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Research Article

Interracial Roommate Relationships

An Experimental Field Test of the Contact Hypothesis

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ABSTRACT—*This study investigated how automatically activated racial attitudes are affected by relatively long-term interracial relationships. A natural field experiment was conducted in a college dormitory system. Participants were White freshmen who had been randomly assigned to either a White or an African American roommate. Students participated in two sessions during the first 2 and last 2 weeks of their first quarter on campus. During these sessions, they answered questions about their satisfaction and involvement with their roommates and completed an inventory of intergroup anxiety and an implicit measure of racial attitudes. Participants in interracial rooms reported less satisfaction and less involvement with their roommates than did participants in same-race rooms. However, automatically activated racial attitudes and intergroup anxiety improved over time among students in interracial rooms, but not among students in same-race rooms. Thus, the results suggest that interracial roommate relationships, although generally less satisfying and involving than same-race roommate relationships, do produce benefits.*

Prejudice is a major social issue faced by many groups. As a result, much research over the past few decades has focused on prejudice and the reduction of intergroup conflict. A primary theory regarding prejudice reduction is the *contact hypothesis* (Allport, 1954; Pettigrew, 1998). The underlying assumption of this theory is that prejudice stems from a lack of knowledge and exposure. Thus, increased interaction with members of different groups should allow individuals to gain information about other groups and should lead to a reduction in hostility and prejudice

(for reviews, see Brewer & Brown, 1998; Pettigrew, 1998; Pettigrew & Tropp, 2000).

Investigators have conducted a great deal of research to test the contact hypothesis and determine the optimal conditions for successful intergroup contact (see Pettigrew, 1998, for a review). A recent meta-analysis of more than 500 studies found that intergroup contact is generally beneficial (Pettigrew & Tropp, 2006). However, an important issue that has been raised recently concerns the appropriateness of the measures used to assess prejudice in intergroup-contact research (for relevant discussions, see Aberson, Shoemaker, & Tomolillo, 2004; Henry & Hardin, 2006; Vonofakou, Hewstone, & Voci, 2007). Most research in this area has relied on explicit reports of attitudes toward different groups. There are, of course, many interpretational problems inherent to self-report measures (Schwarz, 1999). However, the very topic on which intergroup-contact researchers ask participants to report presents a particular concern. Self-presentational concerns and motivational factors may lead individuals not to respond truthfully on scales measuring explicit racial bias and prejudice (Dovidio & Gaertner, 1991; Dunton & Fazio, 1997).

The MODE (Motivation and Opportunity as Determinants) model (Fazio, 1990; Fazio & Towles-Schwen, 1999) posits that when individuals have the motivation and opportunity (i.e., time and resources), their behavior, including their verbal reports, may be guided by a more deliberative process rather than by their automatically activated attitudes. With regard to prejudice, various motivational factors, such as a desire to appear egalitarian or to avoid dispute, can prompt individuals to correct for the influence of their automatically activated attitudes when behaving or responding to an attitudinal query (Dunton & Fazio, 1997; Plant & Devine, 1998). Several experiments have demonstrated a discordance between automatically activated racial attitudes and behavior that increases with the extent to which individuals are motivated to control prejudiced reactions (see Olson & Fazio, in press, for a review). Thus, it is difficult to

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interpret expressions of positivity toward a specific group on explicit measures of racial attitudes. Generally, individuals have the opportunity to monitor their responses on a self-report measure if they are so motivated. Consequently, positive, non-prejudiced responses may be indicative not of a person's automatically activated attitude, but of a motivational goal not to be considered prejudiced. Explicit measures of prejudice are not necessarily accurate indicators of individuals' automatically activated attitudes.

Placing individuals into a situation in which they are to consider, or interact with, a member of a different group may make salient and strengthen motivations to control prejudiced behaviors. Consequently, the benefits of intergroup contact documented via explicit measures may stem from an increased salience of motivational factors, rather than from a reduction in prejudice at the level of automatic attitude activation. Implicit measures of attitudes would provide a clearer assessment of individuals' spontaneous evaluations of a given group, avoid the issue of motivational factors influencing self-reports, and, hence, better address the extent of prejudice reduction yielded by contact. Thus, the purpose of the current study was to experimentally test the effect of intergroup contact on automatically activated racial attitudes.

