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ELEMENTS OF A SOCIAL POWER SCHEMA:

GENDER STANDPOINT, SELF-CONCEPT, AND EXPERIENCE

by

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A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy,

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Abstract

ELEMENTS OF A SOCIAL POWER SCHEMA:

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Elizabeth L. Haines

Adviser: Professor Vita Rabinowitz

Two studies investigated how people implicitly process and evaluate power-related information as a function of their perspective within a social system using the Implicit Association Test (Greenwald & Banaji, 1998). The first study explored how men and women implicitly associate power with gender and personal identity. Results indicated that both men and women possess associations between male gender and power more than female gender and power. In addition, results show that men hold implicit associations between self and power and their gender and power more than do women. The second study demonstrated that implicit self-power beliefs differ as a result of situational manipulations of social power in all female groups. Furthermore, self-power beliefs of powerful women were similar to men's responses in Study1. Exploratory analyses indicate that self-described race/ethnicity and social class are associated with implicit power beliefs. Together, the studies suggest that social standpoints as well as experiences predict social power beliefs and contribute to a cognitive explanation for the stability of social hierarchy.

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Elements of a Social Power Schema:

Gender Standpoint, Self-Concept, and Experience

Social power is an elementary classification schema operating in most cultures at intergroup and interpersonal levels of analysis. As a result, it is likely that many people develop relatively stable and internalized beliefs about powerful and powerless people based on life experience. It is also probable that individuals have power beliefs about themselves originating from their own perspective within a social system. Although previous research has suggested a power schema by name (Bugental, Brown, & Reiss, 1996; Fiske & Taylor, 1991), less attention has focused on how implicit power beliefs develop and change, how these beliefs differ among social groups, and how they influence social and self-perception.

It was a goal of the current research to understand how people implicitly process and evaluate power-related information as a function of their position within a social system. Gender is a primary perspective through which individuals interpret social information about others as well as themselves (Deaux & Lafrance, 1997). Because men and women differ in their access to and use of social power (Geis, 1993), it is likely that men and women also differ in the way that they think about social power, associate gender with social power, and associate these beliefs with their self-concept.

Social power may have its strongest impact when it is internalized by the target as a cognitive force (Apfelbaum, 1979; Duncan, Peterson, & Winter, 1997). As a result, social hierarchy, prestige, status, and dominance may be represented as a part of the self-concept in implicit and unconscious ways. It follows that an assessment of implicit power beliefs by gender would explain why power inequalities between men and women are

slow to change. If men automatically associate themselves and their gender with power while women associate themselves and their gender with subordination, then power inequalities between men and women will remain stable. However, implicit beliefs may develop from social interaction. Providing access to social power may show how implicit beliefs develop and guide methods for social change.

Implicit social power beliefs can be measured with implicit social cognition methods (see Greenwald & Banaji, 1995 for a review) and may show how such processes occur automatically without conscious guidance or control (Bargh, 1995). Whereas the current research addresses how social power is constructed through experience, the methodology will use traditional laboratory social psychological techniques such as response latencies and categorization. Although social cognitive approaches can be viewed as an individualistic approach to social phenomena, social interactions rely heavily on perceptual processes (e.g., categorization, memory). Thus, the current research attempts to enlarge the frame of analysis in social cognition by considering how larger social orders affect the ways in which social groups perceive the world.

This individual-in-group cognitive approach to social power introduces significant questions that motivate the research. For example, what evidence is there that people have implicit power cognitions? How do these frameworks differ between men and women? How do implicit power beliefs interact with gender-schemas (Bem, 1981) and self-schemas (Markus, 1977)? Do these schemas change with one's social standing and experience (e.g., access to social power)? Can they be stimulated by particular situations? How does group categorization and identification affect power beliefs? Do people think about power in both negative and positive terms? While these questions are broad and

far-reaching, the present research will attempt to 1) investigate gender differences in the implicit cognitions between gender, power, and self and 2) manipulate access to social power to determine if differences in social power beliefs are affected by experience.

Perceiving Difference: Power and Gender

Because people are recognized by their power status (either low or high), such status creates perceptions of interpersonal and intergroup differences in society (Griscom, 1992). Social power is ubiquitous and represents a fundamental component to all human interactions (Wish, Deutsch, & Kaplan, 1976). At the group level, most industrialized societies have status and power classifications where groups are stratified according to their use of and access to social power (Sidanius & Pratto, 1993). At the individual level, power differences in relationships are also a primary organizing element in interpersonal interaction (Wish, Deutsch, & Kaplan, 1976; Triandis, 1972). For example, Fiske, Haslam, and Fiske (1991) show that social errors (confusing one person with another) are more likely to occur within status categories than between status categories.

Social errors are most common between people of the same gender (Fiske et al., 1991). Thus, gender motivates categorization of people society in much the same way as does social power (Hare-Mustin & Marecek, 1988). Because a person's sex is usually the first piece of information we encounter about a person, it is a primary means for identifying how we should think about other people and about ourselves (Sherif, 1982).

This differentiation of all people into male and female categories carries implicit social power beliefs. Expectation states theory (Berger, Fisek, & Zelditch, 1977) proposes that gender operates as a diffuse status characteristic indicating a person's ascribed power in social interactions. When no other information is given, women and

men are expected to perform low and high status roles respectively. Thus, gender acts as an implicit cue motivating dominant and subordinate behaviors. It is probable that experiences with women and men in subordinate and dominant positions (respectively) contribute to these expectations we hold for power and gender.

Gender is Power/Context Dependent

The relationship between power and gender has been a lively debate in psychology. Many feminist psychologists (e.g., Carli, 1997; Deaux & Lafrance, 1997; Eagly, 1987; Geis, 1993; Henley, 1977; Lips, 1981; Watson, 1997; Unger, 1978; Yoder & Kahn, 1992) explain gender differences as caused by differential access to social power. Indeed, when power and status are controlled in laboratory settings, some gender differences disappear or are reversed (e.g., Conway, Pizzamiglio, & Mount, 1996; Dovidio, Ellyson, Keating, Heltman, & Brown, 1988; Eagly & Wood, 1982; Ellyson, Dovidio & Brown, 1992; Leffler, Gillespie, & Conaty, 1982; Riordan, 1983; Siderits, Johannsen, & Fadden, 1985; Snodgrass, 1992; Wood & Karten, 1986). Thus, power and gender may be interrelated in social perception and behavior (Yoder & Kahn, 1992).

Not all psychologists, however, agree that gender differences can be explained by present differences in social power. Evolutionary psychologists (e.g., Buss, 1995b) turn the causal arrow around and propose that gender differences in behavior and psychological characteristics are the result of different reproductive strategies than men and women have used. Because men and women have developed different mate selection criteria to increase their reproductive fitness (e.g., aggression and promiscuity in men; deference and selectivity in women), the sexes have acquired different amounts of psychological characteristics such as deference, aggression, jealousy, and empathy to

serve these strategies (Archer, 1996). Thus, according to evolutionary theories and reproductive strategies, gender differences in power and dominance are the result of men's and women's different evolutionary approach for enhancing reproductive fitness.

Whether socialization or evolutionary history causes power related differences in gendered behavior, both approaches agree—context is important. Humans have developed in response to their environment. The key discrepancy between the two theories is: Is it past or current context that matters most in the development of dominant and subordinate characteristics and behaviors? Evolutionary psychology proposes that dominance and subordination are the result of thousands of generations of evolution and sexual strategies; social theories propose that gender differences in power-related behavior originate from social roles, social learning, and cognitive biases. The current studies are guided by the socialization approach to dominance and subordination by investigating if access to social power creates the behaviors and beliefs associated with dominance in our society.

Definitions of Power Depend on Social Standpoint

Because social power overlaps with other topics and concepts, definitions of social power vary between researchers and investigations. Definitional incongruity has marked the study of social power (e.g., Ng, 1980), and many researchers in social power have called for a precise conceptualization of social power for decades (Tedeschi, 1974, Depret & Fiske, 1993, Miller & Cummings, 1992; Griscom, 1992). For example, some researchers refer to power as meaning domination (Adler, 1966), asymmetrical control (e.g., Depret & Fiske, 1993), potential influence (e.g., French & Raven, 1959), the ability to produce intended effects (Winter, 1973) or a dependence relation (Emerson, 1962;

Apfelbaum, 1979). Feminist interpretations of power (e.g., Yoder & Kahn, 1992) have divided social power into two distinct categories: power-over (dominance) and power-to (empowerment). From these examples, we can surmise that social power is a multidimensional concept (Cromwell & Olson, 1975; Dahl, 1957) that varies according to the researcher's perspective on/within social systems.

Researcher standpoints. The diversity in definitions may depend on one's perspective. According to standpoint theory, the individual's position within a social hierarchy affects how one interprets and constructs the self and social experiences (Hartsock, 1985). In addition, multiple standpoints originating from social roles and demographic differences also assist in the construction of reality (Hill-Collins, 1980). As a result, definitions, attitudes about, and perceptions of power depend on one's place within a social system.

The researcher's perspective seems to affect how social power is viewed. Power is often regarded as the neglected variable in social psychology (Cartwright, 1949; Ng, 1980). Sometimes researchers may be unmindful of how power shapes their findings because of their own privileged position. Researchers are educated professional people drawn from populations enjoying the high power and prestige associated with higher education. This elevated status may make them unable to recognize how structures and group memberships have contributed to their own success.

The proposition that the powerful are often unaware of the structure that benefits them is congruent with experimental research on status an intergroup perception. Lorenzi-Cioldi and Deaux (1998) have shown that high status groups do not use group status to explain their elevated positions. Instead, both the individuals in high status

groups as well as people in low status groups view the positions of high status individuals as a function of personality factors rather than group advantage.

While high status group members do not rely on their group membership to explain their position, low status groups are acutely aware of their group identity and how it affects their position. As a result, low status labels are highly informative for in-group members' identity. Lorenzi-Cioldi & Deaux (1998) describe the differential use for group status as the "chronic accessibility of a group schema in minority individuals" (pg. 30). Low status groups seem more likely to invoke structure and group membership as causal factors in human behavior.

These experimental findings are also supported by the fact that not all researchers are resistant to the ubiquity of social power. Feminist, multicultural, and poststructuralist voices are at the forefront of confronting social power as a variable in social behavior (e.g., Fine & Gordon, 1989; Foucault, 1988; Hare-Mustin & Maracek, 1988; Riger, 1992; Unger, 1986). As researchers and scholars, they may view power with an outsider's clarity and understand the contextual forces shaping individuals' outcomes.

Individual standpoints. Individual interpretations of power-related concepts vary as a function of self-perceptions of dominance. Dunning and McElwee (1995) have shown that people who describe themselves as dominant tend to have more favorable evaluations of the trait than people who do not view themselves as dominant. These personal definitions of power-related concepts, however, change according to social context. Dunning and McElwee (1995) also showed that when positive outcomes were associated with dominance, individuals were more likely to view themselves as possessing this trait. When situations socially value power-related behaviors, people's

beliefs about power also change.

Group membership standpoints. Although attitudes about power may vary due to individual differences, social situations, and researcher perspectives, these beliefs may also originate from group membership. Individuals from gender, race, and class groups are ascribed varying levels of power from birth. Because many of these standpoints co-occur, the interplay between race, class, and gender create a complex perspective on social power (Hill-Collins, 1980) that is changeable according to social context and the identities that are activated in social situations.

Thus, power itself becomes a perspective by which one views the world. These perspectives may assist in the development of implicit power beliefs for the self and others. In applying these beliefs to others, people develop power-up and power-down schemas (Fiske & Taylor, 1991). That is, individuals maintain power schemas for those with power such as political leaders, supervisors, and religious figures as well as for those without power such as service people, students, and children. For example, individuals automatically associate dominance-related personality characteristics (e.g., rational, independent, dominant, ambitious) more easily with leaders and supervisors than with followers (Geis, Brown, Jennings, Corrado-Taylor, 1984; Sande, Ellard, & Ross, 1986).

Definition of Power in the Current Study

Social power is defined as dominance-subordination in this study to "take into account both elements in the dominance relation" (Apfelbaum, 1979, p. 201). Specifically, dominance-subordination exists when an unequal division of power favors one individual or group over others. This control has the potential to affect one's own as well as another's thoughts, behaviors, and/or emotions.

Furthermore, this conceptualization of social power will assess the effects of both societal and situational dominance-subordination on implicit thought processes. Thus, similar to previous definitions of power (e.g., Miller, 1976/1986; Apfelbaum, 1979), the study's definition of power will focus on the relationship among actors rather than the power that exists as an individual difference variable. Although social power may be mutual in human interaction (e.g., every individual has opportunities to be in control of another), this research assesses the psychological phenomena (i.e., mental associations) that occur when one person has a consistent power advantage.

Positive and negative views of power. Some researchers (e.g., Griscom, 1992) have criticized a definition of power emphasizing dominance because it magnifies power's negative consequences, but dominance can be extended beyond simple coercion. For example, based on the standpoint and feminist literature, a dual definition of power and dominance is possible. That is, people may have negative or positive reactions about dominance depending on their position within a social system. As Dunning and McElwee (1995) demonstrated, people who feel powerful view that power positively and people who do not feel powerful view power negatively. Thus, like fire, power is understood as either a creative or destructive force (Winter, 1973; Griscom, 1992) depending on who is in authority and when it is used.

To capture the duality of these definitions, two operationalizations of dominance and subordination (one positive and one negative) will be activated in the current research. It is likely that people with ascribed power (i.e., men) will be more likely to identify themselves and their social group with power when it is positive than when it is negative. By comparison, as social subordinates to men, women may identify men with

power apart from power's positive or negative meaning. Thus, one's interpretation of and association with power may depend on one's position as dominant or subordinate in the interaction. These views may also depend on the positive or negative meaning of social power.

Gender and Power: Evidence from Explicit Measures

Dominance and power are often associated with men's roles and characteristics whereas subordination is frequently linked to female roles and characteristics (Geis, 1993). As a result, gender, gender identity, and gender roles may be related to how an individual thinks about social power. Indeed, gender is often an implicit indicator of power and status in society (Berger, Fisek, & Zelditch, 1977). People often assume that the man is the leader or "in charge" when no other information is provided (Porter, Geis, & Jennings, 1983). Because roles indicate high or low status, it is likely that acting in a powerful or powerless role affects how individuals view social power itself.

Social power research illustrates that men and women differ in the ways that they think about social power. For example, Miller and Cummings (1992) have shown that women's definitions of power can be distinguished from society's definitions of power. Whereas women personally viewed power as having self-control, by comparison they saw society defining power as control over people and resources (i.e., money). Moreover, the women in this study felt powerful when they had personal control over their emotions and their bodies, but felt powerless when they had no such control (i.e., when they felt dependent). It is likely that women's lower status (as a group) in society has contributed to their different view of social power.

Recent research in social dominance orientation also demonstrates that gender affects one's power attitudes (Sidanius, Pratto, & Bobo, 1994). Pratto, Sidanius, Stallworth, and Malle (1994) have shown that men are more likely to endorse coercive manifestations of power (e.g., oppression of outgroups, competitiveness) than women. Furthermore, these gender differences were found across diverse age, ethnic, and educational groups (Sidanius, et al., 1994).

Not only do women report different definitions of and attitudes toward power, men and women feel differently when they act dominantly with others. In contrast to women, men feel significantly more positive when they reflect on their interpersonal interactions involving dominance and power (Wood, Christensen, Hebl, Rothgerger & 1997). Wood and her colleagues explain this gender difference as motivated by sex-typed gender roles. Because dominance and power are congruent with masculinity, these behaviors enhance men's self esteem in ways that it does not for women.

An individual's position in society, the context, and self-perception factors contribute to multiple interpretations of social power. Data supporting women's different view of power could be the result of the socialization process and gender roles. That is, women may publicly deny their individual identification with power because it personally and socially contradicts the female role. Indeed, many women encounter a double bind when they act powerfully. As society expects women to be accommodating and subordinate, when women take on powerful behaviors they receive social condemnation (e.g., Bulter & Geis, 1990) and find the experience unpleasant (Wood et al. 1997). Thus, women's negative view of power may originate from social criticism that is associated with the use of social power.

Research on the power motive (an implicit measure of the need for power), however, shows that men and women do not differ in the need for power (Winter, 1973; Winter 1988). Using the Thematic Apperception Test, women write stories reflecting a need for power that is similar to men. Like men, women describe a desire to hold public office, to pursue power-related careers, and to seek prestige and visibility (Winter, 1988). In addition, the need for power can be enhanced in women using the same methods to enhance it in men (Stewart & Winter, 1976). If the need for power is so similar, what creates the public-private contradiction in social power beliefs?

Social Learning, Self-Perception, Gender, Self, and Power

One probable explanation is that men and women observe gender differences in power in public as well as private life. According to social learning theory (Bandura & Walters, 1963), men and women observe men in powerful positions more often than they observe women in these roles. As a result, men and women are socially conditioned to associate power with men more than with women.

Although the unequal distribution of power between men and women in this country has changed dramatically over the last half century, a male power advantage still exists in work and in the home (Baxter & Kane, 1995). In public life, a large majority of the most powerful positions in government, business, religion and education are still held by men (U.S. Department of Commerce, 1991). When women do have public power or leadership positions, social condemnation from others (i.e., the double bind) often compromises their power (Haslet, Geis, & Carter, 1992). In private life, patriarchal ideas (both implicit and explicit) continue to shape many families' behaviors and attitudes; these traditions assign greater power to fathers and sons than wives and daughters. Even

trained clinicians view mother-headed families as diminished in parental functioning in comparison to similar father-headed families (Ivey & Conoley, 1994). Furthermore, the media (e.g., news, advertising, film), objectifies women in terms of their sexual submissiveness to men (e.g., Frederickson & Roberts, 1997). As a result, media images recreate and strengthen the association between men and power, whereas images of women are more likely to portray them as sex-objects rather than independent human beings. Thus, we may learn to differentially associate male and female gender with dominance and subordination (respectively) as a result of a lifetime of observing such gender differences in the home and the larger social culture.

Not only do we observe gender differences in powerful roles, it is also likely that men and women have different experiences with power shaping their thoughts about power itself. Because stereotypes and expectations shape experiences from an early age, males are preferred for power and leadership positions more often than are women (Geis, 1993). As boys and men gain experience in directing other people's behavior, they internalize the beliefs that correspond to their roles via self-perception processes (Bem, 1972). Consequently, power may be implicitly associated with the self for men in ways it is not for women.

Implicit Social Cognition and Social Power

According to social learning, social roles, expectation states, and self-perception theories, observation and experience should create a predictable pattern, or schema, of associations between self and power as well as gender and power. Implicit cognitive processing embodies a broad range of terms (see Fiske & Taylor, 1991 and Markus & Zajonc, 1985 for reviews) that can be referred to as schemata theories (McGuire, 1985).

These include references to automaticity (Bargh, 1995), mindlessness (Langer, Blank & Chanowitz, 1978) implicit cognition (Greenwald & Banaji, 1995), prototypes (Rosch, 1978), expectations (Berger, Fisek, & Zelditch, 1977), implicit theories (Schneider, 1973; Wegner & Vallacher, 1977), scripts (Schank & Abelson, 1977), and schemas (Bartlett, 1932; Piaget, 1936/1952b; Bem, 1981; Markus, 1977).

