



When your friends matter: The effect of White students' racial friendship networks on meta-perceptions and perceived identity contingencies[☆]

Daryl A. Wout^{a,*}, Mary C. Murphy^{b,1}, Claude M. Steele^c

^a John Jay College-City University of New York, New York, NY, United States

^b University of Illinois at Chicago, Chicago, IL, United States

^c Columbia University, New York, NY, United States

ARTICLE INFO

Article history:

Received 14 January 2010

Revised 6 June 2010

Available online 25 June 2010

Keywords:

Interracial friendships

Intraracial friendships

Meta-perceptions

Perceived identity contingencies

Stigma

Blacks

ABSTRACT

Prior research suggests that people expect to be perceived negatively in interracial interactions but positively in intraracial interactions. The present research demonstrates that an interaction partner's racial network of friends can moderate these expectations in interracial interactions but not intraracial interactions. Across two experiments, we led Black and White college students to believe they would have conversation with a White student on campus. The results revealed that Black students expected to be perceived more positively and anticipated a less challenging conversation, when their interaction partner had a racially diverse network of friends compared to a racially homogeneous network of friends. In contrast, White students expected to be perceived positively and anticipated few challenges in the conversation, regardless of their interaction partner's racial network of friends. The implications of racial friendship diversity are discussed.

© 2010 Elsevier Inc. All rights reserved.

A few years ago, one of the authors moved to a new university. As he transitioned into his new department, he closely observed the social interactions of the faculty and students. As is typically the case, most people associated with those who shared similar interests and backgrounds. In contrast, one senior professor had close friends that varied in interests, social views, and racial/ethnic backgrounds. It was not long before the author found himself naturally drawn to this professor, although they had different racial backgrounds and few interests in common. Why did the author gravitate to this person? One possibility is that the professor's social skills and charm made the author feel comfortable. However, we would like to propose an alternative explanation—perhaps the professor's ability to form a diverse network of close friendships made the author feel that the professor was unlikely to perceive or treat him based solely upon his social group memberships.

Consistent with the author's experience, people actively attempt to determine how others will perceive them (i.e., meta-perceptions) (Mallett, Wilson, & Gilbert, 2008; Vorauer, Main, & O'Connell, 1998). Research suggests that people's meta-perceptions vary based on

whether they are engaging in an intergroup or intragroup interaction. Whereas people expect to be perceived as a stereotypical member of their social group in intergroup interactions, they expect to be perceived as a unique individual in intragroup interactions (Frey & Tropp, 2006).

Although research has shown that people's meta-perceptions are profoundly influenced by group membership, little research has explored other contextual cues that could moderate the effect of group membership on meta-perceptions. We propose that one potential moderator of people's meta-perceptions is the racial diversity of their interaction partner's friendship network. In the present studies, we explored whether knowledge of the racial diversity of White college students' friendships affected Black and White students' meta-perceptions before an interpersonal interaction. To date, we are unaware of any research that has directly investigated the effects of racial friendships on meta-perceptions.

Meta-perceptions in interracial interactions

Interactions with members of other racial groups can be challenging (Blascovich, Mendes, Hunter, Lickel, & Kowai-Bell, 2001; Devine, Evett, & Vasquez-Suson, 1996; Stephan & Stephan, 1985) and can lead people to expect to be perceived negatively (Shelton, Richeson, & Vorauer, 2006; Vorauer et al., 1998). Ethnic minorities' expectations that Whites will perceive them negatively can have serious negative consequences. For instance, Black students' expectations that Whites will perceive them negatively can affect their academic performance, their sense of academic belonging, and their

[☆] This research was partially supported by National Science Foundation Minority Post-Doctoral Fellowships awarded to Daryl A. Wout and Mary C. Murphy, and, a National Science Foundation grant (No. 0936613) awarded to Mary C. Murphy. We would like to thank Dale Miller for inspiring this research.

* Corresponding author. Department of Psychology, John Jay College-City University of New York, 455 West 59th Street, New York, NY 10019, United States.

E-mail address: dwout@jjay.cuny.edu (D.A. Wout).

¹ D. A. Wout and M. C. Murphy share primary authorship as they have contributed equally to this work.

willingness to interact with White students and teachers (Brown & Dobbins, 2004; Mendoza-Denton, Downey, Purdie, Davis, & Pietrak, 2002; Sekaquaptewa & Thompson, 2003; Steele & Aronson, 1995; Walton & Cohen, 2007; Wout, Shih, Jackson, & Sellers, 2009). Thus, it is imperative for researchers to identify factors that might moderate these intergroup expectations.

