



ELSEVIER

Available online at www.sciencedirect.com

Journal of Experimental Social Psychology xxx (2006) xxx–xxx

Journal of
Experimental
Social Psychologywww.elsevier.com/locate/jesp

The self-protective and undermining effects of attributional ambiguity [☆]

Crystal L. Hoyt ^{a,*}, Lauren Aguilar ^b, Cheryl R. Kaiser ^c, Jim Blascovich ^d, Kevin Lee ^e

^a *Jepson School of Leadership Studies, University of Richmond, Richmond, VA 23173, USA*

^b *Department of Psychology, Columbia University, USA*

^c *Department of Psychology, University of Washington, USA*

^d *Department of Psychology, University of California, Santa Barbara, USA*

^e *Google, Inc., Mountain View, CA, USA*

Received 11 July 2005; revised 1 September 2006

Communicated by Spencer

Abstract

Two experiments assessed the self-protective and undermining effects of attributional ambiguity. Both studies utilized immersive virtual environment technology to achieve otherwise difficult manipulations of stigma. In Experiment 1, White and Latino participants were either stigmatized (represented as Latino) or not (represented as White) and given negative leadership performance feedback. Afterwards, stigmatized participants reported higher well-being and attributed negative feedback more to discrimination than nonstigmatized participants. In Experiment 2, Latinos represented veridically showed self-protective effects after receiving negative leadership feedback. Additionally, this experiment revealed undermining effects of attributional ambiguity such that those participants represented as Latino discounted positive feedback and reported lower well-being. Thus, attributional ambiguity of stigmatized individuals (real or induced) buffered well-being in the face of negative feedback but undermined the well-being effects of positive feedback.

© 2006 Elsevier Inc. All rights reserved.

Keywords: Attributional ambiguity; Well-being; Attributions to discrimination; Discounting; Ethnicity; Leadership; Stigma; Virtual environment; Self-protective; Undermining

Introduction

Members of ethnic minority groups are considered stigmatized by virtue of a devalued social identity (Crocker, Major, & Steele, 1998). Such stigmatized individuals may experience difficulty making attributions for others' evaluations of their performance in various situations. For example, when ethnic minority leaders receive feedback they may be uncertain as to whether it is an accurate reflection of their abilities or a reflection based on stereotypes

and prejudices regarding their social identity. This "attributional ambiguity" (Crocker & Major, 1989) can occur for either negative or positive feedback and may impact the psychological well-being of the stigmatized. In the present studies, we investigated whether attributing negative feedback to discrimination provides a buffering effect protecting well-being. Additionally, we investigated whether attributions to discrimination undermine positive feedback received by stigmatized group members.

Attributions and psychological well-being

Attributions have important implications for individuals' psychological well-being. Indeed, much research indicates that psychologically healthy people locate the causes of positive events within internal, global, and stable aspects of the self and the causes of negative events in

[☆] This work was supported in part by NSF ITR Award #0205740 to the fourth author and by undergraduate research awards to the second and fifth authors. We acknowledge and thank Laura Davidovitz, Robin Lensing, and Molly Thompson for their contributions to this research. We also thank Dr. Niall Bolger for his indispensable counsel.

* Corresponding author. Fax: +1 804 287 6062.

E-mail address: choyt@richmond.edu (C.L. Hoyt).

sources external to the self (Taylor & Brown, 1988). Such self-serving attributions have been shown to bolster and protect self-esteem (e.g., Abramson, Seligman, & Teasdale, 1978; MacFarland & Ross, 1982).

Self-protective effects of attributions to discrimination

Scholars have argued that self-serving biases are important for understanding the predicament of a stigmatized social identity (see Major, Quinton, & McCoy, 2002, for a review). Members of stigmatized groups are often in a state of attributional ambiguity; that is, they are uncertain of the motives underlying other's reactions to them. When members of socially devalued groups receive negative feedback, they often ponder whether the supposed failure truly reflects their ability or results from prejudice. Crocker and Major (1989) hypothesized that attributional ambiguity can serve a protective function such that attributing negative feedback to prejudice can buffer stigmatized individuals from negative self-evaluation.

Much research supports Crocker and Major's notion (Dion, 1975; Dion & Earn, 1975). For example, Crocker, Voelkl, Testa, and Major (1991) found that when African-American participants received a negative evaluation from a White evaluator who they thought was aware of their race, they tended to discount the feedback by attributing the failure to discrimination, and reported marginally higher self-esteem than participants who thought the evaluator was unaware of their race. Similarly, women reported fewer depressed emotions when they could reasonably attribute negative feedback to sexism relative to when this attribution was not plausible (Crocker et al., 1991). Recently, Major, Kaiser, and McCoy (2003) found that discounting stigma-based rejection was inversely related to depressed emotions. There are exceptions to these effects, for example, there are individual differences in sensitivity to race-based rejection (Mendoza-Denton, Purdie, Downey, & Davis, 2002), highly identified group members do not show self-protective effects in attributionally ambiguous situations (McCoy and Major, 2003), and these attributions are unlikely to protect the self relative to external attributions (Major, Kaiser, et al., 2003; Schmitt and Branscombe, 2002). Despite these qualifications, there is strong empirical support for the theory that attributing negative outcomes to prejudice protects the well-being of members of socially devalued groups.

Undermining effects of attributions to discrimination

Most attributional ambiguity research has focused on the consequences of attributing negative events to discrimination while generally ignoring responses to positive events. Understanding how stigmatized individuals construe positive events is important because these attributions are necessary in shaping mastery beliefs as well as perceived control, and are associated with better psychological well-being (MacFarland & Ross, 1982; Weiner, 1985). During attributional ambiguity, individuals may suspect that any positive treatment is due to their ethnicity, race, etc. and

may also be likely to attribute their success to their ethnicity, rather than their own personal deservingness thus undermining their well-being.