Whereas "schema" used to be the most commonly used term because of its seventy-year history of use (Markus & Zajonc, 1985), other recent advancements in social cognition have revived, reclaimed, and renamed schema research. Specifically Bargh's (e.g., 1995) research on automaticity and Greenwald and Banaji's (1995) conceptualization of implicit cognition have moved stereotype and schema research to sophisticated methods of inquiry by using technological advancements using specialized computer simulations to assess response latencies.

Essential features of implicit social cognition. Whether it is a schema, prototype, or implicit association, research in implicit social cognition shares a few essential qualities. First, because implicit knowledge relies on memory, it originates in past experience. This accumulation of knowledge can be acquired either slowly over time or quickly by way of direct experience (Stephen, 1985). Second, these knowledge structures operate on principles of categorization and mental associations (Rosch, 1977). Thus, the organization of information operates on perceptions of similarity or dissimilarity from previously held conceptions of an idea or typical example from a category. Third, the activation of mental associations are often implicit and outside awareness. As a result, connections occur quickly, often without conscious guidance or control (e.g., Bargh, 1995). Fourth, implicit knowledge structures have effects on beliefs,

emotions, and behavior. For example, schemas affect the initial processing and organization of information, bias information in memory, influence evaluation and judgement, and guide observable behavior (Markus & Zajonc, 1985).

Advantages over explicit methods. Implicit methods such as response latencies, memory tasks and categorization may be used as more accurate measures of belief patterns than self–report measures. In comparison to implicit measures, explicit measures are susceptible to response artifacts such as self-report biases or a subject's inability to gain introspection on his/her past experiences (Greenwald, Banaji, Rudman, Farnham, Nosek, & Rosier, in press). Implicit methods are especially useful to understand how social beliefs are constructed within individuals as they interact with their environment and how mental associations give rise to expectations in social interaction.

The Implicit Association Test. Historically, implicit measures relied on categorization tasks, memory, or simple response latencies. Anthony Greenwald and Mazharin Banaji (1998) have developed an Implicit Association Test that incorporates categorization and response latencies to assess implicit thought. Specifically, the task compares the strength of associations between conceptually congruent (e.g., flower and pleasant) versus conceptually incongruent (e.g., insect and pleasant) categories. Recently, the test has been used to investigate implicit attitudes about the self (Farnham & Greenwald, 1998), ethnicity (Greenwald, McGhee, & Schwartz, 1998), and gender stereotypes (Rudman, Greenwald, & McGhee, 1997).

The Implicit Association Test (IAT) is a computerized categorization task that measures the difference between response latencies. A response latency measures the time between the appearance of stimuli and response to stimuli. In the current

experiment, the response latency measures the time between the appearance of a word on a computer screen and its correct categorization. Participants categorize words under several sets of instructions or blocks. First, participants categorize words (presented on a computer screen) as belonging to one of two poles from a bipolar category (e.g., pleasant vs. unpleasant); a second set of words has participants repeat the categorization with a different set of words for a new bipolar category (e.g., insects vs. flowers).

After participants are familiar with the two categories (e.g., pleasant/unpleasant and insects/flowers), a first mixed category task has participants categorize all four sets of words on only two response keys. That is, participants use one key to indicate a correct response for two categories. The same mixed category task is then repeated with one of the sets of the words switched. For example, if flower and pleasant (and insect and unpleasant) were on the left key for the first mixed category task, the second mixed category task assigns flower and unpleasant to the left key and insect and pleasant to the right key. Even though participants categorize words under several sets of instructions, or blocks, the main outcome is the IAT effect.

The IAT effect. In the previous example, the conceptually congruent mixed category task occurs when flower and pleasant are presented on the same key (the other key pairs insect with unpleasant); the conceptually incongruent categories occurs when flower and unpleasant are on the same key (the other key pairs insect with pleasant). The IAT Effect is calculated by subtracting the congruent latency from the incongruent latency. Thus, large IAT effects indicate that the "congruent" and "incongruent" tasks are dissimilar from one another. Small IAT effects suggests that the "congruent" and "incongruent" tasks are relatively similar to one another. Thus, the IAT effect determines

the degree to which people make a judgment of similarity or difference between a social category and concept.

Two IAT effects will be calculated for each research participant. The Gender IAT effect will measure participants' implicit associations between power and gender and will be calculated by subtracting the mean latency for associating dominance with man from the mean latency for associating dominance with woman. The Self IAT effect will measure participants' implicit associations between power and the self and will be calculated by subtracting the mean latency for associating dominance with the self from the mean latency for associating subordination with the self.

Overview of the Present Research

Whereas the Implicit Association Test usually assesses attitudes by pairing a social category with an evaluative dimension, the current study investigated how social categories are associated (or not associated) with power-related concepts. Specifically, the research investigated how one's standpoint within a social system affects how people implicitly process power-related information.

Two experiments assessed how people implicitly associate the self and gender with dominant and subordinate concepts. A two-study design was implemented to 1) show how a pre-existing standpoint (i.e., gender) contributes to social power beliefs and 2) demonstrate how access to social power may construct those power beliefs. Thus, the studies attempt to demonstrate how social standpoints (both chronic and situational) are associated with social power beliefs. Furthermore, the dual studies attempt to illustrate the importance of current social context (rather than essential nature) as a correlate of power beliefs and behaviors.

Study 1 investigated gender differences in men's and women's processing and evaluation of power-related concepts by measuring the differences between response latencies. An IAT effect was calculated for each participant by subtracting congruent latencies from incongruent latencies. Participants also completed self-report evaluations of gender, control, and power for comparison to the implicit measures. Study 2 investigated the impact of social power on the implicit associations. Female participants were randomly assigned to Power or No Power groups, interacted in a trading and bargaining game, and then completed the same IAT measures as in Study 1.

Hypotheses Study 1: Investigation of Gender Differences in Implicit Power Associations

The following hypotheses regarding the expected patterns of responses are tested in Study 1 and Study 2.

Hypothesis 1: Both men and women would categorize items faster when man with dominant were presented on the same key than when man and subordinate were presented on the same key.

Hypothesis 2: Men would show stronger Gender IAT effects than women. That is, in comparison to women, men would show greater differences between the categorization task for man and dominant in comparison to the categorization task for woman and dominant.

Hypothesis 3: Men would show stronger Self IAT effects than women. That is, in comparison to women, men would show greater differences between the categorization task for me and dominant in comparison to the categorization task for me and subordinate.

Hypothesis 4: Men would show stronger IAT effects when the power related

words were positive than when the power related words were negative (i.e., an interaction between gender and valence on Self IAT and Gender IAT effects).

Hypotheses Study 2: Implicit Power Associations by Experience

Hypothesis 5: Participants in the Power group would show greater differences than the participants in the No Power group on their Self IAT effects. (Thus, Power group members would have Self IAT responses similar to those of men in Study 1).

Hypothesis 6: Participants in the Power group would show stronger Self IAT effects when the power related words were positive than when the power related words were negative. (Again, Power group members would have responses similar to those of the men in Study 1).

Study 1: Gender Differences in Implicit Power Associations

In Study 1, male and female participants categorized words as belonging to either man and woman categories or me and not-me categories while simultaneously categorizing dominant and subordinate words. Each participant completed two IATs: one task for categorizing me and not-me words simultaneously with dominant and subordinate words and one task for categorizing man and woman words simultaneously with dominant and subordinate words. In addition, two sets of stimuli words assessed the effects of positive dominant and subordinate words or negative dominant and subordinate words on the categorization tasks.

Method

Participants

Two hundred and two (83 male and 119 female) undergraduate students from Psychology courses at Montclair State University participated for optional extra credit.

Data from 28 participants (13%)[1] were excluded from data analysis due to error rates over 25% indicating inattention to the task (as recommended by Farnhman & Greenwald, 1998). There were no gender differences in the removal of participants by error rates, X^2 (1) = .08, p = .78. Of the remaining sample (N = 174), the majority were White (66.5%); 10.4% were Latino/Hispanic, 9.2% were Black or African-American, 2.9% were Asian, 2.9% were West Indian, .6% were Middle Eastern and 7.5% marked "other" or left the item blank and did not provide additional information. Ages ranged from 17 to 49 (M = 21.7, SD = 5.47). Participants were randomly assigned to conditions. There were no age differences between male (M= 21.59, SD = 4.98) and female participants (M= 21.08, SD = 5.82), t (167) = .59, p = .55.

Experimenters

Four upper-division Psychology Majors and one Graduate Assistant (four female and one male) acted as experimenters. Each experimenter was trained for six hours prior to data collection. Experimenters used scripts to standardize the delivery of information to participants (see Appendix A) and were blind to the hypotheses until all the data had been collected.

Materials

The Implicit Association Test used a total of 46 stimulus words: 5 positive dominant words (*independent, ambitious, confident, assertive, powerful*), 5 negative dominant words (*selfish, manipulative, conceited, controlling, bossy*), 5 positive subordinate words (*obedient, cooperative, patient, agreeable, loyal*), 5 negative subordinate words (*hesitant, dependent, insecure, gullible, powerless*), 6 woman

[1] Subject rejection rates reported in comparable studies range from 19.5% (Greenwald, McGhee & Schwartz, 1998) to 4.5% (Farnham & Greenwald, 1998).

descriptors (*female, sister, mother, daughter, her, hers*), 6 man descriptors (*male, brother, father, son, him, his*), 7 me items (*me, myself, mine, first name, last name, ethnicity, occupation*) and 7 not-me items (*them, other, theirs, not-me name, not-me last name, not-me ethnicity, not-me occupation*).

The man and woman descriptors represented typical words to describe people in these gender categories as judged by the author. The me and not-me items were determined by common self-descriptive self-concept items (e.g., name, occupation, ethnicity) and are indicated in the parameters of social identity (Deaux, Reid, Mizrahi, & Ethier, 1995).

Item selection for the dominant and subordinate words. To select stimulus words for the power-related items, 48 (24 male and 24 female) undergraduate psychology majors completed two surveys. The first survey contained 39 personality characteristics such as ambitious, strong, and helpful. The undergraduates rated the positivity or negativity of each item on a scale from 0 (negative) to 9 (positive). Participants then completed a second survey to indicate how the same characteristics represented dominant or subordinate people on a scale from 0 (subordinate) to 9 (dominant).

First, descriptive statistics assessed the positive and negative adjectives as well as the ratings for dominant and subordinate adjectives. Next, a Principal Components factor analysis was performed on dominant/subordinate data. Stimuli words were chosen on the basis of valence (positive-negative), power relatedness (dominant-subordinate) and independent factor loadings[2] (see Appendix B).

[2] One word (conceited) loaded onto more than one factor. It was retained as a dominant negative word because of its conceptual significance and because its mean favored dominant over subordinate (6.04).

The ratings for each of the four categories (dominant-positive, dominant-negative, subordinate-positive, and subordinate-negative) were averaged within each set. To test for differences between the power relatedness of dominant and subordinate items, two paired samples t-tests were performed (one for positive and one for negative words). Results showed that the dominant positive words ($M = 7.66$) were significantly more dominant than the subordinate positive words ($M = 4.50$), $t(40) = 9.01$, $p = .0001$. In addition, the dominant negative words ($M = 6.83$) were significantly more dominant than the subordinate negative words ($M = 2.42$) $t(41) = 12.34$, $p = .0001$. Thus, the dominant words (regardless of their valence) were considered more dominant than the subordinate words.

A second set of t-tests were run to confirm the valence equivalence between the dominant and subordinate items. The results of a paired samples t-test showed that the dominant positive words ($M = 6.98$) were not more positive than the subordinate positive words ($M = 6.72$) $t(47) = 1.34$, $p = .19$. In addition, the results from another paired samples t-test showed that the negative dominant words ($M = 3.06$) were not more negative than the negative subordinate words ($M = 3.26$) $t(47) = .54$, $p = .59$). Thus, each bipolar category (dominant/subordinate) was matched on its valence.[3]

Apparatus

Farnham's Implicit Association Test (Farnham, 1997) was administered on IBM compatible PC Pentium computers. Participants indicated their categorization response

[3] Although no gender differences emerged for the power ratings of the dominant and subordinate words, men and women rated the valence of the power related words differently. Men rated the dominant negative words as significantly more positive ($M = 3.48$) than did women ($M = 2.54$), $t(46) = 2.63$, $p = .011$, $r = .36$.

by pressing the "5" key on the numeric keypad (for a right-side response) or the "a" key on the keyboard (for a left-side response).

Design

Each participant completed two IATs: one to categorize dominant and subordinate words while simultaneously categorizing man and woman words and one to categorize dominant and subordinate words while simultaneously categorizing me and not-me items. In addition, participants were presented with positive or negative power-related words. Two procedural variables were counterbalanced among conditions: 1) order of the IAT task presented first (me/not-me or man/woman) and 2) order of the compatibility of the dimensions (e.g., man-dominant presented on the same key first or man-subordinate presented on the same key first).

Because there were two association tasks, each participant completed thirteen rounds of associations. Participants did not view the stimulus item lists for the gender- or power-related words prior to the practice tests.[4] Instead, participants completed an unrecorded set of trials prior to each recorded round to become familiar with the power and gender stimuli. Results from pilot testing determined that these trial rounds should contain ten trials (ten attempts to classify a word into a particular category), whereas recorded tests presented forty trials as determined by previous research (e.g., Greenwald et al., 1998). All intertrial delays were 150 ms as determined by previous research (e.g., Greenwald, et al., 1998) and the default settings within the computer simulation. Words were presented without replacement until all stimuli within a category were exhausted.

[4] Because participants entered in the idiosyncratic self items, the me and not-me items were viewed prior to the IATs.

The IAT measure was computed by subtracting the congruent mixed-category task from the incongruent mixed-category task. Thus, the IAT measure for associating gender with power (Gender IAT) was computed as the response latency for dominant/man vs. subordinate/woman subtracted from the response latency for dominant/woman vs. subordinate/man. The IAT measure for associating self with power (Self IAT) was computed as the response latency for dominant/me vs. subordinate/not-me subtracted from the response latency for dominant/not-me vs. subordinate/ me. The design for the analysis was a 2 (gender of participants: male, female) X 2 (word valence: positive, negative) on Gender IAT and Self IAT MANOVA.

Procedure

Each experimental session began with the completion of two explicit attitude measures (see explicit attitude measures below). After completing the pencil and paper measures, participants completed a "Me Questionnaire" in which they were asked to submit idiosyncratic self items to act as stimulus words for the me/not-me items in the Implicit Association Test (see Appendix C for the verbatim computer instructions).

Practice block. Before participants began the recorded portion of the experiment, a practice test of words unrelated to the purposes of the experiment was used to familiarize the participant with the association task. Here, participants were asked to categorize items as birds or snakes (e.g., robin vs. boa) and as red or white (e.g., apple vs. bone). In addition, a mixed-category block had participants categorize words when 1) red and snake or white and bird were presented on the same key and when 2) white and snake or red and bird were presented on the same key.

Single latency blocks. When the practice test was complete, participants began the categorization task using the me/not-me, man/woman and dominant/subordinate stimuli words. First, participants were presented with a practice, single latency block to categorize the words (e.g., dominant and subordinate). Each word was presented on the screen between the two categories and then participants were instructed to press the "A" key if the word belonged to the left hand category or the "5" key if the word belonged to the right-hand category. Next, a second set of words (e.g., man/woman) were presented and participants categorized these words as before.

Mixed–category blocks: Congruent and incongruent tasks. After becoming familiar with both sets of words, participants practiced a mixed-category block. This block presented each stimulus word in the context of all four category discriminators (two on the left side of the screen and two on the right). Here participants categorized each word according to its category even though the same key (left or right) was also used to identify words for another category.

After this practice round, a recorded round of 40 trials repeated the mixed-category task. After the recorded 40 trials, one of the categories was switched so that one category previously on the left key was now presented on the right key. Participants practiced this changed position for 10 trials, and then practiced another mixed session for 10 trials. To finish the first IAT task, a 40 trial mixed category block had participants categorize words when the distracting category poles were switched. After each round (both practice and recorded), participants received feedback on their overall response time and their error rate. The same procedure was repeated for the second IAT task with the second set of stimuli words. (See appendix D for a visual overview of the IAT tasks).

Explicit Attitude Measures

Upon completion of the two IATs, participants responded to two short questionnaires: Social Dominance Orientation – short scale (Sidanius, Pratto, & Bobo, 1994) and the Powerful Others Subscale (Levenson, 1981). These questionnaires were given after the IATs because of their obvious references to power, dominance, and control. Two other measures, the Internal-External Locus of Control (Rotter, 1966) and the Personal Attributes Questionnaire (Spence & Helmrich, 1978) were given prior to the task because they were not expected to affect participant responses on the IAT task. In addition, at the end of the experiment, participants responded to the question "In general, how powerful do you feel" on a scale from 0 ("not at all") to 9 ("very much") and provided demographic information (see Appendix E for the questionnaires).

Results

Data Reduction for Response Latencies

The first two trials of each block were discarded and extremely high (over 3000 ms) and low latencies (under 300 ms) were recoded to 3000 or 300 ms respectively (as recommended by Greenwald, McGhee & Schwartz, 1998). The data for each participant were summed for each block, and mean latencies for each mixed-category task and error rates were computed for each subject (a total of four mean latencies and four error rates). Error rates averaged 7.66% (SD = 6.11) across all mixed category tasks and did not vary by gender t (170) =.50, p = .62.

Calculation of IAT Effects

To calculate the IAT effect, each participant's conceptually congruent latency scores for the mixed category task (where participants matched words with categories in

the context of all four category discriminators) were subtracted from the conceptually incongruent mixed category task.

Gender IAT effects. It was expected that both male and female participants would have more difficulty categorizing words when woman and dominant appeared on the same key and when man and subordinate appeared on the same key than the reverse. To maintain positive scores, the Gender IAT was computed by subtracting the mixed category task for man + dominant/ woman + subordinate (conceptually congruent) from man + subordinate/woman + dominant (conceptually incongruent).

Overall, the mixed category task for man + dominant/woman + subordinate yielded a mean of 950.27 ms (SD = 201.07). The reverse mixed category task (man + subordinate/Woman + dominant) averaged 1067.22 ms (SD = 242.02). Thus, the congruent latency for associating gender with power occurred when man and dominant were presented on the same key. The Gender IAT (incongruent – congruent) showed an average difference between incongruent and congruent response latencies with a mean of 116.94 (SD = 185.55, d = .62).[5] Using a paired samples t-test, the difference between the two tasks was significant t (173) = 8.22, p = .0001, r = .53.[6] As predicted (Hypothesis 1), participants responded faster to stimuli when dominant and man items were presented on the same key than when dominant and woman items were presented on the same key.

Self IAT effects. The Self IAT effects were calculated by subtracting the latencies for the dominant + me / subordinate + not me mixed-category task (conceptually

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[5] Effect size d = Mean difference $M_1 - M_2$ /SD. The effect size for d = mean difference between mixed category task for conceptually incongruent – mean for conceptually congruent divided by the pooled standard deviation. Small medium and large effect sizes for d are .20, .50, .80 (Cohen, 1992).

