive-Unattractive, Genuine-Not Genuine, Threatening-

Nonthreatening, Values are similar to mine-Values are different than mine, Very Intelligent-Not Intelligent, Someone I would like to meet-Someone I would not like to meet, Trustworthy-Untrustworthy.

Procedure

This study was conducted to examine the perceived characteristics of the photographs that were used as targets in the first study and to explore what perceived characteristics may have influenced the number of points that were allocated to them. This study was conducted by displaying the photographs on the internet (www.surveymonkey.com) and having participants rate them across several characteristics.

The psychology students who chose to participate in this study signed-up for this experiment online, where a brief description of the study and a hyperlink granting access to the website where the study was displayed were provided. The participants signed an online consent form.

The participants viewed the photographs one at a time, and rated a set of 26 or 27 photographs. This was approximately one-third of the total photographs used in Study 1. This number was chosen because it required approximately 30 minutes of the participants' time, a duration that was considered optimal for both recruitment and obtaining valid results. The order in which the photographs appeared was determined by random number assignment. A random number was assigned to each photograph (www.random.org) and the ordering of these photographs was based on that number. Every one or two days the photographs were either: given a new random number and rotated, or a new set of photographs was selected and displayed. The ordering of the

photographs was always different and always determined by random number assignment. A set of 20 items was displayed with each photograph. The first 10 were the 10-Item Personality Inventory (Gosling et al., 2003). The second 10 were from the Photograph Perception Questionnaire. After the participants responded to all 20 items, a hyperlink was displayed at the bottom of the webpage that took the participants to the next photograph in the set where they repeated the process of viewing the photograph and responding to items. After the final photograph was rated, the hyperlink took the participants to a page that thanked them for their participation and provided contact information for inquiries concerning participation and study results.

CHAPTER VIII

STUDY 2 RESULTS

The Relationship between Perceived Personality Characteristics and Allocations

To determine the relationship between the personality variables measured by these questionnaires and the number of points allocated in Study 1, a series of correlations was examined. The scores used for these correlations were obtained by taking the average number of points that each photograph received in Study 1 and correlating this score with the average ratings obtained in Study 2 for each of the five subscales of the 10-Item Personality Inventory (Extroversion, Agreeableness, Conscientiousness, Emotional Stability, & Openness) and the average ratings for each of the items on the Photograph Perception Questionnaire (Diligence, Dominance, Friendliness, Attractiveness, Genuineness, Unthreateningness, Similarity of Values, Intelligence, Approachability, and Trustworthiness). The descriptive statistics can be viewed in Table 1, and the correlations between the average number of points that a photograph received in Study 1 and the personality characteristics that were rated in Study 2 can be seen in Table 2, Spearman's ρ correlations can be seen in Appendix B. Due to the large number of correlations performed on the data, implementing a Bonferroni correction to reduce the probability of family-wise Type 1 error may technically be appropriate. However, as this study was designed to be exploratory in nature, a Bonferroni correction was not used, due to of the potential loss of information. Significant correlations were found between the number of points allocated in Study 1 and the Big-Five personality dimensions of Extraversion, $r(78) = .87, p < .001$, Agreeableness, $r(78) = .89, p < .001$, Conscientiousness, $r(78) = .91, p < .001$, Emotional

Stability, $r(78) = .91, p < .001$, and Openness, $r(78) = .93, p < .001$. This indicates that the number of points allocated to the targets in Study 1 was positively associated with the perception of Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness. Significant correlations were also found between the points allocated in Study 1 and the Photograph Perception Questionnaire variables of Diligence, $r(78) = .89, p < .001$, Friendliness, $r(78) = .90, p < .001$, Attractiveness, $r(78) = .86, p < .001$, Genuineness, $r(78) = .91, p < .001$, Unthreateningness, $r(78) = .75, p < .001$, Similarity of Values, $r(78) = .92, p < .001$, Intelligence, $r(78) = .90, p < .001$, Approachability, $r(78) = .93, p < .001$, and Trustworthiness, $r(78) = .89, p < .001$, but not for Dominance, $r(78) = .07, p = .53$. These results indicate that the number of points allocated to the targets in Study 1 were significantly related to the perception of Diligence, Friendliness, Attractiveness, Genuineness, Unthreateningness, Similarity of Values, Intelligence, Approachability, and Trustworthiness, but were not significantly related to Dominance. Therefore, the results of Study 2 support the hypothesis that a general halo effect was observed. All of the variables with the exception of Dominance were positively associated with the number of points allocated to the targets in Study 1. Because of the large effect size for smiling which was found in Study 1, and the well documented halo effect for smiling within races, it is likely that the facial expressions of the targets were largely responsible for the results of Study 2.

Table 1

Descriptive Statistics for the Perceived Personality Characteristics Examined in Study 2

	<i>M</i>	<i>SD</i>
Average Points	.63	.49
Extraversion	4.21	.89
Agreeableness	4.20	.94
Conscientiousness	4.20	.78
Emotional Stability	4.07	.81
Openness	4.19	.75
Diligence	3.35	.62
Dominance	3.29	.45
Friendliness	3.44	.88
Attractiveness	2.92	.65
Genuineness	3.35	.67
Unthreateningness	3.48	.74
Similarity of Values	2.80	.60
Intelligence	3.25	.52
Approachability	2.96	.71
<u>Trustworthiness</u>	<u>3.20</u>	<u>.64</u>

Note. $N = 80$. Data from the 10-Item Personality Inventory (TIPI; Gosling et al., 2003), was used to determine the values for Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness.

Table 2

Pearson Correlations between Average Points and the Perceived Personality Characteristics by Target Race, Target Gender, and Target Facial Expression

Variable	All	White	Black	Men	Women	Smile	Frown
Extraversion	.87***	.87***	.89***	.90***	.87***	.30	.41**
Agreeableness	.89***	.88***	.89***	.90***	.88***	.60***	.54***
Conscientiousness	.91***	.91***	.91***	.91***	.92***	.46**	.49**
Emotional Stability	.91***	.92***	.90***	.92***	.95***	.27	.68***
Openness	.93***	.93***	.93***	.94***	.94***	.46**	.63***
Diligence	.89***	.90***	.88***	.91***	.89***	.32*	.38*
Dominance	.07	.14	-.05	.08	.11	.00	-.15
Friendliness	.90***	.90***	.89***	.91***	.90***	.46**	.58***
Attractiveness	.86***	.87***	.85***	.85***	.88***	.60***	.56***
Genuineness	.91***	.92***	.89***	.91***	.92***	.51**	.56***
Unthreateningness	.75***	.73***	.79***	.82***	.70***	.40*	.43**
Similarity of Values	.92***	.93***	.92***	.93***	.93***	.59***	.55***
Intelligence	.90***	.91***	.90**	.91***	.91***	.49**	.47**
Approachability	.93***	.94***	.92***	.94***	.94***	.59***	.68***
Trustworthiness	.89***	.90***	.89***	.91***	.89***	.47**	.51**

Note. Data from the 10-Item Personality Inventory (Gosling et al., 2003), was used to determine the values for Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness.

* $p < .05$. ** $p < .01$. *** $p < .001$.

To further support the conclusion that a halo effect was observed for the smiling targets a set of t-tests were run comparing the means for the smiling and frowning targets for the number of points allocated in Study 1 and the perceived personality characteristics in Study 2. Due to the number of tests a Bonferroni correction was implemented. The results of these t-tests can be seen in Appendix C. Even with the correction the smiling stimuli received significantly more points than the frowning stimuli and were evaluated more positively than the frowning stimuli across all of the perceived personality characteristics except Dominance. The fact that the Smiling stimuli were perceived more positively adds further support to the conclusion that a general halo effect for smiling was observed.