Friendship diversity as a potential moderator of meta-perceptions

Although racial and ethnic diversity in higher education has dramatically increased (Bowen & Bok, 1998), and interracial friendships have been shown to reduce prejudice (Tropp & Pettigrew, 2005), close interracial friendships remain uncommon. This lack of cross-race friendships is most pronounced among White students. Massey, Charles, Lundy, and Fisher (2003) found that the average White college student had less than one close non-White friend. Equally as important, both White and Black students *perceive* that the average White student has few friends of other racial groups (Wout & Murphy, 2006). When asked to describe the racial composition of White college students' closest friendships, both Black and White college students reported believing that the average White student has less than one non-White friend. Thus, not only do Whites have a racially homogeneous network of friends, but there is also a perceived consensus—among Whites and Blacks—that Whites have a racially homogeneous network of friends.

We contend that in Black–White interactions on college campuses, Black students will use the racial diversity of White students' friends as a cue when forming their expectations about how they will be perceived (i.e., their meta-perceptions). Specifically, we expect that Black students will expect to be perceived negatively by White students with homogeneously White friendship networks. In contrast, we assert that Blacks will expect to be perceived more positively by White students with racially diverse friends. Consistent with the findings of Wout and Murphy (2006), we hypothesize that without knowledge of a White student's friendship network, Black students will expect to be perceived negatively as they rely on their assumptions about the racial composition of the average White student's friendship network (i.e., that it is racially homogenous) and their beliefs about how “average” White students may perceive them.

Present research

The present experiments test the hypothesis that friendship diversity affects meta-perceptions in intergroup, but not intragroup, interactions. Specifically, we hypothesize that White students' racial friendship networks will affect how Black, but not White, students expect to be perceived. Experiment 1 explores whether the racial diversity of a White student's network of friends affects Black students' meta-perceptions. Experiment 2 tests whether the nature of the interaction (interracial vs. intraracial) moderates the effect of friendship diversity on meta-perceptions for Black and White students. Experiment 2 also investigates whether these meta-perceptions affect the amount of interpersonal challenges students expect to face during the interaction.

Experiment 1

In experiment 1, Black students viewed a social networking profile of a White student who had either all White friends, Black and White friends, or a profile that did not include racial information about the White student's friends. We hypothesized that Black students would expect to be perceived more positively by a White student that had racially diverse friends compared to either a White student that had all White friends or that had friends whose racial backgrounds were unknown.

Method

Participants

Thirty-three self-identified Black students (14 males and 19 females) from a public college in the northeast participated in this experiment. Participants received \$5 as compensation for their participation.

Procedure

Participants were approached on campus and asked to participate in a short study on impression formation over the Internet. Those who agreed to participate were seated in front of a laptop computer. The experimenter told the participants that they would be shown an Internet social networking profile of another student on campus and that their task was to form an impression of that student.

In each condition, participants viewed an Internet social networking profile of a White student on campus. The gender of the person in the profile was matched with the gender of the participant. Participants in the “racially homogeneous friendships” condition saw a profile of a White student who had all White friends; participants in the “racially diverse friendships” condition saw a profile of a White student who had White and Black friends; and participants in the “no friendship information” condition received no information about the race of the White student's friends.

The experimenter asked participants to view the profile for two minutes and to record the names of the student and his/her friends. After 2 minutes, the experimenter asked the participants to form an impression of the student and to complete a short questionnaire. Embedded within this questionnaire was the dependent variable—the participants' perceptions of how the student in the profile would likely perceive them if they were to actually meet. Once the participants completed the questionnaire, they were fully debriefed and given \$5 for their participation.

Materials

Social networking profiles. We created six fictitious profiles on a popular social networking Web site (one male and one female profile for each of the three conditions). For participants in all three conditions, the name of the student in the profile (along with his/her photograph) was displayed at the top of the profile. In addition, the names and photographs of the student's five closest friends were displayed on the left side of the profile. We manipulated the race of the friends in these photographs. In the “homogenous friendship network” condition, the photographs were of five White students. In the “diverse friendship network” condition, the photographs were of three White students and two Black students. In the “no friendship information” condition, the photographs were not of actual people. Instead, the photographs were replaced with non-descript avatars of the silhouette of a person's face. The gender of the student's friends matched the gender of the student. Within each gender, the names of the student's friends were held constant across conditions.

Meta-perceptions. To assess how they expected to be perceived by the student in the profile if they were to actually meet, participants indicated the likelihood that the student in the profile would think that they possessed 13 traits on a 7-point Likert scale (1 = very unlikely, 7 = very likely). We included seven characteristics designed to measure students' meta-perceptions along the dimensions of competence and warmth (Fiske, 1998; Fiske, Cuddy, Glick, & Xu, 2002) friendly, trustworthy, rude (reverse-coded), and arrogant (reverse-coded), intelligent, smart, and well spoken. We averaged participants' responses to these seven characteristics to create a meta-perception composite score ($\alpha = .71$).

