

## Ingroup Bias and Self-Esteem: A Meta-Analysis

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*A meta-analysis examined the relation between self-esteem and ingroup bias. The project focused on effects of ingroup bias strategy and measurement of self-esteem. Results indicated that high-self-esteem individuals exhibited more ingroup bias than did low-self-esteem individuals. Bias strategy and self-esteem measurement moderated this relation. When using "direct" ingroup bias strategies, high-self-esteem individuals showed more bias than did low-self-esteem individuals. When using "indirect" strategies, groups exhibited comparable amounts of bias. Results were comparable for collective and personal self-esteem measures. Examination of specific collective measures indicated that self-esteem defined by the Collective Self-Esteem Scale (Luhtanen & Crocker, 1992) did not predict differences in ingroup bias, whereas group identification measures did predict differences in ingroup bias. Results are interpreted as indicating that both high- and low-self-esteem individuals exhibit ingroup bias; however, expression of ingroup bias by individuals with low self-esteem is constrained by situational factors. Furthermore, individual-level factors such as personal self-esteem may be useful in predicting collective enhancement.*

Social identity theory states that individuals define themselves in terms of their group memberships and seek to maintain a positive identity through association with positively valued groups and through comparisons with other groups (Tajfel, 1982; Tajfel & Turner, 1979). In intergroup settings, individuals adopt comparison strategies that enhance differences between groups in ways that favor the ingroup. The desire to maintain positive social identity leads to evaluations that bolster ingroups, presumably to enhance or maintain self-esteem. The desire for a positive self-concept is believed to drive the need to evaluate one's group positively in relation to other groups. The tendency to

evaluate one's own groups more positively in relation to other groups is termed *ingroup bias*.

Hogg and Abrams (1990), in a critique of social identity theory, highlighted two corollaries regarding the relation between ingroup bias and self-esteem. The first corollary states that successful intergroup discrimination enhances self-esteem. The second corollary argues that depressed self-esteem promotes ingroup bias. Both corollaries point toward a central role for self-esteem in social identity theory. However, the role of self-esteem is ill defined. Self-esteem hypotheses indicate self-esteem to be an outcome (Corollary 1) and a predictor (Corollary 2) of ingroup bias.<sup>1</sup> A recent literature review supports the proposition that successful discrimination enhances certain dimensions of self-esteem (Rubin & Hewstone, 1998). However, the importance of self-esteem as a predictor of ingroup bias is still in question. This project focuses on the role of self-esteem as a predictor of ingroup bias. The project focuses specifically on measured self-esteem as a predictor of ingroup bias and does not include studies

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This project was supported by a Haynes Social Science Dissertation Grant awarded to Chris Aberson.

Portions of this research were reported in Chris Aberson's doctoral dissertation, completed in 1999, Claremont Graduate University. Portions were also presented at the June 1999 American Psychological Society conference, Denver, CO.

We thank Dale Berger, Amy Marcus-Newhall, Ximena Arriaga, and Michele Wittig for valuable assistance in conceptualizing and completing the project, Marilyn Brewer for her assistance in editing and clarifying the article, and two anonymous reviewers for their comments.

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<sup>1</sup>This corollary has received considerable empirical attention. However, it never has been endorsed by the theory's authors, Henri Tajfel and John C. Turner (Long & Spears, 1997; Turner, 1999).

on the effects of threat to self-esteem (e.g., effects of task failure).

### **The Role of Self-Esteem**

In conceptualizing self-esteem as a predictor of ingroup bias, a fundamental issue is whether self-esteem is positively or negatively (or not at all) correlated with ingroup bias. The question most commonly asked by researchers is "Who shows more bias—low- or high-self-esteem individuals?" Hogg and Abrams's (1990) statements argue that depressed self-esteem leads to greater motivation for ingroup bias. If low self-esteem motivates ingroup bias, then low-self-esteem individuals should be more likely than individuals with high self-esteem to exhibit ingroup bias to make up for deficient self-concepts. Thus, predictions from this perspective argue for a negative correlation between self-esteem and ingroup bias. However, others argue if ingroup bias produces positive self-esteem, then those who exhibit the most bias should have the highest self-esteem, indicating a positive correlation between self-esteem and ingroup bias.

Early theorization (e.g., Ehrlich, 1973) predicted that low-self-esteem individuals exhibit greater prejudice than do individuals with high self-esteem. According to this view, self-enhancement mechanisms are stronger for low-self-esteem individuals. Deficient self-esteem acts as a stressor that prompts coping responses. High-self-esteem individuals do not possess similar motivations, because their positive self-concepts eliminate the need for coping responses (Wills, 1981, 1991). Low-self-esteem individuals need to make up for poor self-concept, and therefore they may pick on others to raise deficient esteem, whereas high-self-esteem individuals do not need to bolster self-esteem (Fiske & Taylor, 1991).

Contrary to the predictions that low-self-esteem individuals will exhibit greater prejudice, several studies found a pattern of bias that is stronger for high-self-esteem individuals than for those low in self-esteem. These findings support the perspective that ingroup bias allows high-self-esteem individuals to create, bolster, and maintain positive social identities. Low-self-esteem individuals have low self-esteem because they do not regularly engage in ingroup bias strategies. Research from this perspective contradicts motivational hypotheses of self-esteem (i.e., low self-esteem produces bias), instead favoring a self-esteem regulation model (i.e., high-self-esteem individuals maintain positive self-concept through the use of ingroup bias).

A pair of studies by Crocker and colleagues (Crocker & Luhtanen, 1990; Crocker, Thompson, McGraw, & Ingerman, 1987) asked participants to complete a social perception test. Participants were

given feedback regarding either individual performance or group performance on the test, but not both, and then participants rated groups on a series of traits. Participants who received individual feedback completed personal self-esteem measures, whereas those receiving group feedback completed collective self-esteem measures, employing a scale designed to tap the aspects of self-esteem resultant from group memberships (Luhtanen & Crocker, 1992). When rating minimally defined groups (i.e., those who either had succeeded or failed on the task), high personal self-esteem participants showed a pattern of ingroup-enhancing social comparisons, whereas low personal self-esteem participants did not enhance their group (Crocker et al., 1987). Similarly, when given feedback about group performances and using measures of collective self-esteem, participants high in collective self-esteem made ingroup-enhancing ratings, whereas participants low in collective self-esteem did not enhance the ingroup. We take these results to indicate that social identity theory is most applicable to individuals with high collective self-esteem (i.e., those with strong social identities; Crocker & Luhtanen, 1990).

### **Factors Influencing the Relation Between Self-Esteem and Ingroup Bias**

This section discusses factors proposed to moderate the self-esteem–ingroup bias relation. Included are discussions of the measurement of self-esteem and ingroup bias.

#### **Measurement of Self-Esteem**

Measures of self-esteem used in the studies examining the relation of ingroup bias to self-esteem range from measures of feelings about the self (e.g., Rosenberg's Self-Esteem Scale; Rosenberg, 1965), to feelings of inadequacy (Janis & Field, 1959), to social competence (e.g., Texas Behavior Social Inventory; Helmreich & Stapp, 1974), to aspects of identity derived from group memberships (e.g., Collective Self-Esteem Scale [CSES]; Luhtanen & Crocker, 1992). As these measures are conceptually distinct (Blascovich & Tomaka, 1991; Luhtanen & Crocker, 1992), there is some question as to the comparability across studies.

Social identity theory distinguishes between two forms of identity, personal and social. Personal identity consists of perceptions of individual competence, whereas social identity derives from membership in social groups (Tajfel, 1982). The distinction between personal and collective identity is useful in classifying the different types of self-esteem measures.

Luhtanen and Crocker (1991, 1992) argued that most measures of self-esteem are related to personal identity or personal self-esteem. These researchers developed the CSES, a measure designed to examine aspects of self-esteem derived specifically from group memberships. As such, the CSES is viewed as referring to the aspects of self-esteem referred to by social identity theory. The CSES contains items such as "The social groups I belong to are an important reflection of who I am," "I feel good about the social groups I belong to," and "In general, belonging to social groups is an important part of my self-image." Another type of collective identity measure examines identification with the ingroup. Group identification measures commonly contain some items similar to the CSES, such as "I am a person who considers the group important," "who feels strong ties with the group," and "who is glad to belong to the group" (R. Brown, Condor, Mathews, Wade, & Williams, 1986).

Although the CSES and group identification measures concentrate on collective identity, the scales differ in regards to their implicit goals. The CSES generally refers to affective aspects of group membership, whereas group identification measures purport to examine cognitive aspects. Despite this dichotomy of goals, these distinctions are problematic. The CSES includes a subscale associated with group identity. Group identification measures include affective measures, as demonstrated previously. As such, it seems that aspects of group identification scales contain items related to affective aspects of group membership (Jackson & Smith, 1999; Tropp & Wright, 1999). The CSES explicitly measures group identification through its Identity subscale (Luhtanen & Crocker, 1992).