Minorities have reason to question motives underlying other's positive responses towards them, as people have been shown to evaluate members of stigmatized groups more favorably than members of non-stigmatized groups (e.g., Blascovich, Mendes, & Seery, 2002; Carver, Glass, Snyder, & Katz, 1977; Crandall & Eshleman, 2003; Harber, 1998). Potential explanations include political correctness and norms to be kind or to express sympathy for their situation (Hastorf, Northcraft, & Picciotto, 1979; Jones et al., 1984). Alternatively, members of privileged groups may evaluate minorities more positively to overcome their own discomfort or threat during interactions with them, or they might lower their evaluation standards because of expectancy effects (see Harber, 1998, for a review). In short, ethnic minorities have valid reasons to suspect positive bias when receiving positive feedback, which might have negative implications for well-being.

Research shows that stigmatized individuals attribute positive feedback to their social identity (Britt & Crandall, 2000). Crocker et al. (1991) found that when Black participants received positive feedback from a White evaluator, those who thought the evaluator was aware of their race reported that the feedback was more likely due to discrimination than did participants who believed the evaluator was unaware of their race. Additionally, the former exhibited decreased self-esteem compared to those who thought the evaluator was unaware of their race. Furthermore, other scholars have found that members of stigmatized groups experience negative affect and negative self-perceptions when they are aware that others know of their special treatment (Heilman, Simon, & Repper, 1987; Heilman & Alcott, 2001; Major, Feinstein, & Crocker, 1994).

The present research

Hypotheses

We hypothesized that, compared to visibly White leaders, visibly Latino leaders of small groups will be unsure whether the leadership performance feedback they receive stems from their abilities or their stigmatized social identity. Further, we hypothesize that Latino leaders will attribute both positive and negative feedback to discrimination with the former undermining and the latter buffering their self-esteem. Lastly, we hypothesize that these effects will occur whether the visible ethnic appearance of the leaders represents their actual identity or merely their virtual visible identity.

Experimental context

The experimental leadership task took place in an immersive virtual conference room. Research shows that immersive virtual environment technology (IVET) induces users to experience a compelling sense of presence within an environment which can be created digitally (Blascovich et al., 2002). Our IVET system consisted of three

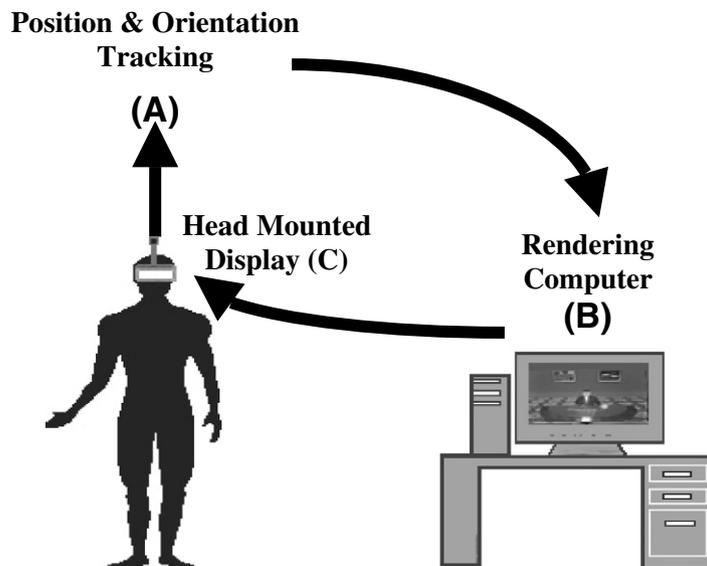


Fig. 1. The immersive virtual display system.

subsystems: (a) a body location and head tracker, (b) a graphics rendering computer, and (c) an audiovisual stereoscopic head-mounted display (HMD). Translation and orientation information regarding the user's body and head are sensed and recorded by trackers, which inform the rendering computer, which then generates and projects visual and auditory stimuli to the HMD¹ (see Fig. 1). We employed IVET here for the methodological advantages it offers including allowing exact control over digital confederates' behaviors. Additionally, IVET provides tools that allow us to perform extremely difficult experimental manipulations of organismic variables such as ethnicity as was done here (Blascovich et al., 2002; Hoyt, Blascovich, & Swinth, 2003).

Finally, this research provides a number of unique contributions to the literature. Not only are we looking to replicate the self-protective effects of attributions to discrimination in a highly understudied ethnic group, Latino Americans, in the important domain of leadership, but we are also directly testing the undermining effects of attributional ambiguity. Additionally, we are examining the extent to which attributional ambiguity is situationally determined by giving White participants induced stigmas

¹ *Technology specifications.* The head-mounted display was a Virtual Research V8 HMD (a stereoscopic display with dual 680 horizontal by 480 vertical resolution LCD panels that refresh at 72 Hz). The optics of this display presented a visual stimulus subtending approximately 50° horizontally by 38° vertically. Perspectively correct stereoscopic images were rendered by a 450 MHz Pentium III dual processor computer with an Evans & Sutherland Tornado 3000 dual pipe graphics card, and these images were updated at an average frame rate of 36 Hz. The simulated viewpoint was continually updated by the participants' head movements. The orientation of the participant's head was tracked by a three-axis orientation sensing system (Intersense IS300, update rate of 150 Hz). The system latency, or the amount of delay between a participant's head motion and the resulting concomitant update in the HMD's visual display was 65 ms maximum.

and Latino participants non-stigmatized identities. Also, unlike previous attributional ambiguity studies in which interactions took place with evaluators in 'another room,' IVET allowed us to manipulate ethnicity and study 'face-to-face' interactions.

