

Status Differences and In-Group Bias: A Meta-Analytic Examination of the Effects of Status Stability, Status Legitimacy, and Group Permeability

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This work examines the moderating effects of status stability, legitimacy, and group permeability on in-group bias among high- and low-status groups. These effects were examined separately for evaluative measures that were relevant as well as irrelevant to the salient status distinctions. The results support social identity theory and show that high-status groups are more biased. The meta-analysis reveals that perceived status stability, legitimacy, and permeability moderate the effects of group status. Also, these variables interacted in their influences on the effect of group status on in-group bias, but this was only true for irrelevant evaluative dimensions. When status was unstable and perceived as illegitimate, low-status groups and high-status groups were equally biased when group boundaries were impermeable, compared with when they were permeable. Implications for social identity theory as well as for intergroup attitudes are discussed.

In the work that we report in this article, we meta-analytically examined the ways in which memberships in high-status groups, compared with those in low-status groups, influence group members' responses to the status hierarchy. We did so by investigating the ways in which the sociostructural context in which these groups are embedded affects these intergroup processes. Because it provides a useful framework for understanding intergroup relations among high- and low-status groups, we begin this article with a brief overview of social identity theory (Tajfel, 1972).

Since the advent of social identity theory, social psychology has seen significant developments in the understanding of the mechanisms that influence between-groups and within-group processes (Abrams & Hogg, 1999; Hogg & Mullin, 1999; Moreland, Hogg, & Hains, 1994; Turner, 1999). The theory has inspired decades of groundbreaking research (Abrams & Hogg, 1999; Ellemers, Spears, & Doosje, 1999) and spawned other influential theoretical models in the area of group dynamics (Brewer, 1991; Hogg & Abrams, 1993; Turner, 1982, 1985). Moreover, the extant litera-

ture evidences the significant impact of social identity theory on broader social psychological theory and research. Recently, researchers have applied the theory's framework toward understanding persuasion and communication (e.g., Duck, Hogg, & Terry, 2000; Kilgard, 1999; D. van Knippenberg, 2000), well-being and psychological adjustment (e.g., Crocker, Luhtanen, Blaine, & Broadnax, 1994), and personality and motivation (e.g., Bettencourt, Sheldon, & Hawley, 1998; Sheldon & Bettencourt, in press; Turner & Onorato, 1999), as well as other psychological phenomena (for reviews, see Hogg & Abrams, 1999; Turner, 1999).

The initial development of social identity theory (Tajfel, 1972, 1978) was inspired by the empirical finding that dividing study participants into two groups on the basis of a flip of a coin or some other trivial categorization (e.g., preferences for types of abstract artwork) produced biased favoritism toward others who shared the same group membership (i.e., the in-group) compared with those who did not (e.g., Billig & Tajfel, 1973; Tajfel, Flament, Billig, & Bundy, 1971). This relative favoritism, or in-group bias, was measured by asking participants to divide points, worth money, between the two groups. In general, *in-group bias* refers to the differential favorability in evaluations of one's in-group compared to a relevant out-group. In the empirical literature, such evaluations are measured by point allocations, monetary rewards, or trait ratings made by group members with respect to their own group and a relevant out-group.

That mere categorization was enough to induce in-group bias cast doubt on the presumption that prior intergroup conflict (e.g., realistic group conflict over resources), negative stereotyping of another group (i.e., an out-group), or particular personality characteristics are necessary to produce biased intergroup attitudes (Turner, 1999). To explain this mere categorization effect, Tajfel (1972) proposed a need for positive social identity as the basic motivational mechanism responsible for in-group bias. He argued

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that social identifications are an important part of the self-concept, and because people strive for positive self-concepts, they are motivated to positively evaluate their social groups in comparison with other groups. That is, in-group bias follows from a sequence of social categorization, social identification, and social-group comparison driven by a pressure to positively differentiate one's in-group from relevant out-groups (Turner, 1999). Thus, social identity theory revealed that "social antagonism . . . is the result of ordinary, adaptive, and functional psychological processes" (Turner, 1999, p. 19).

In their influential chapter "An Integrative Theory of Intergroup Conflict," Tajfel and Turner (1979) applied this social psychological analysis to a theoretical model that explains the ways in which group members respond to social stratification. Their theorizing specified that cognitive, motivational, and sociostructural variables interact in their influences on group members' responses to status hierarchies. Specifically, group members' beliefs about the stability and legitimacy of the status structure and the nature of the group boundaries affect which among a set of strategies might be used to achieve positive social identity (Tajfel & Turner, 1979, 1986).¹ Tajfel and Turner (1979, 1986) defined the *stability of status* as the extent to which an alternative status position for a group as a whole is likely to be realized, the *legitimacy of status* as the extent to which the high- and low-status groups accept the status structure as legitimate, and the *permeability of group boundaries* as the extent to which group members can leave one group and join another.

According to social identity theory (Tajfel & Turner, 1979, 1986), social comparison between low- and high-status groups should yield favorable outcomes for members of high-status groups. Consequently, comparisons will enhance or maintain positive feelings about being a member of the high-status group. In contrast, if through social comparison, the members of a lower status group recognize the relative superiority of another group, their relative standing is unlikely to afford positive social identity (Tajfel & Turner, 1979, 1986). Under this circumstance, members of low-status groups will be motivated to adopt any of several strategies to achieve a more positive social identity, depending on the nature of the social structure (Tajfel, 1981; Tajfel & Turner, 1979, 1986).

One strategy involves attempting to improve the positivity of one's own social identity by individually gaining membership in a higher status group. For example, a teacher may finish a master's degree and take a position as a principal. This strategy is not a viable alternative, however, when a cue such as skin color determines group status. Another strategy, called *social creativity*, involves altering the dimension on which the intergroup comparison is made. In implementing the social creativity strategy, members of low-status groups can make comparisons with higher status groups on new dimensions that yield more favorable outcomes for the low-status groups (also see Lemaine, Kastarsztein, & Personnaz, 1978). For instance, members of an economically disadvantaged group might invoke group-serving evaluations by comparing their morality or cultural value system to that of the economically advantaged out-group as a way of enhancing positive in-group identity. Alternatively, low-status group members might make social comparisons with a group that has similar status, thereby avoiding a diminished view of their own group. For instance, rather than comparing themselves with White Americans, African

Americans might compare themselves with Puerto Rican Americans (Huddy & Virtanen, 1995). Finally, positive group distinctiveness may be achieved by means of direct competition with the higher status out-group. For example, the low-status group as a whole may adopt a strategy in which they collectively mobilize to improve their status vis-à-vis the high-status group. The civil rights movement and the women's movement in the United States are examples this strategy.

Of importance, social identity theory (Tajfel & Turner, 1979, 1986) specifies that the strategies members of low-status groups choose are determined by the sociostructural context. For example, whether low-status group members are likely to attempt the strategy of individual upward mobility depends on whether group boundaries are permeable and thereby allow social mobility (Ellemers, van Knippenberg, & Wilke, 1990; A. van Knippenberg & Ellemers, 1993; see also Taylor & McKirnan, 1984). Alternatively, whether low-status group members are likely to adopt the social competition strategy depends on whether the status structure is perceived as unstable and illegitimate (Tajfel & Turner, 1979, 1986).

Recent Advances in the Social Identity Theory Tradition

Whereas Tajfel and Turner's (1979, 1986) analysis of status differentials focuses primarily on strategies adopted by members of low-status groups, the uncertainty-reduction model (Hogg, 1996; Hogg & Abrams, 1993; Hogg & Mullin, 1999) may be useful for explaining some of the ways in which sociostructural variables influence responses among high-status groups. In explaining the roots of the uncertainty-reduction model, Hogg and colleagues (Grieve & Hogg, 1999; Hogg & Mullin, 1999) have noted that Tajfel's (1969) initial theorizing identified the need for a structured and meaningful world (i.e., subjective certainty) as well as the need for a positive social identity as important for understanding group processes. Drawing on Tajfel's theorizing and on Turner's self-categorization theory (Turner, 1985; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), the uncertainty-reduction model elaborates the role that the need for subjective certainty plays in group attitudes.

Hogg and colleagues (Hogg, 1996; Hogg & Abrams, 1993; Hogg & Mullin, 1999) have proposed that the need to reduce subjective uncertainty about self, others, and the environment is a fundamental process that drives group behavior (Hogg & Abrams, 1993). It is argued that uncertainty arises when people discover

¹ Recently, Turner (1999) discussed the long debate surrounding what has been called the *self-esteem hypothesis* and whether the lack of empirical support for it poses any serious threat to the predictive validity of social identity theory. Interpreting social identity theory, Hogg and Abrams (1990) derived the self-esteem hypothesis, which has two corollaries: (a) "successful intergroup discrimination enhances social identity and thus elevates self-esteem" and (b) "threatened self-esteem promotes intergroup discrimination because of a need for self-esteem" (p. 33). Recently, Turner (1999) clarified that "social identity theory does not actually include these corollaries" (p. 24). Whereas Turner's discussion is important for resolving this controversy, it is not particularly relevant to the current work, and the reader is referred to Turner's (1999) treatment of the issue, Hogg and Abrams's (1990) initial proposal of the self-esteem hypothesis, and Rubin and Hewstone's (1998) review of the relevant literature.

that their beliefs, attitudes, and values are in conflict with those held by similar others, including in-group members. People are motivated to reduce subjective uncertainty because uncertainty is unpleasant and a poor basis for functional conduct (Hogg & Abrams, 1993). The model predicts that reduction of subjective uncertainty, gained through group memberships, induces people to feel positive about themselves, their in-group members, and the in-group as a whole (Grieve & Hogg, 1999; Hogg & Mullin, 1999; Mullin & Hogg, 1998). Hogg and Mullin speculated that when the economic or cultural security of the status structure is threatened, high-status group members should be motivated to secure their status advantage. That is, unstable systems should induce greater feelings of subjective uncertainty among high-status groups, and as a result, they should favor their in-group in an attempt to regain their higher standing in the hierarchy. Also relevant to the effects of group status, Hogg and Mullin proposed that low-status group members may avoid questioning the validity of the status structure (i.e., favoring the out-group instead of the in-group) because such a challenge may increase feelings of subjective uncertainty.

Also pertinent for our present purposes is Turner's (1999) recent criticism that research has failed to recognize the importance of sociostructural variables for group members' responses to salient intergroup comparisons (i.e., status comparisons). Turner eschewed the tendency of researchers to focus simply on the motive for positive social identity without an appreciation of the dynamic interplay between this motive and beliefs about social stratification. He clarified that people's intergroup attitudes are a function of the need for positive social identity within the context of particular sociostructural variables. That is, as we have noted, whether the stratification system is perceived as stable and legitimate and whether group boundaries are perceived as permeable determine the ways in which group members respond to social comparisons between high- and low-status groups.

Turner's (1999) criticism is particularly relevant because the purpose of the current work is to examine the ways in which sociostructural variables influence the relation between group status differences and group-related attitudes. To date, the effects of these theoretically important sociostructural variables on intergroup attitudes have yet to be meta-analytically reviewed. Thus, we conducted a meta-analysis designed to examine the effects of status stability, status legitimacy, and group boundary permeability on the difference between in-group bias among high-status and low-status groups. In what follows, we highlight the findings in the literature relevant to the argument that these sociostructural variables moderate the effect of status on intergroup attitudes. Finally, we report our meta-analytic findings and discuss their implications for theory and research.

Research on Social Identity Theory and Status Differences Between Groups

Mullen, Brown, and Smith (1992) provided the first meta-analytic integration of the intergroup status literature. Their meta-analysis examined the effect of group status on in-group bias. Mullen et al. calculated effect sizes that compared in-group evaluations to out-group evaluations, separately for the high-status group and the low-status group in each study included in the meta-analysis. The results of the meta-analysis showed that the overall average effect size was greater for high-status groups than

for low-status groups. This finding is consistent with many empirical findings that show that high-status members tend to favor their own group over a lower status group but that low-status members tend to either show favoritism toward the higher status out-group over their own group or show no differential favoritism (e.g., Brown, 1978, 1984; Brown & Wade, 1987; Commins & Lockwood, 1979; Sachdev & Bourhis, 1987; Skevington, 1981; Turner & Brown, 1978; A. van Knippenberg, 1978; A. van Knippenberg & van Oers, 1984).