### Measurement of Ingroup Bias

Several theorists argue for the compatibility of perspectives regarding whether low or high-self-esteem individuals exhibit more ingroup bias. Wills (1991) argued that different perspectives reflect different questions. First, studies finding individuals with high self-esteem to show greater bias through rating themselves or their groups more positively or other groups more negatively (e.g., Crocker & Luhtanen, 1990) ask "Do low-self-esteem individuals rate themselves as superior to others?" Logically, individuals who have low self-esteem will not rate themselves as superior to anyone else, because low self-esteem consists of poor self-concept in relation to others. Studies that find people with low self-esteem more likely to engage in self-enhancement ask, "Are individuals with low self-esteem motivated to enhance self-esteem?"

The second question serves to critique the perspective that high-self-esteem individuals exhibit greater

ingroup bias. The idea that high-self-esteem individuals elevate esteem by showing bias leads to an assumption that low-self-esteem individuals are not motivated to favor their groups or themselves. This assumption characterizes low-self-esteem individuals as having low self-esteem because they do not show ingroup bias. High-self-esteem people show bias because this is how they create and maintain their high self-esteem. Low-self-esteem people do not show bias; if they did, they would not have low self-esteem. This perspective does not allow for the possibility of low-self-esteem individuals engaging in self-enhancement. Of course, other means to enhance self-esteem do exist. The focus of this project, however, is exclusively on the relation between ingroup bias and self-esteem.

Consistent with Wills's (1991) thinking, low-self-esteem individuals may not show ingroup bias because individuals with low self-esteem have a history of association with negative outcomes. Along these lines, J. D. Brown (1993) argued that all individuals, including those with low self-esteem, experience a need to self-enhance; however, there also exists a need for *self-consistency*. As these individuals do not view themselves as superior to others, rating themselves or their ingroups as superior is inconsistent with experiences. However, other definitions of ingroup bias—for example, rating similarity to successful ingroups—may be used by those low in self-esteem, because this type of measure does not require ratings of superiority (i.e., it is not inconsistent with experience). The strategies used by low and high-self-esteem individuals must reflect both needs. This is consonant with Hogg and Abrams's (1990) observation that competing motivational forces (e.g., self-consistency needs) may mitigate the exhibition of ingroup bias. Strategies meeting self-consistency needs allow low-self-esteem individuals to exhibit bias and thus enhance self-esteem, whereas measures incompatible with these requirements will not.

### Empirical Evidence

Traditional measures of ingroup bias take the form of point allocations or adjective ratings of groups. Ingroup bias commonly is defined as rating the ingroup as superior to an outgroup. This strategy fits with self-consistency needs of high-self-esteem individuals but not for low-self-esteem individuals. Low-self-esteem individuals experience self-doubt about their abilities in relation to others, so it is inconsistent for them to indicate superiority. Because low-self-esteem individuals must use strategies that satisfy self-enhancement needs and self-consistency needs, traditional measures may ignore the strategies used by those low in self-esteem. Thus, low self-esteem and high-self-esteem individuals

may both show bias; however, they may do so using different strategies.

Several empirical studies examined the hypothesis that low- and high-self-esteem individuals use different ingroup bias strategies. A set of studies examined differences between ratings of individuals directly involved with the ingroup and of those who are part of the ingroup but not involved with group tasks. A study by J. D. Brown, Collins, and Schmidt (1988) distinguished between *direct* and *indirect* forms of ingroup bias. The authors defined direct bias as the bias shown by individuals comparing a group to which they are active participants to an outgroup. Indirect bias was operationalized as ratings by individuals assigned to the ingroup but not participating in a group task. After participating or observing, participants rated the products of a group brainstorming task. Those individuals high in self-esteem exhibited greater bias when they participated in the ingroup (direct bias), whereas low-self-esteem individuals showed greater bias when not involved in the group task (indirect bias).

Three additional studies support these effects. One study examined the role of success versus failure feedback regarding ingroup and outgroup performance in addition to self-esteem and involvement (C. E. Seta & Seta, 1992). High-self-esteem participants exhibited greater bias favoring the ingroup, but low-self-esteem participants did not discriminate between groups. However, low-self-esteem observers exhibited a pattern of ingroup bias comparable to the high-self-esteem participants. High-self-esteem observers did not discriminate in this manner. Another study (Long, Spears, & Manstead, 1994) allowed study participants to act as both participants and observers in the group task. Again, high-self-esteem individuals exhibited bias when they were participants but not when they were observers. Low-self-esteem individuals exhibited bias as observers but not as participants.

A more recent study (J. J. Seta & Seta, 1996) using both group and individual performance feedback clarified this effect. When ingroups were successful and outgroups failed, individual feedback mediated ingroup bias. High-self-esteem individuals favored the ingroup regardless of whether they had individually succeeded or failed at the task. However, low-self-esteem participants favored the ingroup only when given individual success feedback. One interpretation of these data is that low-self-esteem individuals do not favor the ingroup because they feel they are not useful contributors. When they were told they made a valuable contribution (i.e., individual success feedback), they felt their role as an ingroup member was important and, thus, they favored the group.

These studies indicate one way in which those with low self-esteem can exhibit ingroup bias indirectly through enhancement of the ingroup when they are not

directly associated with the group product. Other strategies may exist, such as basking in reflected glory of a group through enhancement of ratings of association and similarity to the ingroup when it is successful and minimizing association when the ingroup fails (e.g., Cialdini & DeNicholas, 1989; Mummendy & Schreiber, 1983). One empirical investigation of this hypothesis found that low-self-esteem individuals rated themselves as similar to the ingroup when the ingroup succeeded, whereas high-self-esteem individuals did not use this strategy (Aberson, 1999).

The previously mentioned research may help to answer the questions posed by Wills (1991). "Do individuals with low self-esteem rate selves as superior [to outgroup members]?" No, people with low self-esteem do not rate themselves (or their groups) as superior, because it is incompatible with self-consistency motivations. "Are low-self-esteem individuals motivated to self-enhance?" Yes, but in manners that differ from individuals high in self-esteem.

### **This Project**

Several narrative reviews and empirical studies have examined self-esteem as a predictor of ingroup bias. Most reported inconclusive evidence. Rubin and Hewstone (1998) found little support for Corollary 2 (i.e., low self-esteem leads to greater ingroup bias). However, the authors concluded that this finding was not surprising given the blurred distinctions regarding measurement of self-esteem and different forms of discrimination. Hogg and Abrams (1990) argued that there is little effect for self-esteem and that too much emphasis has been placed on it. Luhtanen and Crocker (1991) argued that self-esteem is improperly conceptualized as personal self-esteem in many studies. J. D. Brown et al. (1988) argued for a perspective that integrates self-consistency needs.

Previous reviews and empirical studies have failed to clarify the link between self-esteem and ingroup bias. Factors such as measurement of self-esteem (e.g., Luhtanen & Crocker, 1991) and consistency between dimension of evaluation and self-concept (J. D. Brown et al., 1988) may affect ingroup bias exhibited in previous studies. This study uses meta-analysis to clarify the relation of these factors to ingroup bias.

### **Hypotheses and Research Questions**

This meta-analysis investigates the effects of self-esteem, dependent measure type, and self-esteem measure on ingroup bias. This investigation concentrates on studies that conceptualize self-esteem as a predictor of ingroup bias or studies that include a pretest measure of ingroup bias. Several research questions (RQs) are addressed:

- RQ1: Do low and high-self-esteem individuals exhibit different amounts of ingroup bias?
- RQ2: Do low and high-self-esteem individuals use different strategies to exhibit ingroup bias?
- RQ3: Do different measures of self-esteem (e.g., personal vs. collective) lead to different conclusions regarding the role of self-esteem?
- RQ4: Do these factors interact?

These questions provide a focus for exploration. Additionally, several predictions or hypotheses (Hs) are offered.

- H1a: High-self-esteem individuals will exhibit greater bias than low-self-esteem individuals on measures of direct bias.
- H1b: When measures of bias are indirect, high- and low-self-esteem individuals will exhibit comparable amounts of ingroup bias.

Direct strategies are dimensions of evaluation requiring claims of ingroup superiority such as point or monetary allocation and adjective ratings. Indirect bias strategies include measures of similarity, social distance, or ratings of groups that the participant is assigned but to which the individual does not contribute (i.e., acts as an observer). These hypotheses follow from J. D. Brown et al. (1988), who argued that ingroup bias is moderated by consistency. Ratings of superiority (i.e., direct bias) are inconsistent with the prior experiences of individuals who have low self-esteem. As such, low-self-esteem individuals will exhibit less bias on these measures than will individuals with high self-esteem. In contrast, indirect measures of ingroup bias do not require ratings of superiority. Thus, it is predicted that low and high-self-esteem individuals will exhibit comparable amounts of bias on indirect measures of bias.