After the general perceived characteristics of the targets were explored, the data were then reanalyzed to determine if the allocation patterns may have differed as a function of gender, race, or facial expression. The correlations between the points allocated in Study 1 and the personality characteristics attributed to the White, Black, male, female, smiling, and frowning targets can be viewed in Table 2. When the data of only the White targets were analyzed, no change was found in the basic pattern of correlations. Significant correlations were found between the points allocated in Study 1 and the variables of Extraversion, $r(38) = .87, p < .001$, Agreeableness, $r(38) = .88, p < .001$, Conscientiousness, $r(38) = .91, p < .001$, Emotional Stability, $r(38) = .92, p < .001$, Openness, $r(38) = .93, p < .001$, Diligence, $r(38) = .90, p < .001$, Friendliness, $r(38) = .90, p < .001$, Attractiveness, $r(38) = .87, p < .001$, Genuineness, $r(38) = .92, p < .001$, Unthreateningness, $r(38) = .73, p < .001$, Similarity of Values, $r(38) = .93, p < .001$, Intelligence, $r(38) = .91, p < .001$, Approachability, $r(38) = .94, p < .001$, and

Trustworthiness, $r(38) = .90, p < .001$, but not for Dominance, $r(38) = .14, p = .40$. This basic pattern did not appear to differ for the Black targets. Significant correlations were found for the variables of Extraversion, $r(38) = .89, p < .001$, Agreeableness, $r(38) = .89, p < .001$, Conscientiousness, $r(38) = .91, p < .001$, Emotional Stability, $r(38) = .90, p < .001$, Openness, $r(38) = .93, p < .001$, Diligence, $r(38) = .88, p < .001$, Friendliness, $r(38) = .89, p < .001$, Attractiveness, $r(38) = .85, p < .001$, Genuineness, $r(38) = .89, p < .001$, Unthreateningness, $r(38) = .79, p < .001$, Similarity of Values, $r(38) = .92, p < .001$, Intelligence, $r(38) = .90, p < .001$, Approachability, $r(38) = .92, p < .001$, and Trustworthiness, $r(38) = .89, p < .001$. Again the correlation for Dominance, $r(38) = -.05, p = .74$, was not significant. The targets were then divided by gender and the data were reanalyzed. The pattern of relationships for the male targets was consistent with previous results. Significant correlations were found between the points allocated in Study 1 and the variables of Extraversion, $r(38) = .90, p < .001$, Agreeableness, $r(38) = .90, p < .001$, Conscientiousness, $r(38) = .91, p < .001$, Emotional Stability, $r(38) = .92, p < .001$, Openness, $r(38) = .94, p < .001$, Diligence, $r(38) = .91, p < .001$, Friendliness, $r(38) = .91, p < .001$, Attractiveness, $r(38) = .85, p < .001$, Genuineness, $r(38) = .91, p < .001$, Unthreateningness, $r(38) = .82, p < .001$, Similarity of Values, $r(38) = .93, p < .001$, Intelligence, $r(38) = .91, p < .001$, Approachability, $r(38) = .94, p < .001$, and Trustworthiness, $r(38) = .91, p < .001$, but not for Dominance, $r(38) = .08, p = .65$. The female targets also appeared to be evaluated the same as the other three groups. Significant correlations were found for the variables of Extraversion, $r(38) = .87, p < .001$, Agreeableness, $r(38) = .88, p < .001$, Conscientiousness, $r(38) = .92, p < .001$, Emotional Stability, $r(38) = .95, p < .001$, Openness, $r(38) = .94, p < .001$, Diligence,

$r(38) = .89, p < .001$, Friendliness, $r(38) = .90, p < .001$, Attractiveness, $r(38) = .88, p < .001$, Genuineness, $r(38) = .92, p < .001$, Unthreateningness, $r(38) = .70, p < .001$, Similarity of Values, $r(38) = .93, p < .001$, Intelligence, $r(38) = .91, p < .001$, Approachability, $r(38) = .94, p < .001$, and Trustworthiness, $r(38) = .89, p < .001$, but not for Dominance, $r(38) = .11, p = .51$. Thus the race and gender of the targets did not appear to influence the way they were perceived.

The strength of the correlations was greatly reduced when the data from the smiling and frowning targets were analyzed separately. The results of these correlations can also be seen in Table 2. When the smiling targets were examined there were significant correlations for the variables of Agreeableness, $r(38) = .60, p < .001$, Conscientiousness, $r(38) = .46, p < .01$, Openness, $r(38) = .46, p < .01$, Diligence, $r(38) = .32, p < .05$, Friendliness, $r(38) = .46, p < .01$, Attractiveness, $r(38) = .60, p < .001$, Genuineness, $r(38) = .51, p < .01$, Unthreateningness, $r(38) = .40, p < .05$, Similarity of Values, $r(38) = .59, p < .001$, Intelligence, $r(38) = .49, p < .01$, Approachability, $r(38) = .59, p < .001$, and Trustworthiness, $r(38) = .47, p < .01$. The correlations for Extraversion, $r(38) = .30, p < .1$, Emotional Stability, $r(38) = .27, p < .1$, and Dominance, $r(38) = .00, p = .99$, were not significant. The data from the frowning targets produced significant correlations for the variables of Extraversion, $r(38) = .41, p < .01$, Agreeableness, $r(38) = .54, p < .001$, Conscientiousness, $r(38) = .49, p < .01$, Emotional Stability, $r(38) = .68, p < .001$, Openness, $r(38) = .63, p < .001$, Diligence, $r(38) = .38, p < .05$, Friendliness, $r(38) = .58, p < .001$, Attractiveness, $r(38) = .56, p < .001$, Genuineness, $r(38) = .56, p < .001$, Unthreateningness, $r(38) = .43, p < .01$, Similarity of Values, $r(38) = .55, p < .001$, Intelligence, $r(38) = .47, p < .01$, Approachability, $r(38) = .68, p < .001$, and

Trustworthiness, $r(38) = .51, p < .01$, but not for Dominance, $r(38) = -.15, p = .34$. In summary, the strength of the correlations was reduced when the smiling and frowning targets were analyzed separately, but the basic pattern of relationships remained unchanged.

Exploring the Data for Out-group Prejudice

The data were also explored to determine if facial expression may have an impact on the perceived characteristics of out-groups. To do this, the data were divided by the race and gender of the participants and by the facial expression of the targets. Point-biserial correlations were then calculated for each of the four participant groups (White men, Black men, White women, and Black women) between the dichotomous variables of Target Race and Target Gender and the ratings for the perceived personality characteristics. See the Appendix D for the descriptive statistics of the Perceived Personality Characteristics as determined by Perceiver Race, Perceiver Gender, Target Race, Target Gender, and Target Facial Expression. There was a total of 80 photographs. When the targets were divided by facial expression there was then a total of 40 targets for the correlations. As a result of the small sample size, trends will also be interpreted and discussed. The races of the targets were coded so that 1 represented the Black targets and 2 represented White targets. The genders were coded so that 1 represented the male targets and 2 represented the female targets. Therefore negative correlations indicated a stronger association between the variable of interest and either the Black or male targets and positive correlations indicated a stronger association between the variable of interest and either the White or female targets. The correlations for the White participants can be seen in Table 3 and the correlations for the Black participants can be seen in Table 4.