In examining the variables that might moderate the magnitude of the effects of group status, Mullen et al. (1992) did not test the influence of the sociostructural variables identified by social identity theory. Yet, social identity theory presumes effects of these variables. For example, social identity theory predicts that when a status structure is perceived as unstable and illegitimate, low-status groups are more likely to engage in competitive strategies. This competition should be associated with greater in-group bias among low-status groups, resulting in just as much or greater levels of in-group bias compared with high-status groups. Although Mullen et al. drew on social identity theory to guide their meta-analysis, it is silent with regard to the influence of status stability, status legitimacy, and group boundary permeability.

However, Mullen et al. (1992) did examine the moderating influence of the relevance of the dimension on which the in-groups and out-groups were evaluated. Relevant dimensions were those attributes presumed to be most important to an in-group, whereas irrelevant attributes were of lesser importance to an in-group's identity. The meta-analytic findings suggested that in-group bias decreased among high-status groups when evaluations were made on status irrelevant attributes but that in-group bias among low-status groups increased on these same dimensions. Consistent with Mullen et al.'s finding, it has been hypothesized that low-status groups will show greater in-group favoritism on dimensions that are irrelevant to the status distinctions as a way of compensating for their unfavorable relative status (A. van Knippenberg, 1978). Recall that social identity theory (Tajfel & Turner, 1979, 1986) predicts that low-status groups may use the social creativity strategy to achieve positive distinctiveness through comparisons on new dimensions as a means of achieving more favorable comparisons. This strategy has been operationalized in the empirical literature (e.g., Ellemers & Van Rijswijk, 1997; Ellemers, Van Rijswijk, Roefs, & Simons, 1997; Mummendey & Schreiber, 1983, 1984) as the degree to which group members use attribute dimensions that are irrelevant to the given status difference.

In the more recent literature, researchers (e.g., Amancio, 1989; Ellemers et al., 1997; L. A. Jackson, Sullivan, Harnish, & Hodge, 1996) also have measured in-group bias on dimensions that have been particularly relevant to the identity of the given low-status group. This research shows that, compared with high-status groups, low-status groups are more biased on these dimensions. In the present meta-analysis, we coded the effect sizes according to whether they were relevant to the low-status groups as well as whether they were irrelevant to the status distinction or relevant to the high-status group. We anticipated that the effect of relative group status on in-group bias would differ as a function of dimension type.

Finally, the results of Mullen et al.'s (1992) meta-analysis suggested that whether social group categories were real or artificial moderated the magnitude of the effect sizes for the low- and

high-status groups. Mullen and colleagues referred to a "real" status difference as one that occurs in the larger society and an artificial status difference as one that is created in the experimental laboratory. For example, a real status difference might include the distinction between doctors and nurses in a hospital, or Blacks and Whites in the United States. Artificially created status differences between groups are often created by means of false feedback that suggests that one group performed better or worse on a test or valued dimension. In general, Mullen et al.'s meta-analysis revealed that, compared with low-status groups, high-status groups evaluated their in-group more favorably than the out-group (i.e., in-group bias) when status differences were artificially created but that this difference was negligible when status differences were real. On the basis of these findings, Mullen et al. speculated that higher status groups exhibit more in-group bias only when social groups are created artificially.

There are several potential problems with this conclusion. First, Mullen et al.'s (1992) meta-analysis did not include direct measures of in-group bias (i.e., only separate evaluations of the in-group and the out-group were used). However, many studies have used direct measures of in-group bias to assess intergroup attitudes, and some studies have used them exclusively. Understanding whether real and artificial group categories have distinct or similar influences on in-group bias requires that the effect of group status on these direct measures of in-group bias be examined. Therefore, in the present meta-analysis our primary effect sizes are composed of the in-group bias indexes reported in the relevant empirical studies. For each study, we compared the measure of in-group bias of a high-status group to that of a low-status group. Our overall average effect sizes correspond conceptually to those reported by Mullen et al., but by directly comparing the high-status groups to the low-status groups, we were able to examine the effects of sociostructural moderators on the influence of status on in-group bias. Moreover, this approach allowed us to include more than four times as many published reports ($N = 84$) as those included by Mullen et al. ($N = 18$), bringing greater power to our analyses.

Second, the suggestion that there are different effects for real and artificially created categories is at odds with the concordance among the results of specific empirical studies (Brown, 1978; Sachdev & Bourhis, 1987, 1991; Turner & Brown, 1978; Vaughan, 1978). On the basis of these empirical findings, as well as social identity theory, in the current meta-analysis, we speculated that "reality" per se might not be the critical moderator of the effect of status on in-group bias but that other theoretically important sociostructural variables might better explain variation in in-group bias. For example, social identity theory predicts that when status differences are perceived as illegitimate, low-status groups should be motivated to enter into direct competition and collective action rather than use the individual mobility strategy. If this is so, the tendency for high-status groups to be more biased in their evaluations should be reduced when the status structure is perceived as illegitimate. In addition, social identity theory predicts that when group boundaries are permeable, low-status groups should be less likely to use direct competition and instead use the individual mobility strategy for achieving positive identity (i.e., when boundaries are permeable, low-status groups should show little in-group bias). If this is so, low-status groups with permeable

boundaries should be less biased than high-status groups, but this difference should be reduced when boundaries are impermeable.

Sociostructural Variables

Studies using real groups as well as those using artificial groups have shown that status stability (e.g., Ng & Cram, 1988; Turner, 1978; Turner & Brown, 1978), status legitimacy (e.g., Bettencourt & Bartholow, 1998; Vaughan, 1978), and group permeability (e.g., Ellemers, van Knippenberg, & Wilke, 1990) critically influence differences in in-group bias among high- and low-status groups.

Stability and Illegitimacy

Theoretically, group members may perceive status differences as either illegitimate or legitimate independent of whether the status hierarchy is likely to change (i.e., status stability). Nevertheless, according to Tajfel (1981) "there is little doubt that an unstable system of social divisions between groups is more likely to be perceived as illegitimate than a stable one; and that conversely a system perceived as illegitimate will contain the seeds of instability" (p. 250). Indeed, research suggests that the coupling of perceived illegitimacy and instability of a status system provides the most powerful impetus for the rejection of the status hierarchy (Commins & Lockwood, 1979; Tajfel, 1981; Turner & Brown, 1978).

A longitudinal study of groups with real status differences, conducted by Vaughan (1978), illustrates the effects of concomitant changes in the stability and legitimacy of status differences on intergroup attitudes. It confirms that whether members of a low-status group favor the higher status out-group or favor their own in-group (i.e., in-group bias) depends on whether the status structure is perceived as stable and legitimate. Vaughan examined the changing perceptions of status differences in New Zealand among the lower status Maori group (Polynesians) and the higher status Pakeha group (Caucasians). Over a period of 10 years, status differences between these groups came to be perceived as less stable and less legitimate. Whereas in the year of the first assessment, status differences were fairly stable and legitimate, in the year of the final assessment, they were perceived as relatively unstable and illegitimate. Focusing on Maori and Pakeha children's intergroup attitudes, Vaughan found that during the years in which the study was conducted, the attitudes of Maori children (the low-status group) changed from initially preferring the higher status out-group (i.e., the out-group bias often seen among low-status groups) to subsequently preferring their own group. In contrast, during the same period, Pakeha (higher status) children's strong preferences for the in-group were reduced somewhat. That is, the effects of status on in-group favoritism were correlated with concomitant changes in perceived status stability and legitimacy. These findings are not entirely consistent with Mullen et al.'s conclusions that real high-status groups and real low-status groups equally favor their own group over the out-group. Rather, Vaughan's study suggests that differences in in-group bias between members of real groups are moderated by theoretically important sociostructural variables.

Most laboratory studies have not systematically investigated the separate effects of status stability and status legitimacy. However, in their study, Turner and Brown (1978) provided status informa-

tion in such a way as to factorially manipulate the stability and legitimacy of the status differences between two groups. In each session of the study, half of the 6 participants were art students and the others were science students. The participants were told that they were taking part in an investigation of reasoning skills and that their performance as a group would be evaluated. The experimenter went on to call attention to the distinction between the art and science students and said that he would be interested in their relative performances. To experimentally create a status difference, the experimenter informed the groups that one social category typically performed better than the other on the particular task. In doing so, the experimenter referred to the special skills of either the art (verbal) or the science (math) students and stated that successful task performance depended on one skill or the other. In the legitimate condition, the experimenter highlighted the fact that one group's superiority on the task was not surprising and seemed reasonable. In the illegitimate condition, the task was described in such a way as to emphasize that successful performance unfairly favored the special talents of only one group (i.e., that there was an unfair advantage). Finally, to manipulate stability of the status difference, the experimenter stated that he was either certain or uncertain that the particular groups in the session would conform to the expected pattern of performance differences (i.e., consistency of the expected performance difference reflected the stability of the status).

Chief among Turner and Brown's (1978) findings was a complex interaction between group status, status legitimacy, and status stability. Specifically, regardless of status stability when the status difference was perceived as legitimate, high-status groups showed in-group bias and low-status groups showed favoritism toward the out-group (i.e., out-group bias). By contrast, the greatest amount of in-group bias among low-status groups was seen when the status difference was perceived as illegitimate and unstable. Under these conditions, and consistent with Vaughan's (1978) findings, low-status groups showed in-group favoritism equivalent to that of the high-status groups. Turner and Brown also concluded that possible changes in status stability alone might not be sufficient for low-status groups to seek change in a status structure. Instead, for instability to influence in-group bias among low-status groups, subordinate groups might need to perceive the situation as both unstable and illegitimate.

Turner and Brown's (1978) results also revealed the greatest amount of in-group favoritism among high-status groups when the status difference was perceived as unstable but legitimate. On the basis of these findings, Turner and Brown theorized that when status differences are legitimate but the hierarchy seems unstable, high-status groups are more likely to feel insecure than low-status groups. This insecurity is experienced because threat to the status hierarchy poses a danger to the higher status group's positive social identity. That is, if the members of high-status groups perceive their superiority as legitimate, they will react in discriminatory ways when change in the social structure is possible.

By factorially manipulating these variables, Turner and Brown (1978) revealed that they interact in their influence on the effect of group status on in-group bias. Vaughan's (1978) study could not uncover such a finding because status legitimacy and stability were correlated. Taken together, the findings of Turner and Brown and those of Vaughan suggest that when status relations are perceived as unstable and illegitimate, low-status groups express favoritism

toward their in-group, which reduces differences in in-group bias between high- and low-status groups. However, Turner and Brown's results reveal that when status relations are perceived as legitimate but unstable, high-status groups express exaggerated favoritism, which increases the difference in bias between high- and low-status groups.

Permeability of Group Boundaries

As stated previously, social identity theory emphasizes the role that group boundary permeability plays in determining group members' responses to differences in status. Tajfel and Turner (1979, 1986; see also Taylor & McKirnan, 1984) have predicted that, when group boundaries are permeable, members of low-status groups may disassociate from their in-groups and adopt an individual upward mobility strategy, especially when the status structure is perceived as stable and legitimate (Ellemers, van Knippenberg, de Vries, & Wilke, 1988; Ellemers et al., 1990). In contrast, when group boundaries are impermeable, low-status groups may adopt collective strategies to achieve positive identity, especially when the status structure is unstable (Ellemers et al., 1988, 1990). Several studies provide evidence that members of low-status groups with permeable group boundaries identify less with their in-group and express more desire to move into higher status groups (Ellemers et al., 1988, 1990; Skevington, 1981). Very few studies (e.g., Ellemers, Wilke, & van Knippenberg, 1993), however, have explicitly tested the effect of relative group permeability on in-group bias among high- and low-status groups. Therefore, it is less clear whether low-status groups with impermeable group boundaries are more likely than those with permeable group boundaries to assert the value of their in-group by means of direct competition (i.e., in-group bias).

In one series of studies, however, Ellemers and colleagues (1993) measured in-group bias to examine the multiple influences of permeability of group boundaries as well as the stability and legitimacy of the status distinction. The studies used artificially created social categories and focused on the intergroup attitudes of only members of low-status groups. In each experimental session, two groups of participants performed a decision-making task, allegedly to determine which of the groups was in the higher status position. In fact, all groups were told that they had completed 10 items on the task and that they had gained a total of 21 points. To establish that the other group had apparently higher status, participants were told that the other group completed 12 items. To manipulate the legitimacy of the status difference, the participants learned that the better performing group had gained either a fewer number (12; illegitimate) or a greater number of total points (30; legitimate). For the manipulation of group permeability, the experimenters informed the groups either that it was possible for a low-status member to join the high-status group (permeable) or that the composition of the group would remain the same (impermeable). Finally, in the unstable condition, participants were told that through a later task, it would be possible that the two groups would change relative status positions, but in the stable condition, participants were told that the groups would keep their status positions.