In Allport's (1954) original conception, various conditions were deemed optimal for successful intergroup contact and prejudice reduction: equal status, cooperation, common goals, and support of authorities. Equal status between the interacting groups is presumed to decrease the effect of negative stereotypes often associated with a lower-status group (Cook, 1978). Intergroup cooperation and common goals are important in overcoming competition between groups and encourage members of the groups to rely on one another to achieve their shared goals (Sherif, Harvey, White, Hood, & Sherif, 1961). Finally, the support of authorities facilitates intergroup contact by defining social norms and serving as a means of influencing individuals' behavior (Deutsch & Collins, 1951).

Two additional factors that have been highlighted more recently are intimacy and friendship. Personal, intimate interaction between individual group members allows for self-disclosure and social comparison and is thought to contribute to reductions in intergroup prejudice (Amir, 1976; Brewer & Miller, 1984; Miller, 2002). Similarly, the formation of friendships (Pettigrew, 1998) is a critical contributor to the positive change in prejudice that emerges from intergroup contact. Pettigrew's (1997) structural equation analyses of cross-sectional data indicate that the path from friendship to reduced prejudice is stronger than the reverse path, that is, the path from prejudice to fewer intergroup friends. Thus, providing a situation in which interaction is intimate and friendships can easily form should increase the effectiveness of intergroup contact in reducing prejudice.

A real-life context that meets many of these conditions, and has been used to explore intergroup contact, is dormitory hous-

ing (Nesdale & Todd, 1998, 2000; Van Laar, Levin, Sinclair, & Sidanius, 2005). Many students are randomly assigned to their college roommates, which leads to some being assigned to roommates from other groups and others being assigned to roommates from their own group. Students sharing a room are generally considered to be of equal status. A dormitory room is ideally a cooperative environment, with individuals working together to achieve a suitable living situation. The university may be seen as an authority that supports the intergroup contact; representatives of the institution assigned students to their rooms and oversee the housing system. Finally, the dormitory situation involves a very intimate setting in which frequent and personal interactions may occur, thus providing an ideal opportunity for friendship formation.

In addition, studying dormitory roommates can circumvent several shortcomings of intergroup-contact research that have been noted in the literature (see Brewer & Gaertner, 2004; Dovidio, Gaertner, & Kawakami, 2003; Miller, 2002; Pettigrew, 1998; Pettigrew & Tropp, 2006). Random assignment eliminates potential concerns about self-selection, allowing for a natural field experiment. The college housing situation also allows for longitudinal research, as students generally live together for an extended period of time. Therefore, the consequences of long-term intergroup contact can be explored, unlike in most laboratory situations, which involve more limited interactions.

In a recent exploration of intergroup contact within university dormitories, students were tracked over a 5-year span (Van Laar et al., 2005). Starting the summer before their freshman year of college and continuing each subsequent spring quarter, participants completed surveys about the ethnicity of their roommates, friends, and dating partners, as well as questions assessing their own bias and prejudice. Generally, students who were placed in an interracial room earlier in their academic career reported more positive affect toward different ethnic groups and more heterogeneity in their friendships. Overall, interracial dormitory relationships proved to be beneficial, so the results support the contact hypothesis. However, the study involved only self-report measures (as is also true of work by Nesdale & Todd, 1998, 2000). The extent to which motivational factors contributed to the positive outcomes observed on the explicit measures remains unknown, as does the potential impact of intergroup contact on automatically activated attitudes. Living with a roommate of a different race may have strengthened individuals' motivation to control prejudiced reactions without affecting their automatically activated attitudes. Such a result would still represent a notable consequence of interracial contact, but there is a substantial difference between being motivated to respond without prejudice (when such motivation is evoked and one has the opportunity to monitor and control behavior) and not experiencing automatic activation of a negative attitude.