Table 3

Point Biserial Correlations between Average Points and Perceived Personality Characteristics from the White Participants from Study 2

Variable	White Men				White Women			
	Smiling		Frowning		Smiling		Frowning	
	Race	Gender	Race	Gender	Race	Gender	Race	Gender
Extraversion	-.13	-.04	-.43**	.18	-.25	-.03	-.41**	.09
Agreeableness	.17	.39*	-.03	.15	.03	.26	.02	.09
Conscientiousness	.11	.20	-.21	.47**	-.03	.34*	-.11	.21
Emotional Stability	.06	-.35*	-.31	-.12	-.22	-.40*	-.27	.30
Openness	.17	.06	-.04	.26	-.17	.05	-.10	.08
Diligence	.29	.13	.08	.31	.12	.20	.08	.14
Dominance	-.31	-.49**	-.28	-.15	-.50**	-.20	-.32*	-.11
Friendliness	.39*	.13	.04	.21	-.05	.04	.02	.05
Attractiveness	.26	.15	-.12	.30	-.05	.18	-.18	.33*
Genuineness	.02	.33*	-.13	.32*	-.10	.19	.02	.14
Unthreateningness	.49**	.46**	.21	.30	.39*	.28	.19	.23
Similarity of Values	.43**	-.03	.03	.28	.16	.30	.03	.26
Intelligence	.34*	.33*	.08	.43**	.14	.29	.08	.30
Approachability	.43**	.23	-.10	.15	-.05	.12	-.05	.13
Trustworthiness	.28	.30	.16	.43**	.18	.28	.08	.22

Note. Data from the 10-Item Personality Inventory (Gosling et al., 2003), was used to determine the values for Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4

Point Biserial Correlations between Average Points and Perceived Personality Characteristics from the Black Participants from Study 2

Variable	Black Men				Black Women			
	Smiling		Frowning		Smiling		Frowning	
	Race	Gender	Race	Gender	Race	Gender	Race	Gender
Extraversion	.34	.06	-.23	.10	-.05	-.04	-.19	-.09
Agreeableness	.04	.23	-.10	.02	.17	.45**	-.06	.14
Conscientiousness	.19	.37*	-.29*	.20	-.09	.42**	-.30	.23
Emotional Stability	-.15	-.00	-.23	-.11	-.05	.02	-.11	.12
Openness	.17	.29	-.29	.09	.03	.26	-.09	.12
Diligence	-.03	.11	-.19	.02	-.18	.09	-.27	.23
Dominance	-.12	-.18	-.29	-.40*	-.40*	-.19	-.29	-.25
Friendliness	-.24	.27+	-.18	.10	-.11	.10	-.17	.07
Attractiveness	-.04	.68***	-.35*	.28	-.10	-.05	-.13	.18
Genuineness	-.03	.42**	-.11	.32*	-.26	.30	-.21	.17
Unthreateningness	.20	.19	.04	.38*	.18	.37*	.01	.28
Similarity of Values	-.20	.22	-.31	-.17	-.25	.43**	-.34*	.21
Intelligence	-.01	.47**	-.19	.15	-.09	.36*	-.19	.29
Approachability	-.01	.33*	-.37*	.12	-.14	.19	-.20	.14
Trustworthiness	-.12	.27	-.23	.18	-.13	.48**	-.18	.26

Note. Data from the 10-Item Personality Inventory (Gosling et al., 2003), was used to determine the values for Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness.

* $p < .05$. ** $p < .01$. *** $p < .001$.

CHAPTER IX

STUDY 2 DISCUSSION

Study 1 demonstrated a very large effect size for the facial expression of smiling. Because smiling has been documented to create a halo effect (Mehu et al., 2007; Otta et al., 1994), which increases the ratings of a variety of variables, it was hypothesized that all of the variables of interest in Study 2 would be influenced by this halo effect and would thus be positively correlated with the number of points allocated to the targets in Study 1. This hypothesis was supported with one exception. All of the Big-Five personality dimensions of Extroversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness were significantly correlated; and nine of the 10 variables measured on the Photograph Perception Questionnaire including: Diligence, Friendliness, Attractiveness, Genuineness, Unthreateningness, Similarity of Values, Intelligence, Approachability, and Trustworthiness were significantly correlated. The only variable which was not correlated was Dominance. Taken as a whole, these results support the existence of a general halo effect for smiling. Although a network of implicit relationships between variables would have been far more intriguing, the global halo effect for smiling is very well established in the literature and represents the most parsimonious explanation for the participants' allocation decisions in this study.

The absence of Dominance from this group was initially puzzling, although a review of the literature on the relationship between perceived dominance with gender, race, and especially facial expression indicates that this finding should have been expected. The majority of the points in Study 1 were allocated to the female targets, however, when photographs of men's and women's faces are viewed, men are typically

rated as more dominant than women (Hess et al., 2005). So the lack of a correlation or even a negative correlation would make sense in the light of this finding. The scholarly work that does exist on perceptions of race and perceived dominance is sparse. The work that does exist suggests that Black Americans are often portrayed as characteristically dominant in the media. These portrayals include movies (Henry, 2002), athletics (Ross, 1998), and advertising (see Boulton, 2007 for a review). The fact that the Black targets received the most points in Study 1 and were typically associated more with Dominance in Study 2 would indicate that some association between the variables should be expected. The lack of a significant correlation for Dominance is probably best explained by research on facial expression. The results of Study 1 indicated that the smiling targets received a much greater number of points than the frowning targets. The literature on smiling and perceptions of dominance indicates that dominant individuals do not smile (Hess et al., 2005; Keating et al., 1981; Mast & Hall, 2004). Because the quantity of points allocated and smiling were heavily associated in Study 1, and the literature indicates that smiling and Dominance have a negative correlation, it follows that the quantity of points allocated and Dominance would either not be correlated or possess a negative correlation. Because smiling was such a large influence on the allocation decisions in Study 1, it makes sense that the points allocated in Study 1 were not correlated with the perception of Dominance, because smiling is not correlated with perceptions of Dominance. The lack of a significant correlation for Dominance is congruent with the typical halo effect generated for smiling, and this finding may actually contribute to the construct validity of the halo effect.

The pattern of relationships between the points allocated in Study 1 and the perceived personality characteristics did not appear to be affected by the race or gender of the targets. When the targets were divided by race and gender and the correlations were recalculated, no difference in the basic pattern emerged. All of the variables except Dominance were still significant, and only very minor changes in the size of the correlations were observed. The facial expression of the targets did appear to affect how the targets were perceived. When the targets were separated by facial expression, everything except Dominance was still significant for the frowning targets, and everything except Extraversion, Emotional Stability, and Dominance were significant for the smiling targets, but the magnitude of the correlations decreased greatly. This could be interpreted as further evidence that the difference in facial expression was accounting for a large proportion of both the number of points allocated in Study 1 and the perceived personality characteristics attributed in Study 2. When the targets were separated by facial expression, this variable no longer influenced the pattern of relationships, and the correlations were therefore decreased. However, the existence of diminished, but intact correlations indicates that some other characteristic was also contributing to a generally more positive perception of some photographs over others.

The data were also separated by the race and gender of the participants, and then differences in the perceived characteristics of race, gender, and facial expression of the targets were examined to determine if facial expression had an influence on out-group perception. One general finding was that the Black targets were generally associated with higher levels of Dominance, through either significant correlations or trends. The Black male participants did not associate higher levels of Dominance with either the smiling

Black targets or the smiling White targets, but this was the only exception. Very different patterns emerged for the two races concerning their patterns of associations for other variables. The Black male participants' data revealed no significant correlations when the targets were smiling, but three significant correlations (Conscientiousness, Attractiveness, & Approachability) were observed when the targets were frowning, all of which favored the Black targets. This pattern of results is in perfect congruence with Hypothesis 1. The Black female participants' data revealed only one significant correlation when the targets were smiling. They associated Dominance more with the Black targets, however, this association was very consistent across all the participants' data regardless of race or gender. They showed one significant correlation (Similarity of Values) when the targets were frowning, all of which depicted the Black targets in a more favorable light. This is also congruent with Hypothesis 1. Essentially, the Black participants tended to show prejudice against the out-group when the targets were frowning, but no significant differences emerged when the targets were smiling.

