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# In the Privacy of Their Own Homes: Using the Internet to Assess Racial Bias

**David C. Evans**

*Union College*

**Daniel J. Garcia**

*Study19.com*

**Diane M. Garcia**

*Chicago-Kent College of Law*

**Robert S. Baron**

*University of Iowa*

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*Recent studies suggest that research participants show less distortion of their taboo attitudes and behaviors when they take part in Internet-based procedures from outside the laboratory. We explored whether such procedures would reduce distortion in the assessment of racial bias. In Study 1, White participants who completed the study in the laboratory evaluated Black targets more favorably than White targets. This unexpected "outgroup-favoring" pattern occurred in both pencil-and-paper and Internet versions of the study, showing that modality did not produce it, but when participants worked outside the laboratory via the Internet, this pattern disappeared. Study 2 replicated the above findings and further indicated that the reduced distortion in Internet-based studies was due to the removal of the experimenter rather than removing the participants from the laboratory environment. The implications of these findings for the study of controlled processes of prejudice and the nature of Internet-based social communication are discussed.*

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**Keywords:** *social desirability distortion; controlled processes; Internet research; racism; reverse racism*

**A**s government-sanctioned racism came to an end in the 1960s, U.S. citizens witnessed the intense prejudice expressed by those who resisted the change. In the decades since, an anti-prejudice, pro-egalitarian stance has become a widespread social norm in the United States. Today, most first- and second-generation egalitarians now go to great lengths to avoid expressing prejudice, either overtly or at all. In fact, the notion that Americans curb outward displays of racial bias has become a central proposition in at least two major theories of mod-

ern prejudice. Devine's (1989) dissociation model holds that the effort to inhibit automatically activated racial biases is what distinguishes emerging egalitarians from old-fashioned bigots. Aversive racism theory (Dovidio & Gaertner, 1998) further argues that most Americans today avoid discriminating when it is obvious to themselves and others.

Although this decrease in overt prejudice can be seen as a step forward in American race-relations, among psychologists it has fostered a deep-seated concern for the validity of ongoing prejudice research. For some time, prejudice researchers have suspected participants of a widespread "over-reporting of admirable attitudes and behaviors and underreporting those that are not socially respected," otherwise known as social desirability distortion (Krosnick, 1999, p. 545). As early as 1970, Dienstbier noted that participants in his prejudice studies may have responded "in a false manner" (p. 214). Similarly, Carver, Glass, Snyder, and Katz (1977) suspected that their participants were "attempting to behave in a

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**Authors' Note:** The authors would like to thank Annette Flugstead and Jessica Thul for their assistance in data collection, and Peggy Chin Evans and several anonymous reviewers for their comments on an earlier draft. Correspondence concerning this article should be addressed to David C. Evans, Department of Psychology, Union College, Schenectady NY, 12308; e-mail: evansd@union.edu. Correspondence regarding the technical issues of Internet-based data collection may be addressed to the first author or to Daniel J. Garcia at daniel@study19.com.

*PSPB*, Vol. 29 No. 2, February 2003 273-284

DOI: 10.1177/0146167202239052

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socially desirable way" (p. 234). Today, direct methods of assessing racial bias are often considered "obtrusive" (Crosby, Bromley, & Saxe, 1980), "reactive" (Fazio, Jackson, Dunton, & Williams, 1995), and "susceptible to attempts to manage impressions" (Dovidio & Gaertner, 1998, p. 14).

Given the risk of distortion, the need for new procedures to study prejudice has become apparent. To this end, researchers have developed promising new techniques of priming racial associations (e.g., Devine, 1989; Fazio et al., 1995) and testing implicit prejudice (e.g., Greenwald, McGhee, & Schwartz, 1998). By presenting racial stimuli below the threshold of awareness and/or making use of reaction-time measures, these methods appear to be less susceptible to controlled efforts at egalitarian self-presentation than traditional self-reports (see Fazio et al., 1995). Such "bona-fide pipelines" (Fazio et al., 1995, p. 1013) have furthered the study of stereotyping in ways impossible to achieve with traditional methods.

These new techniques, however, were developed primarily to study automatic/implicit processes of prejudice, or those that "occur despite deliberate attempts to bypass or ignore them" (Devine, 1989, p. 6). Many researchers, however, are still interested in controlled/explicit processes of prejudice, precisely those that are filtered through a rational belief system that is in turn influenced by widespread norms, personal standards, authority figures, group dynamics, and interracial experiences (see Dunton & Fazio, 1997; Monteith, Devine, & Zuwerink, 2000). Studies of explicit prejudice such as self-reported racial attitudes (e.g., McConahay, Hardee, & Batts, 1981), evaluations of racial targets under various conditions (e.g., Jussim, Coleman, & Lerch, 1987), intergroup attributions (e.g., Hewstone, 1990), and responses to legal developments such as affirmative action (e.g., Heilman & Herlihy, 1984) not only have a long history in social psychology but often examine social issues more directly than do studies of implicit prejudice. Unfortunately, many explicit prejudice studies are difficult to conduct using the new unobtrusive techniques. This is the case any time the stimuli are too lengthy to be presented so briefly as to be below the threshold of awareness, or when cognitive and behavioral responses cannot be assessed meaningfully through reaction times. In such studies, researchers have continued to rely on traditional self-report techniques. These techniques, however, have undergone little change since the 1960s, although the risk of distortion has become all but axiomatic (see Crosby et al., 1980; Fazio et al., 1995). Clearly the question is: What steps may be taken to improve the validity of self-report techniques?

### *Social Desirability and Internet-Based Research*

Increases in the speed and accessibility of computers have made the new techniques of studying prejudice possible. A concurrent advance in computer technology, the Internet, is also opening new doors in social science research. In addition to the inexpensive dissemination of stimulus materials and the ability to bypass data-entry (see Stanton, 1998), the soon-to-be ubiquitous access to the Internet<sup>1</sup> allows for research participation without requiring attendance at traditional laboratory sessions. Such "remote-access" Internet-based procedures help ease researchers' reliance on samples of convenience (see Buchanan & Smith, 1999), but perhaps more important, they allow people to take part in studies of reactive, socially taboo, or highly sensitive psychological issues out from under the surveillance of an experimenter. In doing so, remote-access Internet-based studies appear to reduce social desirability distortion (Richman, Kiesler, Weisband, & Drasgow, 1999; Tourangeau & Smith, 1996). For example, compared to direct interviews, computer-based assessments have been shown to produce greater disclosure of drinking habits (Locke & Gilbert, 1995), illicit drug use, sexual promiscuity (Tourangeau & Smith, 1996), suicidal ideation (Levine, Ancil, & Roberts, 1989), and lower scores on the Marlowe-Crowne Social Desirability Scale (Martin & Nagao, 1989). Citing research dating back to the 1960s, Richman et al. (1999) concluded that "computer instruments reduced social desirability distortion when these instruments were used as a substitute for face-to-face interviews, particularly when the interviews were asking respondents to reveal highly sensitive personal behavior" (p. 771).