Results and discussion

We hypothesized that Black students who viewed the profile of the White student with a racially diverse network of friends would expect to be perceived more positively than Black students in the other two conditions. A one-way ANOVA on meta-perceptions revealed a significant effect of friendship network, $F(2,30) = 4.76$, $p < .05$. Consistent with our hypothesis, planned contrasts revealed that participants in the racially diverse friendship network condition expected to be perceived more positively by the White student (i.e., as more competent and likeable; $M = 5.40$) than participants in either the racially homogeneous friendship network condition ($M = 4.57$), $t(30) = 2.42$, $p < .05$; or participants in the no information condition ($M = 4.42$), $t(30) = 2.87$, $p < .01$. Consistent with data demonstrating that Black students perceive that the average White student has a racially homogeneous network of friends (Wout & Murphy, 2006), participants in the no information condition expected to be perceived similarly to those in the racially homogeneous friendships condition, $t(30) = .45$, *ns*.

Experiment 1 demonstrated that the racial diversity of White students' friendship networks affect Black students' meta-perceptions. Specifically, Black students expected to be perceived more negatively when they learned either that the White student in the profile had all White friends and when they had no racial information about the friends. This finding suggests that the default assumption of Black students is that White students generally have racially homogeneous friendships and this expectation may result in negative meta-perceptions. In contrast, Black students expected to be perceived more positively when the White student had a racially diverse network of friends.

Experiment 2

Experiment 2 expanded on experiment 1 in three ways. First, participants anticipated a live interaction with a White (confederate) student. Second, we included White participants in Experiment 2 to explore the influence of racial friendship networks on intraracial interactions. The inclusion of Whites enabled us to examine if these friendship cues operate in the same manner in intraracial interactions as they do in interracial interactions. Finally, we explored whether the diversity of Whites' friendship networks affected not only how people expected to be perceived by their interaction partner but also whether it shaped their expectations about the challenges they might face during the interpersonal interaction.

Meta-perceptions in intraracial interactions

Although there is an emerging body of research on how people expect to be perceived in interracial interactions, there is a dearth of research on how people expect to be perceived in intraracial interactions (see Frey & Tropp, 2006). In contrast to interracial contexts, people should expect to be perceived as they perceive themselves (i.e., projection) in intraracial contexts (Ames, 2004a,b; Frey & Tropp, 2006). Given that, on average, people tend to have positive perceptions of themselves, they should expect in-group members to perceive them positively as well. In contrast with Black-White interactions, we hypothesize that racial friendship diversity should have little impact on meta-perceptions when Whites interact with each other. Specifically, we hypothesize that White students will expect other Whites to perceive them as competent and warm, regardless of the racial diversity of their friends.

Perceived identity contingencies

Along with concerns about how they will be perceived (i.e., meta-perceptions), people also have more elaborated concerns about the

possible challenges and difficulties they may face during live interpersonal interactions. These include concerns such as fearing that the interaction will be awkward, feeling that one might not be able to be oneself in the interaction, or feeling that one has little in common with one's interaction partner. These concerns, termed *perceived identity contingencies* (Murphy & Steele, 2009), refer to the possible challenges, restrictions, and mistreatment that people believe that they may have to contend with in a given setting because of their social identity (Murphy & Steele, 2009; Purdie-Vaughns, Steele, Davis, Ditlmann, & Randall-Crosby, 2008; Steele, Spencer, & Aronson, 2002). Beyond suspicions that one might be perceived negatively, identity contingencies are the cognitions that people consider when engaging in an interpersonal situation.

Although the concept of perceived identity contingencies is relatively new, it has begun to garner empirical support. For example, Purdie-Vaughns et al. (2008) found that Black professionals reported more perceived identity contingency concerns when they were considering applying for a job at a company that had a colorblind diversity policy compared to a company that had a "valuing diversity" policy. Similarly, Murphy and Steele (2009) found that women reported more identity contingencies, such as being afraid to raise their hands to ask clarification questions, when they expected to be tutored in math by a male tutor compared to a female tutor. The present study is the first to explore perceived identity contingencies in interracial and intraracial contexts.

When interacting with Whites, we hypothesize that Blacks will be concerned that their partner will not want to talk to them, that they will not be able to be themselves, or that they will have to censor their true opinions. Perceived identity contingencies such as these can impair, and even deter, interracial interactions. Although Blacks are likely to be concerned about such identity contingencies when interacting with a White person, we contend that this effect will be influenced by the racial diversity of that White person's friendship network. Specifically, we hypothesize that Black students will report fewer identity contingency concerns when anticipating an interaction with a White student with a racially diverse network of friends compared to a White student with a homogeneously White network of friends.

As with meta-perceptions, we hypothesize that racial friendship networks will have no effect on White students' perceived identity contingencies when anticipating an intraracial interaction. For example, Whites should feel little pressure to self-censor their beliefs when interacting with other Whites and should have little reason to think that other Whites would not want to talk with them. Thus, due to a common in-group identity, Whites should expect intraracial interactions to go relatively smoothly.