The pattern of correlations for the White participants was very different. When the targets were smiling, the White male participants' data demonstrated five significant correlations (Friendliness, Unthreateningness, Similarity of Values, Intelligence, & Approachability). All of which associated the White targets with more positive qualities. This is evident of prejudice against the out-group. However, when the targets were frowning, this favoritism disappeared, and the White male participants' data demonstrated one significant correlation (Extraversion) which associated more positive qualities with the Black targets. The White female participants' data demonstrated two positive correlations when the targets were smiling; they associated Dominance more

with the Black targets and Unthreateningness more with the White targets. Their data demonstrated two positive correlations (Extraversion & Dominance) when the targets were frowning, all of which associated the Black targets with more positive characteristics. In conclusion, the White participants tended to show some prejudice against the out-group when the targets were smiling, but showed out-group favoritism when the targets were frowning. Although the Black participants' results seemed to support Hypothesis 1, the White participants' results were in direct contradiction of it.

The differences in perceived characteristics as a function of Perceiver Gender, Perceiver Race, Target Facial Expression, and Target Gender were also included for exploratory purposes. The data showed a general pattern of favoring the female targets regardless of Perceiver Race, Perceiver Gender, or Target Facial Expression. When the targets were smiling, the White male participants tended to associated two variables (Emotional Stability & Dominance) more with the male targets and four variables (Agreeableness, Genuineness, Unthreateningness, & Intelligence) more with the female targets. When the targets were frowning, the positive associations with the male targets disappeared and the White male participants significantly associated four variables (Conscientiousness, Genuineness, Intelligence, & Trustworthiness) more with the female targets.

When the smiling targets were analyzed, the White female participants also associated Emotional Stability more with the male targets; however, they associated Conscientiousness more with the female targets. When the targets were frowning, the White female participants associated Attractiveness significantly more with the female targets. An interesting contrast is that the White female participants associated Emotional

Stability more with the male targets when the targets were smiling, but a trend in the opposite direction appeared when the targets were frowning.

The Black male participants' data revealed five significant correlations (Conscientiousness, Attractiveness, Genuineness, Intelligence, & Approachability) all associating more positive qualities with women when the targets were smiling. When the targets were frowning, the Black male participants associated Dominance more with the male targets, but there were two significant correlations (Genuineness & Unthreateningness) that were more associated with the female targets. When the targets were smiling, the Black female participants' data revealed six significant correlations (Agreeableness, Conscientiousness, Unthreateningness, Similarity of Values, Intelligence, & Trustworthiness) all of which associated more positive characteristics with the female targets.

CHAPTER X

GENERAL DISCUSSION

The goal of the current research was to determine if the facial expression of smiling would mitigate the effects of out-group discrimination. This prediction was based on a body of research documenting the ability of smiling to promote group cohesion (Vanman et al., 1997), induce a smile response in others (Sloan et al., 2002), influence the perception of group membership (Hugenberg & Bodenhausen, 2004), modify regional brain activity associated with out-group discrimination (Chiu et al., 2004), reduce perceptions of threat (Richeson & Trawalter, 2008), and increase cooperative behavior (Krumhuber et al., 2007). The basic argument was that because smiling has been shown to increase ratings of many of the perceived attributes that are lowered by out-group membership, then smiling would serve to disrupt these processes. The major hypothesis that the participants would demonstrate out-group discrimination against the frowning targets but not against the smiling targets, was not supported by the data of Study 1 but received some support from Study 2.

In Study 1 the Black participants demonstrated consistent out-group discrimination regardless of the facial expression of the targets. In Study 2 they demonstrated prejudice against the out-group when the targets were frowning, but no significant results were observed when the targets were smiling. These results may be explained by concluding that smiling did serve to mitigate the negative perceptions of the out-group, or an alternative explanation is that the Black participants favored the frowning Black targets in both studies, because frowning is more congruent with cultural expectations for emotional “display rules” (see Ekman, 1992 for a review). Study 1

required the participants to allocate points to either White or Black targets. Study 2 removed the pressure of having to allocate a limited resource which may have allowed for a more honest depiction of how the participants really evaluated the targets. When the results of the White participants' data are examined, the explanation of cultural display rules governing participant perceptions seems even more probable.

In Study 1 the White participants showed no significant differences when the targets were smiling, but allocated more points to the frowning Black targets than the frowning White targets. In Study 2 the White participants were divided by gender, but both groups tended to associate the White targets with more positive qualities when the targets were smiling. When the targets were frowning, out-group discrimination was not observed instead the White participants tended to associate the Black participants with more positive qualities. In both studies, the White participants tended to favor the frowning Black targets. There are a number of possible explanations for this result. Two of which are highly supported by the literature, and likely both are contributing to some degree. First, the facial expression of frowning may evoke feelings of guilt and sympathy in the White participants leading them to treat those targets more positively in their ratings and allocation decisions (Zuwerink et al., 1996). Second, frowning may be a more socially acceptable facial expression for Black Americans because of cultural display rules (Levant, Majors, & Kelley, 1998; Oliver, 1989).

The idea that frowning may be more socially acceptable for Black Americans than for White Americans becomes especially intriguing when other results are examined. The Black targets in Study 2 were consistently associated with higher levels of the variable Dominance than the White targets. This came as a surprise given the history of these two

racial groups. The only occasion where the Black targets were not rated as being more dominant by either a significant correlation or a trend was when the Black male participants were rating the smiling Black targets. Furthermore, the Black male participants associated Dominance more with men only when the targets were frowning, but the White male participants associated Dominance more with men only when the targets were smiling. The female participants of both races did not associate Dominance with either gender regardless of facial expression. This pattern of differences in perception seems to indicate a contrast in the cultural display rules between Black and White Americans that has special relevance to the beliefs of men.

Although no empirical investigations into differences in cultural display rules for Black and White Americans could be found, this topic has been discussed considerably in theoretical papers. Much of this discussion focuses on Black men, and suggests the possibility that cultural display rules for the expressions of smiling and frowning may differ for Black men. Specifically, it has been theorized that “toughness” is a central component of Black masculinity. Oliver (1989) proposed that many of the traditional components of masculinity have been denied to Black men due to differences in social and financial opportunities. This has led to a greater emphasis of the “tough guy” image, essentially leading this component to be highly emphasized in Black masculinity. Although the cause was not examined, Levant and colleagues (1998) conducted an empirical investigation into perceptions of masculinity between Black and White men. They found in their sample that a construct they labeled Restrictive Emotionality, which was essentially the tendency to limit displays of emotion, was more positively associated with the ideal of masculinity in Black men than in White men. They further found that

Black men in the Southern United States held more traditional views of masculinity when compared to Black men from the Northeast-Mid-Atlantic region or White men from either region. It is possible that Black men's emphasis on toughness and Restrictive Emotionality may have created a cultural norm for display rules concerning the appropriateness of smiling that differs from the other three demographics. One possible explanation for the current results is that the participants favored the frowning Black participants in both studies because they viewed frowning as more advantageous for this demographic and because it is congruent with cultural depictions of success and desirability which emphasize Dominance and related attributes.

Although facial expression did not mitigate out-group discrimination in the way that was predicted in Study 1, it did have a powerful effect on how members of the other race were received and it likely did influence out-group discrimination. The pattern often seen in the literature was for behaviors associated with out-group discrimination to appear for non-smiling targets, but then to disappear for smiling targets. Therefore, it was expected that out-group discrimination would be reflected in the allocations to the frowning targets, but not to the smiling targets. This may have not have been the most accurate way to view a mitigation of out-group discrimination. The data did, in a sense, support that smiling reduced out-group discrimination. For example, if racial prejudice were the sole influence acting on the participants' allocation decisions, then the participants would have allocated more points to the frowning members of their own race than the smiling members of the other race. This was not the case. The smiling out-group members received more points than the frowning in-group members for both the Black and White participants. It was expected that the smiling targets would receive more

points, so this finding was not a surprise and can be explained in a number of ways. It is clear that smiling did not eliminate the out-group discrimination, but smiling did appear to drastically increase the number of points that were allocated to the various targets regardless of their race. Therefore, although smiling did not have the expected effect, the results suggest that a smiling out-group member may be viewed more favorably than one who is frowning. A smiling out-group member may actually be viewed more favorably than an in-group member who is frowning, both of which are in a sense a mitigation of out-group discrimination.