Can remote-access Internet-based procedures minimize distortion in prejudice research? Or would Internet-based procedures introduce too many unwanted factors to warrant their use? To answer this, a number of issues must be addressed. First, existing psychometric studies, including Richman et al. (1999), have focused primarily on how Internet-based procedures affect survey responses. It is also important to learn how Internet-based procedures affect true experiments. Statistically speaking, this requires that we examine not only whether the procedure (i.e., Internet-based vs. traditional) has a main effect on responses but also whether the procedure interacts with the theoretical factor under study (i.e., targets of two different races) to affect responses. To our knowledge, the current report is the first to perform such an analysis.

Next, it is important to confirm that Internet-based procedures affect the assessment of reactive issues rather than non-reactive issues, as Richman et al. (1999) suggest. Indeed, if Internet-based procedures are accurately

characterized as reducing social desirability distortion, then they should produce differences from traditional procedures on sensitive psychological issues but have no effect on mundane issues. This is our first hypothesis (Hypothesis 1). If confirmed, then the differences found between Internet-based and traditional procedures can be seen as advantages, in terms of reducing distortion on reactive issues, rather than disadvantages, in terms of producing unwanted procedural effects when distortion is not a concern.

Finally, it is important to pinpoint which feature of remote-access Internet-based studies is responsible for the reduction in distortion, if such a reduction occurs. The computer modality may be responsible if, for example, participants feel that their responses are more virtual and/or more easily deleted when working with a computer rather than pencil and paper (Richman et al., 1999). However, it is equally possible that the social/experimental setting of remote-access Internet-based studies is what produces the lower distortion, if it is the case that participants working from a remote location feel less of the surveillance than they do in the presence of an experimenter and the laboratory environment (see Martin & Nagao, 1989). After a thorough review, Richman et al. (1999) concluded that the distortion reduction of Internet-based studies is not caused by the computer modality but instead by the setting of participation. Indeed, compared to pencil and paper, the Internet modality has produced no significant difference in mean-levels, item-variability, and/or latent factor structure among a variety of constructs, including the personality domains of the Big Five (Hertel, Naumann, Konradt, & Batinic, 2002) and self-monitoring (Buchanan & Smith, 1999; see also Krantz, Ballard, & Scher, 1997; Pasveer & Ellard, 1998; Stanton, 1998). By contrast, both classic and contemporary social psychological studies have demonstrated that other people (Lambert, Cronen, Chasteen, & Lickel, 1996) and experimenters in particular (Orne, 1962; Rosenthal, 1966) exert a strong influence on the behavior of research participants. Experimenters, as consensual authorities, are seen to represent the norms of a culture. Many participants do not feel prepared to defend their private racial views in the experimenter's presence, and as such, they may often conform to his or her assumed position or make their own position more moderate. Their motivation to do so may be to represent their preferred identities or avoid a potential dispute (see Dunton & Fazio, 1997; Lambert et al., 1996). Based on the above, our second hypothesis (Hypothesis 2) is that participants' responses on the reactive issue of racial bias should be influenced by the experimental setting but not by the modality of data collection.

### *Study 1 Overview*

To test these hypotheses, we assessed both a non-reactive and a reactive issue in Study 1. The non-reactive issue assessed was the primacy effect in impression formation (Asch, 1946). This effect, widely regarded as being of demonstrative reliability, occurs when information learned earlier about a target has a greater impact on personality impressions than information learned later. Because participants are merely instructed to perform a rational evaluation of the target's positive and negative traits, we reasoned that they would not perceive themselves as violating any obvious social norms. The second, more reactive, issue assessed was racial bias, as indicated by how favorably European American participants evaluated outgroup African American targets relative to ingroup European American targets. Ample research suggests that this issue is associated with strong norms of social desirability (Dovidio & Gaertner, 1998; McConahay et al., 1981).

Both the non-reactive primacy effect and the reactive racial bias were assessed under different experimental settings. In Study 1, participants completed the procedure either (a) using pencil and paper in a laboratory with an experimenter present, (b) via the Internet in a laboratory, also with an experimenter present, or (c) via the Internet from an uncontrolled remote location outside the laboratory with no experimenter present. Support for Hypothesis 1 will be shown if these procedures produce different outcomes in the assessment of the reactive issue of racial bias but no difference in the assessment of the non-reactive primacy effect. Support for Hypothesis 2 will be shown if the presence of the experimenter has a greater influence on the assessment of racial bias than the modality of data collection (i.e., settings a and b differ from setting c). If, however, participants' responses differ depending on the modality of data collection (i.e., setting a differs from settings b and c), then the alternative prediction will be supported, namely, that the modality of data collection has a greater influence on responses than the presence of the experimenter.

## STUDY 1

### *Method*

#### *PARTICIPANTS*

Participants were 240 students in an elementary psychology course who volunteered for the study as one way of meeting a course requirement. The responses of 201 students (53.6% women; *M* age = 19.0 years, *SD* = 1.23) who self-identified as European American were included in the analysis.<sup>2</sup>

## MATERIALS AND PROCEDURE

*Experimental settings.* Participants signed up for the study titled "First Impressions," about which no mention of race was made. All sign-up sheets informed participants that the study may require Internet use. In two of the three setting conditions, the sign-up sheets instructed participants to report to a laboratory room where an experimenter assigned them to conditions. In the *in-lab, pencil-and-paper* condition, participants completed a pencil-and-paper version of the impression-formation task (described below) and the experimenter remained present for the duration of the session. In the *in-lab, Internet* condition, the same experimenter met participants in a computer laboratory room and directed them to an Internet site where they completed an Internet-based version of the impression-formation task. As in the pencil-and-paper condition, the experimenter remained present for the duration of the session.

In the *out-of-lab, Internet* condition, participants also signed up for the study titled "First Impressions" but they were instructed to tear off a small tab from the sign-up sheet that provided them with the URL (uniform resource locator, i.e., Web address) of the study. The sign-up sheet instructed participants to access the site from whatever location they chose and to complete the study within 5 days. We assigned participants to the out-of-lab setting this way for two reasons: First, this method offered maximal anonymity by never requiring participants to be seen by an experimenter. Second, this method allowed us to examine the practicality and sampling issues of adapting the typical subject-recruitment method (seeking volunteers from a known pool such as a psychology course) to an Internet-based study that does not require attendance at experimental sessions (e.g., Krantz et al., 1997; Stanton, 1998; for alternative recruitment strategies, see Buchanan & Smith, 1999; Hertel et al., 2002).<sup>3</sup> Given that the sign-up sheets for all three setting conditions informed participants that the procedure would be conducted via the Internet, and given that no mention of race was made, we do not believe that this recruitment method introduced any obvious sampling bias. (We will return to this issue in Study 2.)

*Impression-formation task.* The impression-formation task completed by the participants was based on the paradigm developed by Asch (1946). Using two or three complete sentences, a target was described with a short list of personality traits (S-traits), whereupon the participants were asked to evaluate the target on a number of additional traits (R-traits). The order by which the S-traits were presented served to test the primacy effect. In one condition, the S-traits were presented in the order of most favorable to least favorable (i.e., *intelligent, industrious, impulsive, critical, stubborn, and envious*). In another

condition, the S-traits were presented in the reverse order. The primacy effect is successfully demonstrated when impressions of targets described with positive S-traits early in the list are more favorable than ratings of targets described with negative S-traits early in the list.