Participants

Sixty-nine undergraduates (32 Blacks and 37 Whites; 36 females) from a private university in California participated in exchange for \$15.

Procedure

Participants were run individually in experimental sessions. When they arrived at the lab, a female experimenter informed the participants that the study was investigating first impressions over the Internet. The experimenter then sat the participant at a computer with a Web camera.

Once the participant was seated, the experimenter explained that the study consisted of an information exchange task and a 20-minute conversation over the Internet using Web cameras. Participants were told that they would have a one-way information exchange via Instant Message (IM) with another student (a confederate), after which they would form an initial impression of this student. Next, participants would send their information the partner would then make an initial impression of them. They would then have a 20-minute conversation with their interaction partner using the Web cameras. In actuality, the study ended before this interaction. The race of the interaction partner

(confederate) was always White, and the gender of the partner always matched the participant's gender.

After explaining the procedure, the experimenter then took a digital photograph of the participant and stated that the picture would not be presented to their partner until it was the participant's turn to send their information. The experimenter then mentioned that she had previously taken a digital picture of the interaction partner. The participant was told that these pictures would be displayed next to the messages that were sent via the IM program. The pictures were used to subtly make known the race of the participant's interaction partner.

For the IM exchange, the experimenter always assigned the partner the role of the "sender" and the participant the role of the "receiver." The sender's job was to present information about his/her major, the courses he/she is presently taking, and the name, race, and gender of his/her five closest friends. The senders' picture was submitted with each piece of information he/she provided to the participant.

As the receiver, the participant's task was to record the sender's information and to then form an impression of the sender. In the role of the receiver, participants were explicitly instructed not to send any information to their partner. Thus, the participant's photograph and race were never made available to their partner. This procedure ensured that participants were aware that their partner had no identifying information about them.

The information the confederate provided was identical across conditions, except for the race of his/her five closest friends. For participants in the homogenous friendship condition, the sender reported having five friends that were all White, whereas for participants in the diverse friendship condition, the sender reported having three White and two Black friends.

After recording their partner's information, participants reported how they expected their partner would perceive them (meta-perceptions) and the challenges that they expected to deal with during the upcoming interaction (perceived identity contingencies). Participants then completed a demographics form and two manipulations checks. They were then informed that the study was over. They were then fully debriefed and paid \$15.

Dependent measures

Meta-perceptions

We used the same competence and warmth items from experiment 1, except that "intelligent" was changed to "unintelligent" (reverse-coded), and the item "qualified to be at (the university)" was added. We averaged participants' responses to these 8 characteristics to create a meta-perceptions composite score ($\alpha = .79$).

Perceived identity contingencies

Participants then completed a 7-item measure of the interpersonal challenges they expected to face during the upcoming conversation with their partner. This measure was adapted from Murphy and Steele (2009) to measure participants' anticipated challenges during the interaction. Sample items were, "How much would you worry that you could not really express your real views to this student?" and "How much do you feel like you could be yourself during this interaction?" (reverse-coded). These items were internally reliable ($\alpha = .77$).

We reasoned that if participants expected to be perceived positively by their partner, they would expect fewer interpersonal challenges during the impending interaction. Indeed, there was a negative correlation between these constructs, such that the more positively people thought they would be perceived, the fewer challenges they anticipated having to face during the interaction, $r = -.40, p < .01$.

In addition to examining the effects of friendship networks on meta-perceptions and perceived identity contingencies, we tested the causal relationship between these variables. We hypothesized that people's more general, trait-based meta-perceptions (i.e., unintelligent, incom-

petent) should mediate the specific challenges they expected to face during interracial interactions but not intraracial interactions.

Results

Meta-perceptions

A 2 (participant's race) \times 2 (friendship network) analysis of variance (ANOVA) on meta-perceptions revealed a main effect for race, such that Black participants expected to be perceived less positively than White participants overall, $F(1,65) = 6.94, p = .01$. This effect, however, was qualified by the predicted race \times friendship network interaction, $F(1,65) = 8.15, p < .01$ (see Table 1 for means). Simple effects tests revealed that Black participants thought they would be perceived more positively when their White partner had a racially diverse network of friends compared to a homogeneously White network of friends, $F(1,65) = 8.09, p < .01$. As hypothesized, White participants' perceptions were unaffected by the interaction partner's friendship network, $F(1,65) = .75, ns$.