Presumably, a key contributor to the results observed by Van Laar et al. (2005) was that the interracial roommate rela-

tionships were themselves successful, positive experiences. That is, roommates presumably developed a cooperative and satisfying living situation, possibly even becoming close friends. However, are such successful interracial relationships to be expected? To the contrary, some research indicates that interracial dormitory relationships are less satisfying and more problematic than same-race dormitory relationships (Phelps et al., 1998; Towles-Schwen & Fazio, 2006).

Phelps et al. (1998) found that White freshmen randomly assigned to an African American roommate believed that they were less compatible with their roommate than did White freshmen randomly assigned to a White roommate. Towles-Schwen and Fazio (2006) found that White freshmen randomly assigned to an African American roommate spent less time with their roommate, experienced less social involvement between their social network and their roommate's social network, and were less likely to continue living with that roommate for the duration of the academic semester than were White freshmen randomly assigned to another White freshman. If interracial relationships dissolve quickly, or are viewed as incompatible, the likelihood of friendships forming would not be high. Thus, the potential benefits of contact may not come to fruition.

The goals of the study reported in this article were to assess the nature of interracial relationships and test the effect of intergroup contact on automatically activated attitudes in a real-life situation. The research took advantage of random assignment to college dormitory rooms, which allowed for a natural, long-term field experiment. Concerns regarding self-selection were reduced not only by initial random assignment, but also by the fact that the university housing system was experiencing a "housing crunch." That is, there was a room shortage on campus, which required that students maintain their assigned living situation for at least a quarter, until other housing arrangements could be made. As a result, the dormitory situation was all the more ideal for testing the long-term effects of contact. Even more important, the study used an implicit measure of racial attitudes to eliminate any concern about motivational factors influencing participants' verbal responses and, hence, to permit an experimental test of the long-term consequences of interracial contact on automatically activated attitudes.

METHOD

Participants

White freshmen randomly assigned to a White ($n = 136$) or African American ($n = 126$) freshman roommate were recruited in the beginning of the autumn quarter of two consecutive academic years. Students were contacted via e-mail or telephone and asked to participate in a two-session study concerning adjustment to college life. As compensation for their time, they received either \$25 or research-experience credit for an introductory psychology course. Two students from same-race rooms and 4 students from interracial rooms did not return for the

second session. Of the participants who returned for the second session, 97% continued to share a room with the roommate to whom they were originally assigned. Only 3 students in same-race rooms and 5 students in interracial rooms experienced a change in their roommate.

Measures

The participants completed a 1-hr experimental session within the first 2 weeks of their first quarter of college and a second 1-hr experimental session within the last 2 weeks of the same quarter. During each session, they answered questionnaires regarding their satisfaction with their roommate, joint activities with their roommate, time spent together with their roommate, and the degree to which they and their roommate were involved in and comfortable with each other's social networks (see Towles-Schwen & Fazio, 2006, for details). They also completed a standard inventory of intergroup anxiety toward African Americans (Britt, Boniecki, Vescio, Biernat, & Brown, 1996) and an evaluative priming procedure designed to assess racial attitudes unobtrusively (Fazio, Jackson, Dunton, & Williams, 1995).¹

The priming procedure involved five phases. During the first phase, positive and negative adjectives were presented on a computer monitor one at a time, and participants were asked to indicate as quickly as possible whether each word was good or bad. Response times in this phase served as a baseline measure of latency. During each trial, the adjective appeared in the center of the screen until the participant responded, or until 1.75 s had elapsed. Participants completed two blocks of 24 trials, with all 24 adjectives presented in random order during each block.

The second and third phases of the priming procedure served to bolster the cover story that this computer task assessed multitasking ability. In the second phase, faces were presented on the computer screen, and participants were told to study the faces because their recall would be tested in the next phase. Participants were presented with 20 faces that varied in ethnicity and gender. In the third phase, participants were presented with 20 faces split across two blocks and told to indicate either "yes," they had seen the face in the second phase, or "no," they had not seen the face. Half of the faces were target faces from the previous phase, and half were filler faces. Each face was presented on the computer monitor until the participant responded, or until 5 s had elapsed.