Limitations

The current study had several limitations. Most notably the manipulation in Study 1 required participants to imagine what they would do in a situation; it did not require them to actually respond to a situation. This may have decreased the ecological validity of the experiment and reduced the generalizability of the results. There is a considerable discrepancy between how people believe they would behave and how they actually respond in real life situations. Additionally, such a situation makes it more difficult to assess a construct such as prejudice. Because the situation is imaginary, the participants and their in-groups have nothing tangible to gain from showing bias. For example, if a White participant allocates more imaginary extra credit points to the White targets in this study, there are no actual White individuals that benefit. There is no feasible gain in this study; however, there is the possibility of a feasible loss. If a White participant allocates more imaginary extra credit points to the White targets in this study, then he or she may appear to be prejudiced, and the literature indicates that White Americans often attempt to appear non-prejudiced against Black Americans (Baron & Banaji, 2006; Devos &

Banaji, 2005). The literature has demonstrated that White Americans often feel ashamed and angry with themselves for displaying these perceptions (Zuwerink et al., 1996). Therefore, if a White participant realized that his or her pattern of responding in this study may demonstrate a potential racial prejudice, then he or she may have been inclined to respond by allocating more points to the Black targets. Other studies have shown similar results where groups of White individuals treated Black individuals favorably. It had been hypothesized that this treatment was motivated by a desire not to appear prejudiced because explicit displays of prejudice are not socially acceptable (Dovidio et al., 1997; Wittenbrink et al., 1997). However, race was made a salient variable in these studies. The design of Study 1 was intended to conceal its significance by randomizing the order of the targets and applying time pressure to prevent the participants from studying the arrays of photographs. Regardless of efforts aimed at concealment, the fact that this study utilized an imaginary manipulation may have led the participants to respond in a way that is uncharacteristic of their typical behavior in real life.

A second limitation of this research was its reliance on photographs instead of video footage. This distinction likely had little effect on the participants' reactions to the gender and race of the targets. The literature demonstrates the ability of still images to activate out-group discrimination, bring stereotypes into awareness, and elicit a response (Dovidio et al., 1997). A precedent has also been established for using photographs in research that examines the facial expression of emotions. However, the use of emotionally latent photographs in research has been criticized by Hugenberg and Bodenhausen, (2003) because emotional displays tend to be processes, and photographs only show a moment of that process. These authors argue that when photographs are

used, the targets may be ambiguous, and a clear emotional display may be harder to recognize. This argument is supported by empirical research. Frank and colleagues (1993) have researched the duration of facial expressions. They concluded that genuine smiles are indeed a very stereotyped process. However, research has also shown that very uniform emotions such as smiles and frowns are easily recognized in photographs, and an established precedent exists for the use of photographs in the study of facial expression (i.e., Chiu et al., 2004; Sloan et al., 2002). In summary, photographs are an acceptable medium for conveying facial expressions; however, emotions are a dynamic process that are better captured by video, and an examination of the effects of videos containing facial expressions may have led to a more realistic display of the targets.

A third limitation is the sample which was used. The sample was one of convenience. Some of its characteristics are likely not influential, but others may severely limit the generalizability of the results. Women made up the majority of the sample of both studies. Out-group discrimination has not been found to be more prevalent in either gender (Hughes & Tuch, 2003), and this characteristic of the sample likely did not affect the results. The culture of the participants may have influenced the results. Black and White Americans in the Southeastern United States have a long history of showing out-group discrimination. This pattern of behavior may be so established that it is robust to the effects of facial expression. If groups with a less intense history of out-group discrimination had been used in this study, the results may have differed.

A final limitation was the large effect size for facial expression in Study 1. The extent of this effect size seemed to influence all aspects of the results. It was expected that the smiling targets would receive more points, the size of the difference between the

groups was not expected. Similar large effects for smiling have been found in other studies. For instance, in Krumhuber and colleagues (2007) examination of the effect of facial expression on partner choice for a trust game; they found that only approximately 6% of participants chose to play with a partner who bore a neutral facial expression. The other 94% chose a smiling partner. Still, the magnitude of the effect for smiling is difficult to explain. Perhaps if there were more variability in the facial expressions of the targets this effect would have been smaller. If neutral facial expressions and others representing different emotions such as anxiety, surprise, and disgust were used, perhaps a different pattern of results would have been displayed. If the directions for Study 1 were modified so that the participants were permitted to allocate more than five points to the various targets, perhaps the participants would have shown a higher reliance on the equity heuristic, meaning that they would have allocated some points to all parties involved, and the frowning targets would have received more points. There are always tradeoffs regarding study design. The current design sought to minimize ordering effects and prevent the participants from becoming aware that race and gender were the variables of interest. This was done by randomizing the order of the demographic conditions, and applying time pressure. The participants had only 30 seconds to make their allocation decisions. This required using only a small number of slides per array and allocating only a small number of points to prevent counting errors in the number of points which were allocated. Increasing the number of points and the number of facial expressions used would likely have increased errors, but the huge effect size for facial expression made the interpretation of other relationships in the data difficult.

Future Directions of Study

Several directions for future research are suggested by the current results. The most salient involve addressing the limitations of the current study, such as using an in vivo manipulation instead of an imaginary one, using video footage instead of pictures, examining other racial and ethnic groups where out-group discrimination is less pronounced, utilizing a variety of facial expressions in the manipulation, and permitting participants to allocate a greater number of points to the various targets. Of these topics, an examination of facial expression and out-group discrimination in a different population may produce the most interesting results. It would be interesting to retest the major hypothesis between two populations where out-group discrimination and stereotypes are not as firmly entrenched. It is possible that smiling does not affect discrimination against out-group members when there is an extreme history of discrimination. Smiling has the power to exert an implicit influence; however, this influence may be overwhelmed by a host of other implicit influences already in effect between groups with a well established history. Additionally, when two groups have an established history of out-group discrimination and live in proximity to each other, the members of both groups have likely habituated to seeing members of the other group smiling and have learned to maintain their discriminatory perceptions despite the effects of smiling. It would be interesting to see the effects of smiling in a minimal criteria group paradigm or between two groups that have less of an established history of expectations for each other, such as Americans and Arab immigrants, or private school students and emo kids, or even between Black and White college students in a different part of the country. Many of the abilities of smiling, such as reducing threat (Richeson & Trawalter,

2008) and promoting cooperation in random one-time encounters (Krumhuber et al., 2007), are more applicable to the initial evaluation of a person than in changing an already established perception. An interesting direction for future research would be to study the influence of smiling on out-group discrimination between populations with a less pronounced history of discrimination.

In addition to addressing the limitations of the current study, other directions are also suggested by this work. Smiling drastically increased the number of points that the targets were allocated in Study 1. Smiling is often considered to be an aspect of attraction. It would be interesting to assess the effects of other aspects of attraction such as perceived physical attractiveness on out-group discrimination. The literature on sexual attraction between out-groups has existed for many years (e.g., Weiss, 1970). This research area appears to have grown recently as studies emphasizing the role of the major histocompatibility complex in mate selection (Tregenza & Wedell, 2000; Wedekind, Seebeck, Bettens, & Paepke, 1995) have made their way into the popular culture. This link has been hypothesized to partially explain physical attraction to other races (Rhodes et al., 2005). Modern studies of this phenomenon often discuss the social stigma surrounding these relationships and call for further research on the topic (Childs, 2005; Yancey, 2003). An examination of out-group discrimination and perceived physical attraction could yield potentially interesting results, especially if a gender interaction emerged.