- H2: Both personal and collective self-esteem will be related to ingroup bias. Differences in ingroup bias will be larger for low versus high self-esteem as defined by collective measures, as compared to self-esteem defined by personal measures.

Collective identity measures are related to social group memberships. As such, group-based measures may be the best predictors of collective enhancement (i.e., ingroup bias; Crocker & Luhtanen, 1990; Rubin & Hewstone, 1998). Measures of personal esteem may be less predictive of ingroup bias, because these measures do not specifically address factors related to social group membership.

## Method

### Overview

This section details the collection and screening of literature, including study inclusion criteria, coding of study characteristics, and adjustment of effect sizes for reliability and other artifacts.

### Collection and Screening of Literature

A detailed search of relevant CD-ROM databases (PsycLIT, American Psychological Association, 1964–1999; PsycINFO, American Psychological Association, 1971–1999, and Sociofile, Cambridge Scientific Abstracts, 1974–1999) yielded 28 studies for possible inclusion. The initial search used the following keyword and subject heading searches: “(self-esteem OR group identification) AND (in(ter)group bias OR prejudice OR social comparison OR group dynamics OR collective behavior).” As suggested by Reed and Baxter (1994), the study employed other literature search strategies. Relevant social psychology journals were searched by hand, yielding 20 additional studies. Published and unpublished works also were identified through reference section searches of recent review articles and all studies that were considered for inclusion in the analysis. Seventeen additional studies were identified in this manner. Next, searches examined recent conference programs, yielding 8 studies. Another database search, using *Dissertation Abstracts International*, yielded 3 additional studies that were not published in any other format. Finally, letters and e-mail were written to seven authors of prominent articles in the areas of self-esteem, ingroup bias, or both, requesting unpublished works. One additional study was identified.

These searches identified 77 studies for possible inclusion. Specific inclusion and exclusion criteria were created to determine study eligibility:

1. Studies must include ratings of ingroup and outgroup members. Ratings may be of any form as long as ratings are taken for both groups. Seventeen studies were eliminated.

Criterion 1 required that ingroup and outgroup measures be present. Ingroup bias refers to ratings of ingroups in relation to outgroups. This cannot be assessed without ratings of both groups.

2. Self-esteem must be global rather than domain-specific. Two studies were eliminated.

Global self-esteem measures tap stable and consistent aspects of the self-concept. In contrast, domain-specific self-esteem refers to specific aspects of the self-concept that may fluctuate (e.g., math ability, athletic ability). Recent studies indicate that do-

main-specific measures of self-esteem are more appropriate for studies that conceptualize self-esteem as a dependent measure (e.g., J. A. Hunter, Platow, Bell, Kypri, & Lewis, 1997; J. A. Hunter, Platow, Howard, & Stringer, 1996).

3. Studies must include a measure of self-esteem. Nine studies were eliminated.

Studies eliminated based on this criterion most commonly manipulated self-esteem through esteem-enhancing or esteem-reducing feedback. The primary rationale for exclusion of these studies is the observation that threatened self-esteem is not the same concept as low self-esteem. Because only global (i.e., stable) measures of self-esteem are included in this analysis, it is reasonable to assume that feedback, whether positive or negative, will not have an appreciable effect on level of self-esteem.

The definition of self-esteem measures was expanded to include measures of group identification. Group identification measures were judged to be similar to the CSES. To address differences between the two classes of collective measures, analyses examine measures as a collapsed category (CSES and group identification averaged) and also examine the two measures individually.

4. Self-esteem must be conceptualized as a predictor of ingroup bias rather than as an outcome of the bias process. Fifteen studies were eliminated.

Researchers interested in the relation between self-esteem and ingroup bias have conducted two general classes of studies. The first, which is the focus of this research, examines the role of self-esteem as a predictor of ingroup bias. The second examines changes in self-esteem as a result of exhibiting ingroup bias. This project does not include the latter studies.

Application of these screening criteria identified 34 studies for inclusion in the meta-analysis.

### Coding of Study Characteristics

Coded characteristics include type of self-esteem scale, type of dependent measure, and effect size estimates. Christopher L. Aberson coded these measures. Effect sizes were calculated using DSTAT (Johnson, 1989). Aberson calculated effect sizes on two occasions. Inconsistencies were addressed through recalculation until consistency was achieved.

Self-esteem measurement was assessed through the following questions. "Which self-esteem scale was used?" "How were low and high self-esteem defined?" "What score defines low and high self-esteem?"

Measures were coded as either personal or collective. Within the category of collective measures, a distinction was made between the CSES and group identification measures. Analyses address effect sizes

associated with the collective versus personal distinction and the personal versus collective versus group identification classification.

Dependent measures were coded as "direct" or "indirect" based on several criteria. Direct measures of bias included measures requiring individuals to rate the ingroup as superior through use of adjective rating, point allocation, ratings of group products, and attributions. Indirect measures of bias included dependent measures that did not require ratings of superiority, such as perceptions of similarity and subtle measures of bias such as linguistic intergroup bias (e.g., Maass, Ceccarelli, & Rudin, 1996). In addition, following from J. D. Brown et al. (1988), comparisons in which participants contributed to a group outcome (e.g., helped brainstorm on group project) were coded as direct. Comparisons requiring rating of groups to which participants were explicitly noncontributing members (e.g., observed task but not allowed to participate) were coded as indirect. Analyses focus on the distinction between direct and indirect measures. Because indirect measures comprise a variety of measurement strategies, additional analyses examine differences between the dependent variables within the indirect category.

### Effect Size Derivation

The primary goal of the meta-analysis was coding of low- versus high-self-esteem comparisons. The general coding strategy was to derive effects for the smallest possible codeable units; that is, instead of collapsing across factors, attempts were made to code cell differences within each extraneous factor.

For example, a study may employ a  $2 \times 2 \times 2$  between-subject design examining measured self-esteem (high vs. low), ingroup performance (success feedback vs. failure), and outgroup performance feedback (success vs. failure). Instead of ignoring performance factors and coding a single low- versus high-self-esteem effect based on scores collapsed across factors, each individual comparison was coded. This yields four comparisons, high self-esteem versus low self-esteem in each of the following condition combinations: ingroup success–outgroup success, ingroup success–outgroup failure, ingroup failure–outgroup success, and ingroup failure–outgroup failure. Ideally, coding in this manner increases specificity of the analysis.

### Adjusting for Low Reliability and Other Artifacts

Several sources of variability exist that affect effect size measures, such as low reliability of independent and dependent measures and artificial dichotomization

of variables. Effect sizes are adjusted for the impact of each of these sources of unreliability. Specifically, studies are weighted by the inverse of the square root of each source of unreliability (J. E. Hunter & Schmidt, 1990, 1994).

### A Note on Effect Size Estimates

The effect size estimate used in analyses was an index of the difference in ingroup bias between low- and high-self-esteem individuals. Predictor variables assessed the effect of dependent variable type and self-esteem measure on the measured difference between low- and high-self-esteem individuals.

Another, perhaps more direct, way to assess hypotheses would be to extract an effect size estimate for high- and low-self-esteem individuals independently. Each effect size in this case would represent the amount of ingroup bias exhibited by the specific group. Attempts were made to derive these effect size measures; however, reporting of appropriate statistics to calculate these effects was uncommon. Specifically, few studies furnished the correlation between ingroup and outgroup ratings, the error term for within-group tests (i.e., standard error of the difference), or the information to calculate either. Thus, extraction of an overall effect size measuring ingroup bias in this manner proved impossible.

## Results

### Descriptive Information

This section discusses coded studies, including those excluded from tests of hypotheses due to lack of sufficient information to calculate effect size estimates.

**Effect sizes.** The 34 studies selected for inclusion in the meta-analysis yielded 113 high- versus low-self-esteem comparisons. Of these documents, 25 were published or in press, and 9 studies were unpublished. Of these 113 comparisons, 102 (90%) contained satisfactory information to calculate effect sizes. The remaining 11 comparisons did not include adequate information to code effect size measures. These 11 comparisons were coded for all other study characteristics. The modal number of effect sizes per study was two (17 studies).