[6] Effect size $r = \sqrt{[(t)^2 / (t)^2 + df]}$. Effect sizes for r are .10, .30, .50 for small, medium, and large effect sizes respectively (Cohen, 1992).

congruent) from the subordinate + me / dominant + not-me mixed category task (conceptually incongruent) latencies. The conceptually congruent task produced faster response times (M = 1080.70, SD = 296.55) than the conceptually incongruent task (M = 1121.49, SD = 255.86).

Overall, the Self IAT effect produced an average difference between incongruent and congruent response latencies of 40.79 ms (SD = 251.85, d = .16). Using a paired samples t-test, these two response times were significantly different from one another t (173) = 2.19, p = .02, r = .16. Although not predicted, participants responded faster to items when me and dominant items were presented on the same key than when me and subordinate items were presented on the same key.

Differences between Gender IAT and Self IAT Effects

Although no hypotheses were proposed regarding the differences between Gender IAT and Self IAT effects, a clear difference was observed. Participants showed larger Gender IAT effects (M= 115.95, SD = 185.47) than Self IAT effects (M= 41.95, SD = 251.57). Using a paired samples t-test, there was a significant difference between Gender and Self IAT effects, t (172) = 3.38, p = .001, r = .25 (see Figure 2).

Procedural Variables

An analysis of the order of the categorization task presented first (either congruent or incongruent) and the order of the IAT task presented first (either Gender IAT first or Self IAT first) showed no effect on the major dependent variables.

Order effects within the IAT task. Separate ANOVAs were computed to investigate potential order effects on the IAT measures. Results from a 2 (order: congruent first, incongruent first) by 2 (gender: male, female) by 2 (valence: positive

words, negative words) ANOVA on the Gender IAT showed no main effect for order of first paring on the Gender IAT F (1, 164) = 1.40, p = .24, or for the interaction between order of first pairing and participant gender F (1, 164) = .87, p = .35 or for the interaction between order and valence of the words F (1, 164) = .95, p = .33.

Results were similar for the Self IAT; there was no main effect for order of first pairing on the Self IAT F (1, 164) = .12, p = .72 or for the interaction between order of first paring and participant gender F (1, 164) = .06, p = .81 or for the interaction between order and word valence F (1, 164) = 1.41, p = .28. Thus, neither the order in which the mixed-category task was presented (either congruent first or incongruent first) nor the interaction between order and participant gender or the interaction between order and word valence had an effect on the major dependent variables.

Order effects between IATs. To assure that the type of IAT test presented first did not affect the responses on the major dependent variables, a 2 (test presented first: Gender IAT, Self IAT) by 2 (participant gender: male, female) by 2 (word valence: positive, negative) ANOVA was computed for each of the two IAT measures. Results show no main effect for order of first presentation (Gender IAT or Self IAT) on the Gender IAT response F (1, 164) =.19, p = .66 or an interaction between order and participant gender F (1, 164) = .44, p = .57 or the interaction between order and word valence F (1, 164) = 2.52, p = .11.

The same analysis was computed for the Self IAT measure. Similarly, results show no main effect for order of first presentation on the Self IAT response F (1, 164) =. 05, p = .82 or an interaction between order and participant gender F (1, 164) = 1.02, p = .31 or the interaction between order and word valence F (1, 164)= 1.48, p = .23. Overall,

an analysis of order (both within and between tasks), the interaction between order and participant gender, and order and word valence had no effect on the major dependent variables.

Gender and Valence Main Effects and Interactions

It was hypothesized that the valence of the dominant and subordinate stimuli as well as the gender of the participants would influence the IAT effects. Specifically, it was predicted that the implicit associations between gender and dominance would change as a function of the participant's gender and the valence of the dominant and subordinate words.

To test for the effects of valence and participant gender on the Gender IAT, a 2 (gender of participants: male, female) X 2 (valence: positive, negative) factorial ANOVA was computed. Results show a main effect for gender F (1, 168) = 27.47, p = .0001, r = .37 but no effect for the valence of the words F (1, 168) = .02, p = .89 or for the interaction F (1, 168) = .26 p = .61. Thus, in comparison to women, men show greater differences in their reaction times between the congruent and incongruent task (i.e., support for Hypothesis 2). However, neither the valence nor the interaction between valence and gender influenced the Gender IAT effects (i.e., no support for Hypothesis 4).

It was also predicted that the Self IAT effects would change as a function of participant gender and the valence of the dominant and subordinate words. To test for Self IAT effects a 2 (gender of participants: male, female) X 2 (valence: positive, negative) X factorial ANOVA was computed. Similar to the Gender IAT finding, there was a significant main effect for gender F (1, 168) = 4.93, p = .028, r = .17 but neither for valence F (1, 168) = 2.12, p = .15 nor for the Gender X Valence interaction F (1, 168) =

.80, p = .37. In other words, men had an easier time categorizing stimuli words when me and dominant or not-me and subordinate were paired on the same key than when me and subordinate and not-me and dominant were paired together (i.e., support for Hypothesis 3). Neither the valence of the words nor the interaction between a participant's gender and the valence of the words influenced Self IAT effects (i.e., no support for Hypothesis 4).

Effect Sizes for the IAT Effects by Gender

In using the effect size d (the mean differences divided by the pooled standard deviation) to investigate the magnitude of the differences in the IAT tasks, results show effect sizes that are stronger for men than for women (see Table 1). For example, men show stronger Gender IAT effects than women, (d = 1.80 for men and d = .31 for women). Men also show stronger Self IAT effects than women (d =.37 for men and d =.02 for women). Thus, it seems that the gender differences in IAT effects are driven by the difference in male participants' scores.

Additional Analyses: Race and Class Standpoints on IAT Effects

Because social standpoints were predicted to affect the IAT effects, it also seemed critical to explore how self-described race/ethnicity and class standpoints affect implicit power associations. Consequently, exploratory analyses of the IAT effects by Race/ethnicity (White, Non-White) and Class (Lower, Middle, and Upper) were also performed.

IAT effects by race. Participants were divided into White (N = 115) and Non-White (N = 55) groups by self–reported race.[7] Using an independent samples t-test Whites (M = 109.76) and Non-whites (M = 135.64) were not significantly different on

their Gender IAT effects t (168) = .85, p = .40. Whites and Non-Whites, however, did differ on their Self IAT effects. Whites (M = 70.22) showed greater Self IAT effects than Non-Whites (M = -17.04) t (168) = 2.13, p = .034, r = .16. In addition, a factorial analysis (Race X Sex) did not reveal differences on the Gender IAT, F (3, 168) = .61, p = .44. A moderate interaction effect, however, was observed for the Self IAT effect, F (3, 168) = 3.06, p = .082. To explore the nature of the moderate interaction effect, a one-way ANOVA (comparing White males, Non-White males, White females, and Non-White females) with a S.N.K. post hoc test showed that Non-White females (M = -95.42) exhibited significantly lower Self IAT effects than Non-White males (M = 84.21), White Males (M = 98.83) and White females (M = 48.34), F (3, 168) = 4.32, p = .006, r = .08.

IAT effects by class. Participants were divided into Upper (N= 42), Middle (N=82) and Lower Class (N=46) in response to their self reported social class.[8] Using a one-way ANOVA, results showed that Class had a moderate effect on Gender IAT effects F(2, 169) = 2.47, p = .087. Self reported Middle Class participants had moderately lower (M = 84.50) Gender IAT effects than Lower Class participants (M = 145.28) and Upper Class participants (M = 151.90). Class had no effect on Self IAT effects F(2, 169) = .84, p = .43. A Factorial analysis explored the interaction between Class and participant gender. Results showed no interaction between Class and Gender F (2, 168) = .98, p = .38 for the Gender IAT or the Self IAT effects F (2, 168) = 1.29, p = .28.

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[7] Small cell sizes (<20) did not permit a separate analysis for each race/ethnic group.

[8] To avoid a "middle class bias" in participants' reports, participants were originally asked to identify their class as upper class, upper middle class, middle middle class, lower middle class, working class, or poor. Participants were coded as upper class if they responded as upper class or upper middle class, middle class if they identified themselves as middle-middle class and lower class if the responded as lower middle class, working class, or poor.

IAT and Explicit Measures

Another exploratory objective of the study was to explore the relationship between implicit and explicit measures of social power, gender, and self. Summary statistics for the explicit measures appear in Table 2. Chronbach's α for these measures ranged from .60 to .82 suggesting satisfactory reliability. Higher scores on the M-Scale from the Personal Attitudes Questionnaire indicate more endorsement of self-assertive traits. Higher scores on the F-Scale from the Personal Attitudes Questionnaire indicate more endorsement of self-expressive traits. Higher scores on Social Dominance Orientation (SDO) indicate more endorsement of negative uses of power against outgroups. Higher scores on the Powerful Others Scale indicated self-reports that powerful others control one's life. Higher scores on the I-E locus of Control indicate more endorsement of external locus of control. Higher scores in response to the questions "How powerful do you feel?" indicate endorsement of a self that is powerful.

Gender differences in explicit measures. Results showed that male participants rated themselves significantly higher on self-assertive traits (M-PAQ), Social Dominance Orientation (SDO) and in response to the question "How powerful do you feel?" (Power check); whereas female participants rated themselves higher in self-expressive traits (F-PAQ). No gender differences were observed on the Powerful Others scale or the I-E Locus of Control (see Table 2).

Correlations between IAT effects and explicit measures. Correlational analyses showed that none of the explicit measures were associated with the Gender IAT latencies or log latencies (see Table 2). However, participants who reported high amounts of self-assertive traits (M-PAQ) or who self-reported feeling powerful in general (Power check)

were more likely to have larger Self IAT effects. In other words, there was a positive correlation between self-reported feelings of assertiveness and power and longer latencies to the subordinate-me/dominant-not-me mixed categorization task relative to the dominant-me/subordinate-not-me mixed category task.

Correlations between IAT and explicit measures by gender. Because one purpose of this study was to consider possible gender differences in implicit associations, it also seemed important to examine the correlations between the explicit measures and IAT effects by gender. As seen in Table 3, the explicit measures had no relationship to the Gender IAT for neither male nor female participants. As before, assertive traits were positively correlated with increases in the Self IAT effects.

However, three additional findings emerged. First, men who reported a high external locus of control also had lower Self IAT measures. That is, men who reported that their lives are controlled by situational events showed less discrimination between categorizing me and dominant words on the same key versus categorizing me and subordinate on the same key.

Second, in response to the question, "How powerful do you feel?", men who reported high amounts of personal power showed greater Self IAT latencies. In other words, men who feel personally powerful are also more likely to have greater differences in response latencies when categorizing me and dominant words on the same key versus me and subordinate words on the same key. Third, women who reported high amounts of Social Dominance Orientation were more likely to have larger Self IAT latencies. That is, women who endorse the oppression of outgroups also have large differences in response latencies between the congruent and incongruent latencies. In summary, when

the relationships between explicit and implicit measures are analyzed by gender, the correlations diverge from the findings observed in the total sample.

Discussion

The results from Study 1 show strong support for category (stimuli) differences and group (gender) differences in the implicit processing of power related information. Thus, implicit power thoughts depend on one's gender standpoint as well as the context in which power is judged (i.e., within the context of self or gender).

Implicit Gender-Power Associations

The results suggest that both men and women are quicker to associate the category man with power than the category woman with power. These implicit power associations may well originate in experience (e.g., media, family, society); however, they also have the effect of protecting the status quo. If people habitually think about men in powerful ways, then the opportunities for women to be chosen or to choose themselves for powerful or leadership positions may be limited. The man-power bias in implicit associations may be reduced by affirmative action and/or situations of female role modeling. (These possibilities will be discussed further in the General Discussion.)

This research also showed strong gender differences in men's and women's association between gender and power. While women showed smaller differences between man-power and woman-power associations, men showed the longest response times when trying to categorize woman in the context of dominant (Figure 3). Consequently, the differences between men's and women's responses seem to be driven by men's greater perception of disparity between the categories of "woman" and "power". It is possible that men's difficulty in this task originates from feeling threatened

by female authority. The Eagly, Karau, and Makhijani (1995) meta-analysis of leadership show that men often perceive a female leader as an intrusion or a violation of male territory. Because men are more likely to believe in a zero sum distribution of power than women (Pratto, et al., 1994), men may believe that endorsement of female power would somehow weaken their control over existing social relations.

Implicit Self-Power Associations

In general, all participants found it easier to associate dominant items with the self than subordinate items (Figure 1). Although this finding was not predicted, it is not surprising given people's general need for control as a primary motivating agent in human behavior (see Depret & Fiske, 1993 for a review). The way in which men and women implicitly associated themselves with social power also revealed gender differences. Whereas women responded similarly to power-me and power-not-me categorization tasks, men showed a greater difference between these two tasks (Figure 5). It is possible that the current social configurations create a male power advantage that, in turn, gives men greater access to powerful roles. If so, their greater experience in power positions primes men to relate to social power more easily than women (e.g., via self-perception). A second study will test this explanation by using all women groups.

Differences in Categorization Speed between IATs

Although not predicted, participants were more skilled in categorizing power words in the context of gender items than in the context of self-concept items (Figure 1).[9] These effects may have occurred because gender-power associations are more apparent than self-power associations. Because gender is a primary categorization strategy

[9] On average, participants found it as difficult to categorize items when dominant and woman were presented together as when dominant and me were presented together.

containing power cues (e.g., Berger, Fisek, & Zelditch 1977), dominance and subordination may be easier to connect to gender than to self-concept. It is also possible that the stimulus items for gender (e.g., brother, sister, mother) were easier to categorize than self-concept items (e.g., name, occupation, ethnicity, not-me last name). It is unclear whether the differential reaction times between IATs were due to the self-concept category or the association between self-concept and power.

Word Valence

Surprisingly, participants' association of dominant and subordinate words with the self and gender was not affected by the positive or negative meanings of these words. In fact, Griscom (1992) notes that power-over and power-to "overlap in complex ways and cannot be clearly distinguished as 'bad' or 'good' " (pg. 406). Perhaps the impact of power overshadows its positive or negative valence when people implicitly respond to it. That is, people may contrast such words as controlling (negative) and assertive (positive) words during explicit comparisons, but not when attempting to categorize them under time pressures.

Exploratory Analyses

Race/Ethnicity. Exploratory analyses of the participants' response by race and class revealed significant differences on some IAT effects but not others. Asian, African-American and Hispanic/Latino participants held weaker self-power associations than White participants. These results are not surprising because one's race and ethnic standpoint affects both one's self concept and the reactions from others (e.g., treatment as "second class citizens"). Moreover, Asian, African-American, and Hispanic/Latina women showed strong self-powerless associations (and were distinct from the rest of the

sample). The cultural stereotype/mandate of submissiveness for Asian and Latina woman may be one cause for these associations. Contrary to the stereotype of the strong Black woman, African American females showed self-powerless associations similar to those of Asian and Latina participants. Although these results were based on a small sample,[10] they point to self-described race/ethnicity as an indicator of self-power beliefs. Furthermore, they show how intersections between ethnicity and gender contribute to a social standpoint (Hill-Collins, 1980). Measures of ethnic identification (e.g., immersion, language) or qualitative investigations exploring the relationship between social power and ethnicity would contribute to a more detailed and contextual analysis of race/ethnic standpoint on implicit power beliefs.

Social class. Other exploratory analyses show that self reported social class was related to gender-power associations. In general, middle class participants held weaker man-power associations than lower middle class and upper class participants. It is possible that middle class participants hold more egalitarian gender-power associations than upper and lower class participants due to differences in the family structure such as the division of labor, allocation of resources, egalitarian attitudes, or parenting styles. The impact of family structure and economics on gender-power beliefs could be studied to explore how the man-power bias may be reduced.

Explicit measures. While participant standpoint and categorization instructions were connected to implicit power associations, some of the explicit measures were predictors of implicit associations as well. The explicit measures of power and gender were not related to Gender IAT responses; however, explicit measures of self-assertive traits or self-reported power were positively correlated with implicit self-power beliefs.

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[10] Asian American (N=5), African American (N= 15) Hispanic/Latino (N= 18).

While these results are correlational, they suggest that individual differences may predict some implicit self-power measures.

When the relationships between explicit and implicit power measures are analyzed by gender, more patterns emerge. An external locus of control and self-reported power were associated with men's stronger self-power associations. For women, high amounts of Social Dominance Orientation were associated with stronger self-power associations. These patterns show that explicit predictors of power and their relationship to implicit self power associations vary by gender.

The results of Study 1 show that there are gender differences in implicit social power beliefs and that associations between gender and power are stronger than associations between power and self. However, significant questions still remain. Of particular interest are the gender differences in Self IAT responses. Results from Study 1 showed that men and women differ in the way that they associate power with the self. This information suggests that power inequalities exist and may be self-fulfilling. A second study explored if self-power associations observed in the first study are affected by social experience.

Study 2: Implicit Power Associations by Experience

A second study investigated if gender differences in the Self IAT could be created by gaining access to social power. Specifically, groups of female participants were randomly assigned to Power or No Power groups and then interacted in a group trading and bargaining game. After the power manipulation, all participants completed the same Implicit Association Tests as in the first study. It was predicted that women with power

would have implicit associations between self and dominance that were greater than those women who did not have power.

Method

Participants

One hundred and twenty eight female undergraduate students from Psychology courses at Montclair State University participated for optional extra credit. Data from 11 participants (8.6%) were excluded (as recommended by Farnham & Greenwald, 1998) because of error rates over 25% indicating inattention to the task.[11] The remaining sample consisted of 117 participants. The majority of the sample was White (72.7%), the remaining sample was 7.1% Black or African American, 6.1% Hispanic or Latino, 3.0% Asian or Asian American, 2.0% Middle Eastern, and 9.1% did not indicate their race and provided no further information. Ages ranged from 18 to 49 (M=23.6, SD= 7.23) and did not vary by group status, $t(97.19) = 1.76$, $p = .082$.[12] Participants were randomly assigned to Power or No Power conditions.

Experimenters

Two experimenters (from the same group of experimenters as in Study 1) acted as experimenters for each simulation game. These experimenters explained the rules of the game, answered participants' questions, distributed materials, and helped to enforce the rules during the first round of the game. Each experimenter was trained for six hours prior to data collection. Experimenters used scripts and protocols to standardize the

[11] Error rates did not differ significantly by group status.

[12] Although there were marginal age differences between groups, there was a moderate negative correlation between age and the Self IAT measure ($r = -.17$, $p = .078$). Thus, higher age was associated with lower Self IAT effects.

delivery of information to participants (see Appendix F) and were blind to the hypotheses until all the data had been collected.

Materials

Star-Power game. The trading and bargaining game consisted of a trading rules poster, a points value poster, group status identity buttons (either square or triangle) and multicolor trading chips. In addition, Twit Hats (made out of large cloth napkins with knots at each corner) were used to identify the No Power group.

Implicit Association Test. The Materials and Apparatus for the Implicit Association Test were identical to Study 1.