The fourth phase combined the first two phases, presumably as an assessment of multitasking ability. This was the phase of interest. On any given trial, an African American, White, Asian, or Hispanic face was presented for 315 ms, followed

¹Many studies now attest to the predictive validity of this measure (see Olson & Fazio, in press, for a review). Of most relevance to the present concerns is the fact that it predicted the longevity of interracial roommate relationships among people who were randomly paired with their roommates (Towles-Schwen & Fazio, 2006); more negative attitudes were associated with earlier dissolution of the relationship.

by a 135-ms interval and then presentation of a target adjective from the first phase. Each adjective appeared on the computer screen until participants indicated whether the adjective was positive or negative, or until 1.75 s had elapsed. Participants finished a short practice block before completing four 48-trial blocks. In each experimental block, 16 African American faces and 16 White faces, matched for level of attractiveness, were presented. The other 16 faces were fillers. The same 48 faces were presented in random order in each block. However, each time a given face appeared, it was followed by a different adjective. Each face was followed by two positive adjectives and two negative adjectives.

The fifth phase was included, again, simply to bolster the cover story. Faces were presented on the computer screen, and participants were asked to indicate whether they had seen each face in the preceding phase.

Procedure

When participants arrived for the first session, they were told that the project concerned college experiences and adjustment to college life. After providing informed consent, they completed the priming procedure, which was presented as a measure of their multitasking abilities. So that the priming procedure would fit the cover story, participants were told that a person’s ability to multitask is an important predictor of success in college. After completing this task, participants were provided with questionnaire packets that contained the roommate-relationship questions and the intergroup anxiety scale, along with a variety of filler items concerning college life. At the end of the session, participants were paid \$10 or given 1 hr of research-experience credit for their time.

During the last 2 weeks of the autumn quarter, participants were asked to return to the lab for the second session. The procedure was identical to that for the first session. Participants were reminded that the information they provided was confidential and that their participation was voluntary. They com-

pleted the priming measure and the questionnaire packet. Then, they were debriefed and informed of the true nature of the project. Any questions or concerns that they had were addressed. Finally, they were paid \$15 or given 1.5 hr of research credit for completing the second session.

RESULTS

Assessment of Roommate Relationships

Differences between students in same-race and interracial rooms were evident across all of the relationship measures at both the beginning and the end of the autumn quarter (see Tables 1 and 2 for means and *t* values). Overall, interracial roommate relationships were less satisfying, less socially involving, and less comfortable than were White-White relationships.

Across time, there were a number of reliable changes in the roommate-relationship variables within each of the two room types, as well as significant between-condition differences in the extent of change (see Table 3 for means and *t* values). Strikingly, most of the relationship evaluations of students in same-race rooms declined significantly over time; the only variable that improved significantly was the roommate’s presumed comfort with the participant’s friends. Among students in interracial rooms, some of the evaluations also declined, but the declines were less likely to be significant and were not as extreme. Students in interracial rooms did report increases in time spent together with the roommate in the dormitory room and in their roommate’s comfort with their friends.

Racial Attitudes

The latency data from the priming measure were used to calculate an estimate of automatically activated racial attitudes for each participant (see Fazio et al., 1995, for details regarding the calculation of the attitude scores). Given the scoring procedure, more negative scores reflect more automatically activated negativity in response to photographs of African American faces

TABLE 1
Relationship Evaluations at the First Session: Means and Tests of Differences Between Same-Race and Interracial Rooms

Variable	Same-race room	Interracial room	<i>t</i> (261)
Satisfaction with roommate	6.05	4.83	4.96***
Joint activity with roommate	3.38	2.41	5.01***
Time spent with roommate	2.69	1.54	5.58**
In room	3.24	2.10	5.55***
Outside room	2.14	0.98	4.29***
Involvement between participant’s and roommate’s social networks	2.96	2.61	3.51***
Participant’s comfort with roommate’s friends	6.85	5.71	4.82***
Roommate’s comfort with participant’s friends	6.71	6.10	2.71**

Note. Satisfaction with roommate, time spent with roommate, participant’s comfort with roommate’s friends, and roommate’s comfort with participant’s friends were assessed on scales from 0 to 9. Joint activity with roommate was assessed on a scale from 0 to 8. Involvement between the participant’s and roommate’s social networks was assessed on a scale from 0 to 6.
p* < .01. *p* < .001.