**Self-esteem measures.** Thirty-nine (38.2%) comparisons were coded as using collective measures, and 63 (61.8%) were coded as using personal measures of self-esteem. The majority of comparisons defined self-esteem using either Rosenberg's Self-Esteem Scale (Personal; Rosenberg, 1965) or the Collective

Self-Esteem Scale (Luhtanen & Crocker, 1992; 57 and 32 instances; 50.4% and 28.3%, respectively). Other measures used were group identification scales (collective; 11 studies, 9.7%), the Texas Social Behavior Inventory (Helmreich & Stapp, 1974; personal; 9, 8.0%), Janis-Field Feelings of Inadequacy Scale (Janis & Field, 1959; personal; 2, 1.8%), and the Self-Descriptive Questionnaire III (Marsh, Smith, & Barnes, 1983; personal; 2, 1.8%). Of the 32 comparisons using the CSES (Luhtanen & Crocker, 1992), 10 (31.2%) used the entire scale, 8 (25.0%) used the Membership Self-Esteem subscale, 8 (25.0%) used the Private Collective Esteem subscale, 3 (9.4%) used the Public Collective Esteem subscale, and 3 (9.4%) were based on a combination of two subscales.

All self-esteem measures were at least moderately reliable. Reliability coefficients ranged from .63 to .93. The median reliability was .825. To allow for correction of effect sizes for lack of reliability, reliability was estimated for the remaining studies. Fifty-five of the documents included reliability information. Forty-nine reliabilities were taken from scale construction information. The remaining 9 reliabilities, all from studies using group identification measures, were assigned the mean reported reliability from group identification studies reporting reliability information (.85).

Self-esteem was used as an independent variable in three manners. Most commonly, researchers classified participants as having high or low self-esteem based on a median split of self-esteem scores (64 comparisons, 56.6%). Twelve comparisons (10.6%) used a tripartite split, classifying individuals as having high, medium, or low self-esteem. Data for medium self-esteem groups were not included in the meta-analysis. The remaining 37 comparisons (32.7%) did not split scores (i.e., used correlation-regression procedures).

Low and high self-esteem were most commonly defined using a median split. Scores falling below the 50th percentile were defined as low self-esteem using this procedure. Scores falling below the 50th percentile do not necessarily represent the lower half of possible scale values. Many individuals who scored moderately high on the scale were classified as having low self-esteem. One striking example involves scores on Rosenberg's Self-Esteem Scale (Rosenberg, 1965). For studies using artificial dichotomization based on median splits, the most common cutting point separating high and low self-esteem was 31 on a scale ranging from 10 to 40. Rosenberg's Self-Esteem Scale consists of 10 four-point items, ranging from 1 to 4, four being highest. A score of 31 could represent the answers of an individual who chose 3 on 9 of the items and 4 on the remaining item; that is, the individuals classified as "low-self-esteem" could indicate scores on the upper end of each scale item. Examination of results for other scales indicates that poor classification is common.

Some of the individuals classified as having low self-esteem may be better conceptualized as having medium or even high self-esteem.

**Dependent Measures.** Sixty-four comparisons used measures of direct bias, and 38 used measures of indirect bias. Adjective ratings were the most common (62, 54.9%), followed by ratings of group product (19, 16.8%), similarity (10, 8.8%), attribution (6, 5.3%), linguistic intergroup bias (4, 3.5%), social distance (4, 3.5%), Tajfel Matrices (2, 1.8%), contribution to group (1, 0.9%), liking (1, 0.9%), and likelihood of cooperation (1, 0.9%). The remaining comparisons used multiple categories of measures that were collapsed (3, 2.7%).

Of the 102 studies with codeable effect sizes, 35 (34%) reported reliabilities for dependent measures. To allow for correction of effect sizes for lack of reliability, reliability was estimated for the remaining studies. The remaining reliabilities were imputed from other documents using the same or similar measures (36, 35%), an average based on other studies using the same measure (16, 16%), or an overall average if no other studies reported reliabilities for the specific measure (15, 15%). Dependent measure reliabilities ranged from .54 to .94, with a median value of .89. For those studies reporting reliabilities, the median reliability for direct bias measures was .85, and the median reliability for indirect bias measures was .80. Using this strategy, 91% of the dependent measures were assigned a reliability of .80 or greater.

### Analyses of Data and Tests of Hypotheses

This section presents several analyses of data. The results that follow use an effect size estimate that represents the difference between ingroup bias exhibited by low- and high-self-esteem individuals. Differences in the positive direction indicate that high-self-esteem individuals show more ingroup bias than do individuals with low self-esteem. A negative effect indicates that low-self-esteem individuals show more ingroup bias. The first analysis examines all comparisons and tests predictor effects. A second analysis uses a data set with a reduced number of studies as a strategy to account for the impact of data dependency. A third analysis focuses on differences between scores on the CSES and group identification measures. A final analysis examines the variables classified as indirect measures of ingroup bias.

**Full analysis.** Table 1 presents the average overall effect size as well as effect sizes for individual studies. Of note is the relatively small, but clearly nonzero, overall raw effect size of 0.23 (95% confidence interval [CI]; 0.19 to 0.26). An effect of this size and direction

indicates that high-self-esteem individuals show more bias than do low-self-esteem individuals. Effect sizes range from  $-1.55$  to  $2.09$ .

The first analysis explains differences between high- and low-self-esteem individuals' levels of ingroup bias (i.e., effect size) as a function of dependent variable type, self-esteem measure, and the interaction between the variables. The preliminary analyses, and all that follow, use procedures analogous to least squares regression, with weights adjusting for sampling error, reliability, and artificial dichotomization.

When adjustments are made to account for variance due to sample size, reliability, and artificial dichotomization, the average effect size for the 102 comparisons included in this analysis rises to 0.28 (95% CI; 0.25 to 0.32). As shown in Tables 2 and 3, results indicate significant effects for dependent variable type, with high-self-esteem individuals exhibiting greater ingroup bias than do low-self-esteem individuals on direct measures of bias ( $M=0.37$ ) but not on indirect measures ( $M=0.06$ ). Thus, individuals high in self-esteem show more bias than do those with low self-esteem on direct measures. The two groups show comparable amounts of bias on indirect measures. This supports Hypotheses 1a and 1b, the predictions that low-self-esteem individuals are less likely than those with high self-esteem to use direct strategies and that both groups will show comparable amounts of ingroup bias when using indirect strategies.

Contrary to Hypotheses 2, significant main effects were not found for the self-esteem measure. Collective measures of self-esteem ( $M=0.22$ ) and personal measures ( $M=0.33$ ) did not differ. High self-esteem, defined by either class of measure, was associated with greater amounts of ingroup bias overall.

**Analysis without overlapping data.** Due to possible effects of nonindependence of several effect size estimates resulting from inclusion of multiple endpoint studies (same participants measured on multiple dependent variables) and multiple treatment studies (same participants classified on multiple self-esteem measures), a separate analysis was conducted. This analysis used a data set including only a single effect from comparisons with nonindependent data. For overlapping comparisons, a single randomly selected effect was retained. All other overlapping comparisons were deleted. This left 76 comparisons that included completely nonoverlapping effect size estimates.

Table 2 summarizes results from this analysis and compares results to the initial analysis using the full data set. The pattern of statistical significance is not changed by the exclusion of studies. *R*-squared results, as indicated by a comparison of the reduced data set to the initial analysis, are similar though somewhat smaller.

Also of interest is a comparison of values for main effects between the two analyses. The pattern of results