A slight modification of the Asch (1946) paradigm allowed us to simultaneously examine racial bias. The race of the target also was provided among the S-traits, appearing in all conditions at the end of the description. Thus, a representative stimulus sentence read, "This is a person who is intelligent, industrious, and impulsive. This person is critical, stubborn, and envious. This person is Black." Racial bias is demonstrated if the participants in the aggregate show systematically different ratings of White and Black targets. Because the study was of a completely between-subjects design, all participants evaluated only one target.

The 32 R-traits (rated by participants on 7-point Likert-type scales) were as follows: *unemotional, insecure, stable, nervous, independent, outgoing, quiet, spirited, withdrawn, sociable, philosophical, unimaginative, creative, simple-minded, artistic, agreeable, argumentative, friendly, critical, considerate, self-disciplined, careless, responsible, persistent, disorganized, striving, hard-working, lazy, ambitious, motivated, likable, and intelligent*. Each participant's ratings across all 32 R-traits (11 of which were reverse-scored) were averaged to yield an overall favorability score for analysis.

*Comparison of materials across modality.* All efforts were made to create an Internet-based version of the impression-formation task that matched the pencil-and-paper version as closely as possible. Both versions included the same textual instructions and debriefing. The 32 trait-ratings in both versions were arranged in two columns of 16 traits. The points of the Likert-type scales, which were circled in the pencil-and-paper version of the study, were similarly laid out in the Internet version, but they were presented as radio buttons that the participants were asked to click. Because participants in the pencil-and-paper version were allowed to review the target description while making their ratings on the R-traits, "browser frames" were used in the Internet version such that the target description remained visible as the participants completed their ratings.

There were two discrepancies between the Internet and pencil-and-paper versions of the study. First, participants completing the Internet version were issued one of four color-codes corresponding to the four stimulus conditions in the 2 (target race: Black, White)  $\times$  2 (order of S-traits: favorable to unfavorable, unfavorable to favorable) design. These codes were rotated sequentially on the sign-up sheets. On the first page of the Internet site, participants chose a link corresponding to their color-code, which routed them to their condition. (Note: In Study 2, the color-codes were discarded in favor of ran-

dom-redirect links.) Second, a "Cancel" button was present on each page of the Web site to allow the participants to withdraw at any time.

### Results

#### PRELIMINARY ANALYSIS: DATA VALIDATION

Although ethical considerations require that research participants be allowed to quit at any time, attrition rates are an important issue in evaluating Internet-based research (see Hertel et al., 2002; Stanton, 1998). As a benchmark, 4 of 62 (6.1%) participants in the traditional in-lab pencil-and-paper setting provided no response to any question. This figure compared to 0 of 76 (0%) participants in the in-lab Internet setting and 8 of 71 (11.3%) in the out-of-lab Internet setting. These attrition rates did not differ significantly across the three experimental settings,  $\chi^2(2) = 0.69$ , *ns*. Turning to the rate of noncompletion, that is, the number of unanswered items from participants who provided any response at all, there was again no significant difference across the three experimental settings,  $F(2, 198) = 2.38$ , *ns*. Of 32 items, participants in the in-lab pencil-and-paper setting left an average of .02 items unanswered, compared to 1.76 in the in-lab Internet setting and .76 in the out-of-lab Internet setting. (Similar noncompletion findings were reported by Hertel et al., 2002.)

We also examined the variability of the data across the three experimental settings. As Stanton (1998) has pointed out, both higher variability and lower variability in data collected via the Internet may indicate lower data quality than that collected with traditional methods. Higher variability in Internet-based responses may result from variability in participants' familiarity with computers or from environmental variability in the location of access. Lower variability in Internet-based responses may result from unmotivated or "set" responding on the part of participants who work outside a laboratory.

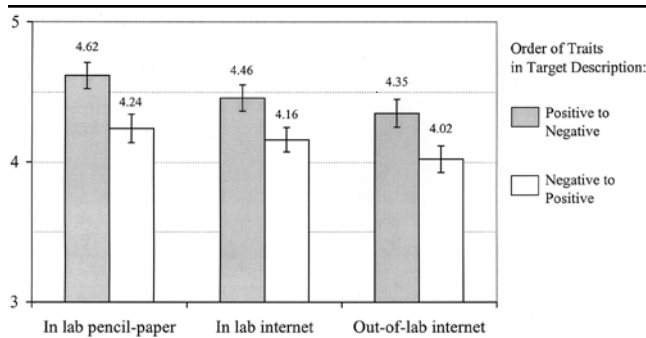
To address this, we conducted a Levene's test of variability across the three experimental settings (Levene, 1960). Each participant's overall favorability score (i.e., the average of the 32 *R*-trait ratings) was recoded to indicate its absolute deviation from the mean of his or her experimental setting. These variability indices were subjected to a  $1 \times 3$  analysis of variance (ANOVA). The results showed a nonsignificant difference in the variability of the favorability ratings across settings,  $F(2, 194) = 1.12$ , *ns*. Favorability ratings obtained in the in-lab pencil-and-paper setting showed a surprisingly similar variability ( $SD = .63$  on a 7-point scale) to ratings obtained in the in-lab Internet setting ( $SD = .54$ ) and in the out-of-lab Internet setting ( $SD = .60$ ).

#### ANALYSIS OF REACTIVE AND NON-REACTIVE PHENOMENA

The next set of analyses tested whether the assessment of the non-reactive primacy effect and/or the more reactive racial bias differed across the three experimental settings. Participants' favorability ratings were subjected to a  $2$  (target race: Black, White)  $\times 2$  (order of S-traits: favorable to unfavorable, unfavorable to favorable)  $\times 3$  (experimental setting: in-lab pencil-and-paper, in-lab Internet, out-of-lab Internet) ANOVA. Altogether, this model accounted for 22% of the total variance in the target ratings ( $\eta^2 = .22$ ).

Firmly replicating the primacy effect, a main effect for the order of the S-traits,  $F(1, 185) = 18.76$ ,  $p < .001$ ,  $\eta^2 = .08$ , indicated that targets who were described with initially positive traits ( $M = 4.48$ ,  $SD = .57$ ) were evaluated significantly more favorably than targets who were described with initially negative traits ( $M = 4.14$ ,  $SD = .58$ ). A nonsignificant interaction between the order of S-traits and the experimental setting,  $F(2, 185) = 0.08$ , *ns*, provided no evidence to suggest that the assessment of the primacy effect differed across the three experimental settings. The primacy effect was similarly demonstrated whether an experimenter was present or absent and whether the data were collected via pencil-and-paper or the Internet. These results are illustrated in Figure 1.