TABLE 2
Relationship Evaluations at the Second Session: Means and Tests of Differences Between Same-Race and Interracial Rooms

Variable	Same-race room	Interracial room	<i>t</i> (255)
Satisfaction with roommate	5.70	4.65	3.56***
Joint activity with roommate	2.98	2.24	3.79***
Time spent with roommate	2.38	1.64	3.51**
In room	3.22	2.36	3.74***
Outside room	1.54	0.92	2.44*
Involvement between participant's and roommate's social networks	2.81	2.44	3.43***
Participant's comfort with roommate's friends	6.91	5.90	3.87***
Roommate's comfort with participant's friends	7.02	6.40	2.62**

Note. Satisfaction with roommate, time spent with roommate, participant's comfort with roommate's friends, and roommate's comfort with participant's friends were assessed on scales from 0 to 9. Joint activity with roommate was assessed on a scale from 0 to 8. Involvement between the participant's and roommate's social networks was assessed on a scale from 0 to 6.
 * $p < .05$. ** $p < .01$. *** $p < .001$.

relative to photographs of White faces. At the first experimental session, there were no differences in automatically activated racial attitudes between the students in the two room types, $p > .10$. Of primary interest, though, was how racial attitudes changed over time as a function of room type. An analysis of covariance (ANCOVA) was conducted to assess the effect of room type on automatically activated racial attitudes at the end of the autumn quarter, controlling for attitudes at the beginning of the quarter. There was a significant effect of room type, $F(1, 236) = 4.33$, $p_{\text{rep}} = .90$, $\eta^2 = .02$. The results supported the contact hypothesis: White freshmen in interracial rooms exhibited significantly more positive automatically activated racial attitudes at the second session ($M = 0.03$) than at the first session ($M = -0.06$), $t(113) = 2.51$, $p_{\text{rep}} = .94$, $d = 0.47$, whereas the automatically activated racial attitudes of freshmen in same-race rooms did not change ($M_s = -0.02$ and -0.05 for the first and second sessions, respectively), $t < 1$.

Intergroup Anxiety

A similar ANCOVA was conducted to assess intergroup anxiety toward African Americans. There was a marginally significant effect of room type, $F(1, 255) = 2.91$, $p_{\text{rep}} = .83$, $\eta^2 = .01$. Participants in interracial rooms exhibited a significant reduction in intergroup anxiety ($M_s = 1.50$ and 1.42 for the first and second sessions, respectively), $t(121) = 1.92$, $p_{\text{rep}} = .87$, $d = 0.35$, whereas participants in same-race rooms showed no change ($M_s = 1.44$ and 1.46 for the first and second sessions, respectively), $t < 1$. That is, White freshmen with African American roommates reported increased comfort interacting with African Americans at the end of the quarter.²

²Change in interpersonal anxiety was uncorrelated with change in automatically activated attitudes, which suggests that interracial contact had independent influences on these two measures. This finding is consistent with the often-advanced argument that the effects of contact on prejudice reduction are likely to be mediated by multiple mechanisms (e.g., Pettigrew, 1998).

DISCUSSION

The results of this research indicate that interracial roommate relationships are generally less agreeable to Whites than are same-race roommate relationships, which is consistent with previous findings (Phelps et al., 1998; Towles-Schwen & Fazio, 2006). White freshmen randomly assigned to an African American roommate were generally less satisfied, less socially involved, and less comfortable with their roommates than were White freshmen randomly assigned to a White roommate. These more negative assessments were reported at both the beginning and the end of the fall quarter. Thus, overall, interracial relationships were evaluated more negatively than were same-race relationships.