Another area of future research suggested by this study is an examination of the relationship between physical similarity and out-group discrimination. It is documented that people prefer others with personality characteristics that are similar to their own

(Sears & Rowe, 2003). Some evidence suggests that this preference of similarity may also apply to the perception of facial features. In-group members may prefer others with facial characteristics similar to their own. Livingston and Brewer (2002) conducted a series of implicit priming studies. They found that White participants had more negative associations with Black faces that were more distinguishably Black than faces that looked White in nature. This study focused on specific facial features beyond simply skin color. Essentially they demonstrated more implicit prejudice against faces that looked less White in nature. Another direction of research would be to determine if this reduction in implicit prejudice translates to the behavioral level through analyzing tasks such as resource allocation. For example, a study to determine if increased similarity of facial features in out-group members leads to an increase in the quantity of resource allocations would represent a meaningful advancement in this area of research.

A final adaptation of this study would be to force participants to choose between allocating points to either smiling out-group members or to frowning in-group members. This study design would pit the influences of facial expression and out-group discrimination into conflict with each other. The current design allowed participants to allocate points to smiling members of both their in-group and the out-group. This allowed them to show in-group favoritism and still reward smiling members of the out-group. Forcing the participants to make this choice might better answer questions about the effects of facial expression on out-group discrimination.

APPENDIX A

ANOVA RESULTS TABLES

Table A1
Results of 2 X 2 X 2 Within-Subjects Analysis of Variance: Target Facial Expression by Target Gender by Target Race

Source	Type III SS	df	MS	F	p	η^2	Power
Targets Facial Expression	30685.22	1	30685.22	1093.90	.000	.86	1.00
Targets Gender	326.37	1	326.37	39.26	.000	.18	1.00
Targets Race	117.49	1	117.49	11.16	.001	.06	.91
Targets Facial Expression X Targets Gender	315.20	1	315.20	46.27	.000	.20	1.00
Targets Facial Expression X Targets Race	3.03	1	3.03	.41	.523	.00	.098
Targets Gender X Targets Race	3.41	1	3.41	.58	.449	.00	.12

Table A1 (continued).

Source	Type III SS	df	MS	F	p	η^2	Power
Targets Facial Expression							
X Targets Gender							
X Targets Race	2.51	1	2.51	.54	.465	.00	.11
Targets Facial Expression							
X Targets Gender							
X Targets Race (Error)	864.11	184	4.70				

Table A2

Results of 2 X 2 X 2 Mixed Design Analysis of Variance: Perceiver Race by Target Facial Expression by Target Race

Source	Type III SS	df	MS	F	p	η^2	Power
Targets Facial Expression	14767.33	1	14767.33	1067.29	.000	.85	1.00
Targets Race	84.81	1	84.81	18.38	.000	.10	.99
Targets Facial Expression X Perceiver Race	48.66	1	48.66	3.52	.062	.02	.46
Targets Facial Expression X Targets Race	.18	1	.18	.50	.823	.00	.06
Targets Race X Perceiver Race	124.21	1	124.21	26.91	.000	.13	.99

Table A2 (continued).

Source	Type III SS	df	MS	F	p	η^2	Power
Targets Facial Expression							
X Perceiver Race							
X Targets Race	29.68	1	29.68	8.33	.004	.04	.82
Targets Facial Expression							
X Perceiver Race							
X Targets Race (Error)	651.62	1	3.56				

APPENDIX B

SPEARMAN'S ρ CORRELATIONS

Table B1

Spearman's ρ Correlations between Average Points and the Perceived Personality Characteristics by Target Race, Target Gender, and Target Facial Expression

Variable	All	White	Black	Men	Women	Smile	Frown
Extraversion	.84***	.80***	.83***	.86***	.84***	.44**	.35*
Agreeableness	.89***	.88***	.94***	.88***	.86***	.61***	.54***
Conscientiousness	.85***	.82***	.87***	.85***	.83***	.41**	.43**
Emotional Stability	.85***	.82***	.88***	.85***	.89***	.20	.59***
Openness	.90***	.90***	.89***	.88***	.90***	.51**	.65***
Diligence	.83***	.80***	.84***	.82***	.82***	.32*	.30
Dominance	-.06	.00	-.26	-.03	-.03	.03	-.22
Friendliness	.88***	.89***	.88***	.88***	.87***	.47**	.58***
Attractiveness	.86***	.87***	.86***	.83***	.90***	.55***	.60***
Genuineness	.89***	.88***	.88***	.86***	.88***	.53***	.56***
Unthreateningness	.78***	.80***	.88***	.83***	.73***	.38*	.49**
Similarity of Values	.89***	.88***	.91***	.86***	.89***	.57***	.56***
Intelligence	.87***	.88***	.88**	.84***	.87***	.48**	.46**
Approachability	.91***	.93***	.90***	.89***	.92***	.60***	.71***
Trustworthiness	.88***	.86***	.89***	.85***	.85***	.49**	.52**

Note. Data from the 10-Item Personality Inventory (Gosling et al., 2003), was used to determine the values for Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness.

* $p < .05$. ** $p < .01$. *** $p < .001$.

APPENDIX C
T-TEST RESULTS

Table C1

T-Tests between the Smiling and Frowning Targets for the Number of Points Allocated from Study 1 and the Perceived Personality Characteristics from Study 2

Variable	Mean Difference	<i>df</i>	<i>t</i>	<i>p</i>
Extraversion	1.54	78	15.82	.000
Agreeableness	1.64	78	16.19	.000
Conscientiousness	1.39	78	18.32	.000
Emotional Stability	1.49	78	20.66	.000
Openness	1.38	78	22.10	.000
Diligence	1.11	78	18.08	.000
Dominance	.08	78	.81	.423
Friendliness	1.56	78	17.76	.000
Attractiveness	1.03	78	11.57	.000
Genuineness	1.20	78	18.17	.000
Unthreateningness	1.07	78	9.40	.000
Similarity of Values	1.07	78	18.17	.000
Intelligence	.92	78	17.17	.000
Approachability	1.29	78	19.56	.000
Trustworthiness	1.12	78	16.37	.000

Note. Data from the 10-Item Personality Inventory (Gosling et al., 2003), was used to determine the values for Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness.

APPENDIX D

STUDY 2 DESCRIPTIVES

Table D1
Means and Standard Deviations for the Perceived Personality Characteristics of Study 2 Divided by Perceiver Race, Perceiver Gender, Target Race, Target Gender, and Target Facial Expression for the White Male Participants

Dependent Variables	White Male Participants							
	SWM	SBM	SWW	SBW	FWM	FBM	FWW	FBW
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Extroversion	4.96 (.57)	5.04 (.41)	4.89 (.27)	5.04 (.53)	3.21 (.55)	3.49 (.36)	3.24 (.49)	3.83 (.47)
Agreeableness	4.80 (.26)	4.75 (.21)	5.05 (.22)	4.91 (.32)	3.11 (.55)	3.35 (.76)	3.50 (.65)	3.33 (.60)
Conscientiousness	4.61 (.52)	4.65 (.33)	4.90 (.35)	4.68 (.42)	3.04 (.23)	3.40 (.44)	3.62 (.29)	3.60 (.44)
Emotional Stability	4.85 (.20)	4.74 (.29)	4.55 (.38)	4.58 (.38)	3.18 (.35)	3.48 (.59)	3.11 (.30)	3.34 (.45)
Openness	4.70 (.37)	4.73 (.31)	4.87 (.22)	4.64 (.32)	3.34 (.30)	3.44 (.38)	3.60 (.33)	3.55 (.38)
Diligence	3.76 (.44)	3.67 (.29)	3.95 (.22)	3.65 (.31)	2.65 (.25)	2.71 (.37)	2.97 (.32)	2.80 (.33)
Dominance	3.22 (.39)	3.45 (.32)	2.89 (.22)	3.09 (.24)	3.26 (.63)	3.50 (.39)	2.97 (.80)	3.42 (.57)
Friendliness	4.14 (.19)	4.03 (.24)	4.29 (.13)	4.01 (.34)	2.48 (.43)	2.54 (.56)	2.81 (.56)	2.67 (.59)

Table D1 (continued).