Although the results showed that status legitimacy affected levels of in-group identification, such that there was greater identification when low status was illegitimate, the results revealed no

effect of either status legitimacy or status stability on in-group bias among low-status groups. Only a main effect of permeability on in-group bias was revealed, showing that low-status groups were more biased when group boundaries were impermeable than when permeable. That the studies revealed no effects of stability or legitimacy on in-group bias is inconsistent with the results of Turner and Brown (1978). However, because Ellemers et al. (1993) did not include high-status groups in their investigation, it is difficult to compare directly their findings with Turner and Brown's.

Summary and Overview

The program of research by Ellemers and her colleagues (Ellemers et al., 1988, 1990, 1993) contributes to our understanding of the ways in which the permeability of group boundaries influences group processes, particularly among low-status groups. Also, the work of Turner and Brown (1978) reveals interactive influences of group status, status stability, and status legitimacy on in-group bias. Yet, little work, if any, has systematically examined the effects of all three sociostructural variables on differences in in-group bias among high- and low-status groups. Hence, the influence of these variables on the effect of relative group status on in-group bias remains unclear.

Meta-analytic integration of the literature allows an examination of the complex effects of these sociostructural variables. Such an investigation can be accomplished by categorizing each effect size derived from the empirical studies according to the theoretically important variables (see Cooper & Hedges, 1994). In the present meta-analysis, we coded studies by whether the status structure was stable, legitimate, and permeable. This procedure allowed us to divide our status effect-size estimates into a stability by legitimacy by permeability matrix, which could potentially reveal the moderating effects of these variables on the influence of group status on in-group bias.

Generally, in-group bias is conceptualized as an index of the strategy of intergroup competition for relative positive social identity (Tajfel & Turner, 1986). Measures of in-group bias in particular are often the primary outcome in the intergroup status literature. Therefore, in the present meta-analysis, we primarily focus on in-group bias as a measure of group members' responses to status differences. To use these in-group bias measures, we calculated a set of effect sizes that directly compared high-status groups with low-status groups. More specifically, for our primary analysis, each effect size is a direct comparison between a high- and a low-status group for three interrelated attitude measures: in-group bias scores, in-group only scores, and out-group only scores. Most typically, the in-group only scores are point allocations, money rewards, or trait evaluations given to members of the study participants' in-group, whereas out-group only scores are point allocations, money rewards, or trait evaluations given to members of the out-group. In-group bias scores are either the reported differences between these in-group and out-group scores or other measures conceptualized as indicative of relative intergroup favoritism (e.g., Tajfel reward matrices). We refer to these three sets of effect size comparisons as (a) bias effect sizes, (b) in-group effect sizes, and (c) out-group effect sizes.

Whenever possible we also separated these effect sizes with regard to whether they were based on dimensions that were rele-

vant or irrelevant to the defining status structure. Separation of the effect size according to the relevance of the dimension is important not only because Mullen et al. (1992) found that relevance moderated the effect of status but also because relatively few empirical studies have used both measures in a single study (Ellemers & Van Rijswijk, 1997). As previously noted, in-group bias measured on dimensions irrelevant to the status difference are theoretically related to the use of the social creativity strategy. Therefore, differences between in-group bias on status-relevant and status-irrelevant measures can provide information about the use of the social creativity strategy. As such, the current meta-analysis can reveal whether the sociostructural variables differentially influence the extent to which social creativity is used. Finally, for the small set of studies that also included a measure of in-group identification, we derived another set of effect sizes, which we call identification status effect sizes. Researchers (e.g., Ellemers et al., 1988, 1990; Ellemers & Van Rijswijk, 1997) have sometimes conceptualized low in-group identification as indicative of group members' willingness to use social mobility as a strategy to achieve positive social identity.

Method

Sample of Studies

Experimental studies were collected by several means. First, all volumes of the following journals, published prior to and including the year of 1998, were scanned to locate potentially relevant studies: *Journal of Personality and Social Psychology*, *Journal of Experimental Social Psychology*, *Personality and Social Psychology Bulletin*, *Social Psychology Quarterly*, *Journal of Applied Social Psychology*, *Journal of Social Psychology*, *British Journal of Social Psychology*, and *European Journal of Social Psychology*. In addition, a PsycLIT computer literature search of psychological abstracts (book chapter and journal article listings) was conducted, using the key words *status*, *minority*, *majority*, *social identity*, *intergroup dynamics*, *discrimination*, *interpersonal attraction*, *social discrimination*, *bias*, *ethnolinguistic bias*, and *linguistic bias*. Computer searches of Dissertation Abstracts, the Educational Resources Information Center, and Sociological Abstracts, using the same key words, were also conducted. Also, letters requesting additional publications or unpublished manuscripts were sent to individuals who were authors on at least two of the reports included in the meta-analysis. Finally, the reference sections of all the studies included in the meta-analysis and several relevant reviews (Brewer, 1979; Messick & Mackie, 1989; Mullen et al., 1992) were examined for further citations.

Inclusion Criteria for Studies

Studies were included if it was possible to calculate an effect-size estimate of the difference between the in-group bias scores, in-group only scores, or out-group only scores of both a low-status and a high-status group. The dependent measures included trait ratings (e.g., rating the other group or the individuals in the group on dimensions such as intelligence, social skills, friendliness, spontaneity, etc.), reward allocations (e.g., dividing points between the groups or among individuals), resource allocations (e.g., giving hints to help on a task or allocating wage amounts), Tajfel's matrices, evaluations of liking or attraction (e.g., ratings of how much people like each group, or feeling thermometer), evaluations of task performance or competency (e.g., rating the perceived contribution of each group to the task), attribution ratings (e.g., making in-group-serving or out-group-serving attributions), and miscellaneous indexes (e.g., doll preferences, language abstraction, monetary donations in the name of the

groups, ratings of the value of the groups, preference for choice of activity partner, gender of acquaintances' willingness to volunteer).

In total, 84 reports contained 92 studies that yielded 145 independent samples and 278 high-status versus low-status effect-size comparisons. As recommended by Cooper (1989), we used the "independent sample" as the unit of analysis.² According to this procedure, if a study reported results for separate samples of participants, the study could potentially contribute more than one effect size to the test of a specific hypothesis.

Variables Coded From Each Research Report

Each study was coded according to a set of dichotomous categories: (a) stability of status structure (stable or unstable), (b) legitimacy of status differences (legitimate or illegitimate), (c) permeability of group boundaries (permeable or impermeable), and (d) reality of social category (artificial or real).³ We also coded the effect size according to the relevance of the evaluative dimension (a dimension irrelevant to the status difference, a dimension relevant to the high-status group, or a dimension relevant to the low-status group). To code the stability and legitimacy of the status difference as well as the permeability of the group boundary, coders examined the introduction, method, and discussion sections of the reports, which typically yield historical, contextual, and social information relevant to the groups in question.

Status was coded as stable if the report made it clear that the current social climate rendered it unlikely that the relative standing of the low- and high-status groups was likely to change (e.g., the relative long-standing prestige of universities; collegians vs. apprentices, doctors and social workers). In addition, status was coded as stable if the cover story or feedback given to the groups operationalized membership in the high- and low-status groups as attributable to stable characteristics (e.g., creativity, personality, social competency, perceptual ability) or if the groups were given explicit instructions that the status difference was in fact stable. By contrast, if the study report made it clear that the relatively high standing of one group was being called into question within the social climate, status was coded as unstable (e.g., gender in the United States, ethnicity in the United States, acceptability of a political opinion). In addition, status was coded as unstable if the experimental cover story explained the relative standing of the high- and low-status groups could change (e.g., performance level could change on a task or a game).

The status difference was coded as legitimate if it appeared that the group members were led to believe that the status difference was fairly determined by performance (success in a game, better performance on a task, better creativity score, more positive personality characteristic) or if the researcher explained that the status difference was apparently fair or was legitimate (e.g., participants were told that the status difference was fair, the status difference was confirmed on a series of assessments). If, however, the method section explained that the status difference was either manipulated to be perceived as illegitimate or was losing its legitimacy in the social climate, status was coded as illegitimate (e.g., gender, ethnicity, differences in salary).

Group boundaries were coded as permeable if it was made clear from the method section that participants were told that they could change their group membership or if it seemed relatively possible that individuals could choose to seek membership in the salient out-group (e.g., students in universities, personal attitudes on a topic, type of job, and major in college). Group boundaries were coded as impermeable if either the introduction or the method section stated that it was relatively unlikely that group members could change their group membership (e.g., creativity level, ethnic group, personality type, perceptual ability).

Group categories were coded as real when the groups included in the study had real group identities in the real world (e.g., ethnic group, gender, type of job, major in college) and were coded as artificially created when the groups were induced within the experimental setting (apparent social competency, performance level on a game, creativity level, arbitrary labels such as "Group A" and "Group B").

Dimensions were coded as irrelevant to the status distinction when the evaluative characteristics were unrelated to either group or to the status distinction or when rewards were unassociated with status differences (e.g., general indexes of liking, Tajfel matrices). Dimensions were coded as relevant to the high-status group when the evaluative characteristics were either associated with the identity of the high-status group or were directly related to the status distinction. Similarly, dimensions were coded as relevant to the low-status group when the evaluative characteristics were associated with the identity of the low-status group.

If lack of information in a study report rendered it impossible to determine the category of the coded variables, the variable was coded as missing. Two of the authors independently coded each of the variables from each of the studies, and their percentage of agreement ranged from 82% (relevance of dimension) to 97% (reality of the category). Coders and a third judge discussed and resolved discrepancies.

Effect-Size Calculation

We used d as an effect-size index, which is the difference between the means of two groups divided by a pooled standard deviation and corrected for small sample bias (Hedges & Olkin, 1985). Two of the authors independently retrieved the data necessary for the effect-size calculation (Cooper & Hedges, 1994), and discrepancies were resolved by discussion. Using DSTAT (Johnson, 1989), each effect size was estimated from either the condition means, an F for main effects, an F from an interaction along with the corresponding means and sample sizes, a chi-square statistic, or proportions. Whenever possible, the pooled standard deviation was based on the standard deviations for the two groups, but when standard deviations were not reported, an estimate of the pooled standard deviation was obtained from analysis of variance results. For one study, a Pearson's product-moment correlation was converted to an effect size. For one study that only supplied a probability value but no means, we estimated the effect by the conservative assumption that the inferential test value was equal to that associated with the reported probability value. For six studies that

² The independent sample was the unit of analysis in all but three analyses. Specifically, one study (Bohon, Singer, & Santos, 1993) examined two separate status variables: ethnicity (i.e., real status) and induced status. However, these separate variables nevertheless stem from the same independent sample. To retain this study in all analyses, rather than collapsing across the reality of the status variable, we used Cooper's (1989) "shifting unit of analysis" (p. 78). For example, for analyses that compare real versus induced status, the study contributed one effect size to the real status category and one effect size to the induced status category. In addition, the real and induced status effect sizes for this study also differed in status stability and status legitimacy (status differences were unstable and illegitimate for the real group, but status differences were stable and legitimate for the induced group). Thus, when the data were analyzed with respect to status stability, legitimacy, or reality of status, this independent sample contributed two effect sizes, one to each category. However, in all other analyses, this independent sample contributed only one data point (i.e., the average of the two effect sizes).

³ We also coded the following variables: numerical representation of groups, type of design (experiment, quasi-experiment), the research setting (university, community), number and age of participants in each session, the level at which participants rated others (rating individual members, rating entire groups), the type of measurements (trait ratings, reward allocations, Tajfel's matrices, liking-attraction, task performance-competency, attributions). We also coded presence of the in-group and out-group in the setting as either no contact, contact without cooperation and competition, intragroup cooperation, intergroup cooperation, intergroup competition, and interteam competition. However, low numbers in resulting categories prevented meaningful analysis of the effect sizes.

failed to supply statistics but reported that there were no significant differences between conditions, we adopted the conservative estimate of the effect size as zero.⁴

Any single study could potentially yield nine types of effect sizes for the primary analyses: (a) three bias effect sizes (one for each of the three categories of dimension relevance—one effect size for comparisons that are irrelevant to the status differences between groups, a second for comparisons that are relevant to the high-status group, and a third for comparisons that are relevant to the low-status group); (b) three in-group effect sizes (one for each dimension relevance category); and (c) three out-group effect sizes (one for each dimension relevance category). In most cases, only one or a few of these effect sizes could be derived from a single study. In addition, we calculated several sets of auxiliary effect sizes informative for our approach (i.e., identification effect sizes).