Experimental Task/Manipulation

A modified version of Star Power (Shirrts, 1969/1993) was used to manipulate social power in the experiment. In the original version of this game, participants trade chips to earn membership in higher status groups. Higher status groups are given the authority to make the rules for lower status individuals. In the modified version of the game used for this experiment, participants were randomly assigned to Power and No Power groups to manipulate social power and eliminate the effects of potential confounds (i.e., individual differences in trading and bargaining ability) on the IAT.

The revised version of this game (modified by the author) involved two trading sessions. The first session was used to familiarize the participants with the rules of the game and to give a rationale for assigning one group the power to make the rules for the second trading round (to create the power manipulation). The second round allowed the Power group to exercise their power over the No Power group.

Design

Each participant was randomly assigned to the Power or the No Power group and then completed the same IAT tasks as in Study 1. Although participants engaged in a group task, the individual was the unit of analysis. The design for the analysis was a 2 (power status: Power, No Power) X 2 (word valence: positive, negative) on Self IAT.

Overview of Procedure

To manipulate social power in a laboratory context, two groups of female participants (three to five participants per group, or a total of 6 to 10 participants in each session[13]) engaged in a trading and bargaining game. The goal of the game was to accumulate the most points with just five chips by bargaining with other players. The bargaining game involved two trading sessions. In the first "practice" session, participants practiced trading and bargaining techniques. This session also provided the opportunity to assign one group power based upon their alleged success in the practice round. The second "recorded" round allowed the powerful group to exercise their power over the other group by enforcing rules that favored themselves. After the game, the three highest scorers were awarded a cash prize. All participants then completed the same IAT tasks as in the first study.

Procedure

Upon arriving at the experimental laboratory, participants drew either a Square or Triangle button from a cloth bag. They were told that the buttons (either square or triangle) had no significance but that they were to sit with their group members. Groups of chairs were arranged so that group members sat with one another and sat apart from one another. (See Appendix G for a schema of the room setup). After obtaining informed

consent from participants, the experimenter told the participants they would be playing a trading and bargaining game, in which the three individuals with the highest scores would be declared the winners and receive a cash prize of five dollars each.

Explanation of scoring. Participants then selected six chips out of another bag and were told not to reveal them to any other participants. After all participants had selected six chips, an experimenter explained the scoring system that was presented on a poster on the wall (see Appendix H). The experimenter explained that the chips represented different point values and that the goal was to accumulate the most points using just five of the chips (e.g., Gold chips were worth the most and Blue were worth the least). To facilitate the trading of chips of unequal value, bonus points were awarded to individuals who had four or more of the lower value chips (thus, participants could accumulate high point values even if they were dealt lower quality chips).

Explanation of rules. Participants were also instructed that they were to trade under a set of rules that were displayed on another wall poster (see Appendix I for the rules). Six rules governed the bargaining and trading behaviors: 1) Players must clasp hands to make a trade, 2) Only the best five chips count toward the score, 3) Chips of unequal value must be traded once hands are clasped (that is, individuals could not trade a blue chip for another blue chip), 4) There will be no trading or talking unless hands are clasped, 5) If arms are folded, you do not have to trade, and 6) All chips are to be hidden at all times. In addition to these rules, participants were told that they could trade with ingroup and outgroup members and that two chips could be traded for one chip (e.g., two blues for a green).

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[13] There was no relationship between the total group size and the Self IAT effect ($r = .04$, $p = .70$).

Explanation of strategy and trading demonstration. The experimenter then told the participants that there were two basic strategies for trading: 1) to acquire fewer of the high quality chips or 2) to acquire more of the low quality chips. Next, the two experimenters simulated a trading round with the rules to demonstrate proper technique. An experimenter then told the participants that there were two trading rounds: a practice round and a recorded round. The experimenter explained that the winning group in the practice round would get to make the rules for the second round–the session that determined the winners. (In actuality, the power was always given to the same group). After all questions were answered, the practice trading round began.

Practice trading round. Participants engaged in the first trading round for five to seven minutes. Two experimenters circulated among the participants to enforce the rules of the trading round, answer questions, and help participants calculate their point values. At the end of the trading round, participants were instructed to go back to their seats and record their scores on their folder.

Power manipulation and additional rules. After all participants added their chips together, the experimenters checked the participants' calculations. Next, an experimenter declared the "Squares" the winners because they had displayed a "better trading technique" than the "Triangles." Copies of additional rules (see Appendix J) were then distributed to all players and the Squares were instructed to choose at least four rules or to create any rules they wanted for the last trading round.[14] The Squares were also informed that it would be their responsibility to enforce their rules during the trading session, and that the experimenters would simply be observing the last trading session. All players

[14] Pilot testing indicated that players had difficulty devising rules in the time period allotted (five minutes). A list of "suggested rules" were used to assist players' rule choices.

traded in their chips from the first round for a second set of six chips while the Squares decided upon the rules. (This procedure was used to minimize the effect of individual differences in trading and bargaining from the first session on the results of the second session.)

Second "recorded" trading round. After the Squares decided upon the rules, one delegate announced the rules to the players and the penalties for rule violation. Players were then instructed to trade for an additional seven minutes at which time chips were counted and the three highest scoring players were declared the winners. Winning had no impact on the Self IAT effect t (112) = .30, p = .76.

The IAT task and manipulation checks. After the second trading session was complete, participants were instructed to sit at one of the computers in the experimental room. Participants then completed one of the same IAT sequences as in Study 1. After the IAT task was complete, participants completed manipulation checks for group power and demographic information (see Appendix K).

Results

Manipulation Checks for Power

To assure that there were no differences in trading ability between Power (the Squares) and No Power (the Triangles) individuals, an independent samples t-test contrasted the amount of points Power and No Power individuals earned after the first, or "practice" trading round (when no power differences existed). Results showed that there were no differences between Power and No Power individuals in their trading ability during this first round. Power individuals did not acquire more points (M = 18.66) than

No Power individuals (M = 17.87) during the first trading round t (110) = .85, p = .39. Thus, there were no group differences in trading ability prior to the power manipulation.

Behavioral manipulation checks. Three behavioral measures assessed the social power manipulation. If the power manipulation was effective, 1) participants in the Power group would have significantly more points than the No Power group at the end of the second round of trading round, 2) participants in the Power group would have more points in the second round (when they had power) in comparison to their scores in the first round (when no power differences between the groups existed), and 3) participants in the No Power group would have fewer points after the second trading round in comparison to their scores from the first trading round.

Manipulation checks for all three behavioral measures of power yielded differences in points earned that were associated with group status. As expected, the Power group earned significantly more points after they had been awarded power (M = 21.74, SD=5.99) than the No Power group (M = 14.89, SD =4.92), t (112) = 6.68, p = .0001, r = .53. Also as expected, the Power group earned significantly more points after they had been awarded power (M = 21.74, SD = 5.99) than before they were awarded power (M = 18.66, SD = 4.56) t (58) = 2.91, p = .005, r = .36. By comparison, the No Power group earned significantly fewer points after the Power group were awarded power (M = 14.89, SD = 4.92) than before the power manipulation (M = 17.87, SD = 5.36) t (52) = 3.03, p = .02, r = .39. Thus, the manipulation of power was effective in creating domination in the Power group and subordination in the No Power group.

Attitudinal manipulation checks. In addition to assessing the power manipulations at the behavioral level, participants were also asked how they felt about the power

differential during the game. Specifically, participants were asked, "How powerful did you feel during the game," responding from 0 ("not at all") to 9 ("very much"). The Power group reported significantly higher self-ratings of power during the game (M = 6.66, SD = 2.28) than the No Power group (M = 2.13, SD=2.15) t (113) = 10.90, p = .0001, r = .72. Thus, both the behavioral and the attitudinal measures of power show that the manipulation was effective in creating power in the laboratory setting.

Data Reduction

The data reduction was identical to Study 1. Error rates averaged 8.6% (SD = 6.11) across all mixed category tasks and did not vary by group status or order of first pairing (congruent or incongruent).

Self IAT Calculations

The IAT calculations were identical to Study 1; congruent latencies (dominant + me / subordinate + not-me) were subtracted from the incongruent latencies (subordinate + me / dominant + not-me). Results show that the congruent mixed category task yielded a mean of 1033.43 (SD = 263.41) and the incongruent mixed category task produced a mean of 1090.25 (SD = 267.40). A paired samples t-test showed a significant difference between the two mixed category tasks t (117) = 2.58, p = .011, r =. 23. Thus, similar to Study 1, participants responded faster to words when dominant and me were presented on the same key than when subordinate and me items were presented on the same key.

Procedural Variables

Similar to Study 1, an analysis of the within and between IAT order effects were calculated. First, a 2 (order of first pairing: congruent first, incongruent first) by 2 (group status: Power, No Power) by 2 (word valence: positive, negative) factorial ANOVA on

Self IAT responses was computed. Results show a marginal main effect for order of first presentation[15] within the Self IAT task F (1, 108) = 3.39, p = .068 but no interaction effects between order and group status F (1, 108) = .20, p = .65 or between order and word valence F (1, 108) = .46, p = .50.[16] In addition, no between task order effects (Gender IAT first, or Self IAT first) or interactions between order, group status, and word valence were observed (all $p_s > .05$). In summary, marginal order effects were obtained but they neither interacted with the other main independent variable (group status) nor had an effect on the major dependent variable (Self IAT effect).

Effects of Power Manipulation on Self IAT Effects

It was expected that persons with access to social power would have a greater discrepancy between the IAT measure for self-dominant relative to self-subordinate associations (i.e., a lower Self IAT effect) than individuals without access to social power. Results from an independent samples t-test showed that Power group members were significantly more likely to associate dominance with the self and subordinance with others (M = 102.29) than No Power group members (M = 3.50), t (114) = 2.24, p = .02, r = .21. Thus, as predicted in Hypothesis 5, social power enhanced feelings of self-power, decreased feelings of self-powerlessness and showed patterns that were similar to men's results in Study 1. Similar to Study 1, word valence (positive or negative) had no

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[15] Order effects often occur when the compatible block (e.g., man + dominant on same key) precedes an incompatible block (women + dominant on the same key) (Greenwald, McGhee & Schwartz, 1998).

[16] Order effects were observed for the Gender IAT. A 2 (order of first pairing: congruent first, incongruent first) by 2 (groups status: Power, No Power) by 2 (word valence: positive, negative) on Gender IAT show a main effect for order on the Gender IAT F(1,108) = 4.47, p = .037. Participants who received the congruent mixed category task for gender first (man and dominant on one key and woman and subordinate on another key) showed Gender IAT effects that were significantly larger (M= 114.38) than participants who received the incongruent latency first (M = 46.02) t (115) = 2.04, p = .043, r= .19. No other interactions between order and group status or order and word valence were observed.

main effect F (1, 112) = .22, p = .64 or interaction effect between status and word valence F (1, 112) =. 54, p = .44 on the Self IAT effect (non support for Hypothesis 6).

Additional Analyses

Although no specific hypotheses were made about the effects of power on Gender IAT effects, Power and No Power Gender IAT effects were compared. Results show that Power Group members did not have higher Gender IAT effects (M = 61.94, SD = 159.68) than No Power group members (M = 95.07, SD= 209.03), F (1, 112) = .120, p = .28. In addition, word valence had no interaction with group status, F (1, 112) = .11, p =.74. A trend main effect was observed for word valence on Gender IAT effects, F (1, 112) = 2.82, p = .10. Participants categorizing positive dominant and subordinate words in the context of gender had slightly lower Gender IAT effects (M = 49.77, SD = 206.67) than participants categorizing negative dominant and subordinate words (M=106.38, SD=147.35).

Self-reports. In addition to the manipulation checks for power, participants were also asked how they felt about the power differential. First, participants were asked how much the powerful group had the right to have the power in the game (0 = "not at all" to 9 = "very much"). Not surprisingly, the Power group felt that the power differential was more legitimate (M =5.26) than did the No Power group (M = 3.28) t (113) = 3.38, p = .001, r = .30. Second, participants were asked how fair they thought the game was (0 = "not at all" to 9 = "very much"). The Power group members believed that the game was significantly more fair (M = 4.61) than did No Power group members (M = 2.63) t (107.99) = 3.51, p = .001, r = .32. Third, participants in each group were asked: "How much do you think your group felt like one group?" (0 = "not at all like one group" to 9 =

"very much like one group"). Results show that the Power group felt much more like one group ($M = 6.13$) than the No Power group ($M = 4.63$), $t(113) = 3.04$, $p = .003$ $r = .28$.

Fourth, participants were also asked how powerful they felt after the power manipulation (0 = "not at all" to 9 = "very much"). Surprisingly, No Power participants reported that they felt significantly more powerful at the end of the experiment ($M = 6.07$) than Power group participants ($M = 4.87$), $t(113) = 2.76$, $p = .007$, $r = .25$.

Discussion

As predicted, the results of Study 2 show that women's implicit self-power associations differ by experience. Women who were randomly assigned to powerful positions showed implicit associations between self and power that were stronger than the responses of women who were assigned to powerless positions. Similar to Study 1, the valence of the powerful and powerless words did not affect participant's implicit power associations.

At first glance, it may appear that the purpose of Study 2 was to show or teach women to "act and think like men." This is not exactly true; rather, the goal was to demonstrate that the way women think about power and associate power with the self can be altered through social interaction even in a very brief experience with power. (Only about 15 minutes of the one-hour experiment were spent in the actual power manipulation.) Although there is a great difference between a 15 minute exposure to power and a lifetime of privilege, the results indicate that current context influences implicit power beliefs. The results also suggest that men's implicit self-power associations may be due to experiences with power. The Self-IAT effects of powerful

women in Study 2 and men in Study 1 show striking similarities. (This will be discussed further in the General Discussion).

The study also illustrates that subordination produces implicit power associations that do not favor the self over others, whereas power and dominance create implicit power associations that favor the self relative to others (Figure 7). Subordinated women associated themselves equally with dominance and subordination whereas dominant women suppressed self-powerless associations and exhibited strong self-power associations. The extremes observed in the responses of powerful participants suggest that these standpoints exaggerate power differences between self and other while powerless positions do not create the same self-other boundaries. If power does contribute to individuals' self-other differentiation, this finding may explain why powerful people are more likely to stereotype than powerless people (Fiske, 1992).

Manipulating Power: Controlling Control

The findings also reveal that power can be effectively manipulated in the laboratory setting. Many research participants arrive at the laboratory as relatively powerless persons because they have been directed there by a professor (perhaps to fulfill a course requirement). Once in the lab, the participant is on unfamiliar ground, dependent on the researcher or experimenter to guide him/her through the procedure. Because of this built-in control and dependency, laboratory power manipulations are not effective unless participants are made to feel responsible for the social interactions occurring in the laboratory.

In Study 2, the Power group was able to "run" the power manipulation (e.g., by deciding upon the rules, determining when trading would begin and end, and enforcing

punishments for rule violation), thus increasing their feelings of dominance. As a result, Power group members actually acted as powerful people. For example, shy and taciturn subjects in the first round of the game often became loud, assertive, and giddy when given power in the second round. By comparison, the subordinated participants frequently became resigned and silent, meekly holding out their chips for the dominant group to plunder (see Addendum for more detail). Although these behavioral differences were not recorded and coded by independent judges, the differences in group scores after the power manipulation demonstrate that power does affect behavior as well as thought. These observations suggest that the group interactions could be recorded and analyzed to understand the content of dominant and subordinate behavior in a laboratory setting.

Group Salience

As evidenced by the manipulation checks, powerless group members felt less like one group than the powerful group. There was a surprising absence of camaraderie and coalition forming in the powerless groups. Erika Apfelbaum (1979) offers an explanation for the reduced group salience in the subordinated group members. She suggests that while powerful groups "group" and "mark" subordinated groups to differentiate them from the dominant group (e.g., through stigma or branding), powerless group members are simultaneously degrouped.

Degrouping occurs when the powerful group destroys a subordinated group's unity or limits its formation and makes members of a subordinated group feel disconnected from others who share a common fate (i.e., a divide and conquer effect). Participants in the subordinated group may have felt degrouped as a consequence of the power manipulation, discriminatory rules, and their perceived lack of options.

These results are curious given research suggesting that group membership is more meaningful (to explain behavior) to low power groups than it is for high power groups (e.g., Lorenzi-Cioldi & Deaux, 1998). While group identity may be more important for explaining behavior for low power groups, it may not always enhance their feelings of solidarity. It is possible that group salience has both cognitive and affective components. Past research comparing powerful and powerless groups demonstrates that powerless groups are less comfortable, happy, and satisfied than powerful groups (Sachdev & Bourhis, 1985; 1991). Therefore, lower group status may invoke external explanations for behavior but may create depressed affective states as well.

Power: During and After

Although subordinated group members reported feeling powerless during the experiment, they reported feeling more powerful than dominant group members at the end of the experiment. Three explanations (alone or in concert) may explain the greater self reported post-experimental power of subordinate group members.

Regrouping. First, it is possible that the process of degrouping incorporates a counter process of regrouping when the group memberships are short-lived. Subordinated group members reported a significant increase in power during the experiment in comparison to after the experiment. No Power participants reported that they felt less powerful during the experiment than after the experiment, t (52) = -11.35, p = .001, r =.84. Thus, subordinated group members may have mentally reconnected, or regrouped, with personal or group identities that served as a baseline for feelings of self-power.

Contrast effects. Second, it is also possible that when dominant group members became ordinary women again, they may have experienced a contrast effect between

their greater experimental power and their lesser "real world" power. Indeed, women in the powerful group reported a significant decrease in their feelings of power after the manipulation. A post hoc within subjects comparison show that Power Group participants did experience such contrast between experimental power and post experimental power, t (61) = 6.90, p = .001, r =.66.

Reactance. The last explanation concerns the effects of reactance (Brehm & Brehm 1981). When behavioral or attitudinal choice is limited by another person, individuals often act or think in an oppositional manner to regain their sense of individuality, control, and free will. Powerless participants may have reported more power at the end of the experiment to regain a sense of control. Of course, it is possible that all of these effects (regrouping, contrast effects, reactance) were operating simultaneously.

Limitations, Omissions, and Further Study

Mixed-sex groups. Whereas powerful positions seem to produce self-power associations in women, an obvious omission in this study is the presence of men in the power manipulation. Before researchers come to strong conclusions about the causes of self-power associations, men should be exposed to powerful and powerless positions, as women were in Study 2. If experimentally powerless men and women show similar patterns of implicit self-power associations (and are similar to women's implicit power associations from Study 1), and if experimentally powerful men and women show similar patterns of self-power associations (and if these are similar to men's implicit power associations from Study 1), then causal models between social position and self-power

associations can be suggested. Such research would then show that men's and women's implicit power associations are caused by differential access to social power.

In addition, mixed-sex groups with varying percentages of male and female participants could be manipulated to observe their effects on implicit self-power associations. Perhaps the absence of men in the current study encouraged the powerful women to enjoy and exercise their power in ways they would not have done had men been present. Sometimes capable women are silenced or inhibited in mixed-sex groups but not in all-women groups (e.g., Carli, 1990; Ellyson, Dovidio, & Brown, 1992). It is possible that experimentally powerful women in mixed-sex groups would not use their power or else would use it in ways that are more appealing to men. As a result, these more subtle applications of power may not create strong self-power associations because their use involves as much subordinate as dominant behavior (e.g., smiles, ingratiation).