		White Male Participants							
Dependent Variables	<i>M (SD)</i>	<i>SWM</i>	<i>SBM</i>	<i>SWW</i>	<i>SBW</i>	<i>FWM</i>	<i>FBM</i>	<i>FWW</i>	<i>FBW</i>
		<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Attractiveness	3.10 (.27)	3.16 (.19)	3.50 (.58)	3.01 (.40)	1.98 (.15)	2.30 (.40)	2.47 (.62)	2.35 (.41)	
Genuineness	3.66 (.28)	3.78 (.22)	3.95 (.14)	3.81 (.23)	2.52 (.22)	2.65 (.43)	2.80 (.33)	2.86 (.49)	
Unthreateningness	3.89 (.23)	3.56 (.28)	4.23 (.15)	3.87 (.40)	2.69 (.66)	2.56 (.66)	3.29 (.73)	2.82 (.74)	
Similarity of Values	3.29 (.25)	3.14 (.22)	3.36 (.33)	3.03 (.25)	2.09 (.24)	2.26 (.35)	2.47 (.38)	2.26 (.31)	
Intelligence	3.52 (.24)	3.44 (.25)	3.79 (.18)	3.51 (.27)	2.41 (.21)	2.59 (.36)	2.93 (.32)	2.64 (.23)	
Approachability	3.47 (.21)	3.38 (.25)	3.79 (.30)	3.34 (.32)	2.09 (.29)	2.36 (.36)	2.41 (.47)	2.27 (.31)	
Trustworthiness	3.60 (.32)	3.52 (.23)	3.88 (.19)	3.62 (.40)	2.44 (.30)	2.45 (.46)	2.92 (.26)	2.65 (.41)	

Note. *SWM* = smiling White male targets, *SBM* = smiling Black male targets, *SWW* = smiling White female targets, *SBW* = smiling Black female targets, *FWM* = frowning White male targets, *FBM* = frowning Black male targets, *FWW* = frowning White female targets, *FBW* = frowning Black female targets.

Table D2

Means and Standard Deviations for the Perceived Personality Characteristics of Study 2 Divided by Perceiver Race, Perceiver Gender, Target Race, Target Gender, and Target Facial Expression for the Black Male Participants

Dependent Variables	Black Male Participants							
	SWM	SBM	SWW	SBW	FWM	FBM	FWW	FBW
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Extroversion	4.87 (.39)	4.86 (.23)	4.92 (.54)	4.89 (.29)	3.31 (.67)	3.41 (.40)	3.26 (.73)	3.68 (.41)
Agreeableness	4.84 (.24)	4.70 (.37)	4.87 (.31)	4.96 (.36)	3.46 (.56)	3.71 (.41)	3.63 (.63)	3.58 (.48)
Conscientiousness	4.95 (.33)	4.82 (.40)	5.20 (.28)	5.08 (.23)	3.13 (.44)	3.52 (.54)	3.44 (.41)	3.60 (.50)
Emotional Stability	4.69 (.34)	4.73 (.29)	4.62 (.46)	4.79 (.36)	3.49 (.57)	3.69 (.57)	3.34 (.50)	3.61 (.42)
Openness	4.90 (.46)	4.79 (.20)	5.10 (.30)	4.98 (.33)	3.31 (.48)	3.47 (.50)	3.32 (.34)	3.62 (.27)
Diligence	3.85 (.43)	3.90 (.42)	3.94 (.18)	3.94 (.15)	2.62 (.54)	2.97 (.50)	2.80 (.47)	2.84 (.59)
Dominance	3.30 (.56)	3.42 (.38)	3.18 (.37)	3.25 (.31)	3.25 (.58)	3.55 (.49)	2.60 (.76)	3.09 (.65)
Friendliness	3.90 (.35)	3.96 (.28)	3.98 (.37)	4.21 (.14)	2.42 (.66)	2.77 (.50)	2.68 (.40)	2.72 (.51)

Table D2 (continued).

		Black Male Participants							
Dependent Variables	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
		SWM	SBM	SWW	SBW	FWM	FBM	FWW	FBW
Attractiveness	2.91 (.41)	2.80 (.38)	3.52 (.41)	3.71 (.50)	2.14 (.41)	2.40 (.31)	2.33 (.61)	2.71 (.27)	
Genuineness	3.78 (.41)	3.69 (.34)	3.96 (.30)	4.08 (.19)	2.44 (.41)	2.69 (.44)	2.86 (.35)	2.79 (.35)	
Unthreateningness	4.00 (.17)	3.77 (.24)	3.98 (.37)	4.00 (.23)	2.85 (.54)	3.16 (.48)	3.70 (.57)	3.30 (.78)	
Similarity of Values	3.20 (.36)	3.33 (.33)	3.34 (.39)	3.50 (.33)	2.14 (.38)	2.47 (.32)	2.15 (.25)	2.23 (.34)	
Intelligence	3.64 (.22)	3.64 (.43)	3.95 (.31)	3.97 (.26)	2.50 (.38)	2.88 (.33)	2.85 (.33)	2.73 (.26)	
Approachability	3.51 (.41)	3.48 (.52)	3.74 (.28)	3.78 (.37)	2.16 (.40)	2.60 (.43)	2.38 (.46)	2.58 (.37)	
Trustworthiness	3.70 (.22)	3.73 (.28)	3.82 (.35)	3.93 (.29)	2.42 (.42)	2.81 (.50)	2.77 (.38)	2.77 (.42)	

Note. SWM = smiling White male targets, SBM = smiling Black male targets, SWW = smiling White female targets, SBW = smiling Black female targets, FWM = frowning White male targets, FBM = frowning Black male targets, FWW = frowning White female targets, FBW = frowning Black female targets.

Table D3

Means and Standard Deviations for the Perceived Personality Characteristics of Study 2 Divided by Perceiver Race, Perceiver Gender, Target Race, Target Gender, and Target Facial Expression for the White Female Participants

Dependent Variables	White Female Participants							
	SWM	SBM	SWW	SBW	FWM	FBM	FWW	FBW
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)
Extroversion	4.90 (.75)	5.18 (.43)	4.88 (.55)	5.14 (.49)	3.17 (.43)	3.32 (.34)	3.05 (.46)	3.59 (.33)
Agreeableness	5.14 (.26)	5.09 (.16)	5.24 (.31)	5.26 (.29)	3.09 (.55)	3.27 (.77)	3.42 (.74)	3.17 (.72)
Conscientiousness	4.78 (.38)	4.92 (.18)	5.11 (.35)	5.00 (.25)	3.23 (.19)	3.55 (.53)	3.62 (.32)	3.46 (.34)
Emotional Stability	4.93 (.34)	5.03 (.11)	4.68 (.32)	4.83 (.23)	3.21 (.33)	3.49 (.65)	2.99 (.22)	3.18 (.35)
Openness	4.84 (.42)	4.98 (.21)	4.91 (.33)	4.98 (.26)	3.30 (.34)	3.45 (.37)	3.43 (.26)	3.41 (.32)
Diligence	3.96 (.29)	3.91 (.13)	4.04 (.20)	3.99 (.15)	2.62 (.16)	2.84 (.35)	2.98 (.24)	2.66 (.34)
Dominance	3.23 (.39)	3.63 (.21)	3.19 (.26)	3.42 (.22)	3.19 (.59)	3.44 (.47)	2.92 (.71)	3.46 (.63)
Friendliness	4.31 (.23)	4.34 (.17)	4.34 (.23)	4.35 (.23)	2.47 (.47)	2.61 (.68)	2.69 (.68)	2.50 (.62)

Table D3 (continued).