**Table 1.** Study Characteristics, Effect Sizes, and Confidence Limits

NAME	DV	SE	N	Raw ES	LL	UL	ES (Un)	ES LL	ES UL
Overall			58.5	0.23	0.19	0.26	0.28	0.25	0.32
Aberson (1999)	1	1	20	-0.25	-0.87	0.38	-0.42	-1.24	0.40
Aberson (1999)	1	1	23	0.60	0.01	1.19	1.03	0.25	1.81
Aberson (1999)	1	1	24	-0.01	-0.57	0.56	-0.01	-0.76	0.73
Aberson (1999)	1	1	10	0.41	-0.47	1.30	0.68	-0.49	1.85
Aberson (1999)	2	1	20	-1.05	-1.71	-0.38	-1.50	-2.30	-0.70
Aberson (1999)	2	1	23	-1.29	-1.93	-0.66	-1.86	-2.63	-1.09
Aberson (1999)	2	1	24	-0.15	-0.71	0.42	-0.21	-0.90	0.47
Aberson (1999)	2	1	10	0.01	-0.86	0.89	0.02	-1.04	1.08
Abrams (1982) <sup>a</sup>	1	2	117	0.46	0.21	1.09	0.54	0.26	0.83
Abrams (1982) <sup>a</sup>	2	2	117	0.22	-0.09	0.78	0.26	-0.02	0.54
Abrams (1983) <sup>a</sup>	1	2	42	0.65	-0.04	0.48	0.76	0.28	1.23
Abrams (1983) <sup>a</sup>	2	2	42	0.35	0.20	0.72	0.41	-0.06	0.88
Brockner & Chen (1996)	1	2	438	0.09	-0.05	0.22	0.11	-0.04	0.26
Brockner & Chen (1996)	1	2	188	1.03	0.82	1.25	1.27	1.03	1.51
J. D. Brown, Collins, & Schmidt (1988)	1	2	25	2.09	1.40	2.78	2.58	1.82	3.35
J. D. Brown, Collins, & Schmidt (1988)	2	2	26	-0.37	-0.91	0.18	-0.45	-1.07	0.16
J. D. Brown, Collins, & Schmidt (1988)	1	2	23	0.19	-0.39	0.77	0.24	-0.41	0.89
J. D. Brown, Collins, & Schmidt (1988)	2	2	27	1.04	0.47	1.60	1.28	0.64	1.91
J. D. Brown, Collins, & Schmidt (1988)	1	2	24	1.30	0.67	1.92	1.60	0.90	2.29
J. D. Brown, Collins, & Schmidt (1988)	2	2	21	-0.90	-1.54	-0.27	-1.11	-1.82	-0.40
R. Brown, Condor, Mathews, Wade, & Williams (1986)	1	1	126	0.23	-0.02	0.47	0.29	0.01	0.57
Crocker & Luhtanen (1990)	1	1	82	0.80	0.48	1.12	1.04	0.67	1.40
Crocker & Luhtanen (1990)	1	1	82	1.33	0.99	1.67	1.71	1.33	2.10
Crocker, Thompson, McGraw, & Ingerman (1987)	1	2	42	0.93	0.48	1.38	1.09	0.60	1.58
Crocker, Thompson, McGraw, & Ingerman (1987)	1	2	42	1.82	1.31	2.33	2.13	1.58	2.68
Crocker, Thompson, McGraw, & Ingerman (1987)	1	2	15	-0.58	-1.31	0.15	-0.67	-1.46	0.12
Crocker, Thompson, McGraw, & Ingerman (1987)	1	2	19	0.68	0.02	1.33	0.78	0.07	1.49
Donaldson (1995)	1	2	180	-0.33	-0.53	-0.12	-0.45	-0.69	-0.20
Gagnon & Bourhis (1996)	1	1	47	0.56	0.15	0.98	0.74	0.26	1.21
Gagnon & Bourhis (1996)	1	1	47	1.25	0.80	1.69	1.64	1.13	2.14
Greenwood (1996)	1	2	35	0.50	0.02	0.97	0.55	0.05	1.05
Greenwood (1996)	1	2	29	0.19	-0.32	0.71	0.21	-0.34	0.76
Hinkle, Taylor, Fox-Cardamone, & Crook (1989)	1	1	62	0.65	0.29	1.01	0.72	0.34	1.11
J. A. Hunter, Stringer, & Coleman (1993)	1	2	53	0.14	-0.24	0.52	0.17	-0.25	0.59
J. A. Hunter, Stringer, & Coleman (1993)	1	2	54	0.11	-0.27	0.49	0.13	-0.28	0.55
Kelly (1988)	1	1	142	0.28	0.05	0.52	0.32	0.07	0.57
Kelly (1988)	2	1	142	0.03	-0.20	0.26	0.04	-0.21	0.28
Lay (1992)	1	2	64	0.04	-0.31	0.39	0.05	-0.33	0.43
Lay (1992)	1	1	64	0.00	-0.35	0.35	0.00	-0.39	0.39
Lay (1992)	1	1	64	-0.66	-1.01	-0.30	-0.83	-1.23	-0.43
Lay (1992)	2	2	64	0.52	0.17	0.87	0.62	0.23	1.01
Lay (1992)	2	1	64	0.11	-0.24	0.45	0.14	-0.26	0.53
Lay (1992)	2	1	64	-0.53	-0.88	-0.17	-0.67	-1.08	-0.27
Lindeman (1997)	1	1	181	0.66	0.45	0.87	0.87	0.63	1.12
Lindeman (1997)	1	1	132	0.15	-0.09	0.39	0.20	-0.08	0.47
Long (1997)	1	1	120	-0.95	-1.21	-0.68	-1.25	-1.56	-0.94
Long (1997)	1	1	30	-0.39	-0.90	0.12	-0.52	-1.12	0.07
Long & Spears (1998)	1	2	56	1.27	0.86	1.67	1.61	1.15	2.06
Long & Spears (1998)	1	1	56	-0.48	-0.85	-0.10	-0.59	-1.01	-0.17
Long, Spears, & Manstead (1994)	1	1	55	0.43	0.05	0.81	0.55	0.12	0.98
Long, Spears, & Manstead (1994)	2	1	55	0.80	0.41	1.19	1.02	0.58	1.45
Long, Spears, & Manstead (1994)	1	2	55	-0.03	-0.41	0.34	-0.04	-0.47	0.39
Long, Spears, & Manstead (1994)	2	2	55	-1.49	-1.91	-1.07	-1.92	-2.40	-1.44
Long, Spears, & Manstead (1994)	1	1	54	0.22	-0.16	0.60	0.28	-0.15	0.71
Long, Spears, & Manstead (1994)	2	1	54	-0.38	-0.76	0.00	-0.48	-0.91	-0.05
Long, Spears, & Manstead (1994)	1	2	54	0.48	0.10	0.86	0.62	0.18	1.05
Long, Spears, & Manstead (1994)	2	2	54	0.87	0.48	1.27	1.13	0.68	1.58
Maass, Ceccarelli, & Rudin (1996)	2	2	80	0.10	-0.21	0.41	0.13	-0.22	0.48

(Continued)

**Table 1.** (Continued)

NAME	DV	SE	N	Raw ES	LL	UL	ES (Un)	ES LL	ES UL
Maass, Ceccarelli, & Rudin (1996)	2	1	80	0.14	-0.17	0.45	0.18	-0.17	0.53
Maass, Milesi, Zabbini, & Stahlberg (1995)	2	1	85	0.24	-0.06	0.54	0.30	-0.03	0.64
Maass, Milesi, Zabbini, & Stahlberg (1995)	2	1	73	-0.20	-0.53	0.12	-0.25	-0.62	0.11
Mallery (1994)	1	2	72	-0.03	-0.35	0.30	-0.03	-0.41	0.34
Mallery (1994)	1	2	72	0.63	0.30	0.97	0.82	0.44	1.21
Mallery (1994)	2	2	72	0.44	0.11	0.77	0.59	0.20	0.97
Mallery (1994)	2	2	72	-0.47	-0.80	-0.14	-0.63	-1.01	-0.25
McCrea, Crawford, & Hirt (1998)	1	2	160	0.26	0.04	0.48	0.29	0.06	0.52
McCrea, Crawford, & Hirt (1998)	1	2	80	0.11	-0.20	0.42	0.12	-0.21	0.44
McCrea, Crawford, & Hirt (1998)	1	2	80	0.34	0.03	0.66	0.38	0.05	0.70
Robins & Foster (1994)	1	1	151	-0.16	-0.39	0.07	-0.21	-0.46	0.05
Ruttenberg, Zea, & Sigelman (1996)	2	1	40	0.06	-0.37	0.50	0.08	-0.41	0.56
Ruttenberg, Zea, & Sigelman (1996)	2	1	47	0.73	0.31	1.14	0.87	0.41	1.32
C. E. Seta & Seta (1992)	1	2	14	-0.40	-1.15	0.35	-0.51	-1.36	0.35
C. E. Seta & Seta (1992)	1	2	14	0.53	-0.22	1.29	0.67	-0.19	1.53
C. E. Seta & Seta (1992)	1	2	14	0.61	-0.15	1.37	0.77	-0.09	1.63
C. E. Seta & Seta (1992)	1	2	14	-0.20	-0.94	0.54	-0.25	-1.10	0.59
C. E. Seta & Seta (1992)	2	2	14	0.05	-0.69	0.79	0.07	-0.78	0.91
C. E. Seta & Seta (1992)	2	2	14	-0.94	-1.72	-0.16	-1.19	-2.07	-0.30
C. E. Seta & Seta (1992)	2	2	14	0.68	-0.08	1.44	0.85	-0.01	1.72
C. E. Seta & Seta (1992)	2	2	14	-0.15	-0.90	0.59	-0.19	-1.04	0.65
J. J. Seta & Seta (1996)	1	2	34	-0.23	-0.48	0.47	-0.30	-0.84	0.25
J. J. Seta & Seta (1996)	1	2	34	1.78	-0.77	0.19	2.28	1.65	2.92
J. J. Seta & Seta (1996)	1	2	34	0.19	-2.09	-1.01	0.24	-0.31	0.78
J. J. Seta & Seta (1996)	1	2	34	-0.03	-0.83	0.12	-0.04	-0.58	0.50
J. J. Seta & Seta (1996)	1	2	34	-0.45	-0.71	0.25	-0.58	-1.13	-0.04
J. J. Seta & Seta (1996)	1	2	34	0.94	1.21	2.34	1.21	0.64	1.78
J. J. Seta & Seta (1996)	1	2	34	0.31	-0.29	0.66	0.40	-0.14	0.95
J. J. Seta & Seta (1996)	1	2	34	0.49	-0.51	0.44	0.63	0.08	1.18
J. J. Seta & Seta (1996)	2	2	34	-0.30	-0.94	0.03	-0.38	-0.93	0.16
J. J. Seta & Seta (1996)	2	2	34	0.85	0.44	1.44	1.09	0.53	1.66
J. J. Seta & Seta (1996)	2	2	34	0.05	-0.16	0.79	0.06	-0.48	0.60
J. J. Seta & Seta (1996)	2	2	34	1.61	0.01	0.98	2.07	1.45	2.69
J. J. Seta & Seta (1996)	2	2	34	-0.01	-0.78	0.18	-0.01	-0.55	0.53
J. J. Seta & Seta (1996)	2	2	34	-0.29	0.35	1.35	-0.37	-0.91	0.18
J. J. Seta & Seta (1996)	2	2	34	-1.55	-0.43	0.52	-1.99	-2.61	-1.38
J. J. Seta & Seta (1996)	2	2	34	-0.35	1.06	2.16	-0.46	-1.00	0.09
Sidanius, Pratto, & Mitchell (1994)	1	2	198	0.63	0.43	0.83	0.74	0.52	0.96
Sidanius, Pratto, & Mitchell (1994)	1	2	198	0.43	0.23	0.63	0.49	0.28	0.71
Smith & Tyler (1997)	1	1	83	0.27	-0.04	0.57	0.33	-0.01	0.67
Smith & Tyler (1997)	1	2	83	-0.02	-0.33	0.28	-0.03	-0.36	0.31
Verkuyten (1997)	1	1	118	0.48	0.23	0.74	0.64	0.34	0.94
Wright & Wyer (1997)	1	1	61	0.62	0.26	0.99	0.73	0.34	1.13
Wright & Wyer (1997)	2	1	81	0.40	0.09	0.71	0.47	0.13	0.81