Turning to the more reactive race effect, a significant interaction between experimental setting and target race indicated that the effect of race on participants' overall ratings did indeed differ depending on the setting of participation,  $F(2, 185) = 4.99$ ,  $p = .008$ ,  $\eta^2 = .05$ . Simple-effects tests (in all cases using the overall error term) showed that when the White participants worked in the presence of an experimenter with pencil-and-paper, they rated Black targets significantly more favorably than they rated White targets,  $F(1, 185) = 11.65$ ,  $p < .001$ ,  $\eta^2 = .05$ . Similarly, participants working via the Internet in the presence of an experimenter also rated Black targets significantly more favorably than they rated White targets,  $F(1, 185) = 11.86$ ,  $p < .001$ ,  $\eta^2 = .05$ . However, when participants worked via the Internet from a remote location with no experimenter present, they rated Black targets no more favorably than they rated White targets,  $F(1, 185) = 0.082$ ,  $p = .78$ . Breaking the interaction down the other way, a significant simple effect of experimental setting on the ratings of Black targets,  $F(2, 185) = 16.35$ ,  $p < .001$ ,  $\eta^2 = .14$ , showed that the White participants rated outgroup Black targets significantly lower when working via the Internet from a remote location than when working in the laboratory, either with pencil-and-paper,  $F(1, 185) = 15.50$ ,  $p < .001$ ,  $\eta^2 = .07$ , or via the Internet,  $F(1, 185) = 7.72$ ,  $p = .006$ ,  $\eta^2 = .03$ , but the two laboratory conditions did not differ sig-



**Figure 1** Mean favorability ratings by order of S-trait presentation across settings of Study 1.

NOTE: Vertical bars represent standard errors of the means, which ranged from .088 to .103.

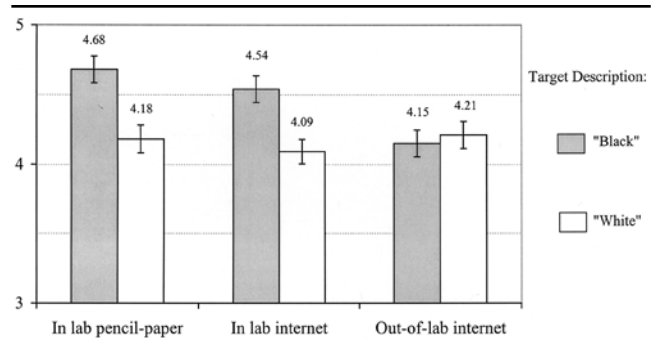
nificantly from one another,  $F(1, 185) = 1.41, ns$ . Participants' ratings of ingroup White targets did not significantly differ across setting condition,  $F(2, 185) = .588, ns$ . These results are illustrated in Figure 2.<sup>4</sup>

*Discussion*

The results of Study 1 showed first that the non-reactive primacy effect (Asch, 1946) was not altered by the modality of data collection or by the presence of the experimenter. Participants' impressions showed this effect nearly identically regardless of whether they worked via the Internet, with pencil and paper, in the presence of an experimenter, or from a remote location. This demonstration of an equivalent outcome between an Internet-based and a traditional version of an experiment contributes to the growing literature on the equivalency of Internet-based and pencil-and-paper surveys (see Richman et al., 1999).

However, Study 1 also showed that participants' responses on the more reactive issue of racial bias were indeed influenced by the experimental setting, thus supporting Hypothesis 1. When working in the laboratory in the presence of an experimenter, White participants evaluated outgroup Black targets more favorably than ingroup White targets. This outgroup-favoring pattern of evaluations stands in sharp contrast to the ingroup-favoring pattern predicted by classic models of intergroup bias (see Brewer, 1979). Although such a pattern would seem to be quite anomalous, it has appeared often in past laboratory research. At least eight past studies have reported main effects for target group membership in which majority evaluators rated outgroup minority targets more favorably than ingroup majority targets (e.g., Carver et al., 1977; Jussim et al., 1987; see Evans, 2000, for a review).

The psychological mechanism behind outgroup-favoring responses is an open question. However, in Study 1, this pattern only appeared in the laboratory in



**Figure 2** Mean favorability ratings by race of target across settings of Study 1.

NOTE: Vertical bars represent standard errors of the means, which ranged from .087 to .100.

the presence of an experimenter. White participants who completed the study in the laboratory were apparently motivated by the presence of an experimenter to alter their expression of group bias, ostensibly to the point of overcompensating and rating the outgroup more favorably than the ingroup. However, when the White participants were removed from the laboratory through the use of the Internet, their ratings of Black targets decreased in favorability and the outgroup-favoring pattern disappeared. This change in bias cannot be accounted for by the modality of Internet-based data collection because, as predicted by Hypothesis 2, participants showed the same outgroup-favoring bias whether they worked with pencil and paper or via the Internet, so long as they completed the study in the laboratory. Together, these findings suggest that the outgroup-favoring pattern of responses is a result of "good-subject" (Orne, 1962) or "experimenter effects" (Rosenthal, 1966) and, thus, is a form of distortion.

At this point, Study 1 clearly suggests that remote-access Internet-based studies may reduce distortion in the experimental study of prejudice. However, the exact feature of such studies that reduces distortion is not yet certain. Our working assumption has been that the presence of the experimenter is the key factor producing differences in racial bias across settings, as has been shown both in research on Internet assessment (Richman et al., 1999) and on racial attitudes (Fazio et al., 1995; McConahay et al., 1981).

However, several differences may be present across the in-lab and out-of-lab settings in addition to the presence of the experimenter. The first and most obvious is the physical laboratory environment. If this environment activates participants' sense of surveillance, then it could be sufficient to produce the distorted outgroup-favoring pattern of responses even in the absence of an experimenter. Put another way, the benefits of Internet-based studies might be in removing the lab rather than

the lab coat. Alternatively, one might argue that when working in informal, nonlaboratory environments, out-of-lab participants may experience a variety of distractions (e.g., roommates, television, alcohol ingestion, group participation, etc.), leading to disengagement and/or shallow processing of the stimulus materials. One finding from Study 1 that contests this view is that the primacy effect was nearly identically demonstrated in both the in-lab and out-of-lab settings. The variability in participants' responses also was equivalent across settings. Nonetheless, the possibility that participation in remote-access Internet studies occurs amid distractions is an important issue and warrants direct assessment. Finally, assignment to the in-lab and out-of-lab conditions in Study 1 was done on the basis of the particular sign-up sheet chosen by participants at the time they volunteered for the study. Strictly speaking, this represents a quasi-random procedure of assigning participants to conditions. We believe that any bias in the assignment to conditions due to subject self-selection was minimized by the fact that (a) all sign-up sheets informed participants that the procedure would be conducted via the Internet and (b) none of the sign-up sheets mentioned race. Regardless, this strategy was discarded in favor of a more rigorous random assignment to conditions in Study 2.

As such, Study 2 controlled for self-selection and the setting of participation by randomly assigning participants to conditions. In addition, the setting conditions were altered to provide a second, more focused test of Hypothesis 2, that the presence of an experimenter, rather than the laboratory environment, produces a change in the assessment of racial bias. All three conditions were conducted via the Internet. The first two conditions were both conducted via the Internet in the laboratory: one with an experimenter present and the other without. In the third condition, participants completed the procedure via the Internet from outside the laboratory as before. A new, more elaborate impression-formation task was developed to examine whether the distortion reduction of Internet-based studies generalizes to other paradigms. Finally, participants were asked a number of questions to assess potential distractions in the out-of-lab setting.