Perceived identity contingencies

An ANOVA on participants' expected challenges for the interaction yielded a marginally significant effect of friendship network, $F(1,65) = 3.07, p = .08$. This effect was qualified by the predicted race \times friendship network interaction, $F(1,65) = 6.82, p = .01$. Simple effects revealed that Black participants expected fewer challenges when their interaction partner had racially diverse friends compared to homogeneously White friends, $F(1,65) = 8.91, p < .01$. As with meta-perceptions, White participants' anticipated challenges were unaffected by the racial composition of the White partner's friendships, $F(1,65) = .40, ns$.

Tests of moderated mediation

We hypothesized that in interracial, but not intraracial, interactions meta-perceptions would mediate the direct effect of the situational cue (i.e., the racial diversity of a partner's friendship networks) on perceived identity contingencies (see Fig. 1). Tests of mediation have long been guided by the multistep approach recommended by Baron and Kenny (1986). However, recently, methodologists have suggested bootstrapping as a way to avoid power problems that result from asymmetric and other non-normal sampling distributions of an indirect effect (MacKinnon, Krull, & Lockwood, 2000; MacKinnon, Lockwood, & Williams, 2004; Shrout & Bolger, 2002). Following the recommendations of Preacher, Rucker, and Hayes (2007), we tested our conditional indirect effects hypothesis using the SPSS moderated mediation macro (MOMED; Model 2) designed by Preacher and his colleagues (2007). This macro facilitates the recommended bootstrapping methods and provides a means for probing the significance of conditional indirect effects at

Table 1

Mean scores on meta-perceptions and perceived identity contingencies as a function of participants' race and partner's racial friendship network (experiment 2).

Dependent variables	Experimental condition			
	Black participants		White participants	
	White partner with all White friends	White partner with diverse friends	White partner with all White friends	White partner with diverse friends
Meta-perceptions	4.15 _a (0.82)	4.87 _b (0.59)	5.06 _b (0.60)	4.83 _b (0.71)
Perceived identity contingencies	3.31 _a (1.01)	2.30 _b (0.83)	2.71 _b (0.83)	2.91 _b (1.12)

Means with different subscripts in the same row differ significantly from one another ($p < .05$). The numbers in parentheses are the standard deviations.

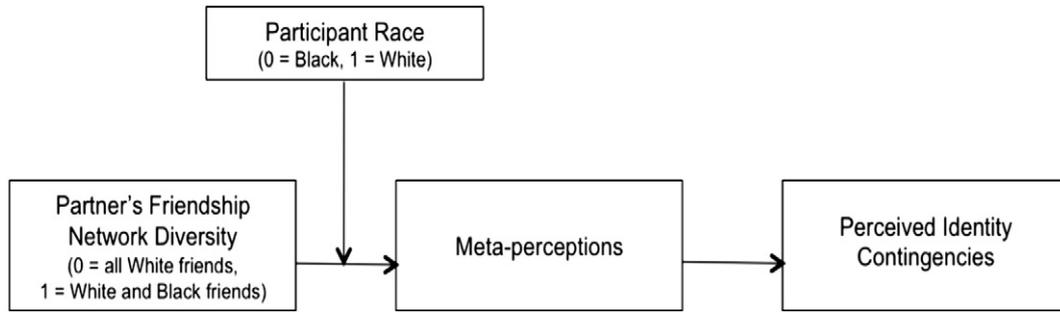


Fig. 1. Moderated mediation model. The conditional indirect effect of the racial composition of a White interaction partner's friendship network on perceived identity contingencies through meta-perceptions, moderated by interaction type (i.e., interracial and intraracial interactions).

the two values of our dichotomous moderator variable. The analysis employed the friendship network diversity manipulation as the independent variable (*X*). This variable was dummy-coded so that 0 = all White friends and 1 = racially diverse friends. Self-reported meta-perceptions served as the mediator (*M*), perceived identity contingencies was the dependent variable (*Y*), and participants' race was the dummy-coded moderator (*W*; 0 = Black, 1 = White). The analysis used 5000 bootstrap resamples, and a bias-corrected 95% confidence interval at each level of the moderator is reported as Preacher et al. (2007) recommend.

The results of these analyses are found in Table 2. Results revealed that the cross-product term between friendship diversity (*X*) and participant race (*W*) on meta-perceptions (*M*) was significant ($B = 0.95, t = -2.86, p < .05$). Although these results support a moderated mediation hypothesis, they do not directly test the hypothesis that meta-perceptions mediate the relationship between friendship diversity and perceived identity contingencies for *interracial interactions* but not *intraracial interactions*. Therefore, we examined the conditional indirect effect of friendship diversity on perceived identity contingencies (through meta-perceptions) at the two dummy-coded values of the moderator (i.e., for Black and for White participants). As predicted, the mediation model was significant for interracial interactions (i.e., Black participants interacting with White partners; $z = -.199, p = .05, CI: -0.74 \text{ to } -0.10$) but not for intraracial interactions (i.e., White participants interacting with White partners; $z = 0.90, p > .05, CI: -0.08 \text{ to } 0.35$). Taken together, the data suggest that for Black participants, anticipating an interaction with a White partner who has diverse friends increases positive meta-perceptions, which in turn, decreases negative expectations for the upcoming interaction (see Fig. 1). This outcome is consistent with theorizing about the potentially

threatening nature of interracial interactions compared to intraracial interactions (Frey & Tropp, 2006) and confirms the importance of friendship network diversity in modulating these negative expectations in Black–White interactions.

