Self-power associations: The possession of power impacts women’s self-concepts

ELIZABETH L. HAINES1* AND LAURA J. KRAY2
1William Paterson University, USA
2Haas School of Business, University of California, USA

Abstract

Women’s self-identification with social power was assessed in three studies using the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998). In Experiment 1, women held weaker implicit and explicit associations between self and power than did men. Experiment 2 demonstrated that women assigned to a high power group have stronger implicit self-power associations than do women in a low power group. Experiment 3 showed that women assigned to a high power role have stronger implicit self-masculine associations than do women assigned to a low power role, but social power did not affect explicit associations with masculinity. These studies suggest that gender differences in implicit self-concept may be malleable depending on context and social roles. Copyright © 2005 John Wiley & Sons, Ltd.

A casual look at the gender breakdown in politics, law, and business suggests that men and women differ in the degree to which they hold powerful positions. Although the distribution of power between men and women in the United States has shifted dramatically over the last half century, men continue to hold a distinct power advantage over women. The central question that we address in this paper is how power derived from social roles and positions affects the degree to which people identify with power as a personal trait. In this research, we define social power as the perceived asymmetrical control over outcomes (Fiske, 1992). Although many definitions of power exist (e.g. French & Raven, 1959; Ng, 1980), this definition allows for an assessment of how perceptions of power, not only actual power advantages, affect self-concept.

In this paper we explore the relationship between gender and identification with power. Feminist psychologists often argue that differential access to social power is the source of observed gender differences in behaviour and achievement (e.g. Carli, 1997; Deaux & LaFrance, 1998; Eagly, 1987; Geis, 1993; Henley, 1977; Lips, 1981; Unger, 1978; Watson, 1994; Yoder & Kahn, 1992). Because men are likely to be preferred for power and leadership positions (and expect this) more often than

*Correspondence to: Dr E. L. Haines, Psychology Department, William Paterson University, 300 Pompton Road, Wayne, NJ 07470, USA. E-mail: hainese@wpunj.edu
Contract/grant sponsor: Psychology of Women Florence (Lindy) Geis memorial award.

Received 7 July 2004
Accepted 19 October 2004

Copyright © 2005 John Wiley & Sons, Ltd.
women (Geis, 1993; Heilman, 1983), men and women may also differ in the degree to which they self-identify with powerful versus powerless traits. As boys and men gain experience in leadership and power, they may internalize traits that correspond to their roles via self-perception processes (Bem, 1972). That is, they may come to hold private self-concepts that are in agreement with their recent behaviour (e.g. Festinger & Carlsmith, 1959). As a result, men’s self-power associations may be more primary or chronically accessible (Higgins & King, 1981; Markus & Kunda, 1986) than are women’s.

Whereas chronic associations are relatively fixed, it is possible that even temporary changes can affect self-power associations. Consistent with this idea is the observation that self-concepts can change in response to situations (Markus & Kunda, 1986; Markus & Wurf, 1987) and life circumstances (Showers, Abramson, & Hogan, 1998). If the self-concept is flexible, then an experience with social power should strengthen the association between the self and social power. Although we expect implicit self-concepts to be equally malleable across gender, the focus of the current research is on how the self-concepts of women, who typically hold less power than men, are affected by social power.

Recent research has demonstrated that a power mind-set can be invoked by asking individuals to recall a time in which they had control over another person (Galinsky, Gruenfeld, & Magee, 2003). Galinsky and colleagues persuasively demonstrated that a power mind-set promotes behavioural action in subsequent contexts. These findings suggest that believing that one is powerful is the first step in behaving in a powerful manner. However, little is known about how temporary access to power affects the self-concept.

**ASSESSING SELF-POWER ASSOCIATIONS**

In the current research we examined gender differences in self-power associations using both implicit and explicit measures. Self-report, or explicit, measures suggest that women do not identify with social power. For example, women are less likely than men to pursue jobs that enhance power inequalities, as in the case of lawyers or executives (Pratto, Stallworth, Sidanius, & Sierz, 1997). Men also prefer careers that require leadership more often than women (Konrad, Ritchie, Lieb, & Corrigal, 2000); women report that they feel less competent and less interested in leadership roles than men do (Biernat, Crandal, Young, Kobrynowicz, & Halpin, 1998; Eagly & Johnson, 1990; Wood, Christensen, Hebl, & Rothberger, 1997). These self-reported gender differences, however, may misrepresent women’s self-identification with social power. Women may be less likely than men to report an interest in powerful roles and activities because social power is more socially desirable for men than for women. Indeed, powerful women are viewed as less socially skilled and less feminine (Carli, 1990; Porter & Geis, 1981; Rudman, 1998; Rudman & Glick, 1999).

**Implicit self-concept.** To gain a more complete picture of how social power affects women’s self-concept, it is necessary to indirectly assess women’s self-concept. One characteristic that distinguishes the implicit self-concept from the explicit self-concept is that the latter may be more susceptible to distortion such as demand characteristics (Orne, 1962), evaluation apprehension (Rosenberg, 1969) and/or impression management (Tedeschi, Schlenker, & Bonoma, 1971). Inconsistent correlations between implicit and explicit measures across several studies (Greenwald et al., 2002; Greenwald, McGhee, & Schwartz, 1998; Karpinski & Hilton, 2001; B. A. Nosek, unpublished manuscript) support this argument. Another distinguishing characteristic of implicit versus explicit self-concept measures is revealed in how each measures subtle change. With explicit self-report measures, subtle variations in the self-concept are not always detectable (Markus & Kunda, 1986). Indeed, a participant’s lack of introspective access into their own mental processes (Greenwald & Banaji, 1995; Nisbett & Wilson,
1977) indicates that explicit measures may not accurately assess how people think about themselves. Given the two types of measures, we believe it is important to measure both types of self-concept when there has been a change in social roles.