## STUDY 2

### *Method*

#### *PARTICIPANTS*

Participants were 260 students in an elementary psychology course who volunteered for the study. The responses of 236 students who self-identified as European American were included in the analysis. Of these, the responses of 15 students who misidentified the race of the target ( $n = 7$ ), gave the same rating on all of the

traits ( $n = 3$ ), or failed to provide any response at all ( $n = 5$ ) were excluded from analysis, leaving a final  $n$  of 221 participants (60.5% women,  $M$ age = 18.8 years,  $SD = 1.2$ ).

#### *MATERIALS AND PROCEDURE*

*Experimental settings.* As before, participants signed up for the study titled "First Impressions," in which no mention of race was made. All sign-up sheets mentioned Internet use and instructed participants to report to a laboratory waiting room. On arrival, an experimenter randomly assigned them to one of the three experimental settings. Participants in the *in-lab, experimenter present* condition were directed to a 10' × 15' computer laboratory room with a single computer and instructed to access the Internet site of the study. The experimenter, wearing a white lab coat and carrying a clipboard, sat 10 ft behind and slightly to the side of the participant for the duration of the study. Participants in the *in-lab, experimenter absent* condition were directed to an identical computer laboratory room. However, once the Internet site was downloaded, participants were informed that the experimenter would not return, and that they were free to leave when they finished the study. This procedure helped to ensure participants' sense of privacy. Participants in the *out-of-lab* condition were given a slip of paper with the address of the Internet site and instructed to complete the study from the location of their choice within 5 days.

*Internet-based impression-formation task.* A Welcome Page at the Internet site greeted all participants and informed them that they would be taking part in a role-play, in which they would read about a target employee and then rate the employee on a series of personality traits (adapted from Evans, in press). The link to the next page of the site (replacing the Color Codes of study 1) randomly redirected participants to one of four target-employee descriptions in the 2 (target race: African American or Caucasian) × 2 (target competence: high or low) design (not including setting condition). These descriptions were presented on an official looking document titled "Employee Review Form," which was said to be completed as part of a 6-month performance review. In all conditions, the form described a 27-year-old male bank employee who had graduated from a Big-10 university with a 3.10 grade point average and who had engaged in intramural volleyball as an extracurricular activity. All target-employees previously held a position with Appleton Telemarketing Inc. and were currently employed at First Federal Bank and Trust as an underwriter's assistant in the office of Central Credit Underwriting. The name of the target was ostensibly deleted from the form.

The race of the target-employee was presented as either African American or Caucasian via a check in the

appropriate box in the Ethnic Background section of the form. Black targets were further described as being a member of the African-American Student Advocacy Program while in college, whereas White targets were described as members of the Student Advocacy Program. The competence of the target-employee was manipulated through the Summary of Manager's Comments on the form. The highly competent target was described by the manager as having received "two promotions in 6 months, although 6-month employees are generally promoted only once." The less competent target had received "only one promotion, although 6-month employees are generally promoted twice." Capitalizing on the primacy effect (Asch, 1946), the highly competent target was further described as "energetic and diligent, although he can be at times fussy and restless," whereas the less competent target was described as "fussy and restless, although he can be at times energetic and diligent."

The next page of the site presented the dependent measures. Through the use of browser frames, participants were allowed to refer to the Employee Review Form while completing all measures. Impressions of the target-employees were assessed with ratings on 12 traits that had been shown in previous studies (Evans, in press) to be relevant to the evaluation of employees. The traits included: *unemotional, insecure, stable, nervous, self-disciplined, careless, responsible, persistent, striving, hard-working, lazy, and ambitious*. All ratings were made on 7-point Likert-type scales, which were presented as pull-down menus from which participants chose their ratings. Participants' ratings on the 12 traits (5 of which were reverse-scored) were averaged to create an overall favorability score for analysis.

Five questions also were added to survey the conditions of participation. Participants indicated (a) the location of their participation (laboratory, work, library, computer center, private residence, cyber-cafe, or other), (b) the degree of isolation (answering alone, answering with another person), (c) the social setting (total privacy, in a group work space with no one else paying attention, in a group work space with others paying attention), (d) the time of day (between daybreak and noon, noon and 6 p.m., 6 p.m. and 1 a.m., 1 a.m. and daybreak), and (e) their degree of alertness (*very alert, normal alertness, somewhat mentally fatigued, very mentally fatigued-sluggish, slightly intoxicated, quite intoxicated*).

The final two pages of the site credited and debriefed the participants. As in Study 1, a Cancel button was present on each page of the site to allow the withdrawal of participation at any time.

*Analysis.* Two a priori contrasts were designed to provide the clearest test of the revised Hypothesis 2, that the presence of the experimenter affects racial bias rather

than the laboratory environment. Contrast 1, which tested specifically for the effect of the experimenter, consisted of a 2 (race)  $\times$  2 (experimenter) interaction that compared the race difference shown in the experimenter-present condition to the race difference collapsed across the two experimenter-absent conditions. Contrast 2, which tested for the effect of the laboratory setting, consisted of a 2 (race)  $\times$  2 (setting) interaction that compared the race difference collapsed across the two in-lab conditions to the race difference shown in the out-of-lab condition. All contrasts and follow-ups were conducted using the overall error term from the full ANOVA model.

### Results

#### PRELIMINARY ANALYSIS:

#### CONDITIONS OF PARTICIPATION

All of the in-lab participants correctly reported working in a psychological laboratory, whereas none of the out-of-lab participants did, confirming our manipulation of experimental setting. Of the out-of-lab participants, 76% completed the study from a private residence, 14% from a computer center, and 10% from a library.

Regarding the social setting of participation, all but 1 participant reported responding alone, including 100% of participants in both the in-lab no-experimenter and the out-of-lab conditions. All participants in the in-lab no-experimenter setting reported working in total privacy. The introduction of an experimenter led 54% of participants in the in-lab setting to view the setting as a group workspace and 12% to feel that others were paying attention. This resembled the out-of-lab condition, in which 41% viewed their location as a group workspace and 1% ( $n = 1$ ) felt that others were paying attention.

The majority of both out-of-lab participants (63%) and in-lab participants (75% with experimenter; 80% without experimenter) completed the study in the afternoon (i.e., between noon and 6 p.m.). However, most of the remaining out-of-lab participants (29%) completed the study in the evening (i.e., between 6 p.m. and 1 a.m.), whereas most of the remaining in-lab participants (25% with experimenter, 18% without experimenter) completed the study in the morning (i.e., between daybreak and noon). Apparently, when allowed to complete the study out of the lab, participants did so in the evening, whereas they would have otherwise done so in the morning. Only 1 out-of-lab participant completed the study during the nighttime hours between 1 a.m. and daybreak.