Experiment 1

In this study, Latino and White participants performed as leaders in an employee-hiring task. Half were portrayed as Latino and half the participants were portrayed as White in the virtual world. This experiment tested the hypotheses that attributional ambiguity would buffer well-being in the face of negative feedback for those portrayed as Latino, and that this effect would be driven by attributions to discrimination. We hypothesized no effects for actual identity and no interactions between actual and virtual identities.

Method

Participants and design

Forty-two introductory psychology students at a major research university received \$10 for participation. Two were excluded from analyses (one was neither White nor Latino, the condition assignment for the other was not recorded). The final sample included 20 Latino and 20 White participants (26 female, 14 male; mean age = 18.90, range 18–21). The experiment employed a 2 (Portrayal: Latino or White) × 2 (Ethnicity: Latino or White) between-subjects design.

Procedure

Participants were run individually and brought into a room assuming that two other participants would occupy two other experimental rooms. This experiment was con-

ducted in a laboratory that contained three rooms in which ostensibly three people, each located in a separate room, interacted together within a single virtual conference room. Participants were ostensibly randomly assigned to the role of leader in the ‘group’ experiment. Participants were told that as leaders they were asked to arrive 10 min before the two other group members in order to complete additional questionnaires and they were informed that all interactions would occur in an immersive virtual conference room.

The experimenter explained that the study was aimed at understanding leadership within virtual environments and that we were interested in work group performance and the mental processes underlying leadership ability. Participants were informed that we were particularly interested in examining differences in leadership performance between demographic groups as there are ethnic inequalities in leadership roles within our society. Thus, ethnicity and performance were made salient as in previous paradigms (for example, Major, Gramzow, et al., 2002).

Participants were then briefed on their upcoming leadership task and told that they would receive feedback from the group members. Participants were informed that they would assume the fictitious role of President of the Human Resources Department of a corporation. Together with the two Vice Presidents in the HR Department, the ‘other group members,’ they would hire a new Junior Associate. Participants were told that it was their responsibility to look over application materials and a memo from the CEO and to prepare for a 3-min meeting with the Vice Presidents in an IVE. At this point the leader was given 7 min to privately prepare for the meeting. After the preparation period, participants were shown how they would be portrayed in the virtual world before they were immersed in the VE for the task.

The VE consisted of three people (representations) sitting around a table. The two group members, Chris and Michelle, both portrayed as White (see Fig. 2), were programmed to generate realistic but random nonverbal body

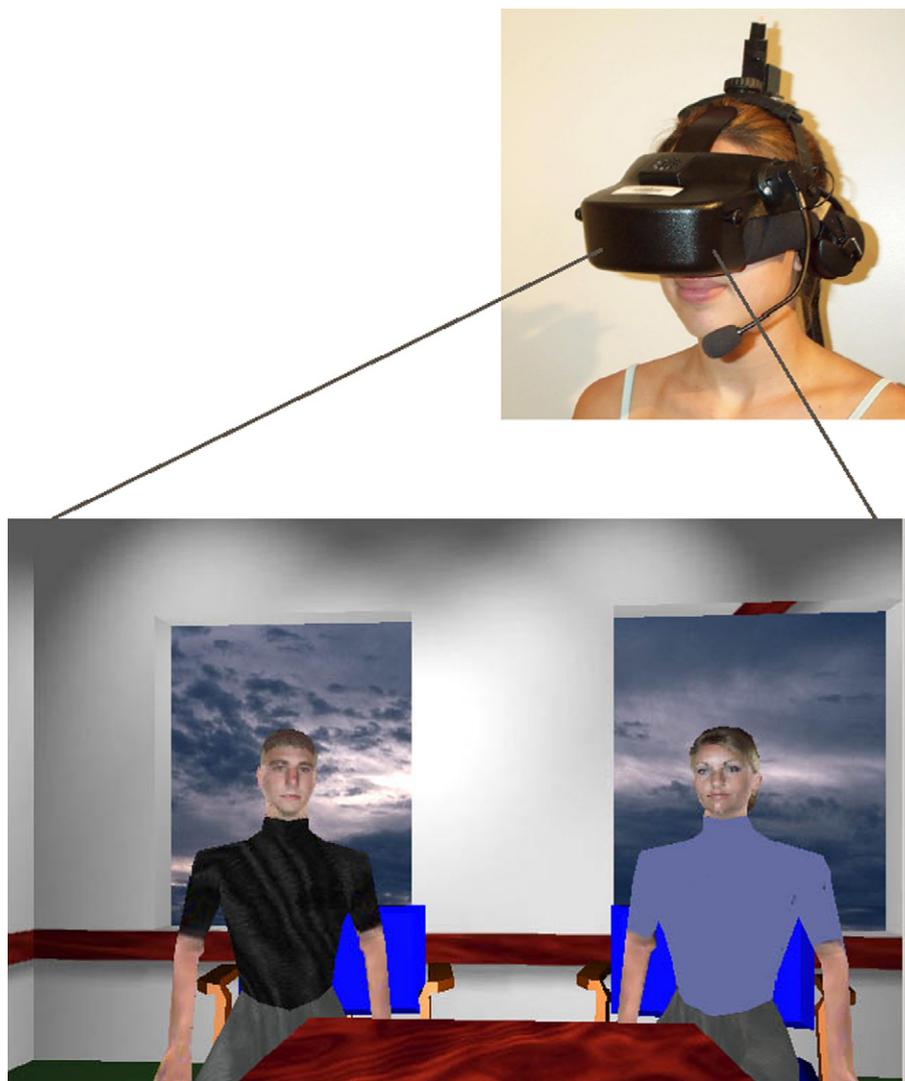


Fig. 2. The leader's view of the two followers during the meeting in the immersive virtual environment.

movements, including eye blinks, head movements, and small facial expressions. Participants were shown pictures of how they would be represented in the virtual world. Portrayals matched the participant's gender and were manipulated to either be Latino or White. There was only one Latino and one White representation for each gender.² To strengthen the manipulation, a virtual portrait of each participant's representation was displayed in the conference room.