**Implicit Association Test.** Because a defining characteristic of the implicit self-concept is its lack of introspective accessibility, indirect measures are needed to measure it (Greenwald & Banaji, 1995). Although indirect measures have been used for decades (e.g. Bargh, Chaiken, Govender, & Pratto, 1992; Fazio, Sanbonmatsu, Powell, & Kardes, 1986; Gaertner & McLaughlin, 1983; Kawakami, Dion, & Dovidio, 1998), the Implicit Association Test (IAT) has generated considerable attention since its introduction because it has been shown to have practical, theoretical, and methodological advantages over other indirect measures (see Greenwald & Nosek, 2001 for a review). As described extensively in Greenwald et al. (1998), the IAT measures reaction times as a proxy for strength of association. The quicker a person is to pair two concepts together, the stronger the implicit association between them. With the IAT, the self-concept can be measured by assessing a participant’s association strength between the self and a given concept. For example, associations between self and one’s gender (e.g. me + female) are stronger with the IAT than self-report measures (Greenwald & Farnham, 2000). Furthermore, implicit and explicit self-concepts may also be related to different types of behaviour. Recently, Asendorpf, Banse, and Mucke (2002) showed that an IAT measuring shyness predicted spontaneous shyness behaviours (e.g. tense body posture) but not controlled behaviours (e.g. speech duration); self-reports of shyness predicted controlled shyness behaviours but not spontaneous behaviours. In the context of the current research, Asendorpf et al.’s research suggests implicit measures assess parts of the self-concept that are not measured by self-report.

Below we present three experiments that explore the relationship between the possession of social power and the manner in which men and women connect power to the self. Specifically, we sought to test the hypothesis that access to power through social roles enhances the accessibility between power and the self. Because people may not be able to accurately report on a self-concept that has changed—especially in a context that may be viewed as socially undesirable for women—both implicit and explicit measures were used to assess self-concept.

Rather than assuming gender differences exist in implicit and explicit self-concepts, Experiment 1 sought to confirm these expected differences. We predicted that men would implicitly and explicitly self-identify with assertive traits more than women. Experiment 2 investigated whether assigning women to powerful roles would strengthen associations between the self and dominance. We predicted that women randomly granted membership in powerful groups would subsequently hold stronger implicit associations between the self and dominance than women granted membership in powerless groups. Experiment 3 was a conceptual replication and extension of Experiment 2 that included both implicit and explicit measures of self-power associations. We hypothesized that women granted high social power in a dyadic negotiation would subsequently identify more with masculine traits than women granted low social power.

**EXPERIMENT 1**

The current experiment sought to determine whether gender differences exist in implicit self-concepts. Rudman, Greenwald, and McGhee (2001) observed no gender differences in implicit self-concept with respect to the attributes of strength and warmth (Rudman et al., 2001 Study 4); however, they did not examine whether gender differences emerge along the dimension of power alone while controlling for the valence of the power-related words. To that end, in the current experiment we examined self-power associations (dominant vs. subordinate) and carefully matched the valence of words across categories. That is, we matched positive dominant words with positive subordinate words and negative dominant
words with negative subordinate words. In keeping valence constant within participants we could (a) assess if association strengths were dependent on trait valence and (b) assure that we were measuring implicit self-concept rather than implicit self-esteem as there is a strong tendency for people to associate self with positive items in the IAT (Greenwald & Farnham, 2000).

**Method**

**Participants and Procedure**

One hundred and ninety six (57% female, 58.2% European American, $M_{\text{age}} = 21.5$) undergraduates from a mid-sized northeastern university participated for optional course extra credit. Data from 19 participants (10.2%) were excluded from data analysis due to a pattern of error rates (i.e. more than 25% error rate in combined tasks) indicating inattention to the task. Each participant completed the IAT using FIAT for Windows 2.3 (Farnham, 1997) to measure the strength of association between self and dominant and self and subordinate characteristics.¹ The IAT designed for the current research measured implicit self-concept by measuring the speed with which participants associated self-related words with dominant versus subordinate attributes. Participants holding implicit self-power concepts should categorize items faster when me and dominant are linked together in their response than when me and subordinate are linked together in response.

The standard IAT procedure (Greenwald et al., 1998) was used in that participants completed five basic steps of associations: (1) practice attribute (dominant-subordinate), (2) practice target (me-not me), (3) mixed attribute-target (dominant+me/subordinate+not me), (4) reverse practice attribute (subordinate-dominant) (5) and mixed attribute-target reversed (dominant+not me/subordinate+me). Practice rounds preceded the third and fifth steps. Participants also completed the Personal Attributes Questionnaire (PAQ) (Spence & Helmreich, 1978), a self-report measure of their instrumental (e.g. confident) and expressive (e.g. gentle) characteristics to assess explicit identification with social power. See Appendix A for a list of attributes included on PAQ.

**Stimuli.** The IAT used a total of 34 stimuli: ten dominant words, ten subordinate words, seven me items and seven not-me items (see Appendix A). The me and not-me items were derived from Greenwald and Farnham (2000) (e.g. first name, last name, occupation, ethnicity, me, mine, I). The power-related words were selected from an original pool of 39 power-related words. Forty undergraduate pretest participants (50% female) rated the valence and power content. A paired samples $t$-test confirmed that the dominant words were rated as more dominant ($M = 7.1$) than the subordinate words ($M = 3.6$), $t(30) = 8.3, p = 0.0001$, and that the dominant ($M = 5.2$) and subordinate words ($M = 5.0$) were matched on valence $t(39) = 0.63, p = 0.53$.

**Design and Analysis.** The design for the analysis was a 2 (Gender: men, women) $\times$ 2 (Task Order: me + dominant first, me + subordinate first) $\times$ 2 (Word Valence: positive, negative words) factorial on implicit self-concept. Implicit self-concept was calculated as the difference between the me + dominant categorization task and the me + subordinate categorization task. Order and word valence were between subjects factors that were entered in a full factorial design, but were not expected to affect the dependent variable. Log transformations were used for analyses, but raw latencies are represented to aid in the interpretation of figures and results. Error trials were included in the data as per standard scoring for IATs (e.g. Greenwald et al., 1998).

¹A second IAT to measure gender → power stereotype IAT (woman + dominant – man + dominant) was counterbalanced with the self-power IAT. The gender-power IAT showed no main effect or interaction with the other factors.
Results and Discussion

Effects of Gender on Implicit Self-Concept

As seen in the last two bars in Figure 1, there was a significant gender difference in implicit self-power associations. Men ($M = +106, SD = 228$) had stronger IAT effects for associating self with power than did women ($M = +1.0, SD = 242$) ($F [1,185] = 11.34, p = 0.001, d = 0.45$).² Men implicitly associated power with the self more than did women.