Results

Our primary data set included effect sizes that compared the bias scores of a high-status group with those of a low-status group—bias effect sizes. Table 1 reports these bias effect sizes as well as the values for the coded variables. As can be seen in Table 1, the bias effect sizes were separated into three types, including those derived from dimensions irrelevant to the status distinction, those relevant to the high-status group, and those relevant to the low-status group. In addition, two separate but complementary data sets included (a) effect sizes that compared only the in-group evaluations from a high-status group to that from a low-status group (i.e., in-group effect sizes) and (b) only the out-group evaluations from high- and low-status groups (i.e., out-group effect sizes). Finally, we calculated several sets of supplemental effect sizes informative for our approach; when relevant, we explain these and their respective analyses.

Each effect-size estimate was weighted by the reciprocal of its variance.⁵ A 95% confidence interval (CI), using a fixed effects approach (Hedges & Olkin, 1985), was also computed for each mean weighted effect size ($Md+$). Between-classes statistics (Q_b) and within-class homogeneity statistics (Q_w) were conducted to analyze the variance in the effect sizes (Hedges & Olkin, 1985).

Because the presence of extreme values in a data set can seriously distort the outcomes of analyses (Tabachnick & Fidell, 1989; Wilcox, 1995), including meta-analyses (see Bettencourt & Miller, 1996, for a discussion of the issue), the distributions of the effect-size estimates were examined. One effect size ($d = +4.35$) in the distribution of the bias effect sizes was identified as an extreme outlier (i.e., interquartile range procedure; SAS Institute, 1985). For the in-group effect sizes, two were identified as extreme outliers below the mean ($d = -2.04$, $d = -2.34$) and two above the mean ($d = +2.21$, $d = +2.47$). Extreme values in a distribution may be either excluded or modified (Tabachnick & Fidell, 1989). To retain all of the studies in the analyses, we changed the value of each extreme effect size to equal the value of its respective next closest effect size in the distribution (Tabachnick & Fidell, 1989; Wilcox, 1995). The mean and CI of the effect sizes from the modified data were essentially identical to the unmodified data. We used the modified data in all subsequent analyses.

Overall Average Effect-Size Analyses

Table 2 reports the mean bias, in-group, and out-group effect sizes and their respective CIs. In the upper panel of the table, we

report the mean for the bias effect sizes, without regard to the status relevance of the evaluative dimension.⁶ This mean bias effect size revealed that high-status groups were more biased than were low-status groups. Similarly, the mean in-group effect size suggested that, compared with low-status groups, high-status groups evaluated their in-groups more favorably. Also, the average status out-group effect size showed that high-status groups were less favorable toward their out-groups than were low-status groups. The respective confidence intervals indicated that all three mean effect sizes were greater than zero. This set of results suggests that the effect of group status on in-group bias is a function of the evaluations of both the in-group and out-group.

The lower three panels of Table 2 display the effect sizes separated by whether the respective measures were irrelevant to the salient status distinction, relevant to the high-status group, or relevant to the low-status group. The results for the irrelevant dimensions and the high-status-relevant dimensions were similar

⁴ In the data set, a few effect sizes were estimated as zero when the report only indicated “no difference” between the high- and low-status groups. In total, one bias score, four in-group only scores, and four out-group only scores were estimated.

⁵ The calculation that includes weighting by the reciprocal of the variance includes the sample size of the effect-size comparison. As such, the weighted average effect size assigns greater weight to studies with larger sample sizes on the assumption that their effects are more reliable. Bettencourt and Miller (1996) showed that sample size can be confounded with study characteristics that affect the outcomes of analyses. For example, they showed that field studies typically have larger sample sizes than experimental laboratory studies. To reduce any distortion on meta-analytic results that might be associated with extremely large sample sizes, meta-analysts (Bettencourt & Miller, 1996; DeNeve & Cooper, 1998) have recently adopted a compromise procedure to reduce the effect of extremely large sample sizes. First, the distribution of the study sample sizes is examined to determine if any sample size might be extremely large compared with the others in the data set, and then sample sizes that are identified as extremely large compared with the entire data set are modified according to the distribution. We used this procedure in the present meta-analysis. For status bias scores, sample sizes greater than 133 participants were extreme outliers (eight of the studies); for status in-group-target and status out-group-target scores, studies with sample sizes greater than 239 participants were extreme outliers (five of the studies). To minimize potential problems that might result from weighting mean effect sizes by these extremely large sample sizes, in most cases, we weighted the mean effect sizes according to their sample size when the same size did not exceed the smallest extreme outlier. However, when the sample size exceeded the minimum extreme outlier, we weighted the mean effect size by a reduced “total sample size” equal to 133 participants for status bias and 239 participants for status in-group-target and out-group-target scores.

⁶ To examine the influence of the estimated effect sizes on overall results, we conducted some analyses with these estimated effect sizes removed. All of these analyses reveal similar results to the primary ones previously reported. For effect sizes collapsed across the relevance dimension, bias: $Md+ = 0.39$, $CI = 0.33, 0.46$; in-group, $Md+ = 0.16$, $CI = 0.10, 0.21$; out-group, $Md+ = -0.15$, $CI = -0.21, -0.10$. For irrelevant dimensions: outgroup, $Md+ = -0.08$, $CI = -0.14, -0.01$; relevant to high-status bias, $Md+ = 0.80$, $CI = 0.69, 0.92$; relevant to high-status in-group, $Md+ = 0.66$, $CI = 0.52, 0.92$; relevant to high-status out-group, $Md+ = -0.78$, $CI = -0.92, -0.64$. There were no changes in the irrelevant bias effect sizes, irrelevant in-group effect sizes, or any of the relevant to low-status effect sizes.

Table 1
Effect Sizes and Study Characteristics for Status Bias Scores

Independent sample	N	<i>d</i>			Status stability	Status legitimacy	Group permeability	Reality of status
		Irrelevant	Relevant high	Relevant low				
Amancio (1989) ^a	38	+0.24	—	—	US	IL	IP	R
Amancio (1989)	38	—	+0.27	—	US	IL	IP	R
Amancio (1989)	38	—	—	-0.12	US	IL	IP	R
Bettencourt & Bartholow (1998) ^b	58	+1.41	—	—	S	L	IP	A
Bettencourt & Bartholow (1998) ^c	58	+0.94	—	—	S	L	IP	A
Bettencourt & Bartholow (1998) ^b	58	+0.10	—	—	US	IL	IP	A
Bettencourt & Bartholow (1998) ^c	58	+1.07	—	—	US	IL	IP	A
Blanz et al. (1995)	183	-0.46	+0.50	—	S	L	IP	A
Bohon et al. (1993) ^d	110	+0.68	—	—	S	L	IP	A
Bohon et al. (1993)	110	-0.50	—	—	US	IL	IP	R
Branthwaite et al. (1979) ^e	28	+0.73	—	—	S	L	IP	A
Branthwaite et al. (1979) ^f	28	+1.99	—	—	S	L	IP	A
Branthwaite & Jones (1975)	50	-0.69	—	—	US	IL	IP	R
Brown (1978)	40	—	+3.04	—	US	L	P	R
Brown (1984), Study 1	64	+0.52	—	—	S	L	IP	R
Brown (1984), Study 2	52	-0.12	—	—	S	L	IP	R
Brown & Ross (1982) ^g	30	—	+0.43	—	S	IL	P	A
Brown & Ross (1982) ^h	30	—	+0.10	—	S	IL	P	A
Brown & Ross (1982) ⁱ	30	—	+0.32	—	S	IL	P	A
Brown & Wade (1987)	24	—	+0.89	—	S	L	P	A
Celejewski (1989) ^b	30	+0.34	—	—	S	L	P	A
Celejewski (1989) ^c	30	+0.29	—	—	S	L	P	A
Commins & Lockwood (1979)	26	+0.89	—	—	S	L	IP	A
Corenblum et al. (1996)	252	+0.78	—	—	S	L	IP	R
Doise & Sinclair (1973) ^j	57	+0.52	—	—	S	L	P	R
Doise & Sinclair (1973) ^k	16	+1.74	—	—	S	L	P	R
Doise & Sinclair (1973) ^l	32	+1.25	—	—	S	L	P	R
Dovidio et al. (1998)	24	+0.27	—	—	US	IL	IP	A
Echabe (1990)	103	-0.41	—	—	US	IL	IP	R
Ellemers et al. (1992)	65	+0.45	—	—	US	L	P	A
Ellemers et al. (1992)	64	+1.56	—	—	US	L	IP	A
Ellemers & Van Rijswijk (1997)	78	-0.48	+1.50	—	S	L	IP	A
Finchilescu (1986) ^m	50	+0.55	—	—	S	L	IP	A
Finchilescu (1986) ⁿ	56	-0.55	—	—	S	L	IP	A
Finchilescu & de la Rey (1991)	111	-0.46	—	—	US	IL	IP	R
Finchilescu & de la Rey (1991)	22	+0.44	—	—	US	L	IP	R
Foschi et al. (1994) ^o	40	-0.18	-0.17	—	US	IL	IP	R
Foschi et al. (1994) ^p	40	+0.20	+0.62	—	US	IL	IP	R
Gaertner et al. (1996)	1,196	+0.07	—	—	US	IL	IP	R
Hewstone et al. (1983)	56	+0.66	—	—	S	IL	P	R
Hogg & Sunderland (1991)	30	-0.71	—	—	S	L	IP	A
Hogg & Turner (1987)	40	-0.83	—	—	US	IL	IP	R
Izraeli (1983) ^q	84	—	+1.90	—	US	IL	IP	R
Izraeli (1983) ^r	33	—	+1.07	—	US	IL	IP	R
L. A. Jackson et al. (1996)	46	+0.07	+2.42	-2.89	US	IL	IP	R
Kennedy & Stephan (1977) ^s	25	-0.81	—	—	US	L	P	A
Kennedy & Stephan (1977) ^t	28	+0.60	—	—	US	L	P	A
Kushnir (1982), Study 1	93	+2.67	—	—	US	IL	IP	R
Kushnir (1982), Study 2	133	+1.06	—	—	US	IL	IP	R
Maass et al. (1996)	204	-0.44	—	—	US	IL	IP	R
Moscovici & Paicheler (1978) ^b	224	+0.31	—	—	S	L	IP	A
Moscovici & Paicheler (1978) ^c	224	-0.70	—	—	S	L	IP	A
Mummendey et al. (1992) ^p	38	-0.05	—	—	S	L	IP	A
Mummendey et al. (1992) ^c	38	+0.33	—	—	S	L	IP	A
Ng (1985)	92	—	+0.13	—	S	L	IP	R
Ng & Cram (1988), Study 1 ^b	14	-0.19	—	—	US	IL	P	R
Ng & Cram (1988), Study 1 ^c	18	+1.29	—	—	US	IL	P	R
Ng & Cram (1988), Study 1 ^u	15	+0.57	—	—	US	IL	P	R
Ng & Cram (1988), Study 2 ^b	8	+0.87	—	—	US	IL	P	R
Ng & Cram (1988), Study 2 ^c	8	+2.89	—	—	US	IL	P	R
Otten et al. (1996) ^b	22	-0.51	—	—	S	L	IP	A
Otten et al. (1996) ^c	22	-0.04	—	—	S	L	IP	A

Table 1 (continued)

Independent sample	N	<i>d</i>			Status stability	Status legitimacy	Group permeability	Reality of status
		Irrelevant	Relevant high	Relevant low				
Reichl (1997) ^y	47	+0.64	—	—	S	L	P	A
Reichl (1997)	46	—	+0.18	—	S	L	P	A
Rogers et al. (1984) ^w	56	-0.31	—	—	US	IL	IP	R
Rogers et al. (1984) ^x	60	+1.48	—	—	US	IL	IP	R
Ryen & Kahn (1975)	48	+1.31	—	—	US	L	P	A
Sachdev & Bourhis (1987)	80	—	+1.67	—	S	L	IP	A
Sachdev & Bourhis (1991) ^y	40	—	+0.77	—	S	L	IP	A
Sachdev & Bourhis (1991) ^z	40	—	+0.57	—	S	L	IP	A
Sachdev & Bourhis (1991) ^{aa}	40	—	+1.97	—	S	L	IP	A
Sachdev & Bourhis (1991) ^{bb}	40	—	+0.73	—	S	L	IP	A
Schaller (1992), Study 1	69	—	+0.56	—	US	IL	IP	R
Schaller (1992), Study 2	23	—	0.00	—	US	IL	IP	R
C. E. Seta & Seta (1992)	29	—	+0.55	—	S	L	IP	A
J. J. Seta & Seta (1996)	68	—	+0.52	—	S	L	IP	A
Turner (1978)	36	—	+0.07	—	S	L	P	A
Turner (1978)	36	—	+0.79	—	US	L	P	A
Turner & Brown (1978)	12	—	+0.30	—	S	L	P	R
Turner & Brown (1978)	12	—	+1.42	—	S	IL	P	R
Turner & Brown (1978)	12	—	+1.32	—	US	L	P	R
Turner & Brown (1978)	12	—	+0.05	—	US	IL	P	R
Turner et al. (1984)	32	-0.52	—	—	US	L	IP	A
Turner et al. (1984)	32	+0.89	—	—	US	L	P	A
Vanbeselaere (1996)	24	—	+3.04	—	S	L	IP	A
Vaughan (1978)	300	+1.09	—	—	S	L	IP	R
Vaughan (1978)	300	+0.15	—	—	US	IL	IP	R

Note. Effect sizes that are positive indicate more in-group bias among high-status groups. *N* = total number of low- and high-status group members or groups; US = unstable; S = stable; IL = illegitimate; L = legitimate; IP = impermeable; P = permeable; R = real; A = artificially created. Dashes indicate missing or nonretrievable data.