This difference in the time of participation appeared to have no significant effect on participants' mental alertness. Most out-of-lab participants (54%) reported "normal alertness," as did most participants in the in-lab

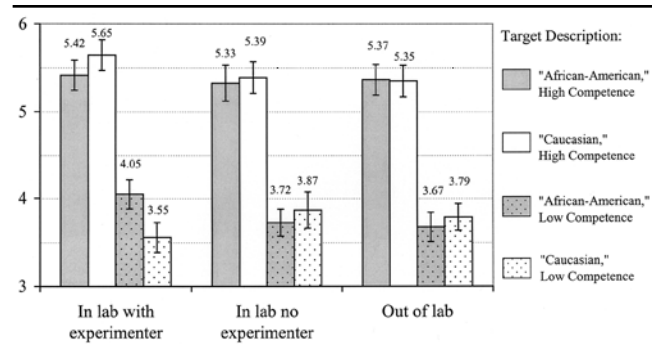
settings, both with an experimenter (59%) and without (42%). Although somewhat fewer out-of-lab participants (7%) than in-lab participants (16% and 22%, respectively) reported being “very alert,” this difference was not significant across setting,  $\chi^2(2) = 0.69, p = .12$ . Of interest, 2 participants did report being slightly intoxicated, but both were in the in-lab settings. None of the out-of-lab participants reported being intoxicated. All in all, there was little evidence to suggest an overwhelming amount of disengagement, distraction, or group participation among out-of-lab participants.

#### ANALYSIS OF FAVORABILITY RATINGS

The model as a whole accounted for 57% of the total variance in the ratings ( $\eta^2 = .57$ ). Not surprisingly, the competence of the target-employee had a strong effect on participants' favorability ratings,  $F(1, 209) = 262.97, p < .001, \eta^2 = .54$ . Because the competence factor alone accounted 54% of the total variance, the size of the other effects should be interpreted as explaining part of the remaining 3%. As seen in Figure 3, highly competent employees were rated so favorably (overall  $M = 5.42, SD = .67$ ) that few differences due to their race or the setting of participation emerged. Indeed, for these targets, neither Contrast 1, testing the effect of the experimenter's presence,  $F(1, 209) = 0.46$ , nor Contrast 2, testing the effect of the laboratory environment,  $F(1, 209) = 0.25$ , was significant, *ps* are *ns*. However, in the ratings of less competent targets that were nearer to the midpoint of the scale (overall  $M = 3.77, SD = .79$ ), Contrast 1 was significant,  $F(1, 209) = 4.38, p = .04, \eta^2 = .009$ , showing that the experimenter's presence did affect racial bias. Here, the White participants again showed the outgroup-favoring pattern of ratings only when working in the presence of an experimenter. In this condition, participants rated the Black targets significantly more favorably than the White targets,  $F(1, 209) = 4.29, p = .04, \eta^2 = .008$ . When working in the absence of an experimenter, whether inside or outside the laboratory, there was no significant difference in the ratings of Black and White targets,  $F(1, 213) = 0.32$  and  $0.25$ , respectively, *ps* *ns*. Contrast 2 was not significant in the ratings of less competent targets,  $F(1, 213) = 1.15, ns$ , thus giving no evidence that the laboratory environment affected racial bias.

#### GENERAL DISCUSSION

The findings of Study 2 provide further support for Hypothesis 2 that participants who take part in remote-access Internet-based studies of racial bias show reduced distortion, primarily because they are removed from the surveillance of the experimenter. Once again, participants only showed an outgroup-favoring pattern of evaluations when they completed the study with an experimenter present by rating outgroup Black targets more



**Figure 3** Mean favorability ratings by race of target across settings of Study 2.

NOTE: Vertical bars represent standard errors of the means, which ranged from .151 to .205. All conditions were conducted via the Internet.

favorably than ingroup White targets. When no experimenter was present, regardless of whether participants completed the procedure in the laboratory or from a remote location, there was no evidence of this type of distortion. Because participants were randomly assigned to conditions in Study 2, self-selection and subject variables were eliminated as alternative explanations for this effect, and a direct assessment of the circumstances of remote-access participation revealed little evidence that distractions or group participation might explain the findings. Despite consistent evidence across both studies that the presence of the experimenter affects racial bias, neither study provided evidence that the digital modality or the physical environment had an effect.

These studies lead us to endorse the use of the Internet in the study of racial bias. However, the ultimate conclusion of this study is somewhat more complicated than merely “the Internet reduces social desirability distortion.” Instead, we believe that the Internet removes experimenter effects (Rosenthal, 1966). This, in our view, takes the artifactual component out of social desirability distortion, leaving behind social desirability proper, which is an integral feature of modern prejudice and should be the subject of serious investigation.

To explain, a hallmark of modern prejudice is that people control their expression of automatic or private racist views in response to widespread norms favoring egalitarianism (Devine, 1989; Dovidio & Gaertner, 1998). The influence of these norms cannot be dismissed for several reasons. First, we believe as McConahay (1986) argued that the rise of egalitarian norms is perhaps “the most important of all the changes in law and custom to take place since World War II” (p. 123). Second, people holding both pro-Black and anti-Black attitudes have been shown to moderate their expression of these views in response to egalitarian norms (Dunton & Fazio, 1997; Monteith et al., 2000). Third, and perhaps

most important, research participants behave under the influence of these norms both in and out of the laboratory, making them a real social phenomenon rather than an artifact. In fact, Crosby et al. (1980) concluded that social desirability strongly affects behavior in interracial face-to-face helping situations.

Certainly, we would discourage the conclusion that the complete elimination of these norms through total isolation or a complete lack of accountability reveals “true” racial attitudes and behavior, and we do not believe that the participants in the present study were free of such norms when they worked from home via the Internet. Indeed, given that the Internet-based Implicit Attitudes Test (Greenwald et al., 1998) consistently shows a pro-White bias in implicit attitudes, we would argue that the reason the explicit evaluations made by participants in the present study showed no racial bias was because they had controlled their automatic associations despite working alone and at home. Although a variety of forces also may account for this behavior, social norms are a prime candidate.

If this is the case, then under what circumstances should social desirability be thought to create “distortion?” An immediate answer is when the experimenter is the source. Perhaps too many researchers over the years have come to equate social desirability with the “good-subject” or “experimenter effects” that have long been known to threaten the validity of research (Orne, 1962; Rosenthal, 1966). For research on controlled/explicit processes of prejudice to progress, it is now more important than ever to remove the influence of the experimenter from the important phenomenon of social desirability, and the Internet appears to be one way to accomplish this. Once such artifactual influences are eliminated, we believe that participants’ residual efforts to respond to egalitarian norms should be viewed less as a methodological flaw and more as an important social development in need of study.

For example, eliminating experimenter effects is crucial to interpreting the “outgroup-favoring” evaluations appearing both here and in past laboratory studies (e.g., Carver et al., 1977). Although the frequency of this effect in the field is an open question, several theories have begun to predict when and why such a pattern may arise. Jussim et al. (1987) suggested that outgroup-favoring evaluations might occur if people augment the successes and discount the failures of racial minorities who face the common obstacle of societal discrimination. This cognitive explanation may be contrasted with the motivational accounts offered by others. Dovidio and Gaertner (1998) suggest that people may evaluate members of oppressed groups favorably to prove to themselves that they are not prejudiced. Dunton and Fazio

(1997) further add that the desire to avoid disputes with others may produce similar effects.