Effects of Gender on Explicit Self-Concept

Gender differences in implicit self-concept were mirrored by gender differences in explicit self-concept on the PAQ. Men ($M = 20.94, SD = 4.10$) had stronger self-identification with instrumental traits than women ($M = 19.61, SD = 3.34$), $t(169) = 2.34, p = 0.02, d = 0.36$. By comparison, women had stronger self-identification with expressive traits ($M = 24.55, SD = 3.85$) than men ($M = 23.13, SD = 4.50$), $t(169) = 2.21, p = 0.03, d = 0.34$.

Relationship between Implicit and Explicit Measures. We also correlated the PAQ with the IAT; self-power associations positively correlated with the instrumental traits ($r = 0.28, p = 0.0001$) but did not significantly correlate with expressive traits ($r = -0.09, p = 0.22$). When the PAQ was computed as a difference score (instrumental - expressive traits) as was implicit self-concept, both men and women identified more strongly with expressive than instrumental traits (as indicated by negative means);

²We also conducted a mixed factorial analysis of variance (ANOVA) with the IAT computed as a repeated measures. The pattern and strength of the results remained the same. A paired samples $t$-test indicated that men were faster with the me + dominant (not-me + subordinate) categorization task than the me + subordinate (not-me + dominant) categorization task, $t(68) = 4.78, p = 0.0001$. No differences in categorization tasks were observed for women, $t(101) = 0.57, p = 0.567$. 

however, men had a stronger identification with instrumental traits than expressive traits ($M = -2.19, SD = 4.65$) than women ($M = -4.94, SD = 5.19$), $t(169) = 3.546, p = 0.0001, d = 0.56$. The correlation between the implicit self-concept and PAQ as a difference score was $r = 0.28, p = 0.0001$.

Effects of Procedural Variable and Word Valence. Order of IAT tasks ($F[1,185] = 1.58, p = 0.21$) and word valence ($F[1,185] = 2.382, p = 0.12$) had no impact on the IAT effects, nor did they interact ($ps > 0.19$) with gender on the IAT effects.

The results of this experiment suggest that the degree to which a self-dominant association was stronger than a self-subordinate association was greater for men than it was for women. Neither task order, word valence, nor the interaction among these variables and gender affected these results. In addition, the implicit self-concept differences were more distinct for men. Women equally associated dominant and subordinate concepts with the self, whereas men easily associated dominant concepts with the self but were slower in associating subordinate concepts with the self.

The observation that men were quicker to pair dominant words than subordinate words with the self might possibly have resulted because dominance is a stereotypical ingroup characteristic (Rudman et al., 2001). However, this tendency held even in the negatively valenced word condition for men ($F[1,103] = 6.91, p = 0.01$), suggesting that its source was not just an association with positive characteristics of their ingroup. We do note though that men’s IAT effect was substantially reduced in conditions with negative words ($d = 0.26$) as compared to positive words ($d = 0.51$). It is also important to note that the change in effect size for women from negative words to positive words was from $d = 0.18$ to $d = -0.13$. From these data we infer that, although men were quicker to pair positive dominant words than negative dominant words with the self, they associated the self with the broad category of dominance, both good and bad.

It is also important to note that there were gender differences in explicit self-concepts. As with previous research using the PAQ (e.g. Spence & Helmreich, 1978), men reported stronger identification with instrumental traits than women and women scored higher on the expressive traits than men. In addition, gender differences in men and women’s self-power associations were comparable by the types of measure used. These results suggest that men identified with powerful traits more than women as revealed by both explicit and implicit measures. However, both women and men self-identified with expressive traits more than instrumental traits (as indicated by negative means on the PAQ when calculated as a difference score) on the explicit measure. It is possible that the difference in self-identification on these two types of measures reveals (a) self-presentational biases, (b) subtle differences in the types of exemplars used in each type of measure and/or (c) assessment of different aspects of the self-concept. Confident that gender does impact self-power associations, we now turn to the question of whether temporary access to social power affects women’s implicit self-concepts.

EXPERIMENT 2

Contextual influences on self-power associations were investigated in the current experiment. Previous research has shown that implicit attitudes and stereotypes are flexible in response to exemplar exposure (Dasgupta & Greenwald, 2001), mental imagery (Blair, Ma, & Lenton, 2001) and priming (Karpinski & Hilton, 2001). More germane to the present research, however, is how a social role affects the implicit self-concept. Recently, Asendorpf et al. (2002) instructed participants to fake extroversion in a simulated job interview and while taking surveys and implicit tests to assess their extroversion. Their results showed that explicit self-shy ratings were affected more by faking instructions than the implicit self-shy association ($d = 1.38$ vs. $d = 0.39$ respectively). This result
suggests that individuals are able to consciously distort explicit measures of self-concept, but may have more difficulty consciously distorting implicit measures of self-concept. The current experiment set up a more subtle approach to contextual variations in self-concept. Specifically, we investigated if temporary access to social power in all-female groups would strengthen women’s self-power associations without specifically mentioning the constructs of social power or control. We hypothesized that women assigned to powerful groups would hold stronger associations between self and social power than women assigned to powerless groups.

To manipulate social power in a laboratory context, two groups of female participants (three to five participants per group, or a total of six to ten participants in each session) engaged in a trading and bargaining game. All women groups were used because women are less likely to assert their own power in mixed-sex groups (Carli, 1990). The goal of the game was to accumulate points by bargaining with other players over chips. The bargaining game involved two trading sessions. In the first session, participants practised trading techniques. This session also provided the opportunity to assign one group power based upon their alleged ‘better trading style’ in the practice round. The second ‘recorded’ round allowed the powerful group to exercise their power over the other group by enforcing rules that favoured themselves. After the game, all participants completed the self-concept IAT as in the first study. As in Experiment 1, we were careful to match valence of dominant and subordinate traits in the IAT.

Method

Participants and Procedure

One hundred and twenty eight female undergraduate students from a mid-sized Northeastern University participated for optional extra credit. Data from 20 participants were excluded because of a pattern of error rates indicating inattention to the task. The remaining sample included 108 female participants. The majority of the sample was European American (70.4%) with a mean age of 23.8 years.