However, the novel contribution of the present research stems from the observed benefits of the intergroup living situation. That is, despite the deficits in White students' relationships with African American roommates, the automatically activated racial attitudes of White students in interracial rooms became more positive toward African Americans, whereas the attitudes of White students in same-race rooms did not change. Participants in interracial rooms also reported decreased intergroup anxiety toward African Americans at the end of the quarter, whereas participants in same-race rooms did not exhibit any change on this measure. Thus, it appears that the opportunity for intergroup contact experienced by students in the interracial rooms did have positive consequences.³

Notably, the benefits of interracial contact were found in real-life rooming situations, and because the experiment focused on students who had been randomly paired with either an African American or a White roommate, this research is characterized

³As noted earlier, our focus in this report centers on experimental effects, that is, differences observed as a function of assignment to an African American or a White roommate. Readers interested in the prospective relations between racial attitudes and relationship assessments will find an extensive series of such analyses in Shook (2007).

TABLE 3
Mean Difference Scores for the Relationship Evaluations and Tests of Differences Between Same-Race and Interracial Rooms

Variable	Same-race room	Interracial room	<i>t</i> (255)
Satisfaction with roommate	−0.34*	−0.16	0.87
Joint activity with roommate	−0.40**	−0.18*	1.77 ⁺
Time spent with roommate	−0.31*	0.09	2.57*
In room	−0.04	0.23*	1.40
Outside room	−0.57**	−0.06	2.53**
Involvement between participant's and roommate's social networks	−0.13*	−0.13*	0.01
Participant's comfort with roommate's friends	0.07	0.26	0.74
Roommate's comfort with participant's friends	0.34*	0.39*	0.20

Note. Asterisks after difference scores indicate a significant difference from zero; asterisks after *t* values indicate a significant difference between the two room types.

⁺*p* < .08. **p* < .05. ***p* < .01.

by all the advantages of random assignment to condition. The dormitory setting also provided a situation in which the interracial contact occurred for an extended period of time. Thus, the interaction was both more natural and more extensive than is typical for laboratory studies, and therefore allowed for a better assessment of the consequences of contact. An important feature of this study is that it incorporated an implicit measure of attitudes. Therefore, unlike studies that use explicit measures, it avoided concerns that the results might have been influenced by participants' motivations to not be perceived as prejudiced.

In light of the study's design features, the observed reduction in prejudice, especially in students' automatically activated racial attitudes, provides striking and noteworthy support for the contact hypothesis. This positive outcome was found despite interracial roommate relationships being evaluated much more negatively than same-race roommate relationships. Living with an African American roommate for a single academic quarter (3 months), even though not as satisfying, on average, as rooming with a fellow White student, led to change in participants' spontaneous reactions to African Americans as a group and to a reduction in intergroup anxiety. Presumably, having exposure to and opportunity to interact with the African American roommates (and possibly their friends) led to the attitude change. Participants in same-race rooms simply did not have the same opportunities and, thus, did not exhibit any change in their racial attitudes.

In the future, this line of research should be extended to explore the effects of an interracial roommate relationship on African American students. Recent work has suggested that intergroup contact is less effective for minority than for majority group members (Tropp & Pettigrew, 2005) and that minority members' experiences during an intergroup interaction are quite different from majority group members' experiences (Shelton, Richeson, & Salvatore, 2005). It would be interesting to compare African American and White students' perceptions of their interracial roommate relationships and to determine whether the experience benefits African American students.

Another direction for future work is to extend the time period studied. Prejudice was found to be reduced after the first academic quarter. It would be worthwhile to determine whether automatically activated attitudes continue to improve over a longer period and at what point the improvement might reach an asymptote. Following students after their 1st year and after they are no longer living with their roommate would provide evidence regarding the persistence of any prejudice reduction. Van Laar et al. (2005) did find benefits of interracial dormitory housing in self-report measures after students had left the interracial roommate relationship, which suggests that intergroup contact has a long-term value. It would be valuable to determine whether automatically activated racial attitudes also continue to improve after a specific interracial relationship has ended. It would also be informative to examine how interracial roommate relationships progress beyond a single academic quarter. Although racial attitudes improved after one academic quarter, the roommate relationships were not generally assessed more positively. However, there were some small indications in the reports of the interracial roommate relationships that there was improvement over time. With a longer study period, it may be possible to observe larger changes in assessments of interracial roommate relationships.

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