		White Female Participants							
Dependent Variables	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	
		SWM	SBM	SWW	SBW	FWM	FBM	FWW	FBW
Attractiveness	3.53 (.51)	3.54 (.41)	3.66 (.47)	3.72 (.36)	2.04 (.34)	2.42 (.46)	2.56 (.48)	2.49 (.36)	
Genuineness	4.01 (.23)	4.02 (.19)	4.06 (.19)	4.13 (.25)	2.60 (.31)	2.74 (.54)	2.87 (.39)	2.71 (.48)	
Unthreateningness	4.22 (.22)	3.96 (.26)	4.29 (.17)	4.17 (.25)	2.74 (.71)	2.70 (.65)	3.34 (.78)	2.79 (.83)	
Similarity of Values	3.46 (.30)	3.37 (.18)	3.62 (.29)	3.54 (.29)	2.04 (.21)	2.23 (.38)	2.44 (.37)	2.20 (.36)	
Intelligence	3.68 (.28)	3.65 (.18)	3.83 (.15)	3.74 (.23)	2.59 (.12)	2.79 (.35)	3.02 (.29)	2.72 (.29)	
Approachability	3.69 (.36)	3.74 (.23)	3.78 (.30)	3.79 (.28)	2.08 (.27)	2.29 (.45)	2.35 (.43)	2.22 (.41)	
Trustworthiness	3.81 (.27)	3.75 (.17)	3.97 (.23)	3.85 (.22)	2.45 (.35)	2.58 (.46)	2.83 (.40)	2.57 (.44)	

Note. SWM = smiling White male targets, SBM = smiling Black male targets, SWW = smiling White female targets, SBW = smiling Black female targets, FWM = frowning White male targets, FBM = frowning Black male targets, FWW = frowning White female targets, FBW = frowning Black female targets.

Table D 4

Means and Standard Deviations for the Perceived Personality Characteristics of Study 2 Divided by Perceiver Race, Perceiver Gender, Target Race, Target Gender, and Target Facial Expression for the Black Female Participants

Dependent Variables	Black Female Participants						
	SWM	SBM	SWW	SBW	FWM	FBM	FBW
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Extroversion	4.91 (.42)	4.97 (.32)	4.91 (.33)	4.92 (.56)	3.66 (.43)	3.73 (.37)	3.51 (.56)
Agreeableness	4.86 (.29)	4.80 (.18)	5.13 (.23)	5.01 (.26)	3.28 (.54)	3.72 (.67)	3.82 (.39)
Conscientiousness	4.71 (.39)	4.86 (.35)	5.08 (.31)	5.06 (.25)	3.30 (.42)	3.73 (.37)	3.67 (.32)
Emotional Stability	4.81 (.22)	4.86 (.23)	4.85 (.25)	4.84 (.25)	3.28 (.53)	3.51 (.58)	3.52 (.20)
Openness	4.86 (.31)	4.89 (.28)	5.06 (.26)	5.00 (.33)	3.47 (.39)	3.74 (.43)	3.77 (.41)
Diligence	3.81 (.30)	3.96 (.32)	3.91 (.25)	3.95 (.22)	2.55 (.26)	2.93 (.36)	2.90 (.37)
Dominance	3.33 (.24)	3.49 (.30)	3.16 (.32)	3.45 (.17)	3.35 (.52)	3.45 (.46)	2.89 (.55)
Friendliness	4.07 (.22)	4.19 (.16)	4.19 (.20)	4.16 (.28)	2.56 (.49)	3.02 (.57)	2.92 (.32)
							2.80 (.61)

Table D4 (continued).

		Black Female Participants						
Dependent Variables	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>	<i>M(SD)</i>
	<i>SWM</i>	<i>SBM</i>	<i>SWW</i>	<i>SBW</i>	<i>FWM</i>	<i>FBM</i>	<i>FWW</i>	<i>FBW</i>
Attractiveness	3.34 (.34)	3.50 (.58)	3.37 (.44)	3.38 (.42)	2.31 (.50)	2.58 (.49)	2.63 (.37)	2.59 (.44)
Genuineness	3.66 (.27)	3.97 (.26)	3.99 (.25)	3.98 (.27)	2.53 (.34)	2.91 (.51)	2.87 (.18)	2.84 (.50)
Unthreateningness	3.81 (.20)	3.81 (.16)	4.07 (.19)	3.90 (.30)	2.65 (.58)	3.03 (.61)	3.39 (.46)	2.99 (.72)
Similarity of Values	2.97 (.27)	3.19 (.34)	3.30 (.24)	3.40 (.29)	2.13 (.34)	2.47 (.30)	2.39 (.15)	2.48 (.39)
Intelligence	3.57 (.24)	3.71 (.29)	3.84 (.18)	3.79 (.21)	2.71 (.26)	2.93 (.31)	2.98 (.20)	2.97 (.29)
Approachability	3.32 (.26)	3.50 (.35)	3.53 (.24)	3.51 (.28)	2.22 (.40)	2.50 (.46)	2.46 (.15)	2.48 (.39)
Trustworthiness	3.48 (.23)	3.66 (.26)	3.83 (.16)	3.78 (.22)	2.45 (.29)	2.75 (.39)	2.81 (.17)	2.78 (.50)

Note. *SWM* = smiling White male targets, *SBM* = smiling Black male targets, *SWW* = smiling White female targets, *SBW* = smiling Black female targets, *FWM* = frowning White male targets, *FBM* = frowning Black male targets, *FWW* = frowning White female targets, *FBW* = frowning Black female targets.

APPENDIX E

HUMAN SUBJECTS REVIEW COMMITTEE APPROVAL



 THE UNIVERSITY OF SOUTHERN MISSISSIPPI

Institutional Review Board

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**HUMAN SUBJECTS PROTECTION REVIEW COMMITTEE
 NOTICE OF COMMITTEE ACTION**

The project has been reviewed by The University of Southern Mississippi Human Subjects Protection Review Committee in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services (45 CFR Part 46), and university guidelines to ensure adherence to the following criteria:

- The risks to subjects are minimized.
- The risks to subjects are reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered regarding risks to subjects must be reported immediately, but not later than 10 days following the event. This should be reported to the IRB Office via the "Adverse Effect Report Form".
- If approved, the maximum period of approval is limited to twelve months. Projects that exceed this period must submit an application for renewal or continuation.

 PROTOCOL NUMBER: 29030907
PROJECT TITLE: **The Effects of Facial Expression on Out-Group Discrimination**

PROPOSED PROJECT DATES: 03/01/09 to 03/01/11

PROJECT TYPE: **Dissertation or Thesis**PRINCIPAL INVESTIGATORS: **Charles Brendan Clark**COLLEGE/DIVISION: **Graduate Studies**DEPARTMENT: **Clinical Psychology**FUNDING AGENCY: **N/A**HSPRC COMMITTEE ACTION: **Expedited Review Approval**PERIOD OF APPROVAL: **03/30/09 to 03/29/10**

Lawrence A. Hosman

 Lawrence A. Hosman, Ph.D.
 HSPRC Chair

4-3-09

 Date

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