Participants played a trading and bargaining game based loosely on the game *Star Power* (Shirrts, 1969/1993). Upon arriving at the experimental laboratory, participants were randomly assigned to one of two groups (Squares or Triangles). Participants were told that they would be playing a trading and bargaining game, in which the highest scorers would win $5 each. Participants selected six chips and were then told that coloured chips represented different point values; the goal of the game was to accumulate the most points using just five of the chips. To facilitate the trading of chips of unequal value, bonus points were given to players having four or more of the lower value chips. Participants had to trade according to several rules (e.g. players must clasp hands to make a trade). After a trading demonstration by two experimenters, participants engaged in a practice round for 5 min.

Power Manipulation and Additional Rules. After the first round of trading, an experimenter declared the Squares the winners because they had used a ‘superior trading technique’ than the Triangles despite no performance differences, t(104) = 0.85, p = 0.39. The Squares were instructed to choose at least four rules (e.g. ‘Your team members may speak whenever they like’) and enforce them during play. Rule lists were used because pilot testing indicated that players had difficulty devising rules in the time period allotted. All players then traded in their chips from the first round for a second set of six. (This procedure sought to minimize individual differences in trading skill from the first session to affect results of the second session.) After the Squares decided upon the rules and penalty for rule violation, players were then instructed to trade for an additional 7 min at which time chips were counted and the three highest scoring players were declared the winners.
The IAT and Behavioural Manipulation Checks for Power. After the game, participants then completed the implicit self-concept IAT as in Experiment 1. After the IAT was complete, participants completed a manipulation check for group power, group cohesiveness, and legitimacy (i.e. ‘How powerful did you feel during the game’; ‘How much did your group feel like one group?’; ‘How much did your group feel like separate individuals?’; and ‘How much did the Squares have the right to have control?’ with responses from 0 (‘not at all’) to 9 (‘very much’).

Design and Analysis. Each participant was randomly assigned to either the power or the no power group. The design for the analysis was a 2 (Group Power: power, no power) by 2 (Task Order: me+dominant task first, me+subordinate task first) by 2 (Word Valence: positive power words, negative power words) between subjects factorial. Order and word valence were between subjects factors that were entered in a full factorial design but were not expected to affect the dependent variable. Although participants engaged in a group task, the individual was the unit of analysis for the IAT.3

Results and Discussion

Effects of Social Power on Implicit Self-Concept

We hypothesized that participants granted membership in a powerful group would hold a stronger implicit self-concept for dominance (relative to subordination) than women not granted membership in a powerful group. The IAT calculations were identical to Experiment 1. As seen in Figure 2, power group members associated dominant with the self and subordinate with others ($M = 108, SD = 245$) more quickly than no power group members ($M = 4, SD = 208$), ($F[1,100] = 4.313, p = 0.040, d = 0.46$).4 Thus, as predicted, social power strengthened the association between self and power and weakened the association between self and powerlessness.

Ancillary Analyses

Effects of Procedural Variable and Word Valence. Order of tasks ($F[1,100] = 1.092, p = 0.299$) and word valence ($F[1,100] = 0.007, p = 0.933$) had no impact on IAT effects nor did these variables interact with group power ($p_s > 0.68$) on the IAT effects. We also assessed whether powerful women were faster overall than powerless women in the categorization task. The difference in speed across the two groups was not statistically significant, $t(106) = 1.89, p = 0.089$. Additional variables were assessed as possible confounds on women’s implicit self-concept. Neither age, group size, nor error rates affected implicit self-power associations.

3We used the individual as the unit of analysis for two reasons. First, after rejecting participants for high error rates, some groups only contained one participant. Second, the order of tasks and word valence were counterbalanced between subjects but not between groups, making it impossible to assess valence or order effects for task compatibility (me+dominant first or me+subordinate first). Despite these confounds, a group level analysis was conducted using the mean of each power and no power group ($N = 18$). The results were comparable to the results using the individual as the unit of analysis, paired $t(17) = 1.89, p = 0.089$. In addition, we also assessed the group data for non-independence as suggested by Kashy and Kenny (2000). Results from these analyses indicate that the group member scores were not related to one another in the group as the intraclass correlation was 3.3E-19.

4A paired samples $t$-test indicated that women in powerful groups were faster with the me+dominant (not-me+subordinate) categorization task than the me+subordinate (not-me+dominant) categorization task, $t(58) = 3.795, p = 0.0001$. No differences in categorization tasks were observed for women in powerless groups, $t(48) = 0.553, p = 0.583$. 

Manipulation Checks. Manipulation checks for all three behavioural measures of power yielded differences in points earned across levels of group power. Members of the power group earned more points after gaining power than before gaining power ($t[55] = 2.56, p = 0.013, d = 0.49$), and they earned more points than the no power group ($t[104] = 6.29, p = 0.0001, d = 1.24$); by contrast the no power group earned fewer points after the power group was granted power ($t[52] = 2.94, p = 0.005, d = 0.58$).

We also examined participants’ self-assessments of power legitimacy. Members of the power group reported significantly higher self-ratings of power during the game ($M = 6.61, SD = 2.31$) than the no power group ($M = 2.00, SD = 2.02$), $t(106) = 10.92, p = 0.0001, d = 2.12$. Two additional self-reports of the power differential showed that those in power (a) perceived the power differential was more legitimate, $t(106) = 3.427, p = 0.001, d = 0.67$, ($M = 5.20, SD = 3.29$ vs. $M = 3.14, SD = 2.88$), and (b) felt more like one group, $t(106) = 3.088, p = 0.003, d = 0.60$, than those in the low power group ($M = 6.10, SD = 2.58$, vs. $M = 4.50, SD = 2.81$).

Legitimacy and feelings of groupness were not significantly correlated with self-power associations (see Table 1). However, powerful feelings and points earned were positively correlated with self-power associations. These results suggest that making people act and feel powerful enhanced their self-power associations.