^a Relevance was not a product of the measure, but of the task manipulation; hence the effect sizes from this study are from independent samples. ^b The numerical minority condition. ^c The numerical majority condition. ^d See Footnote 2. ^e Participants worked individually. ^f Participants worked in groups. ^g The low-threat condition. ^h The moderate-threat condition. ⁱ The high-threat condition. ^j The no- and symbolic-encounter conditions. ^k The individual encounter condition. ^l The collective encounter condition. ^m The incompatible condition. ⁿ The compatible condition. ^o The low-status target condition. ^p The high-status target condition. ^q The skewed ratio condition. ^r The balanced ratio condition. ^s The cooperation condition. ^t The competition condition. ^u The numerically equal condition. ^v Irrelevant and relevant effect sizes come from separate independent samples. ^w African Americans were in numerical minority in the school. ^x European Americans were in the numerical minority in the school. ^y The numerical minority dominant group condition. ^z The numerical majority dominant group condition. ^{aa} The numerical minority subordinate group condition. ^{bb} The numerical majority subordinate group condition.

to those for the overall analysis, revealing that high-status groups were more biased, more favorable toward the in-group, and less favorable toward the out-group than were low-status groups. However, the magnitude of the effect of status was largest when the evaluations were made on dimensions relevant to the high-status group. In stark contrast, when evaluations were made on dimensions relevant to the low-status group, the effect of status was reversed. That is, on these dimensions, low-status groups were more biased in favor of their own group than were high-status groups.

Taken together, these results suggest that, in general, high-status groups favor their in-group over the out-group even on irrelevant dimensions. This finding suggested that the superiority of the high-status group on the relevant dimension may be generalized to dimensions largely irrelevant to the status distinction. Nevertheless, the magnitude of the difference in bias between the high- and low-status groups was substantially reduced on the irrelevant dimensions, suggesting that low-status groups were attempting to assert their positive identity on these dimensions. In particular, on the irrelevant dimensions the in-group and out-group effect sizes

were relatively small. Moreover, low-status groups evaluated their in-groups more positively and were more biased on the dimensions relevant to the low-status groups.

Finally, the Q_w statistics reported in the far right column of Table 2 revealed significant within-category heterogeneity associated with all of the mean effect sizes, except those for the dimensions relevant to the low-status groups. Significant within-category heterogeneity suggests that the effect sizes within the categories are moderated by other theoretical and methodological variables.

Because of the small number of effect sizes for the dimensions relevant to low-status groups, for the subsequent analyses, we report only the results for effect sizes irrelevant to status and those relevant to the high-status group. In the following sections, the effect sizes relevant to the high-status groups are referred to as those for relevant dimensions.

Supplemental Analyses to the Overall Effect-Size Analyses

Before examining the moderators of the bias effect sizes, we conducted several auxiliary analyses important for understanding

Table 2
Average Status Effect Sizes and Confidence Intervals for Bias, In-Group, and Out-Group Scores

Measure	<i>k</i>	Unweighted effect size (<i>d</i>)	Weighted effect size (<i>d</i> +)	Confidence interval	<i>Q_w</i>
All dimensions					
Bias	87	+0.57	+0.39	+0.29, +0.49	595.33*
In-group	73	+0.18	+0.13	+0.08, +0.19	362.83*
Out-group	77	-0.18	-0.14	-0.19, -0.09	576.24*
Dimensions irrelevant to the status comparison					
Bias	59	+0.42	+0.27	+0.20, +0.34	413.45*
In-group	53	+0.13	+0.09	+0.02, +0.15	249.93*
Out-group	57	-0.05	-0.07	-0.14, -0.01	270.29*
Dimensions relevant to the high-status group					
Bias	31	+0.92	+0.79	+0.67, +0.90	142.24*
In-group	16	+0.60	+0.57	+0.44, +0.70	98.07*
Out-group	18	-0.94	-0.68	-0.81, -0.55	267.11*
Dimensions relevant to the low-status group					
Bias	2	-1.50	-1.15	-1.66, -0.65	2.48
In-group	2	-0.69	-0.68	-1.09, -0.26	0.11
Out-group ^a	1	+0.29	+0.29	-0.27, +0.84	—

Note. For the status comparisons, a positive bias score effect size indicates that high-status groups were more biased in favor of their in-group than were low-status groups; a positive in-group target score indicates more favorable in-group scores among high-status groups; a negative out-group target score indicates less favorable out-group scores among high-status groups.

^a Because there is only one value in this cell, the value entered in the weighted effect size and its confidence interval are not actually weighted, and there is no *Q_w* statistic.

* $p < .01$.

the effects of relative group status. First, in addition to high- and low-status groups, some studies also included members who believed that their group's status was equal to another salient out-group (i.e., equal-status groups). For this small set of studies ($k = 12$), we calculated a separate set of effect sizes that compared the bias of the high-status groups to that of the equal-status groups. Likewise, we calculated a set of effect sizes comparing the low-status groups to the equal-status groups. These effect sizes revealed that high-status groups were more biased than equal-status groups, $Md+ = +0.46$; $CI = +0.28, +0.63$, and low-status groups were less biased than equal-status groups, $Md+ = -0.35$; $CI = -0.19, -0.52$.

Next, we derived a set of effect sizes ($k = 112$) similar to those of Mullen et al. (1992) in which the difference between the in-group and out-group evaluations were calculated separately for the low- and high-status groups. Supporting our primary analyses and similar to Mullen et al.'s report, the analyses showed that the difference between the in-group evaluations and the out-group evaluations for the high-status groups, $Md+ = 0.38$, $CI = 0.34, 0.42$, was higher than that for low-status groups, $Md+ = 0.27$, $CI = 0.23, 0.31$, $\chi^2(1, N = 112) = 17.29$, $p < .0001$.

Finally, we created another data set ($k = 12$) composed of effect sizes that compared the level of in-group identification of high-status groups with that of low-status groups. The overall average of the in-group identification effect size, $Md+ = 0.96$, $CI = 0.84, 1.09$, suggested that high-status groups identified with their in-group more than did low-status groups.

The findings of our supplemental analyses are largely consistent with the overall average effect-size analyses. High-status groups tend to show more favoritism toward their in-group compared with low-status groups.

Reality of Status Distinction

Recall that Mullen et al. (1992) analyzed their effect sizes by whether the status categories were created by the experimenter (i.e., artificially created) or were real. Similarly, in our next set of analyses, we divided our three data sets (bias, in-group, and out-group effect sizes) into these same categories. The mean effect sizes for the analyses that compared the artificial status category with the real status category are presented in Table 3. The effect sizes on the left side of the table are for the dimensions irrelevant to status distinction, and those on the right are for the relevant dimensions. Turning to the results for the irrelevant dimensions, the bias effect sizes were similar for the artificial and the real status categories, $\chi^2(1, N = 60) = 0.06$, $p > .05$, revealing that under both conditions high-status groups were more biased than low-status groups. Likewise, for the out-group effect sizes, the means for the two categories were statistically equivalent, $\chi^2(1, N = 57) = 0.92$, $p > .05$. If anything, the mean out-group effect size associated with the artificial groups revealed no effect of status. However, consistent with Mullen et al.'s finding, the mean in-group effect size associated with the artificial group was greater

Table 3
Bias, In-Group, and Out-Group Effect Sizes as a Function of Artificial Versus Real Status Categories

Category	Status irrelevant			Status relevant		
	<i>k</i>	<i>Md+</i>	Confidence interval	<i>k</i>	<i>Md+</i>	Confidence interval
Artificial status						
Bias	30	+0.25	+0.14, +0.35	22	+0.74	+0.61, +0.88
In-group	24	+0.18	+0.07, +0.30	9	+0.69	+0.52, +0.86
Out-group	27	-0.03	-0.14, +0.07	10	-0.58	-0.76, -0.41
Real status						
Bias	30	+0.27	+0.17, +0.36	9	+0.91	+0.69, +1.13
In-group	29	+0.04	-0.04, +0.12	7	+0.40	+0.20, +0.60
Out-group	30	-0.10	-0.17, -0.02	8	-0.80	-1.00, -0.60

Note. A positive bias score effect size indicates that high-status groups were more biased in favor of their in-group than were low-status groups; a positive in-group target score indicates more favorable in-group scores among high-status groups; a negative out-group target score indicates less favorable out-group scores among high-status groups. For all categories, the homogeneity statistics (Q_w) indicated that the *d* indices were not homogeneous ($ps < .0001$).

than that for the real status category, $\chi^2(1, N = 53) = 3.98, p < .05$.

For the relevant dimensions, the comparison between the artificial status and real status categories only minimally influenced the patterns for all three sets of effect sizes. As shown on the right side of Table 3, in both categories, high-status groups were more biased, more favorable toward their in-groups, and more unfavorable toward their out-groups than were low-status groups. However, as with the irrelevant dimensions, the mean in-group effect size for the artificial groups was reliably larger than that for the real groups on the relevant dimensions, $\chi^2(1, N = 16) = 4.38, p < .05$. However, once again, there were no effects of real versus artificial group categories for the bias effect sizes, $\chi^2(1, N = 31) = 1.58, p > .05$, and the out-group effect sizes, $\chi^2(1, N = 18) = 2.63, p > .05$.

Mullen et al. (1992) reported that for artificial categories there was a tendency for bias to be greater among high-status than low-status groups, but among real categories, the tendency to be biased was equivalent across the two groups. Our analysis of the supplemental effect sizes, comparing the in-group evaluations to out-group evaluations separately for the high- and low-status groups, revealed results similar to Mullen et al.'s. Specifically, for artificially created groups, high-status groups, $Md+ = 0.54$, $CI = 0.45, 0.64$, were more biased than low-status groups, $Md+ = 0.12$, $CI = 0.03, -0.21$, $\chi^2(1, N = 36) = 44.90, p < .0001$. For groups with real status differences, high-status groups ($Md+ = 0.35$, $CI = 0.30, 0.40$) were not more biased than low-status groups ($Md+ = 0.30$, $CI = 0.25, 0.35$), $\chi^2(1, N = 68) = 2.48, p = .12$.

Overall, our results are somewhat consistent with those reported by Mullen et al. (1992). However, the present results suggest that, when the dependent measures make explicit the comparison between high- and low-status groups (i.e., in-group bias), high-status groups are more biased than low-status groups, regardless of whether the status categories are real or artificial. Also, in both categories, high-status groups were more favorable toward their in-groups and less favorable toward out-groups on the relevant dimensions. Moreover, the findings suggest that high-status groups

defined by artificial categories may have been more biased on the irrelevant dimensions as a result of their positive evaluations of the in-group, whereas those defined by real categories may have been more biased because of negative evaluations of the out-group. Finally, the mean effect sizes for the in-group evaluations showed that both high- and low-status groups defined by real status distinctions show positive regard for their in-groups, but this was only true for the irrelevant dimensions.