The procedures were carefully designed to reduce participant suspicion and potential demand characteristics. Throughout the experiment, the experimenter checked on the 'other participants' by audibly opening and shutting the laboratory doors. The experimenter also ostensibly enabled the network connecting the three rooms such that all participants would be in the same virtual world by switching on a video monitor for the leader which displayed a White male in one room and a White female in another putting on their HMDs. Unknown to the participants, these displays were pre-recorded.

Following the task, participants waited several minutes for the other participants to ostensibly complete their rating sheets, which conveyed bogus negative feedback on their leadership performance. Specifically, participants were given two hand-written rating sheets on which the 'other participants' 'rated' the leader's performance on a scale from -3 to 3 on items such as 'Oral communication,' 'Planning and Organization,' and 'Overall leadership ability.' The negative feedback ratings ranged from -3 to 0.

Finally, participants completed their final questionnaires. Afterwards, the experimenter probed for suspicion by asking what they thought the experiment was about, if they found anything strange about the experiment, if they believed there were other participants in the experiment, and if their feedback was authentic. The post-experimental probing questions revealed that participants believed the paradigm's pretext. Participants were paid, debriefed, and thanked for their participation.

Measures

Participants responded to all measures on a seven-point Likert-type scale ranging from -3 (strongly disagree) to 3 (strongly agree).

Well-being. The well-being scale consisted of 10 items typical of those used in attributional ambiguity research. Items were adapted from depressed affect and self-esteem scales (e.g., the MAACL, Heatherton & Polivy, 1991; Lubin, Zuckerman, & Woodward, 1985). Sample items include: 'At this moment I feel worthless' (reverse), 'Right now I feel I have less leadership ability than others' (reverse), 'At this moment I feel fine' ($\alpha = .87$).

Attributions to discrimination. Attributions to discrimination were assessed with the following five items: "The group's ratings of my performance were fair (reverse)", "It is the group's fault that I received such ratings", "The group's ratings were justified (reverse)", "The group is to blame for my feedback", and "The group's ratings were discriminatory" ($\alpha = .82$).

Results

Self-protective hypothesis

Well-being, the dependent variable relevant to this hypothesis, was analyzed with a 2 (Portrayal) \times 2 (Ethnicity) between-subjects ANOVA. There was a main effect such that those portrayed as Latino had significantly higher levels of well-being ($M = 1.53$, $SD = 1.11$) in the face of negative feedback than those represented as White ($M = .81$, $SD = .91$), $F(1, 35) = 4.94$, $p = .03$, $\eta^2 = .12$. There was no main effect for participant ethnicity on well-being and no interaction between ethnicity and portrayal.

Attribution hypothesis

Next, we conducted a 2 (Portrayal) \times 2 (Ethnicity) between-subjects ANOVA on attributions to discrimination. There was a main effect of ethnicity such that White participants attributed the feedback to discrimination significantly more ($M = -.88$, $SD = 1.17$) than Latino participants ($M = -1.52$, $SD = .93$; $F(1, 36) = 4.05$, $p = .05$, $\eta^2 = .10$). There was also a marginal main effect of portrayal such that those represented as Latino made attributions to discrimination more ($M = -.88$, $SD = 1.05$) than those represented as White ($M = -1.46$, $SD = 1.07$; $F(1, 36) = 3.19$, $p = .08$, $\eta^2 = .08$). Again there was no interaction between portrayal and ethnicity, although the power to detect an interaction was low due to the small sample size. Finally, we found a significant positive correlation $r(38) = .43$, $p < .01$ between attributions to discrimination and well-being, such that the more the participants attributed the feedback to discrimination the better their well-being.

Mediation analysis. The total effect of portrayal on well-being was .72 (see Table 1). As can be seen in Fig. 3, the paths from portrayal (dummy coded as 0 = White, 1 = Latino) to discrimination (.55) and from discrimination to well-being (.36) are both positive, thus they are consistent with the interpretation that being portrayed as Latino leads to greater attributions to discrimination, which in turn lead to greater levels of well-being. The indirect effect of portrayal and well-being through attributions to discrimination is the product of the two unstandardized path coefficients, $.55 * .36 = .19$.

Because the traditional Sobel test is known to have low power and is especially problematic when used with small samples, we used the bootstrapping approach to testing mediation as advocated by Shrout and Bolger (2002) for such cases. We conducted these analyses using Preacher and Hayes' (2006) macro to implement the bootstrapping

² Before running Experiment 2 we conducted a pilot study to select portrayals that were rated similar in their perceived attractiveness, likeability, intelligence, and leadership effectiveness.

Table 1
Bootstrap analysis of direction, magnitude, and statistical significance of the indirect effects of portrayal on well-being through attributions to discrimination

Analysis	Total/direct effects	Indirect effect: Product of path coefficients	5% cutoff value in the lower ^a or upper ^b tail of the distribution of indirect effects
Experiment 1	.72/.53	.546 * .357 = .19	.0174 ^a
Experiment 2: Negative Feedback	.53/.44	.436 * .203 = .09	.0053 ^a
Experiment 2: Positive Feedback	-.51/-.34	.635 * -.265 = -.17	-.0110 ^b
Combined: All Exp1 Negative Exp2	.71/.55	.516 * .319 = .16	.0542 ^a
Combined: Latinos Exp1 Negative Exp2	.70/.50	.478 * .399 = .19	.0408 ^a

Note. Direct, indirect, and total effects are quantified with unstandardized regression weights.