Table 1. Experiment 2: Correlations among performance scores and feelings about group power

<table>
<thead>
<tr>
<th></th>
<th>Self-power IAT</th>
<th>Legitimacy of power differential</th>
<th>Powerful feelings during game</th>
<th>Group cohesiveness</th>
<th>Separate individuals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Legitimacy of power differential</td>
<td>0.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Powerful feelings during game</td>
<td>0.30**</td>
<td>0.43**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Group cohesiveness</td>
<td>0.04</td>
<td>0.20*</td>
<td>0.39**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Separate individuals</td>
<td>0.09</td>
<td>-0.05</td>
<td>-0.16*</td>
<td>-0.60**</td>
<td></td>
</tr>
<tr>
<td>6. Points earned</td>
<td>0.22*</td>
<td>-0.02</td>
<td>0.48**</td>
<td>0.22*</td>
<td>-0.13</td>
</tr>
</tbody>
</table>

Note: $N = 106–108$ for all correlations. **$p < 0.001$; *$p < 0.05$; +$p < 0.10$. 

associations more so than the feelings of legitimacy and groupness per se. These results that cooler cognition such as perceptions of legitimacy did not covary with the IAT but warmer feelings power did relate to the IAT support recent findings (e.g. Phelps et al., 2000; Rudman, 2004; Rudman, Ashmore, & Gary, 2001) indicating that affect is often more strongly associated with IAT than cognitions. Even though powerful feelings and points earned were intended as manipulation checks for social power, we turn now to assess if these variables alone affected implicit self-concept.

The significant positive correlation between points earned and self-power associations begs the question of whether the acquisition of points (exercise of power), and not the role itself (possession of power), created the stronger self-power associations observed in the high power group. To address this possibility, we conducted several additional analyses to assess how points earned directly, indirectly, and in concert with role affected implicit self-concept. To determine whether relative performance influenced self-power associations, we compared the size of the IAT effect of the three highest scorers in each game (i.e. ‘the winners’) to the lower scoring participants. A 2 (Scorers: winners, non-winners) by 2 (Group Power: power group, no power group) between subjects factorial analysis on self-concept showed that the difference in self-power associations between ‘winners’ ($n = 37, M = +83, SD = 223$) and ‘non-winners’ ($n = 69, M = +56, SD = 238$) was not statistically significant, $F(1,102) = 0.25, p = 0.62$. Likewise, the interaction between group power and performance was not statistically significant ($F[1,102] = 0.17, p = 0.69$). Finally, we examined whether performance mediated the relationship between group power and self-power associations through a series of regression equations. We regressed points and group power onto self-concept and revealed that points were not a mediator using Baron and Kenny’s (1986) approach (i.e. neither group power nor points were significant predictors when they were entered simultaneously [$p > 0.17$], but were when used as independent predictors [$p < 0.05$]). Because multicollinearity was detected between group power and points earned, Shrout and Bolger’s (2002) approach was used to test the indirect paths between a predictor and an outcome and showed that the indirect effect of points was not a significant contributor to self-concept (i.e. because the confidence interval for the indirect effect passed through zero). These results suggest that observable performance differences did not wholly account for the powerful group member’s stronger implicit self-power associations than those of low power group members.

As predicted, the results of the current experiment indicate that women’s implicit self-concept differed according to their power role, suggesting that a position of power may enhance the accessibility of the concept of power and the connection of this concept to the self. The results also indicate that exposure to powerful roles strengthens women’s implicit self-power associations. Because powerful group members acted in groups, it remains unclear whether it was membership in a powerful group itself or the social dynamics of group action that contributed to self-power associations. The ability to exercise power and to feel powerful might have been facilitated by the deindividuation associated with group power (Zimbardo, 1970). Another issue in interpreting the current set of results is that, to manipulate power, we informed participants in the high power group that they had succeeded, which resulted in greater power. Thus, it is unclear whether it was the success feedback or the concomitant power that was awarded to these group members that affected implicit self-concepts. With these issues in mind, we chose a power manipulation for Experiment 3 that reduced these potential confounds.

**EXPERIMENT 3**

We had four goals for the current experiment. First, we sought to broaden the context in which we examined the relationship between social power and self-concept by focusing on the effect of
individual social power on self-concepts, rather than the power derived from group membership in Experiment 2. In so doing, we were able to determine whether the effect of temporary access to power on self-power associations occurs at the individual level. Second, we sought to examine power differences that were based on perceptions of social power, rather than concrete differences in the ability to control resources due to previous success, as in Experiment 2. By manipulating perceptions of power, rather than an actual ability to control resources, we sought a strong test of our hypothesis. Our third goal was to compare the role of social power on implicit and explicit self-concepts by including measures of both components of the self-concept. We suspected that women may be less likely to explicitly identify with power due to self-presentational concerns. As a result, we predicted that explicit measures of self-power associations would be less affected by temporary power differences due to power role than implicit measures of self-power associations. By including both types of measures, we aimed to shed light on the degree to which self-concepts are malleable on both implicit and explicit levels.

Finally, our fourth goal for the present research was to broaden our understanding of the relationship between power and gender by modifying the category labels of the IAT task. According to Miller (1976/1986), masculinity is more closely associated with power than femininity. With this in mind, we used masculine and feminine category labels instead of dominant and subordinate. In so doing, we aimed to generalize our results beyond self-power associations to include an examination of the impact of temporary access to social power on gender identification. If women in power are more likely to associate the self with masculine characteristics, then it suggests an intimate link between power and masculinity. Furthermore, if power enhances associations between self and masculinity on implicit measures but not on explicit measures of self-concept then it suggests that women may conceal explicit statements of masculine self-concepts for fear of repercussions from deviating from traditional gender roles (Rudman & Fairchild, 2004).

Method

We created power differentials by assigning participants to one of two roles in a negotiation simulation between a recruiter (high power) and a new job candidate (low power) over the terms of an employment contract (e.g. salary, benefits). Upon completion of the negotiation task, participants completed an IAT to measure the strength of associations between self and masculine versus self and feminine concepts.

Participants and Procedure

Participants were 60 undergraduate students enrolled in a psychology course at the large northwestern university. Participants were paired with another student for the negotiation task but completed the IAT individually. Twenty-eight women had women as partners; 32 women had men as partners. Data from four participants (6%) were excluded from analyses using the same procedure as in the previous two studies. The final analyses involved 60 women participants: 50% were European-American, 43% were Asian-American. The mean age of participants was 21.8 years. Men were not included in the study.