If it is the case that the outgroup-favoring pattern occurs only in the presence of an experimenter, as was the case in the present studies, its artifactual nature would eliminate the need for a theoretical explanation. If, however, this pattern also occurs in the presence of bosses, professors, parents, or other real-world arbiters of social norms, then it should receive due theoretical attention. Surprisingly, Lambert and his colleagues (1996) are among the few to directly study the expression of prejudice in public or private settings. Their findings combined with the present work suggest that authority figures may have a qualitatively different effect on the expression of explicit prejudice than nonauthorities. Specifically, when the student participants in Lambert et al. anticipated expressing their views to others like themselves, they did not rate minorities more favorably, unlike the present studies. Rather, they were more likely to express their private attitudes, even if they were anti-Black, suggesting that they were choosing to defend their views rather than discard them. Future studies should examine this and other aspects of controlled expressions of prejudice in more detail. (Strictly speaking, if other real-world authorities in addition to experimenters produce outgroup-favoring evaluations, then *none* of the conditions in this may be said to have produced “artifactual” distortion.) Just as important, future studies should test whether the presence of authorities and others (in addition to the target) activate thoughts of racial discrimination. This is necessary to retain Jussim et al.’s (1987) cognitive explanation of outgroup-favoring evaluations in light of the current findings that they only occurred in the presence of others. Future work also should incorporate Dunton and Fazio’s (1997) Motivation to Control Prejudiced Reactions Scale to establish whether the presence of others has a greater affect on concerns about appearing nonprejudiced or on the desire to avoid disputes (also see Monteith et al., 2000). These are but a few of the directions that future work on controlled prejudice might take if artifactual sources of distortion were successfully eradicated.

Finally, our findings also support the emerging opinion that the Internet potentiates disinhibited, disagreeable, and deviant behavior (McLeod, Baron, Marti, & Yoon, 1997; see also McKenna & Bargh, 2000). The various explanations for this disinhibition align with the modality/setting distinction made in the current study. Modality explanations suggest that the terminal interface and the format of communication (including e-mail, Web page, discussion board, or chatroom) (see Richman et al., 1999) may lead to disinhibited behavior. Certainly, the digital medium might introduce a certain

sense of “virtuosity” or “delete-ability” that could lead to disinhibition, including increased expressions of racial bias. However, disinhibition also may be produced by social-setting effects, such as the de-individuation (Spears & Lea, 1994), anonymity (McLeod et al., 1997), physical isolation (Richman et al., 1999), and absence of human cues (Tourangeau & Smith, 1996) that often come with the use of computers to communicate with others across physical distances.<sup>5</sup> In regard to the modality/setting distinction, the findings of Study 1 indirectly imply that digital modality alone may not be sufficient to produce disinhibition. However, both studies support the notion that disinhibition may result from the increased social distance between people communicating via the Internet. The possibility that social factors are the key elements contributing to disinhibited behavior in computer-mediated communication (see Tourangeau & Smith, 1996) clearly warrants further research.

## NOTES

1. Internet access in U.S. public schools rose from 65% in 1996 to 98% in 2000 (Cattagni, Farris, & Westat, 2001), and as of 2000, access was available in 85% of U.S. public libraries (Chute, Kroe, Garner, Polcari, & Ramsey, 2002). The U.S. Department of Commerce reported in October 2000 that 41.5% of U.S. homes have Internet access, a figure that was expected to exceed 50% by mid-2001, although considerable variation still exists across race and income levels. Internationally, about a third of the homes in Asian Pacific countries, about a quarter of the homes in Europe (Bloch & Steyn, 2001), and about a tenth of the homes in Central and South America have Internet access (Nua Internet Surveys, 2002). Home use in China is about 5% (Bloch, Chan, & Steyn, 2002), although this makes it the second largest nation in number of users behind the United States. Market penetration is below 1% in most of Africa, although Internet access is available to the citizens of all African national capitals (Nua Internet Surveys, 2002).

2. Although researchers may conceptualize Internet-based studies as merely uploaded to the Web for haphazard access by Internet browsers, we believe that this practice is highly susceptible to sampling biases, particularly self-selection. We believe that Internet-based studies should be held to the same rigorous sampling standards as studies conducted through regular mail (see Hewson, Laurent, & Vogel, 1996).

3. Participants in Study 1 volunteered for the study on hard-copy sign-up sheets. However, by the time Study 2 was conducted, all research scheduling at the university was being conducted exclusively over the Internet. Because 97% of the students in the course were known to be using the Web for this purpose, a lack of Internet familiarity was not considered to unduly bias the sample.

4. The only other effect to attain significance was a main effect for experimental setting,  $F(2, 185) = 3.30, p = .039$ , showing that ratings made out of the laboratory via the Internet were less favorable than ratings made in the laboratory. However, this effect must be interpreted in light of the significant Race  $\times$  Setting interaction.

5. Researchers should take care to use the term “anonymous” to mean that one’s name is not known, given that the “physical isolation” and “absence of personal interface” casually associated with “anonymity” are in fact additional social-setting variables that should be conceptually distinguished and independently tested.

## REFERENCES

Asch, S. E. (1946). Forming impressions of personality. *Journal of Abnormal and Social Psychology, 41*, 258-290.