Influences of Sociostructural Variables

The primary purpose of our meta-analysis was to examine the influences of the theoretically important sociostructural variables on in-group bias. The studies were coded according to whether the status structure was perceived as stable, legitimate, and having permeable group boundaries. Statistical correlations among these coded variables revealed that the group permeability variable was uncorrelated with the stability variable ($r = .09, p > .20$) and legitimacy variable ($r = -.07, p > .20$) but the stability and legitimacy variables were highly correlated ($r = .61, p < .01$). Theoretically, a correlation between stability and legitimacy of this magnitude is not unexpected. Although Tajfel (1981) provided distinct definitions for these variables, as noted previously, he cautioned that often they covary. In the following subsections, we present the separate meta-analytic findings for each of the three coded variables but discuss them in light of the correlation between the stability and legitimacy variables. In addition, to examine whether these sociostructural variables interact in their influences on in-group bias, we further subdivided the bias effect sizes into a permeability by stability by legitimacy matrix. One of the cells associated with the impermeable, stable, illegitimate category had no associated effect sizes. Once again, this outcome may suggest that if status hierarchies are perceived as illegitimate, status structures are likely to become unstable, especially when group boundaries are impermeable (see Tajfel, 1981).

Status stability. Table 4 depicts the bias, in-group, and out-group effect sizes separately for status differences categorized as stable or unstable. The effect sizes for the irrelevant dimensions

Table 4
Bias, In-Group, and Out-Group Effect Sizes as a Function of Status Stability Categories

Status category	Status irrelevant			Status relevant		
	<i>k</i>	<i>Md+</i>	Confidence interval	<i>k</i>	<i>Md+</i>	Confidence interval
Bias						
Stable	28	+0.32	+0.22, +0.42	19	+0.74	+0.60, +0.88
Unstable	32	+0.20	+0.10, +0.30	12	+0.88	+0.68, +1.08
In-group						
Stable	25	+0.25	+0.14, +0.35	8	+0.88	+0.68, +1.07
Unstable	28	+0.003	-0.08, +0.08	8	+0.31	+0.13, +0.49
Out-group						
Stable	30	-0.03	-0.13, +0.06	10	-1.36	-1.55, -1.17
Unstable	27	-0.10	-0.18, -0.02	8	-0.05	-0.23, +0.13

Note. Positive *d* indices indicate high-status groups had higher scores than the low-status groups. *k* = the number of independent samples composing the average *d* index. For all categories, the homogeneity statistics (Q_w) indicated that the effect sizes were not homogeneous ($ps < .0001$).

are on the left side of the table, and those for the relevant dimensions are on the right. For irrelevant dimensions, the results showed that the mean bias effect sizes associated with the stable and unstable categories were not statistically different, $\chi^2(1, N = 60) = 2.71, p < .10$. However, the mean in-group effect size was larger when the status structure was stable than when it was unstable, $\chi^2(1, N = 53) = 12.45, p < .001$. This finding revealed that, when status was stable, high-status groups evaluated their in-groups more favorably than did low-status groups, but when status was perceived as unstable, high- and low-status groups evaluated their in-groups similarly. The results for the out-group effect sizes revealed that the stability of the status hierarchy had no moderating effect, $\chi^2(1, N = 57) = 1.10, p > .05$, and that neither effect size differed from zero, suggesting that high- and low-status groups evaluated the out-groups similarly on the irrelevant dimensions.

The results for the relevant dimensions were very similar to those for the irrelevant dimensions. As shown on the right side of Table 4, the mean bias effect sizes were unaffected by the relative stability of the status structure, $\chi^2(1, N = 31) = 1.18, p > .05$, and the confidence intervals revealed that high-status groups were more biased than low-status groups. However, for both the in-group and the out-group effect sizes, the relative stability of the status structure moderated the magnitude of the mean effect sizes, $\chi^2(1, N = 53) = 17.68, p < .05$, and $\chi^2(1, N = 18) = 97.93, p < .05$, respectively. These findings revealed that the differences between the high-status and low-status groups were greater when the status structure was stable than when it was unstable.

Consistent with the finding for the bias effect sizes, the mean identification effect sizes were not influenced by status stability, $\chi^2(1, N = 11) = 0.04, p > .05$. The positive identification effect sizes reveal that high-status groups identified more with their in-groups than did low-status groups, regardless of whether the status structure was stable or unstable, $Md+ = 0.92, CI = 0.74, 1.11$, and $Md+ = 0.90, CI = 0.67, 1.12$, respectively.

Primarily the results reveal effects of status stability on the in-group effect sizes, and this was especially true for the irrelevant

dimensions. The finding suggests that when the status structure is perceived as unstable, low-status groups enhance positive identity primarily through evaluations of their in-group but not through negative evaluations of the out-group. Interestingly, when the status structure was stable, the results revealed no effects of status on the out-group evaluations for the irrelevant dimensions. This finding suggests that the high-status groups may not be particularly motivated to claim superiority on irrelevant dimensions when the status structure is secure.

Status legitimacy. Table 5 reports the results for the mean effect sizes divided separately by the legitimate and illegitimate status categories. As shown on the left side of the table, for the irrelevant dimensions, the magnitude of the mean bias effect size was greater when the status difference was perceived as legitimate than when it was illegitimate, $\chi^2(1, N = 60) = 9.40, p < .01$. Similarly, the results showed that the in-group effect sizes were larger in the legitimate than the illegitimate category, $\chi^2(1, N = 53) = 11.06, p < .01$. This outcome revealed that, on the irrelevant dimensions, high-status groups evaluated their in-groups more favorably than did low-status groups only when status differences were perceived as legitimate. Although directionally consistent with these results for the mean out-group effect sizes, the effect of legitimacy was not reliable, $\chi^2(1, N = 57) = 0.25, p > .05$.

The results for the relevant dimensions, shown on the right side of Table 5, revealed that whether status differences were perceived as legitimate or illegitimate had little influence on the tendency for high-status groups to be more biased than low-status groups, $\chi^2(1, N = 31) = 0.09, p > .05$. Similarly, high-status groups evaluated their in-groups more positively than did low-status groups regardless of whether status differences were considered legitimate, $\chi^2(1, N = 16) = 2.00, p > .05$. Finally, on the relevant dimensions, the high-status groups evaluated the out-group less favorably than did the low-status groups, and this effect was greater when the status difference was perceived as legitimate than when illegitimate, $\chi^2(1, N = 18) = 5.36, p < .05$.

Consistent with the results for the irrelevant dimensions, the results for the identification effect sizes revealed that high-status

Table 5
Mean Bias, In-Group, and Out-Group Effect Sizes as a Function of Status Legitimacy Categories

Status category	Status irrelevant			Status relevant		
	<i>k</i>	<i>Md+</i>	Confidence interval	<i>k</i>	<i>Md+</i>	Confidence interval
Bias						
Legitimate	36	+0.35	+0.26, +0.45	17	+0.80	+0.66, +0.94
Illegitimate	24	+0.13	+0.03, +0.24	14	+0.77	+0.58, +0.96
In-group						
Legitimate	29	+0.19	+0.09, +0.30	12	+0.62	+0.47, +0.77
Illegitimate	21	-0.04	-0.12, +0.05	4	+0.40	+0.13, +0.67
Out-group						
Legitimate	31	-0.10	-0.19, -0.001	14	-0.76	-0.91, -0.61
Illegitimate	22	-0.06	-0.15, +0.02	4	-0.40	-0.67, +0.14

Note. Positive *d* indices indicate high-status groups had higher scores than the low-status groups. *k* = the number of independent samples composing the average *d* index. For all categories, the homogeneity statistics (Q_w) indicated that the effect sizes were not homogeneous ($ps < .005$).

groups identified more with their in-groups than did low-status groups when status distinctions were perceived as legitimate, $Md+ = +1.07$, $CI = +0.92, +1.22$, but high- and low-status groups expressed equivalent levels of in-group identification when status distinctions were perceived as illegitimate, $Md+ = -0.04$, $CI = -0.41, +0.33$, $\chi^2(1, N = 11) = 29.68, p < .01$.

Although the coded legitimacy and stability variables were significantly correlated, by and large, the analysis revealed different patterns of results for these two variables. The status stability categories most reliably influenced the in-group evaluations but did not influence the bias or identification effect sizes. By contrast,

legitimacy affected the mean bias on the irrelevant dimensions and identification effect sizes but not the in-group effect sizes.

The findings for the legitimacy variable suggest that, when status differences were perceived as illegitimate, low-status groups asserted the positivity of their in-group by means of comparisons on the irrelevant dimensions and were less likely to positively evaluate the high-status groups on the status relevant dimensions. Finally, under illegitimate conditions, low-status and high-status group members expressed similar levels of in-group identification.

Group permeability. The bias, in-group, and out-group effect sizes for the irrelevant dimensions are depicted on the left side of

Table 6
Mean Bias, In-Group, and Out-Group Effect Sizes as a Function of Group Permeability Categories

Status category	Status irrelevant			Status relevant		
	<i>k</i>	<i>Md+</i>	Confidence interval	<i>k</i>	<i>Md+</i>	Confidence interval
Bias						
Permeable	17	+0.64	+0.46, +0.82	12	+0.70	+0.47, +0.94
Impermeable	42	+0.20	+0.12, +0.27	19	+0.81	+0.68, +0.94
In-group						
Permeable	14	+0.17	+0.02, +0.32	5	+0.50	+0.22, +0.78
Impermeable	39	+0.07	+0.0001, +0.14	11	+0.59	+0.44, +0.74
Out-group						
Permeable	18	-0.21	-0.35, -0.07	5	-0.51	-0.78, -0.23
Impermeable	38	-0.01	-0.08, +0.06	13	-0.73	-0.87, -0.58

Note. Positive *d* indices indicate high-status groups had higher scores than the low-status groups. *k* = the number of independent samples composing the average *d* index. For all categories except status-relevant out-group permeable, the homogeneity statistics (Q_w) indicated that the effect sizes were not homogeneous ($ps < .0001$). For status-relevant out-group permeable effect sizes, a homogeneity analysis suggests that it is tending toward not being heterogeneous, $\chi^2(4, N = 5) = 8.97, p = .06$.

Table 7
Average Bias Effect Sizes Divided Into a Matrix by Permeability, Stability, and Legitimacy

Status category	Status irrelevant			Status relevant		
	<i>k</i>	<i>Md+</i>	Confidence interval	<i>k</i>	<i>Md+</i>	Confidence interval
Permeable						
Stable						
Legitimate	6	+0.66	+0.38, +0.94	4	+0.65	+0.27, +1.02
Illegitimate	1	+0.66	+0.12, +1.21	4	+0.39	-0.003, +0.79
Unstable						
Legitimate	5	+0.57	+0.28, +0.86	2	+0.91	+0.32, +1.51
Illegitimate	5	+0.83	+0.28, +1.39	2	+1.73	+0.98, +2.48
Impermeable						
Stable						
Legitimate	21	+0.25	+0.14, +0.36	11	+0.82	+0.66, +0.98
Illegitimate	—	—	—	—	—	—
Unstable						
Legitimate	4	+0.62	+0.26, +0.97	—	—	—
Illegitimate	18	+0.09	-0.02, +0.20	8	+0.80	+0.58, +1.02

Note. Positive *d* indices indicate high-status groups had higher scores than the low-status groups. For the following five categories, homogeneity statistics (Q_w) indicated that the *d* indices were not heterogeneous: status-irrelevant stable, legitimate, permeable category, $\chi^2(5, N = 6) = 7.78, p > .05$; status-irrelevant unstable, illegitimate, impermeable category, $\chi^2(4, N = 5) = 8.12, p > .05$; status-relevant stable, legitimate, permeable category, $\chi^2(3, N = 4) = 6.37, p > .05$; status-relevant stable, illegitimate, permeable category, $\chi^2(3, N = 4) = 3.24, p > .05$; status-relevant unstable, legitimate, permeable category, $\chi^2(1, N = 2) = 0.54, p > .05$. For all other categories in which $k > 1$, the homogeneity statistics (Q_w) indicated that the *d* indices were not homogeneous ($ps < .005$).

Table 6. The results revealed that the difference in bias among high- and low-status groups was greater when group boundaries were permeable than impermeable, $\chi^2(1, N = 59) = 19.72, p < .01$. The mean in-group effect sizes were not different in these two categories, $\chi^2(1, N = 53) = 1.26, p > .05$, but the results were directionally similar to those for the bias effect sizes. Also, for the out-group effect sizes, the magnitude of the difference between the high- and the low-status groups was greater for the permeable condition than for the impermeable condition, $\chi^2(1, N = 57) = 6.51, p < .05$.

In contrast, for the status-relevant dimensions (see Table 6, right panel), group permeability did not moderate the bias effect sizes, $\chi^2(1, N = 31) = 0.57, p > .05$; the in-group effect sizes, $\chi^2(1, N = 16) = 0.27, p > .05$; or the out-group effect sizes, $\chi^2(1, N = 18) = 1.93, p > .05$.