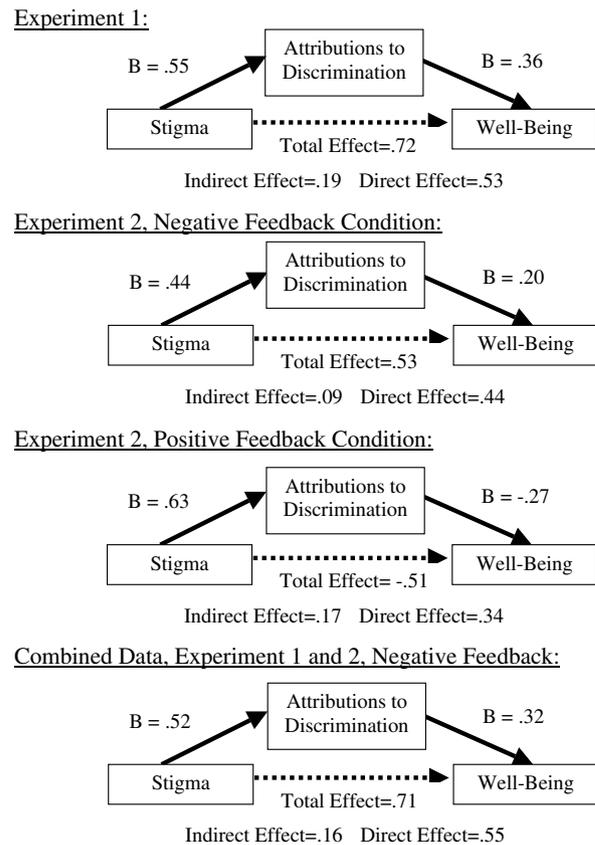
approach in SPSS. In this procedure, we took 1000 samples from the original data set (using sampling with replacement) thus yielding 1000 estimates of each path coefficient. These estimates were used to calculate estimates of the indirect effect of portrayal on well-being through the mediation of attributions to discrimination.

In our bootstrapping analyses we used a one-sided (directional) test, which requires that the 5% cutoff value in the lower tail of the bootstrap distribution of indirect effects be above zero to obtain significance. We found that this cutoff of the indirect effect of attributions to discrimination was, in fact, above zero (.02; see Table 1). We therefore concluded that attributions to discrimination mediated the relationship between portrayal and well-being.

Discussion

Compared to those portrayed as White, participants portrayed as Latino reported higher well-being and were more likely to attribute the negative feedback to the group members' prejudice. Additionally, results demonstrated that the more the participants blamed negative feedback on discrimination, the greater their well-being. In other words, the results are consistent with the hypothesis that discrimination attributions mediate the relationship between experimental condition and well-being.

Unexpectedly, ethnically White participants attributed negative feedback more to discrimination than Latino participants. Perhaps this effect was driven by the Latino participants curtailing their attributions because they understand the potential costs to making an attribution to discrimination whereas the White participants do not understand the costs as well. Indeed, Stangor, Swim, Van Allen, and Sechrist (2002) demonstrated that Black Americans curtail attributions to discrimination in the presence of outgroup members (presumably because this is an inter-



Note: Direct, indirect, and total effects are quantified with unstandardized regression weights.

Fig. 3. Attributions to discrimination as a mediator of the effects of stigma on well-being.

personally costly judgment), but White Americans do not (presumably because they are less worried about others reactions to their claims).

Our results provide the first empirical demonstration that Whites make attributions to discrimination when pre-

sented as Latino. This suggests that making an attribution to discrimination may not require experience being a member of a stigmatized group but rather it may be a coping skill that can be employed by anyone who is portrayed as stigmatized. Finally, the results of this experiment provide support for the efficacy of using IVET for concealing and inducing an ethnic stigma.

Experiment 2

The second experiment attempted to replicate these effects and to test our hypotheses about the undermining effects of attributional ambiguity on positive feedback. In this experiment, we restricted our focus to Latino Americans because minorities are those who are most likely to face discrimination-related obstacles in the real world and we were most interested in understanding responses of those who are chronically potential targets of discrimination.

Method

Participants and design

Sixty-three Latinos enrolled in introductory psychology at a major research university participated for either course credit or 10 dollars. Four were excluded due to procedural errors, resulting in a sample of 59 (48 female; mean age = 18.71, range 18–21). The experiment was a 2 (Portrayal: Latino or White) \times 2 (Feedback: Positive or Negative) between-subjects design.

Measures

The 10-item well-being measure employed in Experiment 1 was used in this experiment ($\alpha = .79$). The attribution to discrimination measure was slightly changed in Experiment 2. The scale consisted of four items: “The group’s ratings of my performance were fair (reverse)”, “The group’s ratings were justified (reverse)”, “The group’s ratings were discriminatory”, and “The group’s ratings were influenced by my race” ($\alpha = .55$).

Procedures

The procedures for this experiment were essentially identical to Experiment 1 with the exception that participants either received negative or positive feedback. The feedback was given in the same manner as in Experiment 1; half of the participants received negative feedback (ratings ranged from -3 to 0) and the other half received positive ratings (ranging from 0 to 3).