5The data from this study are derived from a larger programme of research examining the activation of gender stereotypes in negotiation (Kray, Thompson, & Galinsky, 2001). The study reported here was originally designed to observe the effects of stereotype threat on a woman’s ability to negotiate in work settings. These manipulations, however, did not affect the implicit associations in the IAT task that followed the negotiation nor interacted with the role participants were assigned. Although this third experiment was originally part of an unrelated investigation, its relevant results provide additional support for the effect of social power on women’s implicit self-concept.
central analyses for two reasons: (a) our goal was to parallel the participant make-up in Experiment 2; and (b) males were always assigned the role of recruiter, rendering role and gender completely confounded for these participants. However, we did conduct analyses with the male data for comparison purposes, which are reported below.

Experimental Manipulation. The task involved an employment negotiation (Neale, 1997) with eight issues of concern for a job candidate and a recruiter (i.e. salary, benefits, vacation time, region of placement). Negotiators’ preferences were induced by assigning points to issues and informing negotiators that their goal was to earn as many points as possible. Participants were given a confidential payoff matrix that listed each of the eight issues and the potential points to be earned for each alternative within each issue. To provide a performance incentive, participants were informed that several $50 cash prizes would be awarded for participants in each role who achieved the highest number of points. Negotiators were given 30 min to reach a mutually beneficial agreement or declare an impasse.

We chose the negotiation task that we did because a pretest indicated that people perceive power differences across the two roles (job recruiter and job candidate). Although the perceived power varied, the actual power of the two negotiator roles was equivalent because both parties (a) could demand concessions from the other party, (b) could earn the same point values, and (c) negotiated the same issues.

Following the negotiation, participants completed a post-task questionnaire pertaining to their perceived performance. Although this questionnaire was originally intended for use in a separate investigation (Kray, Thompson, & Galinsky, 2001), of interest to the current investigation was one question about power. On an 11-point scale, participants responded to the question, ‘To what extent did you feel that the two roles were equally balanced in terms of power?’ with endpoints of 0 (‘other person had an advantage’) and 100 (‘I had advantage’) and a midpoint of 50 (‘equal power’).

IAT. Before completing the IAT, each participant provided me and not-me items as in the previous two experiments. Following the negotiation task, individuals were escorted into a separate room to complete the IAT task using FIAT for Windows 2.3 (Farnham, 1997). Implicit self-power associations were measured by participants’ association with dominant and subordinate in the context of masculine and feminine categories. The stimuli were derived from a pilot study reported in Kray et al. (2001) and appear in Appendix A.

Explicit Measure of Self-concept. As in Experiment 1, participants completed the PAQ (Spence & Helmreich, 1978). Again, this measure was used as an indication of self-reported identification with power.

Design and Analysis. Although participants engaged in a dyadic negotiation task, the individual was the unit of analysis for assessing IAT performance. The experimental design was a 2 (Power Role: recruiter, candidate) by 2 (Task Order: me + masculine association task first, me + feminine association task first) between subjects factorial. As in Experiments 1 and 2, the order of the IAT tasks was a variable entered in the factorial design but it was not expected to affect or interact with the dependent variable. Data reduction was performed using the same method as in the previous experiments. Implicit self-concept was calculated by subtracting the latencies for the feminine + me and masculine + not-me categorization task from the masculine + me and feminine + not-me categorization task.

The intra-class correlation coefficient was 1.92E-19, indicating that it was appropriate to use the individual as the unit of analysis.
Results and Discussion

Effects of Social Power on Implicit Self-Concept

We hypothesized that power role would impact gender identification, such that negotiators in the high power role (recruiter) would perceive themselves as more masculine than negotiators in the low power role (candidate). To test this hypothesis, we conducted an analysis of variance (ANOVA), including role and task order as between-subject factors. Consistent with our hypothesis, recruiters ($M = +72$, $SD = 154$) had a more masculine relative to feminine implicit self-concept than did candidates ($M = -68$, $SD = 217$), $F(1, 56) = 4.33, p = 0.042, d = 0.74$ (see Figure 3). Although gender and role were confounded for male subjects because men were always in the high power role, it is relevant to note their self-masculine IAT effect was $M = +129$ ($SD = 184$) and that the women in the recruiter role did not differ from men in the recruiter role, $t(44) = 0.945, p = 0.35, ns$.

Explicit Measure of Self-Concept

We did not expect the explicit self-concept to differ according to power role. Accordingly, the difference in the degree to which recruiters ($M = 30.20$, $SD = 3.86$) and candidates ($M = 28.48$, $SD = 4.32$) identified themselves as masculine was not significant, $t(10) = 0.87, p = 0.41$. Hence, social power is unlikely to affect explicit self-concept.

A first analysis compared three groups of women on their implicit self-concept: (a) high power women (who had low power women partners), (b) low power women (who had high power women partners), and (c) low power women (who had high power men partners). Results from a univariate analysis show that the groups did not significantly differ from one another on their implicit self-concept ($F[2, 54] = 2.06, p = 0.14$), even though high power women had stronger self-masculine associations ($M = +72$, $SD = 154$) than low power women with high power partners ($M = -65$, $SD = 208$) and low power women with men partners ($M = -69$, $SD = 224$). Although some women participants in the candidate role had men as recruiter partners, their implicit self-concepts did not differ statistically from low power women with men partners ($M = -73$, $SD = 165$), $t(33) = 0.77, p = 0.45$, suggesting the important role of power and not gender in shaping self-concept.

Figure 3. Implicit self-masculine associations by role power (Experiment 3)

A paired samples $t$-test indicated that recruiters were marginally faster with the me + masculine (not-me + feminine) categorization task than the me + feminine (not-me + masculine) categorization task, $t(15) = 1.956, p = 0.069$. In addition, candidates were faster with the me + feminine (not-me + masculine) categorization task than the me + masculine (not-me + feminine) categorization task, $t(43) = 2.540, p = 0.015$. 

SD = 3.36) self-identified with instrumental traits was not statistically significant, \( t(55) = 1.64, p = 0.11 \). Similarly, the difference in the degree to which candidates (\( M = 31.48, SD = 3.95 \)) and recruiters (\( M = 31.73, SD = 2.60 \)) self-identified with expressive traits was not statistically significant, \( t(55) = 0.234, p = 0.82 \). When the PAQ was computed as a difference score (instrumental – expressive traits), no difference between recruiters (\( M = -1.53, SD = 4.06 \)) and candidates (\( M = -3.00, SD = 4.62 \)) emerged, \( t(55) p = 0.28 \). As in Experiment 1, participants identified more with expressiveness than instrumentality (as shown by a negative sign).