- Bloch, H., Chan, E., & Steyn, P. (2002, April 22). China takes prize for world’s second largest at home Internet population as numbers reach 56.6 million. *Nielsen NetRatings*. Retrieved July 15, 2002, from [http://www.nielsen-netratings.com/pr/pr\\_020422\\_hk.pdf](http://www.nielsen-netratings.com/pr/pr_020422_hk.pdf).
- Bloch, H., & Steyn, P. (2001, June 13). Home Internet access dominates; Asian mobile penetration booms; Aussies and Kiwis keen online shoppers. *Nielsen NetRatings*. Retrieved July 15, 2002, from [http://www.nielsen-netratings.com/pr/pr\\_010613\\_hk.pdf](http://www.nielsen-netratings.com/pr/pr_010613_hk.pdf).
- Brewer, M. B. (1979). In-group bias in the minimal intergroup situation: A cognitive-motivational analysis. *Psychological Bulletin, 86*, 307-323.
- Buchanan, T., & Smith J. L. (1999). Using the Internet for psychological research: Personality testing on the World Wide Web. *British Journal of Psychology, 90*, 125-144.
- Carver, C. S., Glass, D. C., Snyder, M. L., & Katz, I. (1977). Favorable evaluations of stigmatized others. *Personality and Social Psychology Bulletin, 3*, 232-235.
- Cattagni, A., Farris, E., & Westat. (2001). *Internet access in U.S. public schools and classrooms: 1994-2000*. Washington, DC: U.S. Department of Education. Retrieved July 15, 2002, from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2001071>.
- Chute, A., Kroe, E., Garner, P., Polcari, M., & Ramsey, C. J. (2002, July 2). *E. D. Tab: Public libraries in the United States, Fiscal year 2000*. Washington, DC: U.S. Department of Education. Retrieved July 15, 2002, from <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2002344>.
- Crosby, F., Bromley, S., & Saxe, L. (1980). Recent unobtrusive studies of Black and White discrimination and prejudice: A literature review. *Psychological Bulletin, 87*, 546-563.
- Devine, P. G. (1989). Stereotypes and prejudice: Their automatic and controlled components. *Journal of Personality and Social Psychology, 56*, 5-18.
- Dienstbier, A. R. (1970). Positive and negative prejudice: Interactions of prejudice with race and social desirability. *Journal of Personality, 38*, 198-215.
- Dovidio, J. F., & Gaertner, S. L. (1998). On the nature of contemporary prejudice: The causes, consequences, and challenges of aversive racism. In J. L. Eberhardt & S. T. Fiske (Eds.), *Confronting racism: The problem and the response* (pp. 3-32). Thousand Oaks, CA: Sage.
- Dunton, B. C., & Fazio, R. H. (1997). An individual difference measure of motivation to control prejudiced reactions. *Personality and Social Psychology Bulletin, 23*, 316-326.
- Evans, D. C. (2000). *Amplification and outgroup favoritism in the evaluations of minorities: A meta-analytic comparison of two theories*. Unpublished manuscript.
- Evans, D. C. (in press). A comparison of the other-directed stigmatization produced by legal and illegal forms of affirmative action. *Journal of Applied Psychology*.
- Fazio, R. H., Jackson, J. R., Dunton, B. C., & Williams C. J. (1995). Variability in automatic activation as an unobtrusive measure of racial attitudes: A bona fide pipeline? *Journal of Personality and Social Psychology, 69*, 1013-1027.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology, 74*, 1464-1480.
- Heilman, M. E., & Herlihy, J. M. (1984). Affirmative action, negative reaction? Some moderating conditions. *Organizational Behavior and Human Performance, 33*, 204-213.
- Hertel, G., Naumann, S., Konradt, U., & Batinic, B. (2002). Person assessment via Internet: Comparing online and paper-and-pencil questionnaires. In B. Batinic, U. Reips, & M. Bosnjak (Eds.), *Online social sciences* (pp. 115-133). Berlin: Hogrefe.
- Hewson, C. M., Laurent, D., & Vogel, C. M. (1996). Proper methodologies for psychological and sociological studies conducted via the Internet. *Behavior Research Methods, Instruments and Computers, 28*, 186-191.
- Hewstone, M. (1990). The “ultimate attribution error”? A review of the literature on intergroup causal attribution. *European Journal of Social Psychology, 20*, 311-335.

- Jussim, L., Coleman, L. M., & Lerch, L. (1987). The nature of stereotypes: A comparison and integration of three theories. *Journal of Personality and Social Psychology*, *52*, 536-546.
- Krantz, J. H., Ballard, J., & Scher, J. (1997). Comparing the results of laboratory and World-Wide Web samples on the determinants of female attractiveness. *Behavior Research Methods, Instruments, & Computers*, *29*, 264-269.
- Krosnick, J. A. (1999). Survey research. *Annual Review of Psychology*, *50*, 537-567.
- Lambert, A. J., Cronen, S., Chasteen, A. L., & Lickel, B. (1996). Private vs. public expressions of racial prejudice. *Journal of Experimental Social Psychology*, *32*, 437-459.
- Levene H. (1960). Robust tests for equality of variances. In I. Olkin (Ed.), *Contributions to probability and statistics* (pp. 278-292). Stanford, CA: Stanford University Press.
- Levine, S., Ancil, R. J., & Roberts, A. P. (1989). Assessment of suicide risk by computer-delivered self-rating questionnaire: Preliminary findings. *Acta Psychiatrica Scandinavica*, *80*, 216-220.
- Locke, S. D., & Gilbert B. O. (1995). Method of psychological assessment, self-disclosure, and experiential differences: A study of computer, questionnaire, and interview assessment formats. *Journal of Social Behavior and Personality*, *10*, 255-263.
- Martin, C. L., & Nagao, D. H. (1989). Some effects of computerized interviewing on job applicant responses. *Journal of Applied Psychology*, *74*, 72-80.
- McConahay, J. B. (1986). Modern racism, ambivalence, and the Modern Racism Scale. In J. F. Dovidio & S. L. Gaertner (Eds.), *Prejudice discrimination, and racism* (pp. 91-125). Orlando, FL: Academic Press.
- McConahay, J. B., Hardee, B. B., & Batts, V. (1981). Has racism declined in America? It depends on who is asking and what is asked. *Journal of Conflict Resolution*, *25*, 563-579.
- McKenna, K. Y. A., & Bargh, J. A. (2000). Plan 9 from cyberspace: The implications of the Internet for personality and social psychology. *Personality and Social Psychology Review*, *4*, 57-75.
- McLeod, P., Baron, R. S., Marti, M. W., & Yoon, K. (1997). The eyes have it: Minority influence in face-to-face and computer-mediated group discussion. *Journal of Applied Psychology*, *82*, 706-718.
- Monteith, M. J., Devine, P. G., & Zuwerink, J. R. (2000). Self-directed versus other-directed affect as a consequence of prejudice-related discrepancies. In C. Stangor (Ed.), *Stereotypes and prejudice: Essential readings. Key readings in social psychology* (pp. 305-322). Philadelphia: Psychology Press.
- Nua Internet Surveys. (2002, July 15). How many online? Retrieved July 15, 2002, from [http://www.nua.ie/surveys/how\\_many\\_online/index.html](http://www.nua.ie/surveys/how_many_online/index.html).
- Orne, M. T. (1962). On the social psychology of the psychology experiment: With particular reference to demand characteristics and their implications. *American Psychologist*, *17*, 776-783.
- Pasveer, K. A., & Ellard, J. H. (1998). The making of a personality inventory: Help from the WWW. *Behavior Research Methods, Instruments, and Computers*, *30*, 309-313.
- Richman, W. L., Kiesler, S., Weisband, S., & Drasgow, F. (1999). A meta-analytic study of social desirability distortion in computer-administered questionnaires, traditional questionnaires, and interviews. *Journal of Applied Psychology*, *84*, 754-775.
- Rosenthal R. (1966). *Experimenter effects in behavioral research*. New York: Appleton Century Crofts.
- Spears, R., & Lea, M. (1994). Panacea or panopticon? The hidden power in computer-mediated communication. *Communication Research*, *21*, 427-459.
- Stanton, J. M. (1998). An empirical assessment of data collection using the Internet. *Personnel Psychology*, *51*, 709-725.
- Tourangeau, R., & Smith, T. W. (1996). Asking sensitive questions: The impact of data collection mode, question format, and question context. *Public Opinion Quarterly*, *60*, 275-304.
- U.S. Department of Commerce. (2000, October). *Falling through the net: Toward digital inclusion*. Washington, DC: Author. Retrieved July 15, 2002, from <http://www.esa.doc.gov/ftn00.htm>.

Received May 21, 2001

Revision accepted July 4, 2002