Note: DV = dependent variable: 1 = direct bias strategies (direct dependent variable); 2 = indirect bias strategy (indirect dependent variable); SE = self-esteem measure: 1 = collective; 2 = personal; Raw ES = raw effect size. Raw effect size is unweighted. LL, UL are 95% confidence limits around Raw ES. ES(Un) is the effect size adjusted for attenuation due to reliability and artificial dichotomization. ES LL and ES UL are 95% confidence limits around ES(Un).

<sup>a</sup>As cited in Hogg and Abrams (1990).<sup>2</sup>

for dependent measure type remained similar to the results from the full data set. As seen in Table 3, cell and overall means for direct bias measures for the reduced data set did not differ significantly from the full data set. Similarly, indirect measures showed small but nonsignificant differences between the reduced data

set and the full data set. The pattern of results for self-esteem measures did not change. It can be concluded that the observed effects in the first analysis are not artifacts produced by violations of data dependency assumptions.

**Separating collective self-esteem and group identification measures.** The previous analyses classified the CSES and group identification measures as a single category of measure. These measures could reasonably be conceptualized as capturing different as-

<sup>2</sup>Table 1 deletes comparisons that did not yield effect size estimates. As a result, three studies (Brickson, 1994; Crocker & Schwartz, 1985; Thompson & Crocker, 1990) included in the meta-analysis are excluded from the table.

**Table 2.** Analysis of Effect Sizes Predicted From Dependent Variable Type, Self-Esteem Measure, Salience, and Interactions (Data Set Without Overlapping Data Compared to Full Data)

Predictor	df	Q (Full Data)	R <sup>2</sup> Added (Full Data)	Q (No Overlaps)	R <sup>2</sup> Added (No Overlaps)
Dependent Variable Type	1	31.1**	.046	7.2**	.016
Self-Esteem Measure	1	3.2	.005	0.4	.001
Dependent Variable × Self-Esteem	1	1.2	.001	3.7	.009
Model	3	35.5**	.052	11.2*	.026
Residual					
(Full)	94	632.7**		422.6**	
(Reduced)	68				

Note: Q is distributed as chi-square and provides a test for contribution of variables to prediction. The highly significant test for the residual value indicates that variance in effect sizes is not completely explained by the model.

\*p < .05. \*\*p < .001.

**Table 3.** Mean Effect Sizes Within Cells and Overall

Measure	Type of Data	Direct Bias	n	Indirect Bias	n	Overall	n
Collective	Full	0.31 (0.23 to 0.38)	24	0.05 (-0.04 to 0.17)	15	0.22 (0.16 to 0.28)	39
	Reduced	0.34 (0.26 to 0.42)	19	0.28 (0.13 to 0.42)	8	0.32 (0.25 to 0.40)	27
Personal	Full	0.41 (0.35 to 0.47)	40	0.07 (-0.04 to 0.17)	23	0.33 (0.28 to 0.38)	63
	Reduced	0.34 (0.28 to 0.41)	32	0.03 (-0.11 to 0.17)	17	0.29 (0.22 to 0.35)	49
Overall	Full	0.37 (0.33 to 0.42)	64	0.06 (-0.01 to 0.14)	38	0.28 (0.25 to 0.32)	102
	Reduced	0.34 (0.29 to 0.39)	51	0.15 (0.05 to 0.25)	25	0.30 (0.26 to 0.35)	76

Note: Overall averages cannot be directly computed from cell averages due to weighting of effect sizes; 95% confidence interval around population mean in parentheses.

pects of collective identity. The CSES primarily taps evaluative aspects of group membership (Luhtanen & Crocker, 1991). Group identification measures ostensibly focus on more cognitive aspects of membership, such as whether one perceives himself or herself as a member of the group (see Tropp & Wright, 1999). A recent factor analysis of several self-esteem measures indicated that the CSES and group identification measures constitute distinct, though correlated, factors (Jackson & Smith, 1999). To address the possible differences between collective esteem and group identification, an analysis examines the data with group identification measures classified separately.

Results for dependent measure type is unchanged in this analysis. However, a different pattern of results, as shown in Tables 4 and 5, does emerge for self-esteem measure type. Group identification measures and personal self-esteem show significantly larger effects than does the CSES. Most interesting, group identification measures show the largest effect sizes in this analysis (although not significantly different than personal measures). This result points toward the importance of group identification but not collective self-esteem as a predictor of ingroup bias. Conclusions regarding group

identification measures should be tempered because results are based on a small sample. This analysis provides evidence that individuals high and low in collective self-esteem do not differ in their evaluations of ingroup and outgroup members. These results suggest that personal self-esteem and group identification are related to ingroup bias, but collective self-esteem is not.

**Table 4.** Analysis of Effect Sizes Predicted From Dependent Variable Type and Self-Esteem Measure (Collective and Group Identification Measures Separated)

Predictor	df	Q (Full Data)	R <sup>2</sup> Added (Full Data)
Dependent Variable Type	1	31.1*	.046
Self-Esteem Measure	2	25.1*	.038
Dependent Variable × Self-Esteem	2	5.5	.008
Model	7	61.7*	.092
Residual (Full)	94	606.6*	

Note: Q is distributed as chi-square and provides a test for contribution of variables to prediction. The highly significant test for the residual value indicates that variance in effect sizes is not completely explained by the model.

\*p < .001.

**Table 5.** Mean Effect Sizes for Collective Self-Esteem, Personal Self-Esteem Measures, and Group Identification Measures Within Cells and Overall

Measure	Direct Bias	n	Indirect Bias	n	Overall	n
Collective Self-Esteem	0.09 (-0.01 to 0.20)	16	0.00 (-0.13 to 0.13)	13	0.06 (-0.02 to 0.14)	29
Group Identification	0.56 (0.45 to 0.68)	8	0.19 (-0.01 to 0.39)	2	0.47 (0.38 to 0.57)	10
Personal	0.41 (0.35 to 0.47)	40	0.07 (-0.04 to 0.17)	23	0.33 (0.28 to 0.38)	63
Overall	0.37 (0.33 to 0.42)	64	0.06 (-0.01 to 0.14)	38	0.28 (0.25 to 0.32)	102

Note: Overall averages cannot be directly computed from cell averages due to weighting of effect sizes; 95% confidence interval around population mean in parentheses.

**Analysis of indirect bias measures.** Indirect measures of bias included ratings of similarity, linguistic intergroup bias, adjective ratings of groups by noncontributing members, product ratings of groups by noncontributing members, social distance, amount of like or dislike for a group, and a combined measure that included accuracy of humor and stereotypes directed at ingroups and outgroups. Because this list constitutes a wide range of measures, it is useful to examine if the results differ based on each specific variable and whether it is appropriate to collapse these measures into a single category.