General discussion

Statistics show that despite increases in racial diversity on college campuses, most White college students continue to have racially homogeneous friendship networks (Massey et al., 2003). To date, no research has explored the consequences of these racially homogenous friendships for interracial and intraracial interactions. The present study is the first to address this issue by investigating whether the racial composition of a White interaction partner's friendship network might affect Black and White students' meta-perceptions and perceived identity contingency concerns.

Experiment 1 demonstrated that Black students expected a White student with all White friends to perceive them negatively. Similarly, when Black students did not have information regarding the White students' friends, they expected to be perceived negatively. In contrast, Blacks expected a White student who had both Black and White friends to perceive them more positively.

In experiment 2, Black students expected a White student with all White friends to perceive them more negatively, and they expected more interpersonal challenges during the upcoming interaction with this student, compared to a White student with a racially diverse set of friends. Consistent with recent theorizing about intragroup interactions (Frey & Tropp, 2006), Whites' meta-perceptions and perceived identity contingencies were not affected by the racial composition of the White student's friendships. Furthermore, the results of

Table 2

Regression results for moderated mediation model of friendship network diversity on perceived identity contingencies through meta-perceptions with participant race as a moderator of the relationship between friendship network diversity and meta-perceptions.

Predictor	Estimate	SE	t	p	
Meta-perceptions (mediator variable model)					
Constant	4.150	0.177	23.499	0.000	
Friendship diversity	0.718	0.242	2.962	0.004	
Participant race	0.909	0.242	3.751	0.000	
Friendship diversity × participant race	-0.945	0.331	-2.855	0.006	
Perceived identity contingencies (dependent variable model)					
Constant	5.269	0.727	7.249	0.000	
Friendship diversity	-0.678	0.345	-1.966	0.054	
Meta-perceptions	-0.471	0.166	-2.843	0.006	
Participant race	-0.172	0.357	-0.481	0.632	
Friendship diversity × participant race	0.771	0.469	1.643	0.105	
Conditional effects at race = 0 and 1					
Participant race	Bootstrap indirect effect	Bootstrap SE	Bootstrap z	Bootstrap p	95% CI bias corrected
0 (Black participants)	-0.338	0.170	-1.993	0.046	(-0.740, -0.097)
1 (White participants)	0.107	0.119	0.902	0.367	(-0.076, 0.345)

N = 69. Unstandardized regression coefficients are reported. Bootstrap sample size = 5000.

experiment 2 demonstrated that for Black (but not White) students, the racial diversity of Whites' friendship networks affected students' meta-perceptions, which, in turn, affected their anticipated interaction challenges.

In the present studies, we examined the effects of the racial composition of White students' friendships. We reasoned that, as the majority racial group on most college campuses, their friendship diversity would significantly shape the racial and social climate of a campus (Chavous, 2005; Hurtado, Milem, Clayton-Pedersen, & Allen, 1998; Rankin & Reason, 2005). Our focus on Whites' friendships, however, places some limitations on the present research. Prior research has demonstrated that Whites also have meta-perception concerns during interracial interactions (Vorauer et al., 1998). Although these concerns are different in content than Blacks' concerns, it is likely that Whites' concerns about being stereotyped by Blacks could also be reduced if they learned that a Black interaction partner had White friends. Future research should explore this possibility.

Furthermore, the present studies did not explore whether racially diverse friendship networks affect live interracial interactions. In these experiments, participants reported their thoughts and perceptions regarding an imagined and anticipated interaction. Research has shown that actual interracial interactions can deplete cognitive resources (Richeson & Shelton, 2003; Richeson, Trawalter, & Shelton, 2005) and foster compensatory strategies among Blacks (Shelton, 2003). Based upon research on self-fulfilling prophecies (Word, Zanna, & Cooper, 1974), people's expectations of an upcoming interaction are likely to influence the nature of the interaction. Additional research should explore whether friendship networks affect the dynamics of live interracial interactions.

We operationalized friendship diversity as having both Black and White friends. Given the increasing numbers of Hispanic, Asian American, and Native American students in college it would be interesting if the present findings could be replicated when friendship diversity includes friends from various racial groups. Specifically, would Black students expect to be perceived more positively if their White interaction partner had a racially diverse network of friends, but none of these friends were Black? Exploring this question would help determine whether Blacks expected to be perceived positively because their partner had a racial diverse network of friends or because the partner had Black friends in particular.