Results

Self-protective and undermining hypotheses

Well-being was analyzed with a 2 (Portrayal) \times 2 (Feedback) between-subjects ANOVA. There was a significant interaction ($F(1, 55) = 7.22, p = .01, \eta^2 = .12$; see Fig. 4). Simple effects tests revealed that with positive feedback those represented as Latino reported marginally lower lev-

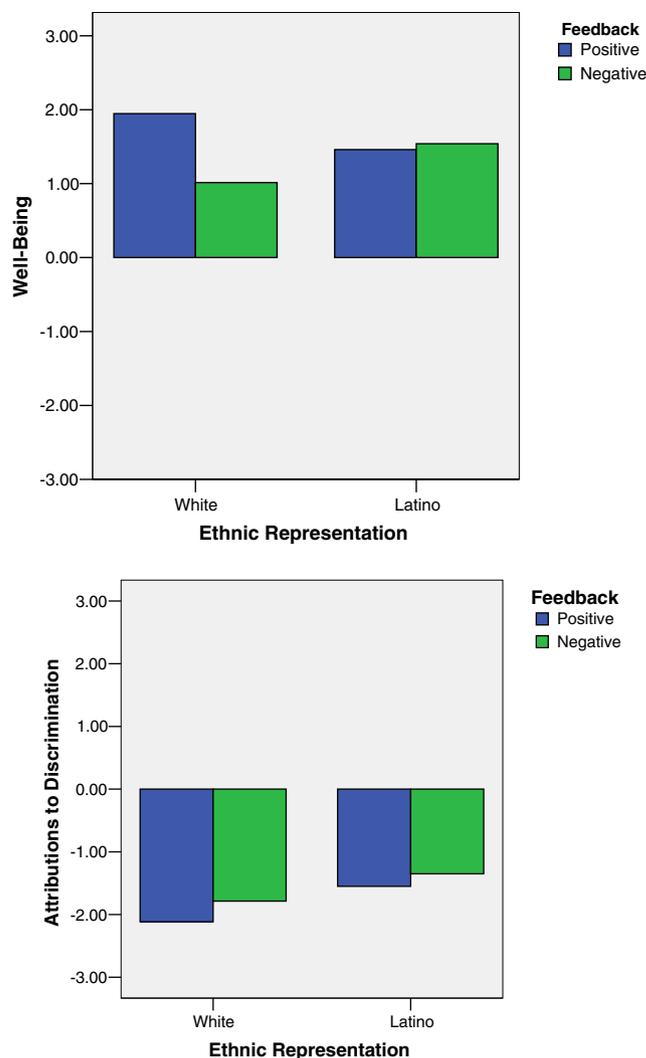


Fig. 4. Experiment 2: The effects of positive and negative performance feedback and stigma (ethnic representation) on well-being and attributions to discrimination.

els of well-being than those represented as White (*simple* $F(1, 55) = 3.40, p = .07, \eta^2 = .06$). Additionally, in the negative feedback condition those represented as Latino reported higher levels of well-being than those represented as White (*simple* $F(1, 55) = 3.83, p = .06, \eta^2 = .07$). There was no main effect for portrayal but there was a main effect of feedback such that those receiving positive feedback had higher levels of well-being ($M = 1.70, SD = .81$) than those who received negative feedback ($M = 1.29, SD = .69$), $F(1, 55) = 5.12, p = .03, \eta^2 = .09$.

Attribution hypotheses

Next, we conducted a 2 (Portrayal) \times 2 (Feedback) between-subjects ANOVA on attributions to discrimination. There was a main effect such that those portrayed as Latino made greater attributions to discrimination ($M = -1.45, SD = .77$) than those portrayed as White ($M = -1.96, SD = .81$; $F(1, 55) = 5.91, p = .02, \eta^2 = .10$; see Fig. 4). There was no main effect of feedback and no interaction between portrayal and feedback.

In the negative feedback condition there was a significant positive correlation, $r(28) = .35$, $p < .05$, such that the more the participants made attributions to discrimination the better their psychological well-being. However, in the positive feedback condition the predicted negative correlation was not quite significant, $r(28) = -.22$, $p = .13$.

Mediational analyses. Using bootstrapping techniques identical to those used in Experiment 1, we conducted two analyses, one for each feedback condition (see Table 1 and Fig. 3). In the negative feedback condition, the 5% cutoff value in the lower tail of the bootstrap distribution of indirect effects was above zero and in the positive feedback condition the 5% cutoff value in the upper tail of the distribution of indirect effects was below zero; thus, the indirect effect was statistically significant in both conditions. In the negative feedback condition the direction of the paths indicate that participants represented as Latino were more likely to make attributions to discrimination resulting in greater levels of well-being. In the positive feedback condition participants represented as Latino were also more likely to make attributions to discrimination but these attributions were associated with lower levels of well-being. In sum, attributions to discrimination mediated the relationship between portrayal and well-being in both feedback conditions.³

Finally, we conducted mediational analyses on the standardized and combined data from Experiment 1 (using all participants and also just Latinos) and the negative feedback condition of Experiment 2. Results from the combined data again confirm that attributions to discrimination mediated the relationship between portrayal and well-being.

Discussion

This experiment examined the buffering and undermining effects of attributional ambiguity. Replicating the findings of Experiment 1, participants portrayed as Latino

³ We assessed two internal attributions in these studies: attributions to their leadership performance and to the effort they put forth. No significant results were found for attributions to leadership performance. In Experiment 1, participants portrayed as Latino were marginally less likely to attribute the feedback to effort than those portrayed as White, $F(1,36) = 2.48$, $p = .12$, $\eta^2 = .06$. The same effect was statistically significant in Experiment 2, $F(1,55) = 5.92$, $p = .02$, $\eta^2 = .10$. In Experiment 1 and the negative condition of Experiment 2 attributions to effort were negatively correlated with well-being (S1: $r(38) = -.33$, $p < .05$; S2: $r(28) = -.32$, $p < .05$) and the relationship was positive in the positive feedback condition ($r(28) = .35$, $p < .05$). Using a bootstrap approach to mediation, we found that attribution to effort was not a statistically significant mediator between portrayal and well-being in either study. Finally, an alternative approach to examining the discounting of feedback to discrimination is to compute a discounting variable by standardizing scores on the attribution scales and subtracting participants' internal (effort) attributions from their attributions to discrimination (Major, Kaiser, et al., 2003; Major, Quinton, & Schmader, 2003). Across both studies this discounting variable successfully mediated the relationship between portrayal and well-being.

were more likely to attribute negative feedback to discrimination than those portrayed as White, resulting in greater well-being. Analyses from the combined study data revealed a robust self-protective effect of attributional ambiguity. This experiment also examined the undermining effects of attributional ambiguity to positive feedback. Participants portrayed as Latino were more likely to discount positive feedback than those represented as White and these attributions resulted in lower levels of well-being.