Finally, the results showed that the mean identification effect sizes were moderated by group permeability, $\chi^2(1, N = 11) = 37.36, p < .01$. This finding suggests that high-status groups identified more with in-groups than did low-status groups and that this effect was larger when boundaries were impermeable, $Md+ = +1.14, CI = +0.98, +1.30$, than permeable, $Md+ = .26, CI = +0.03, +0.50$.

For the irrelevant dimensions, the permeability of group boundaries tended to influence the magnitude of the bias, in-group, and out-group effect sizes. This finding suggests that, in comparison to low-status groups with permeable boundaries, those with impermeable boundaries may be particularly motivated to seek positive social identity through the social creativity strategy. In contrast, for relevant dimensions, there was no effect of permeability on any of the mean effect sizes. This latter finding makes sense in light of the fact that whether group boundaries are permeable implies nothing about the status-defining characteristic.

Permeability, stability, and legitimacy. As mentioned previously, we further divided the irrelevant and the relevant effect sizes by all three sociostructural variables. These results, depicted in Table 7, show that whether status legitimacy and stability have influences on in-group bias is influenced by the permeability of the boundaries between the high- and low-status groups.

First, refer to the effect sizes in the upper left panel of Table 7. Overall the results showed very little variability in the magnitude of the effect sizes in the permeable boundary category. Under the stable status conditions, the mean bias effect sizes are identical, $\chi^2(1, N = 7) = 0.01, p > .20$, and although under the stable status conditions the mean effect sizes differed somewhat, this was not statistically significant, $\chi^2(1, N = 10) = 0.69, p > .20$.

By contrast, the results for the impermeable categories (see the lower left panel of Table 7) showed that the mean bias effect sizes varied considerably. In the unstable category, whether the status distinction was perceived as legitimate or not influenced the magnitude of the effect of status on bias, $\chi^2(1, N = 22) = 7.75, p < .01$. The mean bias effect size for the unstable-illegitimate category revealed no appreciable difference between the bias of high-status and low-status groups. However, the mean bias effect size for the stable-legitimate category showed that high-status groups were more biased than low-status groups. Under these same impermeable conditions, a comparison between the mean bias effect sizes associated with the stable-legitimate category and the unstable-legitimate category revealed a marginally reliable difference, $\chi^2(1, N = 25) = 3.65, p = .056$.

The mean bias effect sizes for the relevant dimensions across the categories showed very little variability. For the permeable boundary categories, under stable status conditions, the mean effect sizes for the legitimate and the illegitimate categories did not differ significantly, $\chi^2(1, N = 8) = 0.02, p > .10$. Similarly, under the

unstable status category, the mean bias effect sizes did not differ as a function of perceived legitimacy, $\chi^2(1, N = 4) = 2.81, p > .10$.

These findings suggest that the sociostructural variables tend to interact in their influences on bias but only when the evaluations are made on dimensions irrelevant to the status distinction. Moreover, the permeability variable played a major role in determining whether status legitimacy and status stability influenced the bias effect sizes for the irrelevant dimensions. Interestingly, the results revealed a relatively small effect of status when group boundaries were impermeable and status was perceived as both stable and legitimate. These results suggest that when the status structure is stable, legitimate, and impermeable, high-status groups may show less bias because of their relatively secure standing in the status hierarchy. Second, under these same conditions of impermeable group boundaries, the results showed a substantial reduction in the difference between high- and low-status groups when status was perceived as unstable and illegitimate. This latter finding might reflect competition between the two groups on the irrelevant dimensions, although, surprisingly, competition under these same conditions was not revealed for the relevant dimensions.

Discussion

In the present meta-analysis, our primary data set was composed of effect sizes that compared a measure of bias for a high-status group with that for a low-status group. We also calculated two additional sets of effect sizes: one that compared high-status groups with low-status groups on separate evaluations of their respective in-groups and another on separate evaluations of the respective out-groups. The overall meta-analytic findings for these three sets of effect sizes show that high-status groups express greater bias, evaluate their in-groups more positively, and evaluate out-groups more negatively than do low-status groups. Also, the findings of a supplemental analysis indicate that high-status groups identified with their in-groups more than did low-status groups. These findings are concordant with meta-analytic (Mullen et al., 1992) and empirical research (e.g., Brown, 1978, 1984; Brown & Wade, 1987; Ellemers & Van Rijswijk, 1997; Sachdev & Bourhis, 1987, 1991; Turner & Brown, 1978; A. van Knippenberg, 1978).

However, because we calculated these three related but theoretically distinct effect sizes, our results further reveal that relative group status affects out-group evaluations as well as in-group evaluations. This finding suggests that attitudes toward both the in-group and out-group likely contribute to the effect of relative status on bias. By comparison, some theorizing and research (e.g., Brewer, 1979; Brewer, Manzi, & Shaw, 1993; Schaller, 1991) suggest that positive in-group evaluations but not negative out-group evaluations determine intergroup bias. Other studies (Branscombe & Wann, 1994; Bettencourt, Miller, & Hume, 1999), however, reveal that when threat is present in the intergroup setting, in-group bias is a function of both positive attitudes toward the in-group and negative attitudes toward the out-group. Following from this latter research, our meta-analytic findings suggest that perceptions of threat are often present in contexts that involve high- and low-status groups (Ellemers et al., 1997).

In the current meta-analysis, we also examined whether the relevance of the evaluative dimensions influenced the magnitude of the effect of status on bias, in-group evaluations, and out-group evaluations. Among the studies included in our meta-analysis,

these dimensions varied by whether they were irrelevant to the status distinction, relevant to the social identity of the high-status group, or relevant to the social identity of the low-status group. However, most of the empirical studies have included only one of these evaluative dimensions, and thus our meta-analytic comparisons provide a needed examination of these in relation to the sociostructural variables. The results for the dimensions relevant to the high-status groups were consistent with the overall analysis, showing that, compared with low-status groups, high-status groups were more biased, favorable toward their in-groups, and unfavorable toward out-groups. This finding is not surprising because these dimensions are often highly correlated with the characteristics that define the status differences (Ellemers & Van Rijswijk, 1997).

A few studies in the meta-analysis included evaluative dimensions relevant to the identity of the low-status group. The present meta-analysis showed that, on these latter dimensions, in contrast to the results for the overall effect size, low-status groups were more biased than high-status groups. This finding reveals that low-status groups do favor their in-groups on these dimensions. The analyses of the separate in-group evaluations, but not the out-group evaluations, also revealed this "reversed status effect." These results suggest that the in-group bias exhibited by the low-status group is a result of favorable evaluations of the in-group but not of negative evaluations of the out-group. Also it may be that, whereas high-status members evaluated their in-groups less positively on the dimensions relevant to the low-status groups, the high-status groups failed to recognize the superiority of the low-status groups on these same dimensions.

A. van Knippenberg and Ellemers (1990) used the term *social cooperation* to refer to the mutual acknowledgement of each group's better standing on particular characteristics. Interestingly, in the present meta-analysis, the results for the dimensions both relevant to the high-status groups and relevant to the low-status groups reveal that low-status members recognize the relative strengths of both groups but that high-status members appear less inclined to do so. This is somewhat surprising, given that the characteristics associated with lower status groups are held in less regard than those associated with high-status groups (Ellemers et al., 1997). This finding suggests that high-status groups might not be likely to engage in social cooperation (by conceding the superiority of their out-groups on out-group-relevant dimensions). Rather, it seems that only low-status groups are likely to adopt this cooperative strategy.

The meta-analysis also showed that, even for the evaluative dimensions that were irrelevant to the status distinction, high-status groups were more biased than low-status groups. In addition, high-status groups evaluated their in-groups more positively and their out-groups less positively than did low-status groups on these dimensions. Nevertheless, the effect of group status on the irrelevant dimensions was smaller than that on the relevant ones, and this was particularly true for the separate evaluations of the in-group and the out-group. These findings are somewhat consistent with social identity theory's hypothesis (Ellemers & Van Rijswijk, 1997; Tajfel & Turner, 1979, 1986) that low-status groups may acknowledge their relatively negative standing on the status-defining dimension but seek other dimensions of comparison as a means for achieving positive distinctiveness (i.e., the creativity strategy).

However, our meta-analytic findings highlight that high-status groups also use the irrelevant dimensions as a means for achieving positive distinctiveness. Indeed, the findings suggest that, in general, both high- and low-status members generalize the superiority of the high-status groups to characteristics irrelevant to the status distinctions. It seems that the positive defining quality associated with higher status produces a "halo effect" on other suppositions about members of high-status groups. Recent empirical studies have tended to focus on the attitudes of only members of low-status groups (e.g., Blanz, Mummendey, Mielke, & Klink, 1998; Ellemers et al., 1993). However, the present findings, showing that high-status groups seem less likely to engage in social cooperation and more likely to benefit from positive generalizations about their characteristics, suggest that in order to understand intergroup attitudes it is important to study both high-status groups and low-status groups.

Reality of the Status Distinction

Because in their earlier meta-analysis Mullen et al. (1992) revealed that the reality of the status distinction moderated the effect of status, we divided our effect sizes by whether they were associated with real or artificially created status categories. In the empirical literature, status has been operationalized by using actual group categories that exist in the real world or by creating social categories in the laboratory. The present results for the separate in-group evaluations revealed that the magnitude of the status effect was larger for artificially created groups than for real groups on the irrelevant dimensions. This result is somewhat consistent with Mullen et al.'s (1992) finding that high- and low-status groups defined by real distinctions did not differ in their evaluations of the in-group relative to the out-group. However, in the current meta-analysis, the in-group evaluations on the relevant dimensions revealed that high-status groups were more favorable than low-status groups, regardless of whether the categories were real or artificial. The different pattern of results for the irrelevant and relevant dimensions may reflect the fact that members of real groups are aware of the various positive attributes of their out-groups, but members of artificially created groups are aware of only their relative standing on the status distinction made salient in the experiment. Moreover, because real group memberships are likely to have greater implications for the self, low-status group members may be particularly likely to positively distinguish their group on the irrelevant dimensions. In addition, the observed effects of group status on both the irrelevant and the relevant bias effect sizes, in particular, suggest that explicit intergroup comparisons engender greater bias among high-status groups regardless of whether categories are real or artificial. That the bias outcomes for the real and artificially created groups were quite similar was not entirely unanticipated. A perusal of the results of empirical studies suggests that the effect of status on in-group bias that emerges with artificially created groups also emerges with real groups (e.g., Bettencourt & Bartholow, 1998; Ng & Cram, 1988; Sachdev & Bourhis, 1987, 1991; Turner & Brown, 1978; Vaughan, 1978).

Our meta-analytic findings advance our understanding of the influence of status on intergroup attitudes because they counter Mullen et al.'s (1992) conclusion that the effect of status on in-group bias is observed for only artificially created groups (i.e., that this fails to generalize to real groups). Instead, the present

results mostly show continuity between the real status categories and the artificial status categories, suggesting that studies using either method can be useful for understanding group members' responses to status hierarchies. Nevertheless, Mullen et al.'s and our meta-analytic results give credence to the argument that both experimental and field methods are necessary for an adequate understanding of intergroup attitudes.

Sociostructural Context

Recall that we argued that an examination of the influence of the "reality" of status falls short of providing answers to important theoretical questions regarding the effects of sociostructural variables on the relationship between group status and intergroup attitudes. Social identity theory (Tajfel & Turner, 1979, 1986) as well as related theories (e.g., Hogg & Abrams, 1993; Taylor & McKirnan, 1984; A. van Knippenberg & Ellemers, 1993) specify that sociostructural variables are important moderators of social comparisons between high- and low-status groups. Consistent with this theorizing, the primary purpose of the present meta-analysis was to examine the influences of stability, legitimacy, and group permeability on the effect of status on biased intergroup comparisons.

In the meta-analysis, we separately categorized the bias, in-group, and out-group effect sizes by whether or not the status structure was perceived as stable, legitimate, and permeable. Such an examination is useful because few, if any, empirical studies have systematically tested these variables in combination. The results herein reveal their potential mutual influences on intergroup attitudes. In general, our meta-analytic findings support the prediction (Tajfel & Turner, 1979, 1986) that these sociostructural variables reliably influence intergroup attitudes among high- and low-status groups. Moreover, the results show that these effects are greatest on evaluative dimensions that are irrelevant to the defining status distinction. Overall, our findings support Turner's (1999) argument that an examination of the effects of theoretically important sociostructural variables is key to a comprehensive understanding of group members' responses to status hierarchies.