As shown in Table 6, most indirect bias measures yield effects that do not deviate from zero. One variable, the combined measure of humor–stereotype accuracy, shows an effect size of 0.49. This effect size, however, is based on a sample of two studies. A homogeneity test examining effect size by variable indicates the variables do not differ significantly,  $Q(5) = 8.89, p = .11$ . Table 6 also presents the overall effect size that would result from exclusion of each variable type. Removal of any of the specific variables would not affect conclusions regarding the overall effect size. These data support the conclusion that indirect bias measures yield an effect size that is near zero, meaning that there is no difference between the amount of ingroup bias exhibited by high- and low-self-esteem individuals

when using this class of measure. Furthermore, the homogeneity test supports the inclusion of these variables in a single category of dependent measure.

**Is ingroup bias present in all comparisons?** A primary finding of these analyses is that low- and high-self-esteem individuals show comparable amounts of ingroup bias when using indirect dependent measures. A possible explanation for this result is that participants did not exhibit any bias when using indirect measures. An effect size estimate for differences between ratings of ingroups and outgroups could assess the presence of a tendency to favor the ingroup and determine if ingroup bias was consistently exhibited across comparisons. Calculation of this effect size estimate was not possible due to limitations of study reports. However, data examining average ratings of ingroups versus outgroups speaks to this question.

Of the 96 comparisons providing information regarding the average ingroup and outgroup ratings, 72 (75%) found the ingroup to be rated more positively, 23 (24%) found the outgroup to be rated more positively, and 1 (1%) found exactly equal ratings of both groups. Seventeen studies did not provide information as to which group was favored. Results for indirect measures found that 26 comparisons favored the ingroup (72%), and 10 comparisons favored the

**Table 6.** Mean Effect Sizes by Variable for Indirect Bias Measures

Indirect Bias Variables	D	n	95% CI	Overall D and 95% CI if Removed
Adjective Rating	-0.03	12	-0.21 to 0.15	0.05 (-0.03 to 0.14)
Product Rating	-0.01	7	-0.20 to 0.18	0.04 (-0.03 to 0.13)
Social Distance	0.04	3	-0.18 to 0.27	0.04 (-0.04 to 0.12)
Similarity	-0.01	9	-0.15 to 0.13	0.06 (-0.03 to 0.15)
Humor–Stereotype Accuracy	0.49	2	0.16 to 0.82	0.01 (-0.06 to 0.09)
Linguistic Intergroup Bias	0.10	4	-0.08 to 0.28	0.03 (-0.06 to 0.11)
Liking	0.47	1		0.04 (-0.04 to 0.12)
Overall (Current Analysis)	0.04	37	-0.04 to 0.12	
Overall (All Indirect Measures)	0.06	38	-0.01 to 0.14	

Note: D = mean effect size; CI = confidence interval. Overall effect differs from previous analysis as one comparison is excluded. A single comparison utilized measures of liking and thus could not be included in the computation of the Q-statistic or a CI.

outgroup (28%). For direct bias measures, 46 comparisons favored the ingroup (77%), 13 comparisons favored the outgroup (22%), and 1 comparison yielded exactly equal ratings (1%). A chi-square test, excluding the 1 comparison yielding equal ratings, indicated that differences are not statistically significant between dependent measure types,  $\chi^2(1) = 0.40, ns$ .

The 23 studies finding the outgroup rated more positively than the ingroup seem to contradict expectations. However, Brewer (1979) concluded that ingroup bias can take other forms when the ingroup is of low status or the ingroup fails while the outgroup succeeds. In these situations, it is unlikely to find ingroup ratings to be more positive than outgroup ratings. Rather, a more likely ingroup bias strategy is minimization of differences in ratings between groups. Of the 23 studies finding outgroups to be rated more positively than ingroups, 11 were comparisons in which the ingroup failed and the outgroup succeeded, and 5 involved comparisons in which the ingroup was the lower status group. Among the studies finding outgroups to be favored, 16 of 23 comparisons represented situations in which it is not likely to find ingroup favoritism. Of the remaining 7 comparisons, 4 were associated with direct bias and 3 with indirect bias. These results demonstrate that ingroup bias is present in the majority of comparisons. This supports findings regarding the use of indirect

strategies. Because low- and high-self-esteem individuals did not differ in ratings of groups when using indirect measures, and ingroup bias was present in the majority of the comparisons, it can be concluded that this result demonstrates that low and high-self-esteem individuals exhibit comparable amounts of indirect ingroup bias.

**Publication Bias**

A possible alternative explanation for statistically significant findings in any meta-analysis is the presence of publication bias (Rosenthal, 1979). As suggested by Begg (1994), this study uses a funnel plot to assess possible publication bias effects.

Figure 1 plots study size versus raw effect size. Ideally, the data will represent an inverted funnel shape in which effect size becomes less disperse as the sample size rises. This is the case with these data. These data clearly group around the raw mean effect size of 0.23. The funnel plot presents raw effect size because it is the value used directly by the researchers in testing hypotheses. Another useful application of the funnel plot is to uncover exclusion of nonsignificant results. If there are few cases grouped around a raw effect of zero, then problems with publication bias may be present (i.e., results with nonsignificant results and subsequently unpublished). There does not appear to be

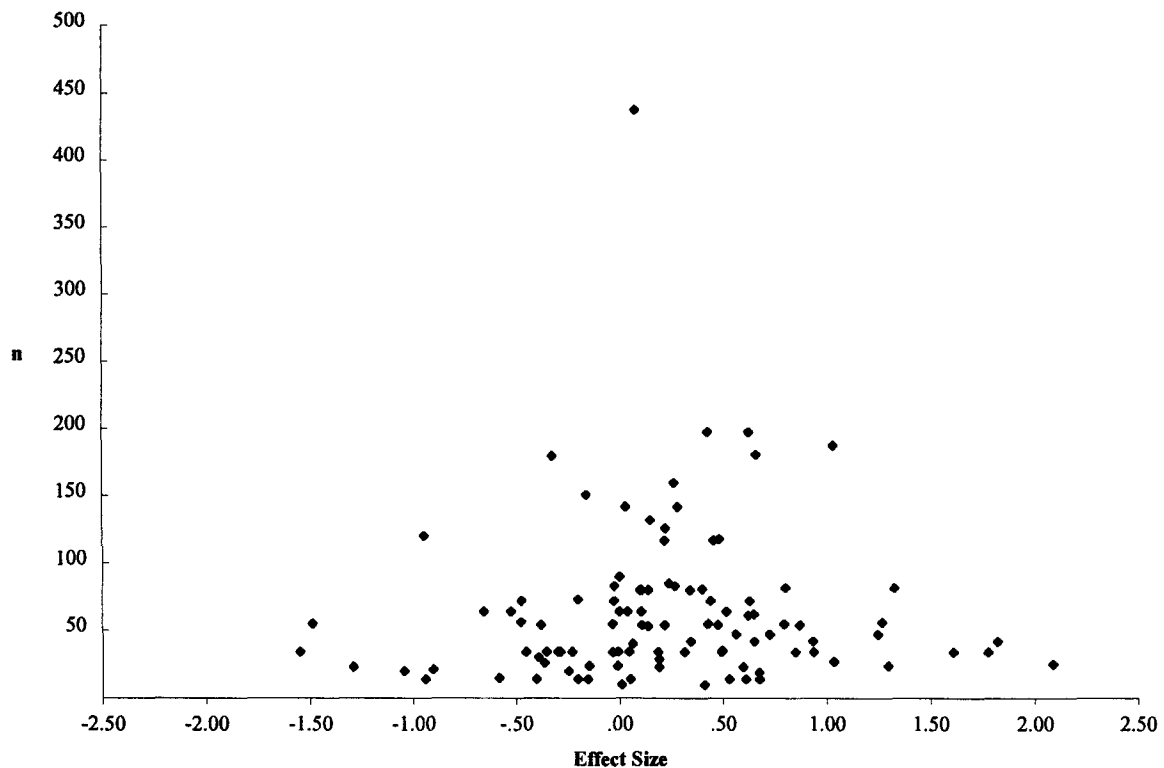


Figure 1. Funnel plot: Raw effect size by sample size.

exclusion of null results. Therefore, it is unlikely that exclusion of null results has inflated the study effect sizes. This result may be attributed to the fact that many of the studies at hand provided tests of self-esteem hypotheses as ancillary results. Additionally, data used in the meta-analysis often were used to test a hypothesis different from the hypotheses tested in the original documents. In both cases, null results would not influence the likelihood of publication.