**Relationship between Implicit and Explicit Measures.** In contrast to the findings of Experiment 1, the PAQ did not correlate with the IAT; neither instrumental traits (\( r = -0.21, p = 0.12 \)) nor expressive traits (\( r = 0.10, p = 0.46 \)) significantly correlated with implicit self-concept. The correlation between the PAQ as a difference score and the IAT effect was not significant (\( r = 0.16, p = 0.25 \)).

**Ancillary Analyses**

**Manipulation Checks.** Consistent with our expectation that the two parties did not differ in terms of their outcomes, the difference in the number of points earned between recruiters (\( M = 4131, SD = 2463 \)) and candidates (\( M = 4091, SD = 2478 \)) was not statistically significant, \( t(58) = 0.06, p = 0.97 \). We expected that negotiator perceptions of power would depend on their role in the negotiation. Consistent with this hypothesis, recruiters (\( M = 55.06, SD = 1.33 \)) perceived a relative power advantage compared to candidates (\( M = 45.00, SD = 15.52 \)), \( t(54) = 2.37, p = 0.021, d = 0.65 \). Despite the fact that relative performance did not differ between roles, perceived power did differ between recruiters and candidates.

**Exercise versus Possession of Power.** Again, one possible alternative explanation for role differences in implicit self-masculine associations is that the exercise of power, rather than the possession of power, created the differences across negotiator roles. To determine the effect of exercising power on self-concepts, we first determined that points earned were negatively correlated with self-masculine associations (\( n = 60, r = -0.27, p = 0.035 \)), indicating that performance was associated with weaker identification with masculinity. We also computed a median split to separate high scorers from low scorers; points earned did not interact with the role manipulation to create IAT effects, \( F(1, 56) = 0.059, p = 0.810 \). Furthermore, an analysis of covariance (ANCOVA) controlling for points earned still indicated a significant effect of role power on implicit self-concept, \( F(1, 53) = 4.217, p = 0.045 \). As in Experiment 2, these results suggest that it is the possession of power, not its exercise, which affected the implicit self-concept.

Similar to women in powerful groups from Experiment 2, women with a perceived power advantage in dyads held stronger implicit self-concepts for masculinity than did women with a perceived power disadvantage. Thus it appears that the possession of power enhances the implicit association between the self and power-related concepts and/or masculinity. Importantly for understanding the cause of this link is the observation that no real performance differences existed between the two roles. This lack of a performance difference suggests that the implicit association between the self and masculinity was largely shaped by perceptions of power, rather than observed performance differences. In addition, because the manipulation of social power in dyads emphasized cooperation and agreement rather than winning and domination (as in Experiment 2), the implicit self-power association may be independent of the type of power experienced. Finally, the results from the current investigation suggest that the ability to recognize that one is in (or out) of power is not dependent on membership in a group of powerful or powerless people, as might be suggested by Experiment 2.
GENERAL DISCUSSION

Together these studies show that women have weaker self-power associations than do men but that when women have access to social power, their self-power and self-masculine associations are strengthened. It is likely that high power and leadership roles, their corresponding behaviours, and deferential treatment from others activate associations between the self and powerful traits. It is also likely that the strong association between the self and power (Experiment 2) and the self and masculinity (Experiment 3) for women in powerful roles arose from aligning their self-concept with their powerful actions and are a form of heightened construct accessibility. These results suggest that strategies for enhancing gender equality should focus on enhancing women’s access to social power. Identification with power is expected to increase as exposure to powerful social roles also increases.

The parallel results in Experiments 2 and 3 with two different types of category labels (dominant and subordinate in Experiment 2 and masculine and feminine in Experiment 3) suggest that masculine and dominant may be related dimensions of a larger conceptual category social power. As previously stated, women may be reluctant to openly identify with dominant characteristics because these traits are linked to masculinity. The fact that a disconnect was observed between implicit and explicit measures suggests impression management concerns are at play, with women reluctant to present themselves lacking in femininity.

Many feminist psychologists argue that gender differences are due to women and men’s differential access to social power (e.g. Carli, 1997; Deaux & LaFrance, 1998; Eagly, 1987; Geis, 1993; Henley, 1977; Lips, 1981; Unger, 1978; Watson, 1994; Yoder & Kahn, 1992). The current research supports this view by showing that women’s access to social power activated associations between self and power that mirrored men’s self-concept (which required no specific activation), but only on an implicit level. Even after exposure to a role that they perceived to be powerful, women did not explicitly self-identify with masculine characteristics.

The lack of an observed difference between the two roles on measures of explicit self-concept in Experiment 3 is remarkable given that our manipulation check suggested high power women perceived themselves to have more power than low power women. An indirect measure, however, allowed powerful women to associate masculine characteristics with the self. The disconnect between the implicit and explicit measures of self-concept is consistent with previous research documenting that implicit and explicit measures of cognition may tap distinct theoretical constructs (Greenwald & Banaji, 1995) especially when there is a strong self-group discrepancy (B. A. Nosek, unpublished manuscript).

Limitations and Future Directions

Several issues speak to the generalizability of the results and suggest future research directions. The long-term consequences of the self-power associations strengthened in these studies remain to be examined. Previous research, however, supports both the short-term and long-term effects of priming on perception. On the one hand, concepts that have been recently primed have less of an effect on perception over time than concepts that have been frequently primed in the past (Higgins, Bargh, & Lombardi, 1985; Lombardi, Higgins, & Bargh, 1987). As a consequence, the observed changes in women’s self-power associations may be relatively fleeting. On the other hand, research also suggests that brief priming impacts perception even after time delays (e.g. Dasgupta & Greenwald, 2001). Because time delays were not included in our research, it remains unclear whether women need frequent exposure to social power versus just a few key experiences to form implicit self-power concepts that are enduring.
Karpinski and Hilton (2001) have argued that the IAT assesses environmental associations rather than personal endorsements. Accordingly, it could be argued that high power participants did not have to form a self-power association to perform these categorization tasks well; they were simply associating self words with recently primed concepts in the absence of a personal endorsement. One reason why this explanation does not seem the most parsimonious is that no explicit environmental indication was given in Experiment 3 to suggest one role was more powerful than the other (and, in fact, neither role had more power than the other, as evidenced by their payoff charts for the exercise and their performance). A second argument against a completely environmental interpretation in the absence of personal endorsement is that participants observed both dominant and subordinate actors; if the association was purely environmental, observing both types of behaviours (dominant and subordinate) should have resulted in no differences in implicit self-concept across roles.