The moderating influence of status stability was seen primarily on the in-group effect sizes, and this was true for both the irrelevant and the relevant dimensions. However, the results failed to show that the relative stability of the status structure influenced the effect of status on bias. In both stable and unstable conditions, high-status groups were more biased than low-status groups. Moreover, the relative lack of effect for stability was also evident for the identification effect sizes, suggesting that the whether a status structure is perceived as stable has little influence on in-group identification (Ellemers et al., 1993).

By contrast, the meta-analysis reveals that both perceived legitimacy of the status distinction and the permeability of the group boundaries moderate the effect of relative group status on biased intergroup attitudes. More specifically, the results for the irrelevant dimensions show that the magnitude of the status difference on bias is reduced when status is perceived as illegitimate compared with when it is perceived as legitimate. This reduction in the effect of status suggests that low-status groups that perceive their standing as illegitimate may show little, if any, favoritism toward the out-group and instead favor their in-group. This outcome is consistent with several studies (Finchilescu & de la Rey, 1991; Turner

& Brown, 1978; Vaughan, 1978) that show that perceptions of status legitimacy affect the level of intergroup bias of high- and low-status groups. Moreover, perceived legitimacy of the status structure appears to strongly influence relative levels of in-group identification among high- and low-status groups. Specifically, in-group identification was greater among high-status groups when status differences were perceived as legitimate, but in-group identification among high- and low-status groups was equivalent when status differences were perceived as illegitimate.

The legitimacy of the status distinction also affected the magnitude of the status effect sizes for the separate in-group and out-group evaluations on the dimensions relevant to the status distinction. It appeared that the low-status group members were beginning to reject the superiority of the high-status groups on the status-defining dimensions. As such, the current findings support Tajfel and Turner's (1979, 1986) prediction that, when the legitimacy of the status is called into question, low-status group members may adopt a competitive strategy to achieve positive social identity. However, these findings suggest further that low-status groups who perceive their standing as illegitimate may be less likely to accept the superiority of the high-status groups on the relevant dimensions and more likely to seek positive group distinctiveness on irrelevant dimensions.

Group boundary permeability also moderated the effect of relative status on bias. The results show that the tendency for high-status groups to be more biased than low-status groups on irrelevant dimensions was significantly reduced when boundaries were impermeable. Under these same impermeable conditions, high- and low-status groups evaluated their in-groups and out-groups similarly on the irrelevant dimensions. Overall, the results for the permeability categories suggest that low-status members favor the high-status group when there are opportunities to join a high-status group but tend favor their in-group on irrelevant dimensions (i.e., social creativity) when opportunities for individual mobility are rare. These findings support theorizing (Ellemers et al., 1993; Tajfel & Turner, 1979, 1986; Taylor & McKirnan, 1984) that disidentification and social mobility, rather than in-group identification and direct competition, are the strategies likely to be used by members of low-status groups with permeable boundaries.

By contrast, on dimensions relevant to the status distinctions, the results showed no moderating effect of group permeability on the influence of status on bias, in-group evaluations, or out-group evaluations. Probably, this finding is indicative of the fact that the permeability of group boundaries has little to do with the characteristic that defines the status distinction. By contrast, situations of illegitimate status directly question the validity of the high-status groups' relative standing, and it appears that this situation is necessary to have any measurable additional effect on the relevant dimensions.

Further evidence that legitimacy and permeability play important roles in influencing attitudes among high- and low-status groups was revealed when we categorized the bias effect sizes by all three sociostructural variables. Although research programs have considered the effects of these variables either alone or in some combination, little, if any, research has simultaneously examined their multiple influences on the relations between status and bias. In the analysis, we subdivided the status bias effect sizes into a permeability by stability by legitimacy matrix. In addition, because little is known about the differential effects of these

variables on the relevancy of the evaluative dimensions, we subdivided the bias scores accordingly.

This analysis revealed that sociostructural variables interact in their influences on the magnitude of the effect of status on intergroup attitudes, but only for the evaluative dimensions irrelevant to the status distinctions. For these dimensions, the permeability of group boundaries played a large role in influencing whether perceived legitimacy and stability had additional influences on the effect of status on bias. When group boundaries were permeable, status stability and status legitimacy had no influence on the magnitude of the bias effect sizes for both the relevant and the irrelevant dimensions. Overall, the findings suggest that when boundaries are permeable, high-status groups are more biased in favor of their in-groups than are low-status groups, regardless of relative stability or legitimacy. Low-status group members may distance themselves from their in-group (Ellemers et al., 1988, 1990) and, in doing so, may have little need to positively distinguish this in-group from other groups. Moreover, that high-status groups with permeable boundaries are more biased even on the irrelevant dimensions suggests that high-status members may be particularly likely to assert their superiority, perhaps in an effort to defend their group boundaries. When boundaries are permeable, high-status groups may be motivated to reify their identity in the high-status group.

In contrast to the results for the permeable group category, when boundaries were impermeable, perceptions of legitimacy in particular had additional influences on the relation between status and bias. The results showed that when group boundaries were permeable and the status structure was perceived as both illegitimate and unstable, there was no difference between the bias of high- and low-status groups on the irrelevant dimensions. This outcome suggests that when there is little chance of joining the high-status group, low-status groups who perceive their standing as illegitimate may be more likely to compete for positive distinctiveness. These outcomes are consistent with Turner and Brown's (1978) empirical findings that showed that it was only when the status distinction was both unstable and illegitimate that low-status groups were equally as biased in their evaluations of high-status groups. However, our results reveal that this effect emerges only when group boundaries are impermeable.

Also, in these impermeable conditions and regardless of relative stability, if status was perceived as legitimate, high-status groups were more biased than low-status groups. However, this effect was smaller than that seen under permeable conditions. More specifically, the difference between the high- and low-status groups was relatively small though reliable when the status structure was perceived as stable, legitimate, and impermeable. Following from the predictions of social identity theory (Tajfel & Turner, 1979, 1986), this finding may reflect the fact that in this specific context, high-status groups are less motivated to positively differentiate their group when their advantaged position is secure. Yet, this largeness is apparent only for dimensions irrelevant to the status-defining distinction. On the relevant dimensions, high-status groups were more biased than low-status groups regardless of whether status was perceived as stable and legitimate or unstable and illegitimate.

Tajfel (1981) noted that "there is little doubt that an unstable system of social divisions between groups is more likely to be perceived as illegitimate than a stable one; and that conversely a

system perceived as illegitimate will contain the seeds of instability" (p. 250). Overall, our findings are consistent with this argument. Correlations among the coded variables and the missing cells in our three-variable matrix (see Table 7) suggest that perceptions of legitimacy and stability are likely to covary. Moreover, the results for the bias effect sizes suggest that the status structures that are both illegitimate and unstable are most likely to engender competitive social comparisons among low-status groups (Turner & Brown, 1978; A. van Knippenberg & Ellemers, 1993).

In our meta-analysis, we set out to test the distinct influences of status stability and status legitimacy as well as group boundary permeability because Tajfel and Turner (1979, 1986) theorized that each should influence group members' responses to status hierarchies. However, in his earlier theorizing, Tajfel (1974) categorized status hierarchies in terms of only whether conditions were conducive to leaving one's group—group boundary permeability—and whether the status structure was "secure." Tajfel outlined two conditions in which insecure social comparisons arise. These conditions are as follows:

- (a) the [high-status] group's superior status is threatened by another group, or (b) superior status is related to a conflict of values, i.e., it is conceived by some as based on unfair advantages, various other forms of injustice, exploitation, illegitimate use of force, etc. (p. 79)

Further, Tajfel (1978) later hypothesized that perceptions of illegitimate status serve as a lever for collective social action (i.e., direct competition).

As we have noted, the results of the present meta-analysis suggest that group boundary permeability and status legitimacy have the most reliable influences on biased intergroup attitudes and that perceptions of status illegitimacy and instability are often correlated. These findings seem consistent with Tajfel's (1974) earlier classification of status relations in terms of boundary permeability and status security. Perceptions of illegitimate status might be the key variable defining an insecure status structure, and, in most situations, instability is likely to be copresent in this situation.

Although our data do not speak directly to this question, we tested this notion by categorizing the bias effect sizes for the irrelevant dimensions according to whether the boundaries were permeable and the status structure was perceived as illegitimate. This analysis ignored the stability variable on the assumption that, in most instances, it is correlated with legitimacy. That is, collapsing across stability, we used our legitimacy–illegitimacy variable as a stand-in for the security–insecurity variable. The results of this analysis showed that when boundaries were permeable, there was no differences between the bias effect sizes under the insecure, $Md+ = 0.74$, $CI = 0.36, 1.13$, and secure categories, $Md+ = 0.62$, $CI = 0.41, 0.82$, $\chi^2(1, N = 17) = 0.34$, $p > .05$. By comparison, when boundaries were impermeable, the mean bias effect size was smaller in the insecure category, $Md+ = 0.09$, $CI = -0.02, +0.20$, than that in the secure category, $Md+ = 0.28$, $CI = 0.18, 0.39$, $\chi^2(1, N = 43) = 6.60$, $p < .05$. Moreover, the mean effect size in the permeable–secure condition was significantly larger than that in the impermeable–insecure condition, $\chi^2(1, N = 36) = 8.02$, $p < .05$. This latter result suggests that, although high-status groups are more biased than low-status groups when status is secure, this difference is smaller when boundaries are impermeable. Finally, the permeable–insecure

mean effect size was greater than the impermeable–insecure mean effect size, $\chi^2(1, N = 36) = 10.27$, $p < .05$.

Although not ideal for this particular purpose, the exploratory analysis suggests that the two sociostructural variables likely to influence group members' responses to a status hierarchy are the permeability of group boundaries and the relative security of the status structure, where an insecure hierarchy is largely a function of the fact that group members perceive the system as illegitimate.

Conclusion

The meta-analysis provides several advances in our understanding of influences of sociostructural variables on the effect of group status on intergroup attitudes. First, our results mostly contradict Mullen and colleagues' (1992) hypothesis that reality of status is a central moderating variable of the status effect on in-group bias. Instead, our meta-analysis highlights the importance of the sociostructural context in which groups with different status are embedded.

Secondly, in general, the present findings reveal that high-status groups favor their in-groups over out-groups on dimensions relevant to the status-defining distinction. In addition, one sociostructural variable appeared to have the most reliable moderating influence on this effect. Whether group members perceive the hierarchy as legitimate or illegitimate affects the magnitude of the status effect on the relevant dimensions. This outcome suggests that the perception that a status structure is illegitimate is a prerequisite for low-status members to engage in direct competition for positive distinctiveness on dimensions that define the status structure.

Next, in general, compared with low-status groups, high-status groups also favored in-groups over out-groups on the irrelevant dimensions. This finding reveals that high-status groups use the social creativity strategy as a means for maintaining, and perhaps strengthening, their advantage within the status hierarchy. Moreover, two of the sociostructural variables influenced the degree of bias on these irrelevant evaluative dimensions. These were the relative permeability of intergroup boundaries and the perceived legitimacy of the status structure. Under permeable conditions, high-status groups were more biased, regardless of status legitimacy or stability, but under impermeable conditions, this difference was smaller. Moreover, legitimacy further moderated the effect of status on bias but only when boundaries were impermeable. When the status structure is perceived as illegitimate, it appears that low-status groups favor their in-group just as much as do high-status groups. These results for the irrelevant dimensions suggest that high-status groups in most conditions as well as low-status groups in illegitimate status conditions are likely to use the social creativity strategy as a means for seeking positive in-group distinctiveness.

Finally, low-status members evaluated their group more positively than did high-status groups on the dimensions relevant to the low-status groups. However, high-status members did not recognize the low-status group's strengths on these dimensions. That high-status groups tend to evaluate themselves more favorably on the irrelevant dimension and fail to evaluate the out-group more favorably on dimensions particularly relevant to the low-status group suggests that high-status groups are less likely to engage in

social cooperation. Rather, overall, low-status groups appear to be much more likely to engage in social cooperation.

These findings not only have relevance for intergroup attitudes in particular but also have implications for understanding the roots of intergroup conflict. The interactive effects of the sociostructural variables suggest that intergroup conflict may be especially likely when the status structure is perceived as illegitimate and unstable (i.e., insecure) and group boundaries are impermeable. Under these circumstances intergroup attitudes among both high- and low-status groups may be particularly biased, and the lower status group should be motivated to seek changes in the status hierarchy. Because these meta-analytic results suggest complex interactions between the sociostructural variables and the evaluative dimensions, empirical studies should further examine these moderators in conjunction with each other as well as with mediators that may account for these influences on the relation between group status and intergroup bias.

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