Related to this question is one regarding potential mechanisms. Why does exposure to a White student's diverse friendship network cause Black participants to anticipate a more comfortable interaction? There are several possibilities. First, exposure to a diverse friendship network might lead participants to expect that their partner is egalitarian and unlikely to harbor racial prejudice. Another possibility is that Black participants who see their in-group represented in their partner's friendship network may begin to include the out-group partner in the self (Aron, Aron, Tudor, & Nelson, 1991; Page-Gould, Mendoza-Denton, Alegre, & Siy, 2010). Including an out-group member in the self has been shown to have similar benefits such as positive expectations for intergroup contact (Page-Gould et al., 2010), so it is possible that the friendship network cue may be operating through this mechanism. Finally, it could be that simple exposure to any representation of diversity—regardless of the source—causes Black participants to experience more comfort. Although our hunch is that it is critically important that the diversity cue come from the interaction partner and that it be reflective of the partner's close relationships, it is an empirical question whether simply being primed with diversity before an intergroup interaction, for example, is sufficient to shape intergroup expectations in a similar manner. We are currently exploring these potential mechanisms.

Despite these limitations, the present research is the first, to our knowledge, to examine the psychological effects of Whites' racially homogenous friendship networks—a phenomenon that is both an actual and perceived norm among college students. Furthermore, this

research contributes to the intragroup and intergroup literature as it demonstrates how people incorporate contextual cues, like racial friendship networks, when forming meta-perceptions before intragroup and intergroup interactions. The present research also demonstrates a downstream consequence of the cue of friendship networks, showing that it affects the interpersonal expectations of how an intergroup interaction will proceed. If people consistently expect interactions to be rife with such interpersonal hurdles, it is likely to deter people from pursuing contact with out-group members (Murphy & Steele, 2009; Shelton et al., 2006).

Coda

A Jewish proverb states, "A man that hath friends must first show himself friendly." The present research makes a similar point. Having a racially homogeneous friendship network may cause members of racial minority groups to expect to be perceived and treated negatively. This is likely to hinder positive cross-race interactions. Thus, ironically, well-intentioned people with a racially homogeneous friendship network may be inadvertently perpetuating this homogeneity by discouraging members of other racial groups from interacting with them. It may not be sufficient for people to simply have interest in forming cross-race friendships; instead, it may actually require that people in some way "show" that they are truly committed to forming these friendships. The present research suggests that having cross-race friendships may be one way of demonstrating that commitment. It is also likely that friendship diversity is self-perpetuating. Once people have demonstrated commitment to cross-race friendships, future cross-race interactions are likely to occur more frequently and friendships are likely to form more smoothly.

References

- Ames, D. R. (2004a). Inside the mind reader's tool kit: Projection and stereotyping in mental state inference. *Journal of Personality and Social Psychology*, 87, 340–353.
- Ames, D. R. (2004b). Strategies for social inference: A similarity contingency model of projection and stereotyping attribute prevalence estimates. *Journal of Personality and Social Psychology*, 87, 573–585.
- Aron, A., Aron, E. N., Tudor, M., & Nelson, G. (1991). Close relationships as including the other in the self. *Journal of Personality and Social Psychology*, 60, 241–253.
- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychology research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.
- Blascovich, J., Mendes, W. B., Hunter, S. B., Lickel, B., & Kowai-Bell, N. (2001). Perceiver threat in social interactions with stigmatized others. *Journal of Personality and Social Psychology*, 80, 253–267.
- Bowen, W. G., & Bok, D. (1998). *The shape of the river: Long-term consequences of considering race in college and university admissions*. Princeton, NJ: Princeton University Press.
- Brown, L. M., & Dobbins, H. (2004). Students' of color and European American students' stigma-relevant perceptions of university instructors. *Journal of Social Issues*, 60, 157–174.
- Chavous, T. M. (2005). An intergroup contact–theory framework for evaluating racial climate on predominantly white college campuses. *American Journal of Community Psychology*, 36, 239–257.
- Devine, P. G., Evett, S. R., & Vasquez-Suson, K. A. (1996). Exploring the interpersonal dynamics of intergroup context. In R. M. Sorrentino, & E. T. Higgins (Eds.), *Handbook of motivation and cognition: The interpersonal context*, Vol. 3. (pp. 423–464) New York: Guilford.
- Fiske, S. T. (1998). Stereotyping, prejudice, and discrimination. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *Handbook of Social Psychology: The Handbook of Social Psychology*, Vol. 2. (pp. 357–411) Boston, MA: McGraw-Hill.
- Fiske, S. T., Cuddy, A. J., Glick, P., & Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology*, 82, 878–902.
- Frey, F. E., & Tropp, L. R. (2006). Being seen as individuals versus as group members: Extending research on metaperceptions to intergroup contexts. *Personality and Social Psychology Review*, 10, 265–280.
- Hurtado, S., Milem, J. F., Clayton-Pedersen, A. R., & Allen, W. R. (1998). Enhancing campus climates for racial/ethnic diversity: Educational policy and practice. *The Review of Higher Education*, 21, 279–302.
- MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding, and suppression effect. *Prevention Science*, 1, 173–181.
- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits of the indirect effect: Distribution of the produce and resampling methods. *Multivariate Behavioral Research*, 39, 99–128.