Group vs. individual. It is possible that women's power related behavior (and their resultant implicit thought) was due to deindividuation (Zimbardo, 1970) rather than personal authority. Because group power was manipulated instead of individual power, the powerful group members distributed the power as well as the responsibility among the group members. As a result, the manipulation of group power may have exaggerated women's power related feelings and behavior. By comparison, men in study 1 acted under the premise of individual power and entitlement. Thus, feelings of power originating from deindividuation are not equivalent to feelings of power originating from social entitlement. As a result, powerful women's implicit self power associations may not have been motivated by the same psychological mechanisms as men's in study 1. It

is possible that manipulating individual power (e.g., leadership) would be a more effective equivalent to men's authority in Study 1.

General Discussion

These two studies show that social position affects implicit power beliefs. Participants evidenced implicit power associations that were connected to gender and self-concept, differed between male and female participants, and were affected by experience in all female groups. Although the subject sample was demographically limited (mostly white, female, young university undergraduates), there were significant effects of power and gender on implicit power beliefs for the self. The research suggests that mental associations originating in social standpoints, gender, and experiences with power may be interconnected psychological mechanisms underlying many social relations.

Implications for Social Change

The results show that social position may create implicit power beliefs about both the self and social groups. It is probable that these implicit power beliefs both reflect and perpetuate existing social structures. On the one hand, our beliefs may mirror everyday experience. Daily social interactions (e.g., at work, within the family) as well as social observation (e.g., the media) may build the network of implicit power associations that we hold for the self and for social groups. These experiences may create mental associations that assist in the construction of reality. Consequently, these social cognitive filters may select information for attention and memory. For example, strong implicit man-power beliefs may direct attention toward examples of male leaders but filter out examples of female leaders (leaving a memory void). If this process is occurring, it

explains why both men and women associate men with power more than women in the current study.

On the other hand, these beliefs can operate as self-fulfilling prophecies (e.g., Snyder, Tanke & Bersheid, 1977; Geis, 1993) that begin in biased social perception, are maintained through differential treatment of the powerful and the powerless, and are strengthened through behavioral confirmation. It is possible that strong self-power associations may prompt an individual to act authoritatively and self-verify his/her self-concept (e.g., Swann & Read, 1981b). If such an individual receives deferential responses from others, these responses may reinforce the initial self-power beliefs, thereby increasing the likelihood that powerful behaviors will be repeated. Such repetition, of course, would depend on the actor's legitimate use of power and his/her success in the influence attempt.

Public policy. The implication of implicit power beliefs operating as self-fulfilling prophecies is that social change will be slow until there are widespread changes in behavior. Such changes in behavior may be suggested through research and teaching, but often the strongest behavioral change occurs when mandated by public policy. Currently, policies compensating for inequality and bias (e.g., affirmative action, welfare) in the social structure are in a state of backlash. Because we know that when inequalities exist people internalize powerlessness as part of their standpoint (Apfelbaum, 1979; Duncan et al., 1997) an understanding of the internal representations of power may explain why the powerful remain dominant and the powerless remain socially immobile. Thus, research exploring the effects of social position on implicit beliefs and subsequent behaviors is

crucial for informing policy makers as they work to bring about social and economic equality.

Responsible uses of power. The powerful face choices about how to use their authority (e.g., controlling vs. empowering). Their decisions may be unconscious, automatic, and schema-driven originating from previous experiences. Developmental forces (e.g., parenting), social structure (e.g., government), personal experiences (e.g., work) may all coalesce to form a mental model of how one uses power. Power-over or power-to models of social power may produce either oppression or empowerment. It is likely that a dominance model (power-over) of social power is more mentally available and limits consideration about how one should use power.

In Study 2, access to social power did not produce a responsible use of power. While the power manipulation was effective in creating dominance and subordination in the groups, the results may only be interpreted in the context of this manifestation of social power. By design, situationally powerful participants exploited and demoralized powerless participants because there were few ways the powerful could manifest their control. With a broader mandate, however, power can be used to inform, instruct, liberate, empower, and equalize.

David Winter (1988) has identified some of the mechanisms underlying a responsible power. Specifically, he categorizes power motivation (an implicit measure of power) as responsible or profligate. Responsible power occurs when people write thematic apperception test stories that describe office holding and political organizing. Profligate power is evidenced by story writing reflecting self-destructive drug and alcohol use, and verbal and hostile aggression towards others. According to Winter,

responsible power motives are created by 1) having younger siblings during childhood and adolescence and 2) having children as adults. For both men and women, responsible uses of power are related to the human activity of caring for the welfare of children. It seems that this care invokes responsibility norms that could be activated by having people take pride in the welfare of others.

It is possible that priming people with responsible uses of power (e.g., equality/justice/responsibility norms) might have changed the behavior and the resultant implicit power associations observed in Study 2. When respected authorities exemplify a responsible use of power, they can promote equality and justice norms within powerful groups. For example, having an accomplice within a dominant group share her power with powerful and powerless group members alike may promote all women's self-power associations.

Implications for Powerlessness

Although the primary purpose of the research was to study power and its links to gender and self-concept, the results reveal as much information about powerlessness as they do about power. Stimulus words and experiences studied dominance as well as subordination. These studies showed that being a woman or being powerless results in weaker self-power associations (Figure 7). Furthermore, women and the powerless exhibited small differentiations between associating power with the self versus power with the other. Indeed, women in Study 1 and powerless participants in Study 2 showed implicit power associations that equally associated dominant and subordinate concepts with the self, while men in Study 1 and powerful participants in Study 2 showed implicit associations that favored dominant concepts over subordinate concepts for the self.

Perhaps people without power, regardless of their gender, are less rigid in their use of categories to organize social information about the self and social groups. Because many more people control the powerless than the powerful, it is possible that the powerless need to be more flexible in their thoughts and their behaviors to accommodate many individuals' desires and commands. Research in power and stereotyping shows that people without power stereotype less than people with power (Fiske, 1992; Goodwin, Operario, & Fiske, 1999). According to this research, subordinates are less likely to stereotype dominants because forming an accurate impression of controlling others allows subordinates to better predict their outcomes. Because subordinates seem to be more fair in their appraisal of self as well as others, understanding subordinates' construction of power may guide methods for reducing bias in implicit power associations.

Multiple Standpoints

Although this research focused on gender as a social standpoint to understand implicit power beliefs, intriguing race/ethnicity and class differences emerged for both the implicit self-power and gender-power beliefs. Because a social standpoint is created through gender, race, and class (Hill-Collins, 1980) research should be mindful of how patterns of identity form implicit thought. Study of these differences a priori could explore how gender, race, and class are interconnected in the power schema constructed for both self and others. An analysis of which standpoints are primary, how positions interact or are additive in the power schema, and which may be situationally primed (e.g., in a group of dissimilar others) would greatly enhance an understanding of how multiple standpoints contribute to perspective taking within a social system. Such study may also

suggest how multiple standpoints encourage people to challenge, support, or conform to social structure.

Implications for Gender

The results also reveal that power and male gender are conceptually linked in the minds of many people. Both men and women had an easier time thinking about power in the context of "man" than in the context of "woman". As argued in the Discussion in Study 1, these implicit power associations favoring men may recreate the male power advantage in society and discourage women's equality to men in many aspects of public and private life.

It is likely that equivalent gender-power associations could be created experimentally through endorsement of powerful women (e.g., Geis, Brown, & Wolfe, 1990) or by female authority role modeling (e.g., Geis, Boston, & Hoffman, 1985). These situations create a social proxy where women are powerful and legitimized. An effective female eminence suggests that having more women in positions of power can change people's views of women so that they will be seen as having authority equal to men. Such research would also assist arguments in favor of affirmative action.

Implications for Implicit Thought: Behavioral Choice, Interaction, and Judgement

Results from these studies show that people hold implicit thoughts between gender and power and self and power than vary by one's standpoint. It is possible that these associations serve as the roots for a power schema. Because some social categories are easier to associate with social power than others, strong associations between self and power or gender and power may act as expectancies guiding behavior and interaction with others. For example, a woman's strong self-power associations may motivate her to

pursue a career in which she has power over others such as politician or religious leader. The same woman's strong man-power associations, however, may guide her into more traditional areas of work such as teacher or nurse.

It is also possible that the patterns of implicit power associations affect interactions with others. Bargh and Raymond's (1995) research in sexual harassment and Bugental and her colleagues' (1996) studies of caregiver relationships suggest that individuals perceiving low power in their relationships but believe their in high self power, are the individuals most likely to activate power in memory when they interact with others. If a man holds strong man-power associations as well as strong self-powerless associations, he may also possess strong entitlement beliefs. As a result, he may engage in more hostile and aggressive behavior towards others that threaten men's dominant position (e.g., female leaders).

The effects of implicit power associations will not be uncovered until clear links between implicit thought and behavior are established. This disconnect is one of the limitations outlined in the next section.

Limitations

There are several limitations restricting a full interpretation of the current research. Addressing weaknesses in the sample, operationalization, and meaning/usefulness of IAT may guide future research scenarios.

Limited sample. The strongest statements regarding the effect of standpoints on implicit power associations will occur when males, diverse occupational/economic status groups, and larger samples of non-White participants of varying ages are routinely included in the studies of implicit power beliefs. A diverse sample may suggest how

race/ethnic differences in self-power associations and class differences in gender-power associations operate.

Narrow operationalization: Stimulus items. Although naming personality characteristics associated with the powerful and powerless is one way to understand how individuals think about the behavior and psychological structure of self and social groups, dominance and subordination are concepts that transcend simple personality descriptors. To fully understand how implicit power associations operate, other stimuli and measures should be examined. For example, forgetting, memory bias, and social errors (e.g., Fiske & Haslam, 1996; Riccio, Rabinowitz, & Axelrod, 1995) could be used to explore additional social cognitive dimensions of implicit social power beliefs.

The study of nonverbal behavior with its examination of implicit cues to dominance and subordination offers another way to study the effects of position on implicit power beliefs. For example, visual dominance (Exline, Ellyson, & Long, 1975)–an implicit measure of dominant and subordinate gaze behavior—parallels the operationalization of power in the current study and could be studied in relationship to implicit power associations.

Narrow operationalization: Power manipulation. As previously mentioned, the powerful participants in Study 2 did not use their power responsibly. Responsible uses of power may only occur when there is space for them. Although participants were allowed to make up their own rules, the rules offered as suggestions were designed to exploit the powerless group and advantage the powerful group. As a result, only negative manifestations of power were created in the laboratory situation.

Analysis of the predictive qualities of implicit associations. Similarly, the behaviors associated with IAT effects reveal another question/weakness in the current study. Results show that people hold patterns of implicit power associations, but what behaviors and emotions are they related to? Do implicit power beliefs affect how we react to other people in powerful roles? Or do we only react to those who violate our expectations (e.g., women in traditionally all male environments)? Are there positive and negative psychological consequences of holding strong self-power beliefs such as enhanced self esteem or physical aggressiveness? Do the beliefs affect or bias impression formation? Are there subtle connections between a power schema and one's characteristic behaviors (e.g., nonverbal mannerisms)? Do these cognitions predict emotional and behavioral reactions when a person is in a powerful or powerless position? Without assessing the attitude-behavior link between implicit power beliefs and consequent behaviors and emotions, only half of the story can be told.

Identifying individual or group differences in implicit power beliefs and their relationship to behavior may prime attributional errors. Victim blaming may occur if the situational and flexible nature of implicit power beliefs are not explored. As there is need to study causal relationships between power beliefs and behaviors, subsequent research should be mindful of how it may be interpreted by those who favor the status quo.

Future Directions

The results and limitations of the current study give rise to at least four subsequent studies. First, a study that manipulates social power in all male and in mixed sex groups and then assesses the implicit power associations for self and gender categories is warranted. Results of this study would show 1) if men's implicit power

associations are affected by experience just as women's are affected; 2) if mixed-sex groups allow women to express social power given to them; 3) if mixed-sex groups have the same effects on implicit power associations as was demonstrated in all-female groups.

A second study might suggest that the mechanisms for gender-power associations could be reduced through priming people with examples of powerful women (e.g., Geis, 1993). For example, female authority role modeling and free writing exercises about powerful women may prime people to think about the ways in which women are powerful. These thoughts may enhance woman-power associations in both women and men. This authority role modeling could also be used to increase the responsible uses of power in the dominance-subordination relationship.

A third study would investigate race, ethnicity, class, and gender a priori. As with the current research, preexisting differences would act as a baseline for a study that manipulates access to social power. An assessment of how multiple standpoints contribute to implicit power beliefs would delineate how the intersections between viewpoints contribute to the construction of reality and its change.

A fourth study could explore causal links between an individual's implicit power beliefs and their behaviors. Such a study would consider how beliefs affect behaviors in a variety of different situations including male-female interactions, leadership emergence, impression formation, and social activism (to name a few).

Realizing that the limitations compromise the breadth and depth of the findings, I invite other researchers with varying standpoints to extend these results using other implicit social cognitive methods, diverse samples, and additional operationalizations of power and powerlessness. I extend a special invitation to all researchers who wish to use

the current manipulation of social power to understand the causal effects of power on behavior, cognition, and emotion in a variety of contexts. The manipulation is flexible enough to accommodate a variety of different research scenarios and could be used in stereotyping and intergroup research.

Conclusion

Together, the studies suggest that social standpoints as well as experiences affect social power beliefs. Power beliefs may reflect existing social relations and also change them if situations provide opportunity for equal access to social power. The implication of this research is that people internalize social hierarchy as part of their self-concept, but that power-change alters the social construction of self, extends to self-group perceptions, and modifies the status quo.

Implicit social power beliefs may form one of the symbiotic links between individuals and their societies. Power theories are essentially community theories (Hartsock, 1983). Building interdependent, equitable, and diverse societies is a major challenge to world leaders and activists. While community building is a global issue, at its heart it is a local task to be accomplished at home, school, and at work. The goal will not be accomplished until connections are made between public and private power sectors, until there are incentives for responsible uses of power, and until there is emphasis on equality in our minds and our behaviors.

Appendix A: Experimental Script and Protocol for Study 1.

Experimental Script

The following is a detailed explanation of the script and procedures you will run in each experimental session. **Bolded and block indented items are your script,** [*anything in italicized parentheses are directions.]*

[THE INTRODUCTION]

Hello and welcome to this experiment. My name is _____ .

[Seat participant at the computer.]

[THE INFORMED CONSENT]

Before we begin, we need to tell you a little about the experiment and have you read and sign a short form *[Have them open the folder and take out the informed consent].*

Do you have any questions? *[Answer any questions s/he has]* **If you do not have any questions please sign both copies of this form and print your name below your signature.**

[Have the participant print their name next to their signature. Give them a copy of the form to keep. Make sure they indicate whether or not they are getting extra credit for their participation]

[SUBJECT IDENTIFICATION CARD]

To enter you into the $150.00 lottery we need your name and phone number so you can be entered into the lottery. Please write down the area code as well. This winner will be chosen after all the data have been collected.

[THE SURVEY: YELLOW]

Before we begin with the computer task, we need to ask you a few questions about yourself. *[Open the folder and take out the yellow questionnaire and the red answer sheet.]* **Please respond to the items on this questionnaire by filling in the appropriate bubbles on your red answer sheet. There are no right or wrong answers, just your opinions are what matter.** *[When the participant has finished the questionnaire begin the computer task]*

[COMPUTER TASK]

We will now begin the computer task. The computer will give you instructions on how to perform each task. Please read each of the screens very carefully.

[At this time you may leave the participant, but stay in the general vicinity. If they hesitate at the edit screen, just have them click on okay. Every once in a while check to see where the participants are in the computer task. If the computer gets stuck hit ALT K to move to the next association task]

[When the subject indicates that he/she has completed the computer task, leave the red screen up while the subject completes the green questionnaire.]

[THE SURVEY: GREEN]

Next, we'd like you to fill out one more survey and complete some demographic information. For this survey you may write directly on the green sheets.

[When the participant has completed the yellow questionnaire, give him/her the green questionnaire.]

[THE DEBRIEFING and THANK YOU]

You now have completed the experiment. On behalf of Elizabeth and the research group, I would like to thank you for your time and effort.

When all the data are collected, you will be able to all see the results via the Internet. The address is on your copy of the informed consent. Do you have any questions? Please do not tell anyone about the purpose of, or procedures used in the study. Thanks again for your help. *[Offer lollipop to participant]*

[RECORD THE FINAL INFORMATION]

[Note the time and record it on the manila folder as the "end time". After the participant has left, place all materials in the manila folder and record anything unusual about the experimental session on the outside of the folder. In addition, write the subject number and subject's gender on the red answer sheet and on the green questionnaire. Then, ask the lab supervisor to remove the participant's scores off the screen. After the scores are removed, have the lab supervisor write the subject number on the disk. Give the folder to the lab coordinator and prepare for your next session. If you do not have another session, make sure the room is in order and you have returned all the materials to the lab coordinator.]

Appendix B: Pre-testing of Stimulus Items for Dominant and Subordinate Words

Dominant-Positive Items	Dominance	Positivity	Subordinate –Positive Items	Dominance	Positivity
Ambitious	7.39	7.23	Loyal	4.94	7.96
Assertive	7.27	6.29	Cooperative	4.47	6.96
Independent	7.70	7.31	Patient	4.33	6.81
Confident	7.40	7.87	Agreeable	4.54	6.27
Powerful	8.20	6.69	Obedient	3.48	5.58
Mean	7.66	6.98		4.50	6.72
Dominant-Negative Items	Dominance	Positivity	Subordinate Negative Items	Dominance	Positivity
Controlling	7.53	3.87	Dependent	3.39	4.35
Selfish	5.85	1.90	Powerless	1.50	2.00
Conceited	5.98	2.30	Hesitant	3.64	4.22
Manipulative	6.98	3.87	Insecure	1.96	2.50
Bossy	7.27	3.10	Gullible	2.57	2.89
Mean	6.83	3.06		2.42	3.26

Appendix C: Computer Instructions to Participants

PROCEDURE DESCRIPTION: THE CATEGORIZATION TASK
A brief description of the procedures of this research follows on the next several pages.

Elizabeth L. Haines, Meredith Wolsh, Hector Adames, Saba Aaraj, Danielle Mendola, and Jessica Percodani

Fall 1998 Department of Psychology
Montclair State University
#
ABOUT THIS RESEARCH

Our research investigates the cognitive processes that are used in decisions that involve memory. #

ABOUT THIS RESEARCH

For this experiment, you will be completing a Categorization Task. The categorization task assumes that you can read English fluently, and that your vision is normal or corrected to normal. If you do not consider yourself fluent in English, or if your vision is not normal or corrected to normal, AND ESPECIALLY IF YOU ARE HAVING SOME DIFFICULTY READING THIS DESCRIPTION, PLEASE ask the experimenter now whether or not you should continue.#
For one of the tasks, you will first provide self and not self items, such as your name, and then you will complete a categorization task that incorporates these items.

For another task you will be asked to categorize dominant and subordinate personality characteristics such as assertive and cooperative.