It is important to note that our findings regarding the role of social power on women’s self-concepts speak mainly to same-sex interactions. It is possible that the presence of men in low power roles would have suppressed women’s feelings of being in a powerful role (and the subsequent effects on self-concept) in Experiments 2 and 3. Indeed, Carli (1990) argues that women speak more tentatively with men and Rudman and Glick (1999) show that women are evaluated negatively by both men and women when they behave assertively. However, it is important to note that Experiment 3 included low power women who negotiated with either high power women or high power men. IAT scores did not differ across these two low power groups, suggesting that the degree to which the implicit self-concept is comprised of powerful traits is more affected by situational power than the gender of one’s interaction partner. Furthermore, we would expect that men’s self-power associations would also be flexible in response to changes in social roles. Indeed, a critical component for gender equality is for each gender to adopt the attributes associated with the opposite sex (e.g. expressiveness for men and instrumentality for women). Nonetheless, future research that fully crosses the gender of participants and roles is desirable.

The identification of potential mediators and moderators for our findings deserves consideration in future research. For example, being in a powerful role may have been a mood or state self-esteem enhancer, which could account for observed IAT differences between women in and out of power. Although a pilot test determined that neither positive ($r = 0.14$) nor negative ($r = 0.004$) mood was significantly correlated with self-power associations, these studies would have been strengthened with the inclusion of mood and self-esteem measures. Similarly, an alternative explanation for the results is that concepts related to dominance and masculinity are also associated with high self-esteem. It is possible that women in high power roles experienced heightened self-esteem which in turn enhanced their self-masculine associations. The relationship between self-esteem and the current findings should be explored in future research.

The meaning of gender and power differences in implicit self-concept would be extended if they were causally linked to behaviour. Recent psychological research has shown that the mere suggestion of a behaviour can increase the likelihood that the suggested behaviour will occur (e.g. Bargh, Chen, & Burrows, 1996; Dijksterhuis & van Knippenberg, 1998). This research implies that if a woman holds an association between the self and social power, she may have an enduring (but unconscious) tendency to seek out activities, professions, and/or social groups that support her expression of social power. As a result, these implicit self-power associations may operate similarly to self-verification (Swann & Read, 1981) or implicit goals (Bargh & Chartrand, 1999) in social interactions.

Social power is ubiquitous and represents a fundamental component to all human interactions (Wish, Deutsch, & Kaplan, 1976). However, the meaning and nature of social power are multidimensional and can be highly dependent on social context. For example, Dunning and McElwee (1995) showed that people who described themselves as dominant had more favourable evaluations of the trait than people who did not view themselves as dominant; but when positive outcomes were
associated with dominance, individuals were more likely to view themselves as possessing dominance. As a result, the meaning of power is dependent on whether one possesses it and whether it is valued. Any attempt to understand how social power is related to self-concept must take the slipperiness of social power into consideration.

Conclusion

The current research shows that women have weaker implicit and explicit self-concepts for social power than do men, but also shows that these associations are malleable in response to the environment. Whereas self-power associations likely both lead to and result from gender inequality, this malleability indicates that change towards equality can occur. In two experiments we found that women’s implicit self-concept was affected by a situational manipulation of social power, although in one experiment we demonstrated that this manipulation did not affect explicit associations with power. Subtle variations in power due to group membership and roles were perceived by women on an implicit level. Perhaps increasing women’s access to social power over time and across contexts will also lead to the explicit identification of power with the self, which may be needed to enhance gender equality.

ACKNOWLEDGMENTS

Experiments 1 and 2 were part of a dissertation submitted to the faculty of the Social and Personality programme at the City University of New York in partial fulfilment of the doctor of philosophy degree. Experiments 1 and 2 were partially supported by a grant from Division 35, Psychology of Women Florence (Lindy) Geis memorial award. Special thanks to Saba Aaraj, Hector Adames, Michele Mendola, Jessica Percodani, and Meredith Wolsh for their assistance with data collection in Experiments 1 and 2 and Shelly Farnham in Experiment 3. The authors also wish to thank Vita Rabinowitz, Kay Deaux, Gary Winkle, Michele Fine, Rhoda Unger, Kathy Cook, Laurie Rudman, Debbie Mellot, Nilanjana Dasgupta, John Jost, Bruce Diamond, Suzanne Johnson Vickberg, and Anthony Greenwald for their comments on earlier drafts.

REFERENCES


APPENDIX A

PAQ Items
Expressive: Emotional, Devotes Self to Others, Gentle, Helpful, Kind, Aware of Others’ Feelings, Understanding, Warm in Relations with Others
Instrumental: Independent, Active, Competitive, Makes Decisions Easily, Never Gives up Easily, Self–Confident, Feels Superior, Stands Up Well Under Pressure
Power Words Studies 1 & 2
Dominant and Positive: Ambitions, Assertive, Independent, Confident, Powerful
Dominant and Negative: Controlling, Selfish, Conceited, Manipulative, Bossy
Subordinate and Positive: Loyal, Cooperative, Patient, Agreeable, Obedient
Subordinate and Negative: Dependent, Powerless, Hesitant, Insecure, Gullible
Feminine and Masculine Words Study 3
Masculine: Rational, Assertive, Dominant, Leader, Confident, Strong
Feminine: Emotional, Passive, Fragile, Quiet, Timid, Submissive
Me and Not-Me Words Studies 1 & 2
Me: Me, Myself, Mine, First Name, Last Name, Ethnicity, Occupation
Not-me: Them, Other, Theirs, Not-Me First Name, Not-Me Last Name, Not-Me Ethnicity, Not-Me Occupation
Me and Not-me Words Study 3
Me: Me, Myself, Mine, First Name, Last Name, Home City, Home State
Not-Me: Them, Other, Their, Not-Me First name, Not-Me Last Name, Not-Me City, Not-Me State