- Massey, D. S., Charles, C. Z., Lundy, G. F., & Fisher, M. J. (2003). *The source of the river: The social origins of freshman at America's selective colleges and universities*. Princeton, NJ: Princeton University Press.
- Mallett, R. K., Wilson, T. D., & Gilbert, D. T. (2008). Expect the unexpected: Failure to anticipate similarities leads to an intergroup forecasting error. *Journal of Personality and Social Psychology, 94*, 265–277.
- Mendoza-Denton, R., Downey, G., Purdie, V. J., Davis, A., & Pietrak, J. (2002). Sensitivity to status-based rejection: Implications for African American students' college experience. *Journal of Personality and Social Psychology, 83*, 896–918.
- Murphy, M. C., & Steele, C. M. (2009). The importance of context: Understanding the effects of situational cues on perceived identity contingencies and sense of belonging. Submitted for publication.
- Page-Gould, E., Mendoza-Denton, R., Alegre, J. M., & Siy, J. O. (2010). Understanding the impact of cross-group friendship on interactions with novel outgroup members. *Journal of Personality and Social Psychology, 98*, 775–793.
- Preacher, K. J., Rucker, D. D., & Hayes, A. F. (2007). Addressing moderated mediation hypotheses: Theory, methods, and prescriptions. *Multivariate Behavioral Research, 42*, 185–227.
- Purdie-Vaughns, V. P., Steele, C. M., Davis, P. G., Dittmann, R., & Randall-Crosby, J. (2008). Social identity contingencies: How diversity cues signal threat or safety for African Americans in mainstream institutions. *Journal of Personality and Social Psychology, 94*, 615–630.
- Rankin, S. R., & Reason, R. D. (2005). Differing perceptions: How students of color and white students perceive campus climate for underrepresented groups. *Journal of College Student Development, 46*, 43–61.
- Richeson, J. A., & Shelton, J. N. (2003). When prejudice does not pay: Effects of interracial contact on executive function. *Psychological Science, 14*, 287–290.
- Richeson, J. A., Trawalter, S., & Shelton, J. N. (2005). African Americans' implicit racial attitudes and the depletion of executive function after interracial interactions. *Social Cognition, 23*, 336–352.
- Sekaquaptewa, D., & Thompson, M. (2003). Solo status, stereotype threat, and performance expectancies: Their effects on women's performance. *Journal of Experimental Social Psychology, 39*, 68–74.
- Shelton, N. J. (2003). Interpersonal concerns in social encounters between majority and minority group members. *Group Processes and Intergroup Relations, 6*, 171–185.
- Shelton, N. J., Richeson, J. A., & Vorauer, J. D. (2006). Threatened identities and interethnic interactions. *European Review of Social Psychology, 17*, 321–358.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and non-experimental studies: New procedures and recommendations. *Psychological Methods, 7*, 422–445.
- Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology, 69*, 797–811.
- Steele, C. M., Spencer, S., & Aronson, J. (2002). Contending with group image: The psychology of stereotype and social identity threat. In M. P. Zanna (Ed.), *Advances in experimental social psychology, Vol. 34*. (pp. 379–440) San Diego, CA: Academic Press.
- Stephan, W. G., & Stephan, C. W. (1985). Intergroup anxiety. *Journal of Social Issues, 41*, 157–175.
- Tropp, L. R., & Pettigrew, T. F. (2005). Relationships between intergroup contact and prejudice among minority and majority status groups. *Psychological Science, 16*, 951–957.
- Vorauer, J. D., Main, K. J., & O'Connell, G. (1998). How do individuals expect to be viewed by members of lower status groups? Content and implications of meta-stereotypes. *Journal of Personality and Social Psychology, 75*, 917–937.
- Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology, 92*, 82–96.
- Word, C. O., Zanna, M. P., & Cooper, J. (1974). The nonverbal mediation of self-fulfilling prophecies in interracial interactions. *Journal of Experimental Social Psychology, 10*, 109–120.
- Wout, D. A., & Murphy, M. C. (2006). Perceptions of White students' friendship network. Unpublished data. Stanford University.
- Wout, D., Shih, M., Jackson, J., & Sellers, R. (2009). Targets as perceivers: How people determine when they will be negatively stereotyped. *The Journal of Personality and Social Psychology, 96*, 349–362.