This information is essential to how you see yourself and is important to us as researcher in terms of how you categorize information. Again, all responses are confidential and in no way will be traced back to your identity.
#
When you categorize items as either me or not me or dominant or subordinate, it is important to be as quick and as accurate as possible. That is, we want you to respond quickly to the words presented to you on the screen, but we also want you to strive for accuracy as well.
#

You will now need to locate the "A" key on the left of the keyboard, and the "5" key on the far right of the keyboard (in the number pad). These are the keys you need to use to complete the categorization task.

When words are presented on the screen, you will need to press the "A" or "5" key.
The task will not let you continue until you have categorized an item correctly.

Be sure to have the Number Lock on.#

Appendix D: Visual Overview of Categorization Instructions

FIAT for Windows 2.3 presents a series of blocks to the subject, usually as follows:

FIRST IAT

Block #1: (10 trials)
Practice single category decision, using first pair of categories.

dominant word subordinate

Block #2: (10 trials)
Practice single category decision, using second pair of categories.

man word woman

Block #3: (10 trials)
Practice mixed category decision, using both pairs of categories.

dominant subordinate word man woman

Block #4: (40 trials)
Mixed category decision, using both pairs of categories.

dominant subordinate word man woman

Block #5: (10 trials)
Practice single category decision, for category pair where category position was switched.

woman	word	man

Block #6: (10 trials)
Practice mixed category decision, using both pairs with new category positions.

dominant	word	subordinate
woman		man

Block #7: (40 trials)
Mixed category decision, using both pairs of categories with new category positions.

dominant	word	subordinate
woman		man

SECOND IAT

Block #8: (10 trials)
Practice single category decision, using third pair of categories.

me	word	not me

Block #9: (10 trials)
Practice mixed category decision, using both pairs of categories.

dominant		subordinate
	word	
me		not me

Block #10: (40 trials)
Mixed category decision, using both pairs of categories.

dominant		subordinate
	word	
me		not me

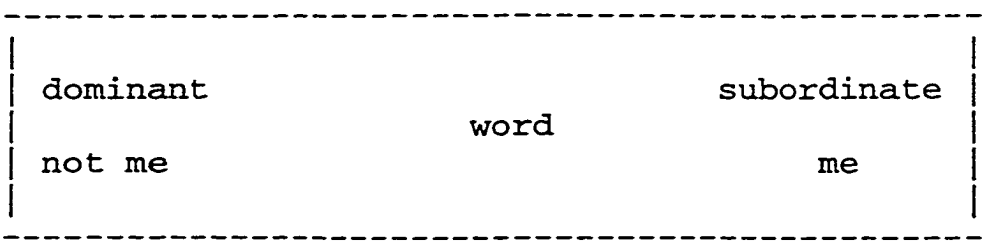
Block #11: (10 trials)
Practice single category decision, for category pair where category position was switched.

not me	word	me

Block #12: (10 trials)
Practice mixed category decision, using both pairs with new category positions.

dominant		subordinate
	word	
not me		me

Block #13: (40 trials)
Mixed category decision, using both pairs of categories with new category positions.



Appendix E: Questionnaires for Study 1

We are interested in how people perceive themselves in relation to other people and their environment. Please record all answers on the Red answer sheet with a number two pencil. There are no right or wrong answers — just your opinions are what matter.

Your answers are completely confidential. Do not write your name anywhere on these surveys.

The items below inquire about what kinds of a person you think you are. Each item consists of a *pair* of characteristics, with the letters A-E in between. For example:

Not at all artistic	A. . . . B. . . . C. . . . D. . . . E	Very artistic

Each pair describes contradictory characteristics—that is, you cannot be both at the same time, such as very artistic and not at all artistic.

The letters form a scale between the two extremes. You are to choose a letter which describes where ***you*** fall on the scale. For example, if you think you have no artistic ability, you will choose A, if you think you are pretty good, you might choose D. If you are only medium, you might choose C, and so forth.

1. Not at all aggressive	A. . . . B. . . . C. . . . D. . . . E	Very aggressive
2. Not at all independent	A. . . . B. . . . C. . . . D. . . . E	Very independent
3. Not at all emotional	A. . . . B. . . . C. . . . D. . . . E	Very emotional
4. Very submissive	A. . . . B. . . . C. . . . D. . . . E	Very dominant
5. Not at all excitable in a MAJOR crisis	A. . . . B. . . . C. . . . D. . . . E	Very excitable in a MAJOR crisis
6. Very passive	A. . . . B. . . . C. . . . D. . . . E	Very active
7. Not at all able to devote self completely to others	A. . . . B. . . . C. . . . D. . . . E	Able to devote self completely to others
8. Very rough	A. . . . B. . . . C. . . . D. . . . E	Very gentle

9. Not at all helpful to others	A. . . . B. . . . C. . . . D. . . . E	Very helpful to others
10. Not at all competitive	A. . . . B. . . . C. . . . D. . . . E	Very competitive
11. Very home oriented	A. . . . B. . . . C. . . . D. . . . E	Very worldly
12. Not at all kind	A. . . . B. . . . C. . . . D. . . . E	Very kind
13. Indifferent to others' approval	A. . . . B. . . . C. . . . D. . . . E	Highly needful of others' approval
14. Feelings not easily hurt	A. . . . B. . . . C. . . . D. . . . E	Feelings easily hurt
15. Not at all aware of others' feelings	A. . . . B. . . . C. . . . D. . . . E	Very aware of others' feelings
16. Can make decisions easily	A. . . . B. . . . C. . . . D. . . . E	Has difficulty making decisions
17. Gives up very easily	A. . . . B. . . . C. . . . D. . . . E	Never gives up easily
18. Never cries	A. . . . B. . . . C. . . . D. . . . E	Cries very much
19. Not at all self-confident	A. . . . B. . . . C. . . . D. . . . E	Very self-confident
20. Feels very inferior	A. . . . B. . . . C. . . . D. . . . E	Feels very superior
21. Not at all understanding of others	A. . . . B. . . . C. . . . D. . . . E	Very understanding of others
22. Very cold in relations with others	A. . . . B. . . . C. . . . D. . . . E	Very warm in relations with others
23. Very little need for security	A. . . . B. . . . C. . . . D. . . . E	Very strong need for security
24. Goes to pieces under pressure	A. . . . B. . . . C. . . . D. . . . E	Stands up well under pressure

Please continue using your red answer sheet.

Next we are interested in personal attitudes. You will be given two statements, please indicate the statement you agree with more by choosing an "a" or a "b" on your red answer sheet. There are no right or wrong answers, just your opinions are what matter.

25. a. Children get into trouble because their parents punish them too much.

    b. The trouble with most children nowadays is that their parents are too easy with them.

26. a. Many of the unhappy things in people's lives are partly due to bad luck.

    b. People's misfortunes result from the mistakes they make.

27. a. One of the major reasons why we have wars is because people can't take enough interest in politics.

    b. There will always be wars, no matter how hard people try to prevent them.

28. a. In the long run people get the respect they deserve in this world.

    b. Unfortunately, an individual's worth often passes unrecognized no matter how hard she or he tries.

29. a. The idea that teachers are unfair to students is nonsense.

    b. Most students don't realize the extent to which their grades are influenced by accidental happenings.

30. a. Without the right breaks one cannot be an effective leader.

    b. Capable people who fail to become leaders have not taken advantage of their opportunities.

31. a. No matter how hard you try some people just don't like you.

    b. People who can't get others to like them don't understand how to get along with others.

32. a. Heredity plays the major role in determining one's personality.

    b. It is one's experiences in life which determines what one is like.

33. a. I have often found that what is going to happen will happen.

b. Trusting to fate has never turned out as well for me as making a decision to take a definite course of action.

34. a. In the case of the well-prepared student, there is rarely if ever such a thing as an unfair test.

b. Many times exam questions tend to be so unrelated to course work that studying is really useless.

35. a. Becoming a success is a matter of hard work--luck has little or nothing to do with it.

b. Getting a good job depends mainly on being in the right place at the right time.

36. a. The average citizen can have an influence in government decisions.

b. This world is run by the few people in power, and there is not much the little person can do about it.

37. a. When I make plans, I am almost certain that I can make them work.

b. It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune.

38. a. There are certain people who are just no good.

b. There is some good in everybody.

39. a. In my case, getting what I want has little or nothing to do with luck.

b. Many times we might just as well decide what to do by flipping a coin.

40. a. Who gets to be the boss often depends on who was lucky enough to be in the right place first.

b. Getting people to do the right thing depends upon ability, luck has little or nothing to do with it.

41. a. As far as world affairs are concerned, most of us are the victims of forces we can neither understand nor control.

b. By taking an active part in political and social affairs, the people can control world events.

42. a. Most people don't realize the extent to which their lives are controlled by accidental happenings.

b. There really is no such thing as "luck".

43. a. One should always be willing to admit mistakes.

b. It is usually best to cover up one's mistakes.

44. a. It is hard to know whether or not a person really likes you.

b. How many friends you have depends on how nice a person you are.

45. a. In the long run, the bad things that happen to us are balanced out by the good things.

b. Most misfortunes are the result of lack of ability, ignorance, laziness, or all three.

46. a. With enough effort, we can wipe out political corruption.

b. It is difficult for people to have much control over the things politicians do in office.

47. a. Sometimes I can't understand how teachers arrive at the grades they give.

b. There is a direct connection between how hard I study and the grades I get.

48. a. A good leader expects people to decide for themselves what they should so.

b. A good leader makes it clear to everybody what their jobs are.

49. a. Many times I feel that I have little influence over the things that happen to me.

b. It is impossible for me to believe that chance or luck plays an important role in my life.

50. a. People are lonely because they don't try to be friendly.

b. There's not much use in trying too hard to please people, if they like you, they like you.

51. a. There is too much emphasis on athletics in high school.

b. Team sports are an excellent way to build character.

52. a. What happens to me is my own doing.

    b. Sometimes I feel that I don't have enough control over the direction my life is taking.

53. a. Most of the time I can't understand why politicians behave the way they do.

    b. In the long run, the people are responsible for bad government on a national as well as on a local level.

Please return this questionnaire to the experimenter to begin the computer task.

Post Task Questionnaire

How do you feel about the following statements?

1 2 3 4 5 **very very** **negative positive**	**Winning is more important than how the game is played.**
1 2 3 4 5 **very very** **negative positive**	**It is important to get ahead by any means necessary.**
1 2 3 4 5 **very very** **negative positive**	**Sometimes war is necessary to put other countries in their place.**
1 2 3 4 5 **very very** **negative positive**	**Inferior groups should stay in their place.**

Please continue by indicating your answers directly on this survey.

Now we are interested in how you think about life situations and other people. Please indicate how much you agree or disagree with each statement by writing in your response by each statement.

There are no right or wrong answers, just your opinions are what matter.

-3	-2	-1	+1	+2	+3
STRONGLY DISAGREE	DISAGREE	SLIGHTLY DISAGREE	SLIGHTLY AGREE	AGREE	STRONGLY AGREE

-3 -2 -1 +1 +2 +3	In order to have my plans work, I make sure that they fit in with the desires of people who have power over me.
-3 -2 -1 +1 +2 +3	Although I might have good ability, I will not be given leadership responsibility without appealing to those in positions of power.
-3 -2 -1 +1 +2 +3	My life is chiefly controlled by powerful others.
-3 -2 -1 +1 +2 +3	People like myself have very little chance of protecting our personal interests when they conflict with those of strong pressure groups.
-3 -2 -1 +1 +2 +3	Getting what I want requires pleasing those people above me
-3 -2 -1 +1 +2 +3	If important people were to decide they didn't like me, I probably wouldn't make many friends.
-3 -2 -1 +1 +2 +3	I feel like what happens in my life is mostly determined by powerful people.
-3 -2 -1 +1 +2 +3	Whether or not I get into a car accident depends mostly on the other driver.

Demographics

Now, we'd like to know a little about you . . .

I am a _____ (circle one)
a. freshperson
b. sophomore
c. junior
d. senior
e. supersenior (5 years or more)
f. _____ other

My ethnicity is _____ (circle one)

a. Asian, Asian American or Oriental
b. Black or African American
c. Hispanic or Latino
d. White, Caucasian, European, not Hispanic
e. American Indian
f. West Indian
g. Middle Eastern
h. Mixed, parents are from two different groups
i. Other (please explain) _____

My major is _____

How old are you? _____

How would you describe your social class? (circle one)
a. poor
b. working class
c. lower/middle class
d. middle/middle class
e. upper/middle class
f. upper class

How often do you use a computer?
a. once a day or more
b. three times a week
c. once a week
d. once every few weeks
e. about once a month
f. once or twice a year
g. never
h. other _____ (please explain)

On the following scale, please rate how powerful you think you are by circling the appropriate number.

0	1	2	3	4	5	6	7	8	9
not at all powerful									extremely powerful

Do you consider yourself a _____right hander?

_____ left hander?

_____both?

_____ other (please explain)

Do you have any reading or writing impairments (e.g., dyslexia)?

_____no yes _____(please describe in the space below)

_____

_____

_____

_____

_____

_____

Thank you !! Please return this survey to the experimenter.

Appendix F: Experimental Scripts and Protocol for Study 2

SIMULATION INSTRUCTIONS

***Preparation*:**

Materials: Two consent forms and note card.

Before participants arrive:

- Arrange the chairs into two circles of approximately equal numbers
- Post the scoring chart and trading rules. Make sure they are folded so that the rules cannot be read until the appropriate time.
- Place a random assortment of all the supplied chips in a bag.
- Count an equal number of square pins and triangle pins and place them in a bag (after counting the number of people that will participate in the study, to determine the amount of total pins).

Explaining the Rules:

1. As participants arrive, have them pick a button out of the bag and sit in circles according to their button. The circles have no symbolic significance at this time so where they sit is unimportant. Begin by telling them that "*this is a game which involves trading and bargaining, and that the two persons with the highest scores will be declared the winners. Before we begin I would like you first to read and sign the consent forms*".

2. Have each person draw six chips. Ask them not to look at them and not to reveal them to anyone else.

3. Use the **scoring chart** to explain the scoring system. Point out that there are five different color chips. Golds are worth the most and there very few of them. If they get hold of a gold chip they will probably want to hang on to it.

4. Point out that each gold point is worth 8 points; if they have to of them they are worth 16, three 24, and so on. However, when they are able to collect four or five red, white and blue they receive a bonus point. So four reds without the bonus would be worth 4x3 or 12 points. However, because of the 2 point bonus, four red chips are worth 14 points. This rule facilitates trading of chips with different values. For example, a person may be willing to give away a green chip worth 4 points in exchange for a red, white or blue chip which earns them the value of the chip plus the bonus points.

5. Tell the participants that only the **five** best chips count!!! Also, emphasize that they have to hide their chips from the other participants.

6. Describe the strategies for trading. For example, they accumulate more points by gathering the lower chips (blue and white chips), or they can have less numbers of higher value chips.

7. Explain the following rules of bargaining: (refer to **Trading Rules** poster)
   a. They will have approximately five to seven minutes to try to improve their scores
   b. They improve their scores by trading advantageously with other players. Yes, they can trade with people from other groups
   c. Persons must clasp hands to effect a trade
   d. Once participants clasps the hand of another player a chip of unequal value must be traded. If two players cannot consummate a trade, they must continue to clasp hands until the trading session is ended
   e. Only their five best chips count
   f. There is no talking unless hands are clasped
   g. Persons with folded arms do not have to trade with other persons
   h. All chips should be hidden. This rule should be strictly enforced!
   i. Persons can trade with the other group.
   j. The two people with the highest scores will be declared the winners
   k. After the first trading round is finished, they are to tell the experimenter their scores
8. Simulate trading round with other experimenter and ask if there are any questions. Remind them that they can trade with anyone (people within their own group and people from other groups)

The First Trading Session:
Before the trading session explain that the first trading session is for getting them used to the rules. However, one group will be given the ability to make up the rules for the second session. This will be based on their trading technique in the first trading session.

1. Once the rules have been explained start the first trading session. Tell them you will give them a warning a minute or two before the session ends.

2. The trading session should last between five to seven minutes.

3. Have all players stop trading and compute their scores for the trading session. Remind them to only calculate their **best five** chips. Circulate around the room and check their calculations.

4. Once they have calculated their total score for the first session have them write their points on the front of their folders by writing round 1 and then their score.

The Second Trading Session:
Announce that the Squares had the best trading technique, thus, they will be in charge of making up the rules for the second trading session. Say that both groups performed well, but that the Squares did better. Do not describe how or why they did better

1. Tell the ***Squares*** that they are allowed to pick four rules from the rules handout sheet, or they can make up their own four rules. They have a few minutes to decide the four rules.

2. The rules they pick will go into effect during the second trading session.

3. These rules will be enforced by the ***Squares***, and the experimenters cannot help to enforce the rules.

4. Tell them that they also have to think of a way to enforce the rules.

5. While squares decide on rules, have participants place chips back in bag. After everyone has handed in their chips, have participants choose 6 new chips. Make sure they are not looking when they pick their chips.

6. Ask them to choose a delegate to announce the rules and penalties for violating the rules.

7. Record the four rules picked by the ***Squares***.

8. If applicable, let ***Triangles*** pick their twit hat (either pick or blue).

9. Give the participants five to seven minutes to trade in this trading session.

10. Once the session is over ask the participants to total their five best chips. Have participants write their total score on their folders.