General discussion

It is difficult for ethnic minorities to accurately determine the causes of others' behavior toward them (Crocker & Major, 2003). This research tested and supported the predictions that ethnically stigmatized individuals would experience attributional ambiguity when given feedback regarding their leadership performance and this ambiguity would buffer them from deleterious effects of negative feedback but prevent them from feeling good when they received positive feedback.

Experiment 1 extended our understanding of attributional ambiguity by demonstrating that White participants with an induced ethnic stigma also show this effect. These data point to the efficacy of inducing a stigma using IVET and are consistent with research showing that individuals with induced stigmas are acutely aware that others may be responding to them based on their stigma. For example, in Kleck and Strenta's (1980) research participants who believed that they had a stigma (facial scar or epilepsy) believed that their conditions had an impact on the behavior of the confederate with whom they interacted.

Although evidence is amassing regarding responses from members of socially devalued groups to negative feedback, it has been less clear what happens in the face of positive feedback. Positive feedback may not have positive consequences for the well-being of members of stigmatized groups who are unsure if the feedback reflects their deservingness or their social identity. For example, research on assumptive help and preferential selection demonstrated that members of stigmatized groups were more likely to report lower well-being when receiving ostensibly positive treatment (Major et al., 1994; Schneider, Major, Luhtanen, & Crocker, 1996).

Our data support the notion that ethnic minorities are particularly sensitive to the motives underlying positive feedback. This sensitivity appears to undermine their acceptance of the positive feedback. In Experiment 2 virtually Latino participants not only discounted the feedback more but they reported lower levels of well-being after receiving positive feedback than those whose stigma was concealed.

Importantly, unlike recent research, these studies found the self-protective effects of attributions to discrimination in a rather ambiguous situation. Major, Quinton, et al. (2003) found that women were more likely to discount

feedback because of perceived prejudice and thus protect self-esteem when there were overt, as opposed to ambiguous, prejudice cues available. While it was made clear that ethnicity was an important factor here, it was not made explicit that the evaluative others were prejudiced; the situation was designed to be ambiguous. One potential explanation for the discrepancy is that Major, Kaiser, et al.'s (2003) work examined women while this research examined ethnicity. As ethnic minorities have a better developed sense of the group as illegitimately devalued than do women, this might make group membership more salient for ethnic minorities in ambiguous situations. Our ambiguous situation might also explain why attributions to discrimination were fairly low across all experimental conditions.

Finally, although IVET provides significant methodological advances that are extremely difficult to otherwise achieve, it does have some limitations. For instance, participants likely had limited experience interacting in an IVE, which could have caused them to construe this experience as fairly circumscribed and unlikely to occur in other contexts. If so, this might have prevented attributions to discrimination from having psychologically harmful effects that might occur in an environment where discrimination is more pervasive (Schmitt, Branscombe, & Postmes, 2003). Additionally, participants' responses to feedback that stems from a group identity that is different than their own may or may not differ from responses based on one's true group identity. IVET can help us start to investigate this question which is important in this day of increasingly fewer face-to-face interactions where people who belong to stigmatized groups have more opportunities to pass as nonstigmatized.

Conclusions

This research examined both the self-protective and the undermining consequences of attributing feedback to discrimination. Use of IVET provided a means for concealing an ethnic stigma, and allowed us to examine these processes in White Americans with a virtual stigma. It also allowed for an examination of attributional ambiguity processes in real-time interactions. Results indicate that individuals portrayed as Latino in the experimental setting discounted both the negative and the positive feedback more than those portrayed as White. Supporting Crocker and Major's discounting hypothesis (1989), attributing the feedback to discrimination allowed those who received negative feedback to protect their well-being. Additionally, we experimentally determined that attributing positive feedback to discrimination undermined well-being. This research suggests that members of socially devalued groups whether portrayed veridically (Latinos revealed as Latinos) or non-veridically (Whites revealed as Latinos) become acutely aware that others might be responding on the basis of group membership. Attributing feedback to one's group membership can buffer them against negative feedback

but can undermine their ability to take credit for positive feedback.