### Discussion

The purpose of this study was to test specific hypotheses regarding ingroup bias and to explore a set of related research questions. Results clarified the role of bias strategy (dependent measure) and self-esteem measurement. The sections that follow summarize findings and discuss results in terms of hypotheses and research questions addressed. Additional sections discuss implications for self-esteem measurement and social identity theory.

#### Overall Effects

The most general finding of the meta-analysis indicates that individuals with high self-esteem show more ingroup bias than do individuals with low self-esteem. Although this finding could be interpreted as supporting the conclusion that high self-esteem is associated with greater ingroup bias, this overall effect needs to be interpreted with caution. An overall effect size taken from a meta-analysis is much like a main effect in an analysis of variance (ANOVA), in that the result should be interpreted in relation to higher order effects. In this case, results are qualified by findings regarding bias strategies and self-esteem measurement.

#### Bias Strategies (Dependent Variable Type)

The first set of hypotheses addressed the role of dependent variable type. Statistically significant differences were found in effect size between direct and indirect bias measures. Consistent with predictions, direct measures were found to produce larger differences in ingroup bias in which high-self-esteem individuals showed more bias. Indirect measures found comparable amounts of bias between high- and low-self-esteem individuals. The differences indicated that high-self-esteem individuals showed more ingroup bias than did low-self-esteem individuals using direct measures as compared to indirect measures.

Direct bias strategies such as rating the ingroup as superior on a set of adjectives may conflict with the poor self-concept of low-self-esteem individuals. Regardless of this conflict, there still exists a need to self-enhance (J. D. Brown, 1993). In the intergroup

setting, self-enhancement takes the form of ingroup bias. Given the need to self-enhance and the inconsistency between low self-esteem and claims of superiority, individuals with low self-esteem are unlikely to exhibit bias on direct measures (e.g., they may not rate the ingroup as superior). The indirect measures of bias discussed in this study, such as favoring groups to which the individual did not contribute, may allow low-self-esteem individuals to exhibit bias and thus bolster self-concept. Indirect strategies may allow individuals with low self-esteem to bolster self-concept without creating conflict with previous experiences and past association with negative outcomes.

High-self-esteem individuals used both direct and indirect strategies to bolster self-esteem. This also supports a self-consistency argument. Using indirect strategies does not conflict with the self-concept of an individual with high self-esteem. Concerning bias strategy, it seems that low-self-esteem individuals are more likely to use indirect strategies exclusively, whereas high-self-esteem individuals will use all available strategies to bolster self-esteem.

Results found for different bias strategies speak to arguments made by Crocker and colleagues (Crocker & Luhtanen, 1980; Crocker et al., 1987), who argued that only high-self-esteem individuals use ingroup bias to bolster positive social identities. Low-self-esteem individuals have low self-esteem because they do not regularly engage in ingroup bias strategies. Although it is likely true that low-self-esteem individuals do not engage in as much ingroup bias as do high-self-esteem individuals, it should be noted that this may be due to inconsistencies between certain bias strategies and the individual's depressed self-esteem, that is, there are fewer bias strategies available to individuals with low self-esteem as compared to those with high self-esteem. Low-self-esteem individuals do engage in ingroup bias; however, they engage in fewer strategies. Indirect bias strategies also may not be as effective in bolstering self-esteem as are direct bias strategies. These results add to a growing body of literature from the fields of personality and social comparison that indicate that low- and high-self-esteem individuals differ in use of enhancement strategies (e.g., Baumeister, Tice, & Hutton, 1989; Wood, Giordano-Beech, Taylor, Michela, & Gaus, 1994).

#### Self-Esteem Measurement

**Type of measure.** The second hypothesis predicted that high-self-esteem–low-self-esteem differences would be larger for self-esteem defined by collective measures compared to personal measures. These hypotheses were not supported. Differences in effect size did not exist between results for measures defined as collective versus measures defined as personal. Con-

trary to predictions derived from Crocker and Luhtanen (1992) and Rubin and Hewstone (1998), collective measures did not predict ingroup bias to a greater extent than did personal self-esteem. Furthermore, when examining self-esteem defined by the CSES, findings point toward an opposite effect, indicating that personal self-esteem is a better predictor of ingroup bias than are scores on the CSES.

Group identification measures also proved to be predictive of ingroup bias. This result, however, is based on a small sample. Because group identification measures purport to measure cognitive aspect of collective identity and the CSES measures affective aspects of collective identity, one possible conclusion is that affective aspects of social identity do not relate to ingroup bias. However, conclusions regarding collective identity measures should be tempered. Many of the group identification measures included affective questions about group membership, and the CSES contains items that measure identification to the group. As such, neither the CSES nor group identification measures should be conceptualized as measuring only affective or only cognitive aspects of group identity.

**Dichotomization.** Analyses of self-esteem scale data indicated a tendency to dichotomize self-esteem scale scores into high- and low-self-esteem categories based on median scores. Sixty-four of 113 (57%) comparisons examined used artificial dichotomization into high- and low-self-esteem groups. Much of this dichotomization resulted in questionable classification of individuals as having low self-esteem. These findings are similar to those of Tice (1993), who, in a review of self-esteem studies, concluded that individuals classified as low-self-esteem would more accurately be described as having medium self-esteem.

The effects of artificial dichotomization of self-esteem measures most likely would result in a reduction of raw effect sizes and a subsequent increase in the probability of Type II errors. This methodological shortcoming likely results from overdependence on ANOVA (or *t* test) procedures.

This meta-analysis included adjustments for the effects of dichotomization. This strategy does provide adjustment for reduction in effect sizes. However, it would be preferable if primary research used correlation and regression data analysis strategies that did not require dichotomization.

### Implications for Social Identity Theory

This section focuses on implications of the study to social identity theory. Social identity theory (Corollary 2) posits that low self-esteem leads to increased ingroup bias (Hogg & Abrams, 1990). This perspective argues that individuals with low self-esteem need to favor

ingroups, derogate outgroups, or both, to raise deficient self-esteem, whereas high-self-esteem individuals do not need to bolster self-esteem and thus do not engage in such behaviors.

Influential research by Crocker and Luhtanen (1990) challenged this perspective, arguing that high-self-esteem individuals are more likely to exhibit ingroup bias. Another perspective suggests that low- and high-self-esteem individuals exhibit ingroup bias only in manners consistent with self-concepts (J. D. Brown et al., 1988). Results of this meta-analysis support a consistency argument. Both low- and high-self-esteem individuals exhibit ingroup bias. However, low-self-esteem individuals are limited by self-consistency needs (J. D. Brown, 1993). When ingroup bias strategies conflict with self-concept, low-self-esteem individuals exhibit less bias. When ingroup bias strategies do not conflict with self-concept, low-self-esteem individuals show the same amount of ingroup bias as do individuals with high self-esteem. This finding suggests that individuals with low self-esteem are motivated to favor ingroups but are limited in terms of the strategies consistent with self-concepts.

This finding relates particularly to the type of bias exhibited by individuals low in self-esteem. When bias strategies require individuals to rate themselves or their groups as superior, those with low self-esteem do not show bias. They do not expect themselves to be superior and will not make such claims. One implication of this result is that "traditional" ingroup bias measures fall short when considering the case of the individual with low self-esteem. Social identity theory predictions may benefit from integration of a self-consistency motivation. Furthermore, research examining social identity theory predictions may benefit from the inclusion of measures of multiple forms of ingroup bias (e.g., Blanz, Mummendey, & Otten, 1995a, 1995b).

Another issue is the relation between domains of self-esteem and ingroup bias. A core concept proposed by social identity theorists is the dichotomy between personal and collective identities. Personal and collective self-esteem scales reflect efforts to measure aspects of these identities. Efforts to bolster the collective identity are termed ingroup bias. Given this dichotomy, it is very surprising to find a relation between high personal self-esteem and ingroup bias rather than between high collective self-esteem and ingroup bias. Whereas this study demonstrated that higher (or lower) collective self-esteem was not associated with more ingroup bias, this finding does not necessarily indicate that collective self-esteem is not related to ingroup bias. It may be the case that individuals high and low in collective self-esteem both express ingroup bias, although each group may possess different motivations for expressing bias.

Self-esteem results suggest that predictions found in social identity theory's self-esteem hypothesis may be

most applicable to individuals high in personal self-esteem. This finding contradicts Crocker and Luhtanen's (1990) claim that individuals high in collective self-esteem are more likely to exhibit ingroup bias. Self-esteem effects indicate that individual-level factors do affect group-level processes such as ingroup bias. This result suggests that responses to groups are at least partially moderated by individual concerns. This represents a departure from theorization in the social identity tradition. As such, predictions of social identity theories may benefit from acceptance of individual-level explanations. It is ironic in that this relation "may come to be explained by recourse to the very same individualistic explanations (basic cognitive processes, personality, etc.) which social identity theorists eschew" (Abrams, 1993, p. 68).

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