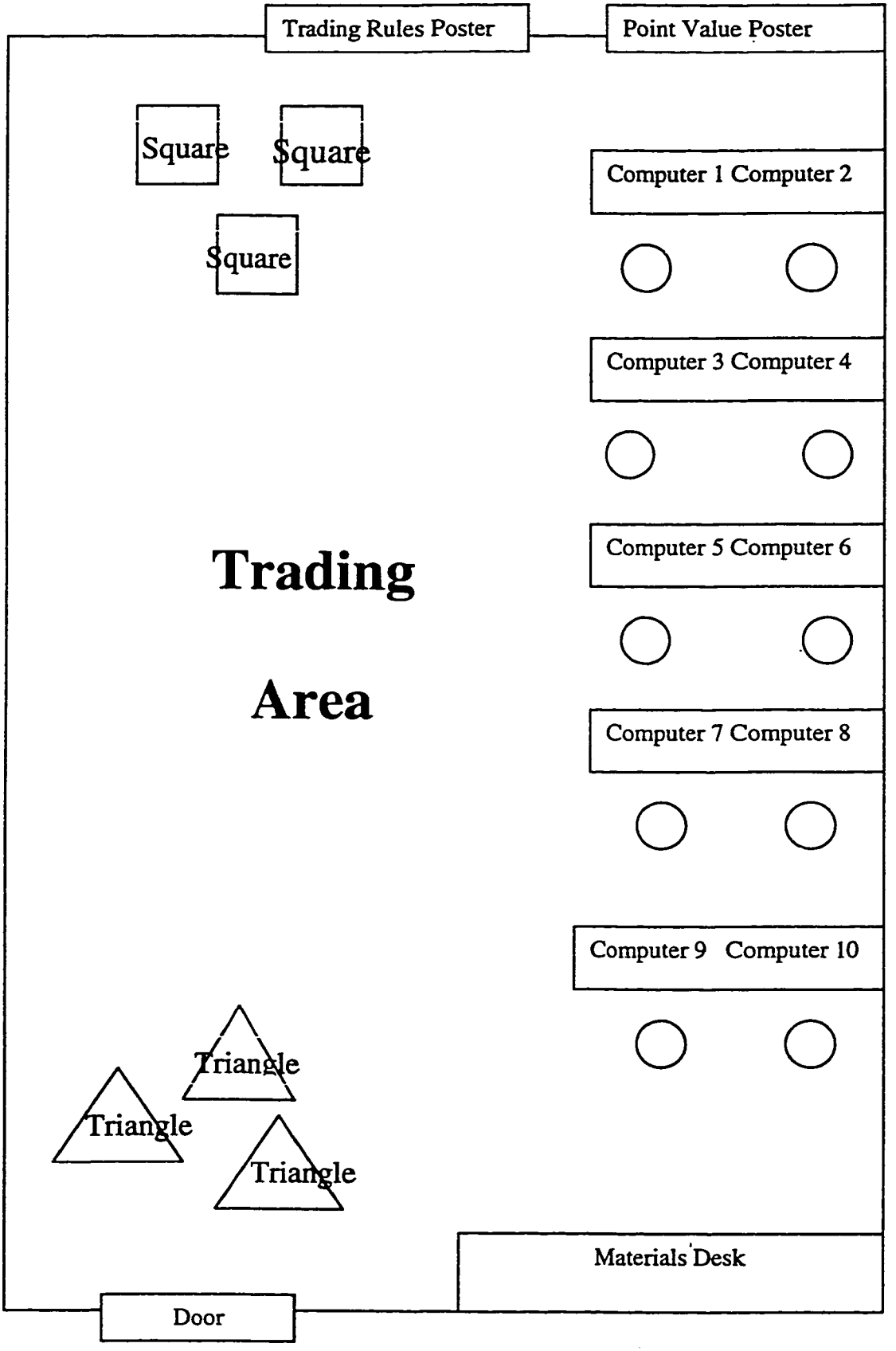
11. The two participants with the highest scores are the winners. They will receive five dollars each.

12. Collect all materials (chips, pins, folders, etc.)

13. Have the participants complete the computer task (use orange disk).

14. Upon completion of the computer task, have participants complete post game survey, thank them and offer candy.

Appendix G: Visual Overview of Experimental Room Set-up for Study 2



Appendix H: Scoring for Star Power

Number of Chips					
	1	2	3	4	5
Gold	8	16	24	32	40
Green	4	8	12	16	20
Red	3	6	9	12+2=14	15+3=18
White	2	4	6	8+5=13	10+7=17
Blue	1	2	3	4+8=12	5+11=16

APPENDIX I: Rules for "Practice" Trading Round.

1. Persons must clasp hands to effect a trade
2. Once participants clasps the hand of another player a chip of unequal value must be traded. If two players cannot consummate a trade, they must continue to clasp hands until the trading session is ended
3. Only their five best chips count.
4. No talking or trading unless hands are clasped.
5. There is no talking unless hands are clasped
6. Persons with folded arms do not have to trade with other persons
7. All chips should be hidden.

Appendix J: Rules for last trading round by % of group who chose rule

Rule	% of groups who chose the rule
Other group members have to give your group the chips they ask for regardless of whether the other group member wants to trade.	80%
All other group members must have their chips visible at all times.	70%
Your group may speak whenever they like.	60%
Other group members must wear a twit hat.	50%
Other groups have to bargain with you even though their arms are folded.	50%
Your group can trade within your group but does not have to abide by the trading rules (no hand holding, redistribute chips however you like etc).	45%
Your group must be addressed by sir or madam (or lord or master or some other title).	30%
All other group members must be on their knees to effect a trade.	20%
Other group members have to do a dance if they want to trade (e.g., the chicken dance).	15%
Make any rule you want.	15%
Your group must put their hand on the head of other group members during a trade.	10%
Your group gets to wear gold ribbon.	10%

Appendix K: Post-Game Survey

What group were you in: (circle one)

Triangles
Squares

How much do you think the Squares had the right to have the power in this bargaining game?

0	1	2	3	4	5	6	7	8	9
not at all									very much

How powerful did you feel during this game?

0	1	2	3	4	5	6	7	8	9
not at all									very much

How powerful do you feel right now?

0	1	2	3	4	5	6	7	8	9
not at all									very much

How much do you think that your group felt like one group?

0	1	2	3	4	5	6	7	8	9
not at all like one group									very much like one group

How much do you think that your group felt like a collection of separate individuals?

0	1	2	3	4	5	6	7	8	9
not at all like separate individuals									very much like separate individuals

Triangles only: How much control did the Squares have over your group?

0	1	2	3	4	5	6	7	8	9
no control									complete control

<u>Squares only:</u> How much control did you have over the Circles and Triangles?

0	1	2	3	4	5	6	7	8	9
no control									complete control

How much do you think the outcome of the game was due to luck or skill?

0	1	2	3	4	5	6	7	8	9
luck									skill

How much were you tempted to cheat in this game?

0	1	2	3	4	5	6	7	8	9
not at all									very much

How fair do you think the game was?

0	1	2	3	4	5	6	7	8	9
not at all									very much

Did you win a prize in this game? _____ If yes, how satisfied were you with the prize?

0	1	2	3	4	5	6	7	8	9
not at all satisfied									very satisfied

Now, we'd like to know a little about you . . .

I am: Male Female (circle one)

I am a _____ (circle one)

g. freshperson
h. sophomore
i. junior
j. senior
k. supersenior (5 years or more)
l. _____ other (Please describe)

My ethnicity is _____ (circle one)

a. Asian, Asian American or Oriental
b. Black or African American
c. Hispanic or Latino
d. White, Caucasian, European, not Hispanic
e. American Indian
f. West Indian
g. Middle Eastern
j. Other (Please Describe)
i. Mixed (Please describe)

My major is _____

How old are you? _____

How would you describe your social class? (circle one)

a. poor
b. working class
c. lower/middle class
d. middle/middle class
e. upper/middle class
f. upper class

How often do you use a computer?

i. once a day or more
j. three times a week
k. once a week
l. once every few weeks
m. about once a month
n. once or twice a year
o. never
p. other _____ (please explain)

Do you consider yourself a _____right hander?

_____ left hander?

_____both?

_____ other (please explain)

Do you have any reading or writing impairments (e.g., dyslexia)?

_____no yes _____(please describe)

Thank you !! Please return this survey to the experimenter.

Appendix L: Observations of Trading Sessions

Although participants' behavior was not systematically recorded during the group bargaining and trading game, there were some interesting effects of power positions on the behavior of dominant and subordinate group members.

Variations between Sessions

Sessions of the game varied by time spent in trading (larger groups often needed more time to trade) the amount of vocalization during the second round, and types of chosen during the power manipulation rules (e.g., making subordinate groups wear a Twit Hat). Despite these variations (some of which were necessary to enhance the power manipulation) there were some striking behavioral similarities between sessions.

Similarities among Sessions

Some behaviors remained fairly consistent between sessions of the game. Almost all of the powerful participants laughed smiled, and talked excitedly when they received the rules for the second trading round. Powerless participants often remarked how unfair the game was; this injustice did not, however, foster any coalitions among powerless participants.

Differences in participants' use of nonverbal behavior were some of the most obvious effects of power on group members. This is not surprising because participant's verbal interactions were moderated by rules in the first round and by the powerful group in the second round. For example, during the first trading session, trading sessions took place in the middle of the room. After the powerful group had been granted power, however, these participants invaded the personal space of the powerless group and trading took place more in the powerless group's space. Another participant actually tried

to hide under one of the experimental tables to avoid being exploited by powerful group members.

As evidenced by the Additional Analyses for the game, powerless participants felt the game was less fair. These feelings were evidenced by powerless participants comments during and after the game. For example, one participant said to me during the second trading session: " it's like the came into our village and raped us." In addition, common responses to the exercise of power were on subordinated group members was "hey that's not fair." Many powerful group members seemed thankful that certain members were part of their in-group. In observation of their colleagues trading behaviors many power group members remarked that they were "glad that 'X' was a member of our team"

While the manipulation of power seemed effective in making the powerful group responsible for the social interactions, powerful group members still looked for legitimization of their rules. For example, when unsure of a trading rule dominant group members often looked to the experimenter for clarification whose response was invariably "It is up to you; you have the authority to make the rules." It seems that complete authority may not exist unless it is endorsed by some structural mandate (e.g., a powerful other, religion, law etc).

In summary, the game created interesting psychological and behavioral phenomena. Future uses of this game should more accurately record the behaviors during the game to delineate the context of the manipulation.

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)proved: 10/26/98
:pires : 9/27/99

Appendix M: IRB Approval

October 7th, 1998

Dear Prospective Research Participant,

The purpose of this research is to explore how individuals process information according to particular categories. For this research, I need volunteers to take part in a study for my Doctoral Dissertation at the City University of New York, Graduate Center, Ph.D. Program in Social Personality Psychology. If you decide to participate, you will be asked to engage in a trading and bargaining game and then perform a simple computer task. The entire procedure will take no more than one hour. There will be no harm or discomfort in any of the experimental procedures. With this information, I hope to better understand how people mentally organize social information.

We would like to assure you that participation is completely voluntary and that you may withdraw at any time. If you decide to participate and then want to discontinue the experiment at any time, you are free to do so. Your decision whether or not to participate will not affect your future relations with Montclair State University.

All responses are anonymous and confidential and will be used for statistical purposes only. The only piece of identifying information will be this sheet which will be separated from your responses and will in no way be connected with your identity. All data will be stored in a locked office and will not be available to anyone but the Principal Investigator and a Graduate Assistant. Your records will be identified by a "participant number" written at the bottom of this form.

If you have any questions, ask the experimenter before you sign the form. You have a right to full and complete information regarding this project after all the data have been collected. A summary of the research goals, hypotheses, and findings will be available on a World Wide Web site by December 31, 1998 at http://chss2.montclair.edu/hainese/results1. In addition, a full copy of the research manuscript will also be available one year from the end of data collection. If you prefer, you may also email, telephone or write Professor Haines if you have any additional questions. **You will be given a copy of this form to keep.**

If you have any questions about the research please contact:

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212.642.2506 vrabinow@email.gc.cuny.edu

If you have any questions about your rights as a participant in this research contact H. Fisher at the Office of Sponsored Research, Rm., 1817, 25 West 43rd St. 212.642.2059.

I have read my rights as a research participants and agree to participate in this research.

Signature _____ Date _____

Print name_____ Participant Number

Table 1.
Summary Statistics for Gender IAT, Self IAT, and Mixed Category Tasks.

Measure	M	SD	Males	Females	r	t	p
Gender IAT (latency)	116.94 **d=.63**	185.55	200.38 **d=1.80**	58.29 **d=.31**	.38	5.33	.0001
Gender IAT (log latency)	.11	.17	.189	.059	.38	5.31	.0001
Mixed category task. Dominant-man/subordinate woman	950.27	201.07	948.94	951.21	*	*	Ns
Mixed category task. Subordinate-man/Dominant Woman	1067.22	242.02	1149.32	1009.50	.31	3.75	.0001
Self IAT (latency)	40.79 **d=.16**	251.85	92.87 **d=.37**	4.18 **d=.02**	.17	2.30	.023
Self IAT (log latency)	.05	.21	.094	.013	.19	2.52	.013
Mixed category task. Me-dominant/not-me subordinate	1080.70	296.55	1060.64	1094.80	*	*	Ns
Mixed category task. Me-subordinate/not me dominant	1121.49	255.86	1153.51	1098.98	*	*	ns

Notes. IAT = implicit association test.
Effect size d = Mean difference $M_1 - M_2$ /SD.
The effect size for d = mean difference between mixed category task for conceptually incongruent – mean for conceptually congruent divided by the pooled standard deviation.
Small medium and large effect sizes for d are .20, .50, .80 (Cohen, 1992).
Effect size $r = \sqrt{[(t)^2 / (t)^2 + df]}$.
Effect sizes for r are .10, .30, .50 for small, medium, and large effect sizes respectively (Cohen, 1992).

Table 2.
Summary statistics for explicit measures of power, control, and gender by total sample and by male and female participants (N=171).

Measure	M	SD	α	Men	Women	T (171)	p	r
1. Self assertive Traits (M-scale, PAQ)	20.44	4.49	.70	21.36	19.79	2.14	.03	.19
2. Self expressive Traits (F-scale, PAQ)	23.90	4.11	.72	22.96	24.57	-2.56	.01	.19
3. Social Dominance Orientation (short scale)	1.97	.75	.60	2.12	1.87	2.18	.03	.17
4. Powerful others subscale	-6.80	9.74	.82	-6.13	-7.29	.76	ns	
5. I-E Locus of control	10.61	4.52	.79	10.24	10.87	.39	ns	
6. How powerful do you feel? (Power check)	5.92	1.73	Na	6.30	5.66	2.32	.02	.18

Note. The same analyses were also performed using a One-way MANOVA. M-scale (PAQ), F-scale (PAQ), SDO, and Power check yielded p values all $< .05$.
Effect sizes for r are .10, .30, .50 for small, medium, and large effect sizes respectively (Cohen, 1992)

Table 3.
Correlations Between the Gender IAT and Explicit Attitude Measures (total sample, N = 171).

Measure	Implicit attitude 1	2	Explicit attitude 3	4	5	6	7	8
1. Gender IAT (latency)	—							
2. Gender IAT (log latency)	.98***	—						
3. Self assertive traits (PAQ)	.08	.11	—					
4. Expressive traits (PAQ)	-.03	-.01	.11	—				
5. Social dominance orientation	-.04	-.05	.21**	-.12	—			
6. Powerful others scale	.03	.02	-.31***	-.11	.18*	—		
7. Locus of control	-.04	-.05	-.22**	-.10	-.22	30***	—	
8. How powerful do you feel?	.02	.02	.50***	.03	.09	.27***	.28***	—

*p < .05
** p < .01
*** p < .001

Table 4
Correlations Between Self IAT and Explicit Attitude Measures (total sample, N= 171)

	Implicit attitude		Explicit attitude					
Measure	1	2	3	4	5	6	7	8
1. Self IAT (latency)	—							
2. Self IAT (log latency)	.98***	—						
3. Self assertive traits (PAQ)	.32***	.30***	—					
4. Expressive traits (PAQ)	-.02	-.07	.11	—				
5. Social dominance orientation	.14	.14	.21**	-.12	—			
6. Powerful others scale	-.01	-.02	-.31**	-.11	.18	—		
7. Locus of control	-.03	-.03	-.22**	-.10	-.02	.30***	—	
8. How powerful do you feel?	.28***	.26***	.50***	.03	.09	-.27**	.28***	—

*p < .05
** p < .01
*** p < .001

Table 5
Correlations between IAT measures and explicit measures by gender of participants.

Measure	Male participants (N=71)				Female participants (N= 101)			
	Gender IAT (lat)	Gender IAT (ln)	Self IAT (lat)	Self IAT (ln)	Gender IAT (lat)	Gender IAT (ln)	Self IAT (lat)	Self IAT (ln)
1. Assertive traits (PAQ)	.08	.18	.36**	.35**	-.05	-.07	.25*	.23*
2. Expressive traits (PAQ)	.07	.13	-.01	-.04	.01	.02	.03	-.02
3. Social dominance orientation	-.08	-.05	-.04	-.06	-.12	-.17	.21*	.22*
4. Powerful others scale	-.02	-.06	-.05	-.08	.03	.05	-.01	-.01
5. Locus of control	-.10	-.14	-.25*	-.27*	.05	.06	.14	.16
6. How powerful do you feel?	.07	.10	.37**	.34**	-.14	-.17	.17	.16

Note. IAT = Implicit Association Test. Lat = Latency. Ln = log latency.
*p < .05
**p < .01

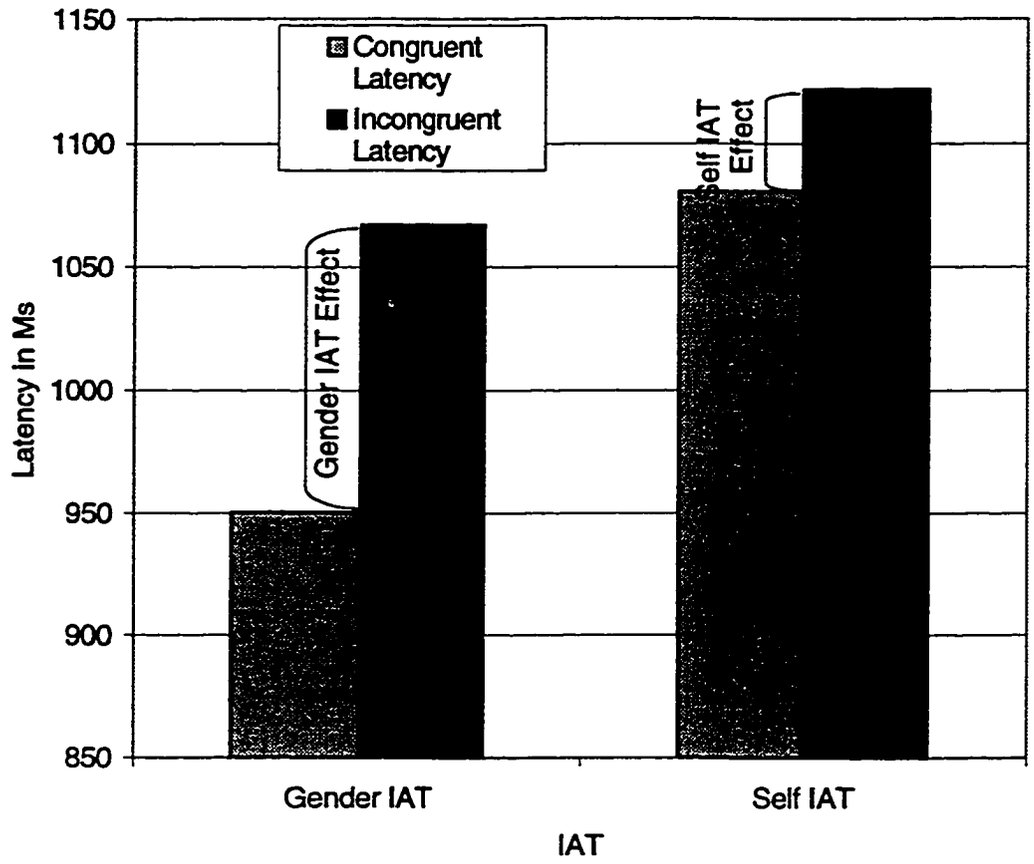

Figure 1. Response latencies for congruent and incongruent latencies on the Gender IAT and the Self IAT (Study 1).