References

- Abramson, L. Y., Seligman, M. E. P., & Teasdale, J. D. (1978). Learned helplessness in humans: critique and reformulation. *Journal of Abnormal Psychology, 87*, 32–48.
- Blascovich, J., Loomis, J., Beall, A., Swinth, K., Hoyt, C., & Bailenson, J. (2002). Immersive virtual environment technology as a research tool for social psychology. *Psychological Inquiry, 13*, 103–125.
- Blascovich, J., Mendes, W. B., & Seery, M. (2002). Intergroup encounters and threat: A multi-method approach. In D. Mackie & E. Smith (Eds.), *From prejudice to intergroup emotions: Differentiated reactions to social groups* (pp. 89–110). New York: Psychology Press.
- Britt, T. W., & Crandall, C. S. (2000). Acceptance of feedback by the stigmatized and non-stigmatized: the mediating role of the motive of the evaluator. *Group Processes and Intergroup Relations, 3*, 79–95.
- 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.
- Crandall, C. S., & Eshleman, A. (2003). A Justification-Suppression Model of the expression and experience of prejudice. *Psychological Bulletin, 129*, 414–446.
- Crocker, J., & Major, B. (1989). Social stigma and self-esteem: the self-protective properties of stigma. *Psychological Review, 96*, 608–630.
- Crocker, J., & Major, B. (2003). The self-protective properties of stigma: evolution of a modern classic. *Psychological Inquiry, 14*, 232–237.
- Crocker, J., Major, B., & Steele, C. (1998). Social stigma. In D. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology* (4th ed.). Boston: McGraw Hill.
- Crocker, J., Voelkl, K., Testa, M., & Major, B. (1991). Social stigma: the affective consequences of attributional ambiguity. *Journal of Personality and Social Psychology, 60*, 218–228.
- Dion, K. L. (1975). Women's reactions to discrimination from members of the same or opposite sex. *Journal of Research in Personality, 9*, 294–306.
- Dion, K. L., & Earn, B. M. (1975). The phenomenology of being a target of prejudice. *Journal of Personality and Social Psychology, 32*, 944–950.
- Harber, K. (1998). Feedback to minorities: evidence of a positive bias. *Journal of Personality and Social Psychology, 74*, 622–628.
- Hastorf, A. H., Northcraft, G. B., & Picciotto, S. R. (1979). Helping the handicapped: how realistic is the performance feedback received by the physically handicapped? *Personality and Social Psychology Bulletin, 5*, 373–376.
- Heatherton, T. F., & Polivy, J. (1991). Development and validation of a scale for measuring state self-esteem. *Journal of Personality and Social Psychology, 60*, 895–910.
- Heilman, M. E., & Alcott, V. B. (2001). What I think you think of me: women's reactions to being viewed as beneficiaries of preferential selection. *Journal of Applied Psychology, 86*, 536–544.
- Heilman, M. E., Simon, M. C., & Repper, D. P. (1987). Intentionally favored, unintentionally harmed? Impact of sex-based preferential selection on self-perceptions and self-evaluations. *Journal of Applied Psychology, 72*, 62–68.
- Hoyt, C., Blascovich, J., & Swinth, K. (2003). Social inhibition in immersive virtual environments. *Presence, 12*, 183–195.
- Jones, E. E., Farina, A., Hastorf, A. H., Markus, H., Miller, D. T., & Scott, R. A. (1984). *Social stigma: The psychology of the marked relationship*. New York: W.H. Freeman.
- Kleck, R. E., & Strenta, A. (1980). Perceptions of the impact of negatively valued physical characteristics on social interactions. *Journal of Personality and Social Psychology, 39*, 861–873.
- Lubin, B., Zuckerman, M., & Woodward, L. (1985). *Bibliography for the Multiple Affect Adjective Checklist*. San Diego, CA: Educational and Industrial Testing Service.

- MacFarland, C., & Ross, M. (1982). The impact of causal attributions on affective reactions to success and failure. *Journal of Personality and Social Psychology*, *43*, 937–946.
- Major, B., Feinstein, J., & Crocker, J. (1994). The attributional ambiguity of affirmative action. *Basic and Applied Social Psychology*, *15*, 113–141.
- Major, B., Gramzow, R. H., McCoy, S. K., Levin, S., Schmader, T., & Sidanius, J. (2002). Perceiving personal discrimination: the role of group status and legitimizing ideology. *Journal of Personality and Social Psychology*, *82*, 269–282.
- Major, B., Kaiser, C. R., & McCoy, S. K. (2003). It's not my fault: when and why attributions to prejudice protect well-being. *Personality and Social Psychology Bulletin*, *29*, 772–781.
- Major, B., Quinton, W. J., & McCoy, S. K. (2002). Antecedents and consequences of attributions to discrimination: Theoretical and empirical advances. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 34, pp. 251–330). San Diego: Academic Press.
- Major, B., Quinton, W. J., & Schmader, T. (2003). Attributions to discrimination and self-esteem: impact of group identification and situational ambiguity. *Journal of Experimental Social Psychology*, *39*, 220–231.
- McCoy, S. K., & Major, B. (2003). Group identification moderates emotional responses to perceived prejudice. *Personality and Social Psychology Bulletin*, *29*, 1005–1017.
- Mendoza-Denton, R., Purdie, V., Downey, G., & Davis, A. (2002). Sensitivity to status-based rejection: implications for African-American students' college experience. *Journal of Personality and Social Psychology*, *83*, 896–918.
- Preacher, K. J., & Hayes, A. F. (2006). *Asymptotic and resampling strategies for assessing and comparing indirect effects in simple and multiple mediator models*. Manuscript submitted for publication. SPSS macro found at: <<http://www.comm.ohio-state.edu/ahayes/SPSS%20programs/indirect.htm/>>.
- Schmitt, M. T., & Branscombe, N. R. (2002). The causal loci of attributions to prejudice. *Personality and Social Psychology Bulletin*, *28*, 620–628.
- Schmitt, M. T., Branscombe, N. R., & Postmes, T. (2003). Women's emotional responses to the pervasiveness of gender discrimination. *European Journal of Social Psychology*, *33*, 297–312.
- Schneider, M. E., Major, B., Luhtanen, R., & Crocker, J. (1996). Social stigma and the potential costs of assumptive help. *Personality and Social Psychology Bulletin*, *22*, 201–209.
- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: new procedures and recommendations. *Psychological Methods*, *7*(4), 422–445.
- Stangor, C., Swim, J. K., Van Allen, K. L., & Sechrist, G. B. (2002). Reporting discrimination in public and private contexts. *Journal of Personality and Social Psychology*, *82*, 69–74.
- Taylor, S. E., & Brown, J. D. (1988). Illusion and well-being: a social psychological perspective on mental health. *Psychological Bulletin*, *103*, 193–210.
- Weiner, B. (1985). An attributional theory of achievement motivation and emotion. *Psychological Review*, *92*, 548–573.