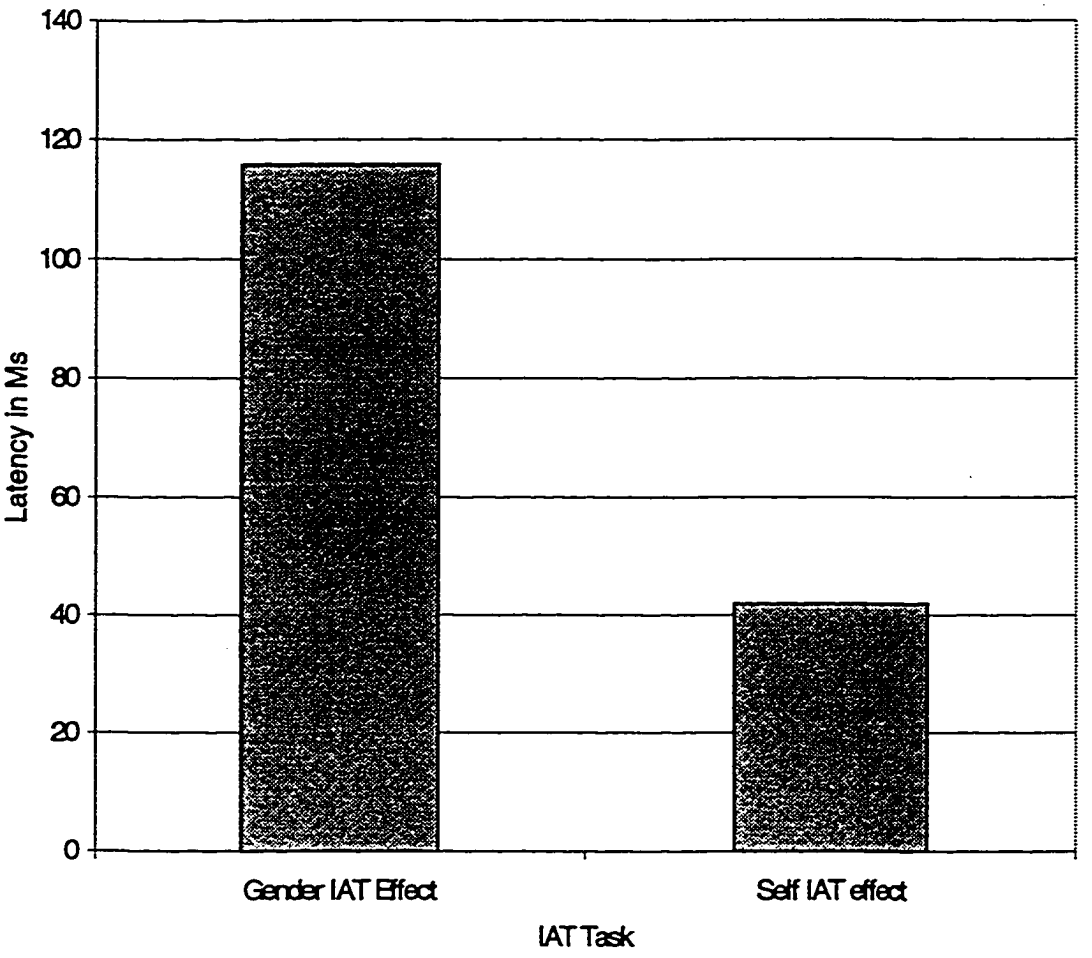

Figure 2. IAT effects for Gender-Power and Self Power (Study1).

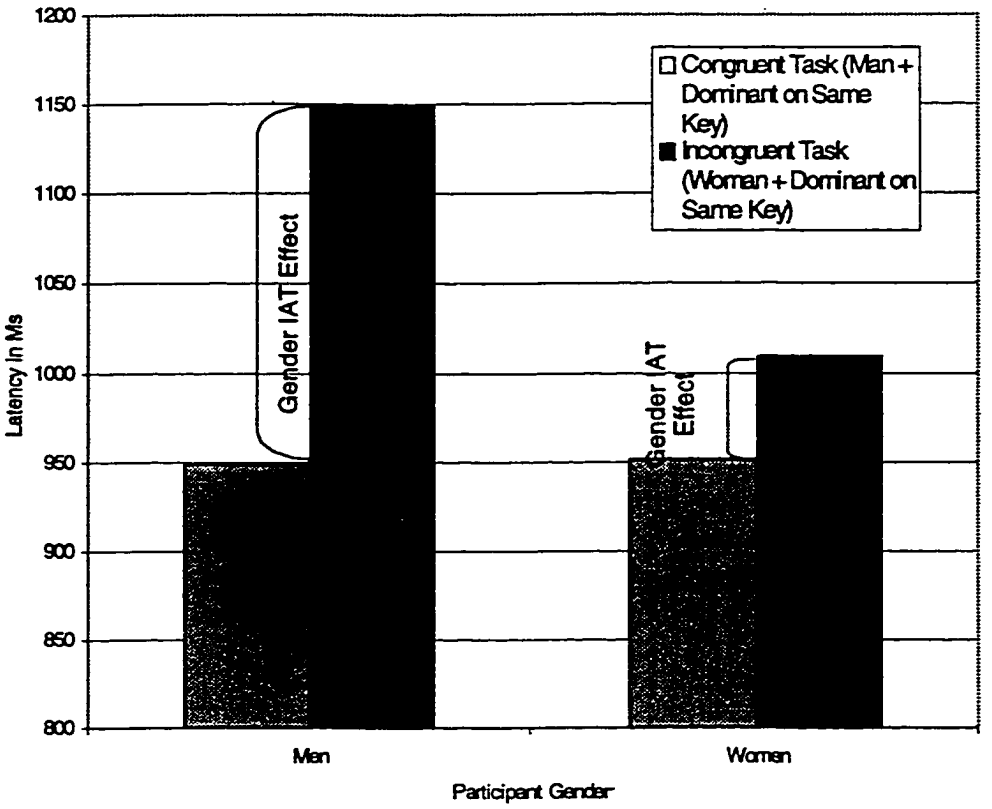

Figure 3. Gender differences in response latencies to congruent and incongruent latencies on the Gender IAT (Study 1).

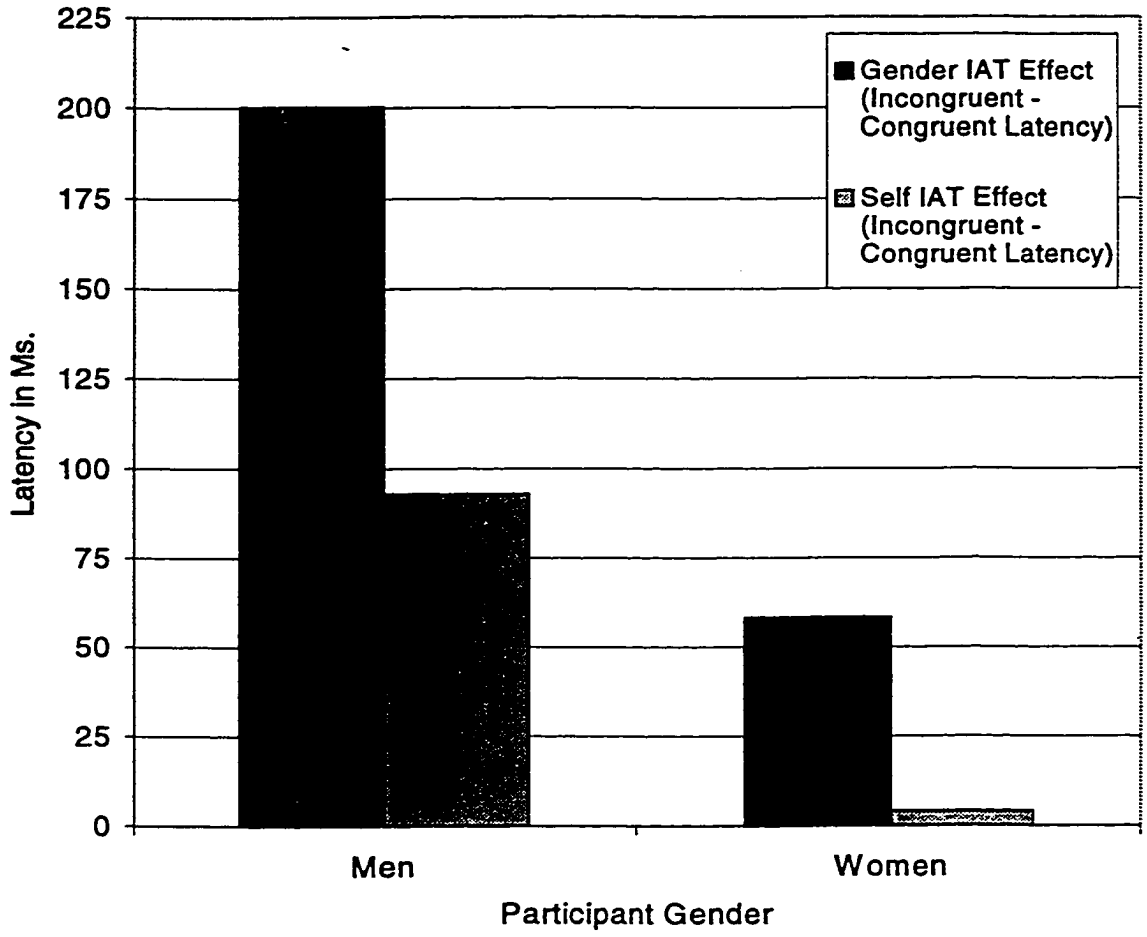

Figure 4. Gender differences in Gender IAT and Self IAT effects (Study 1).

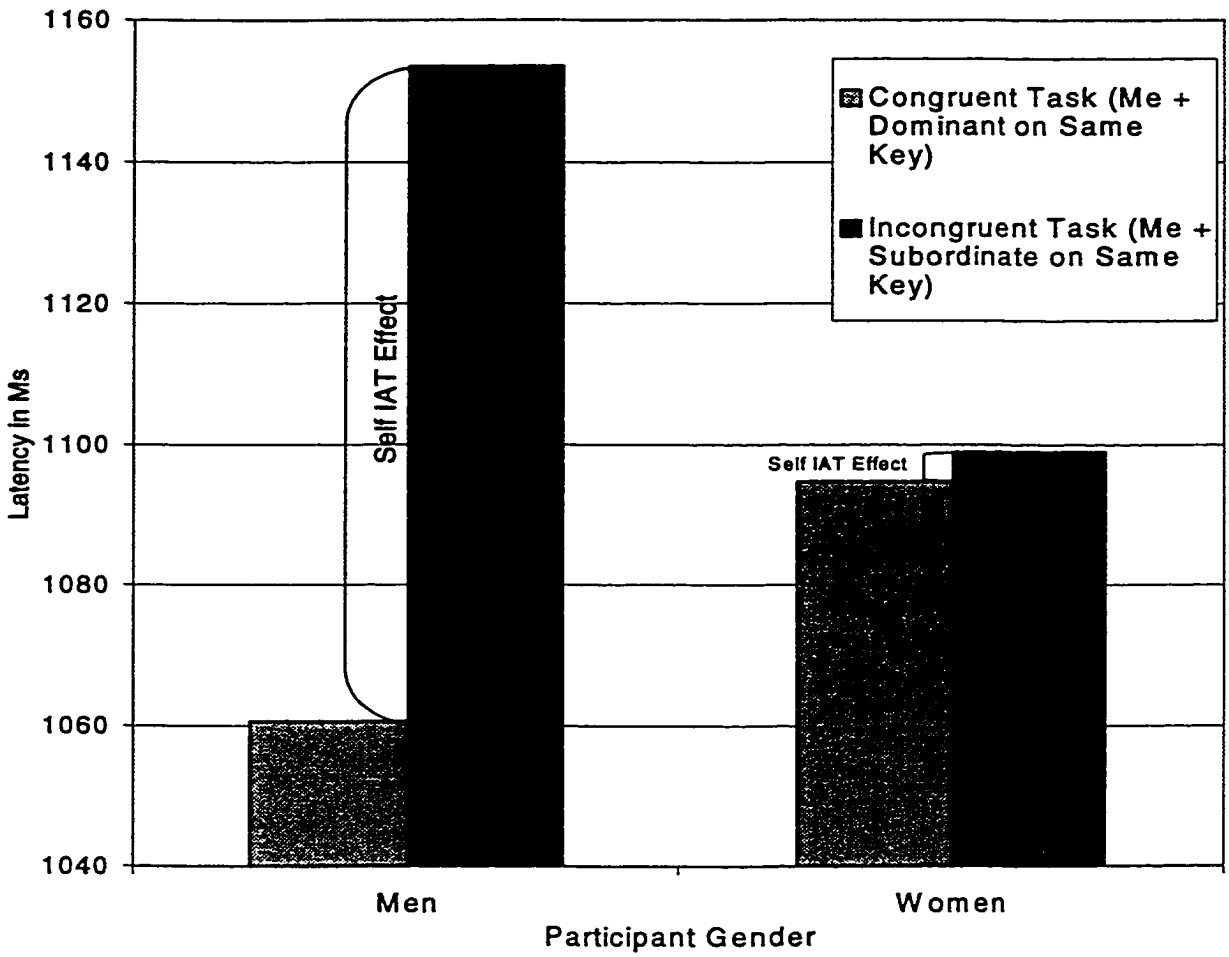

Figure 5. Gender Differences in response latencies to congruent and incongruent tasks on the Self IAT (Study1).

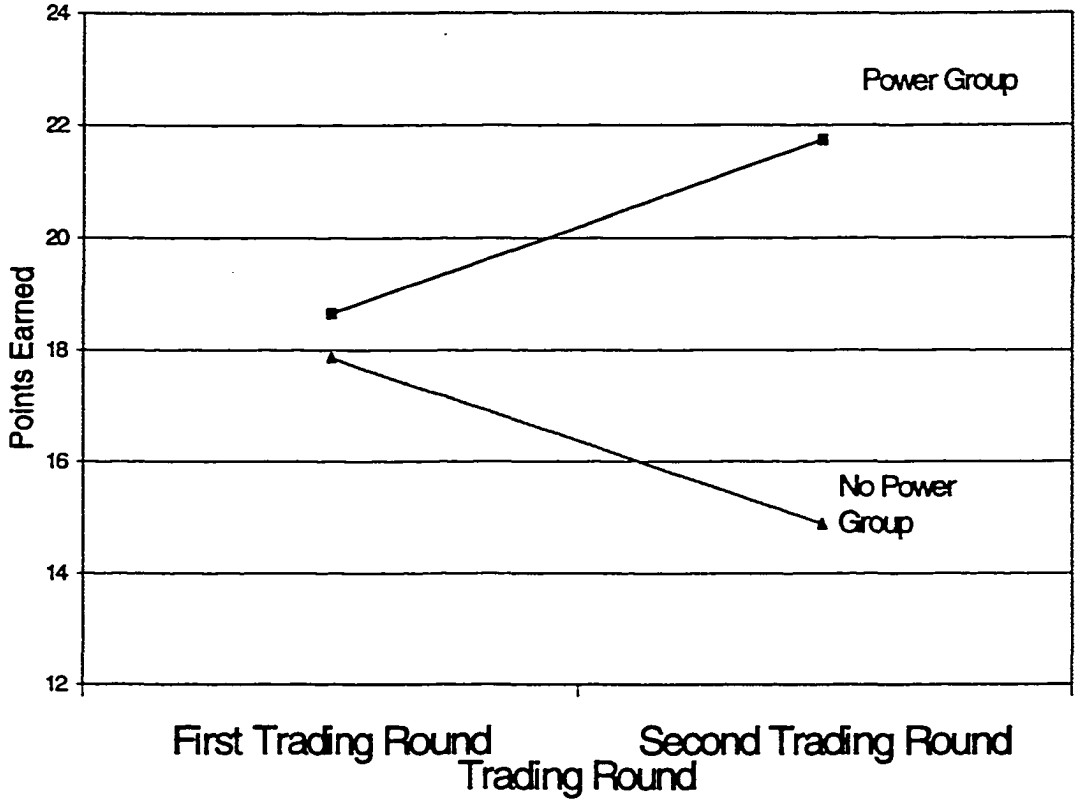

Figure 6. Points Earned in trading rounds by group status (Study 2).

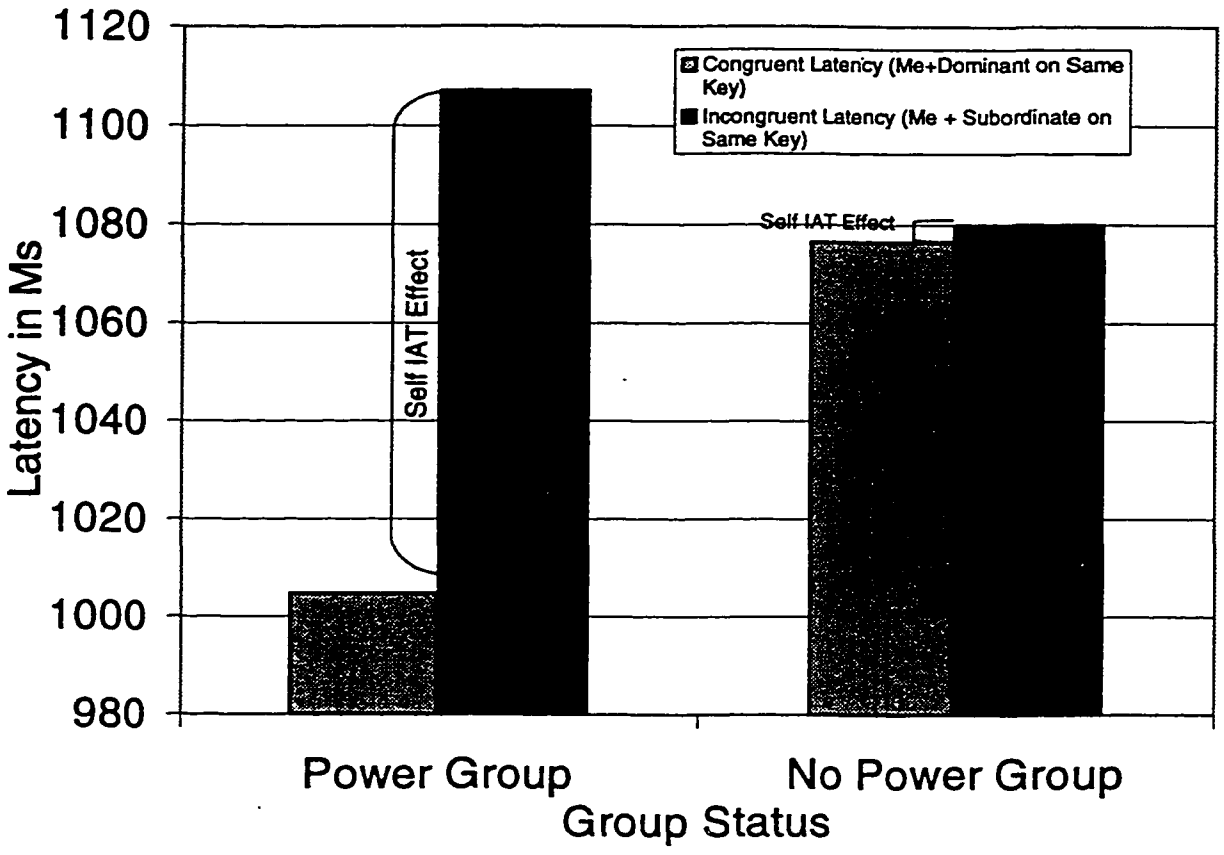

Figure 7. IAT effects for Self IAT by group status (Study2).

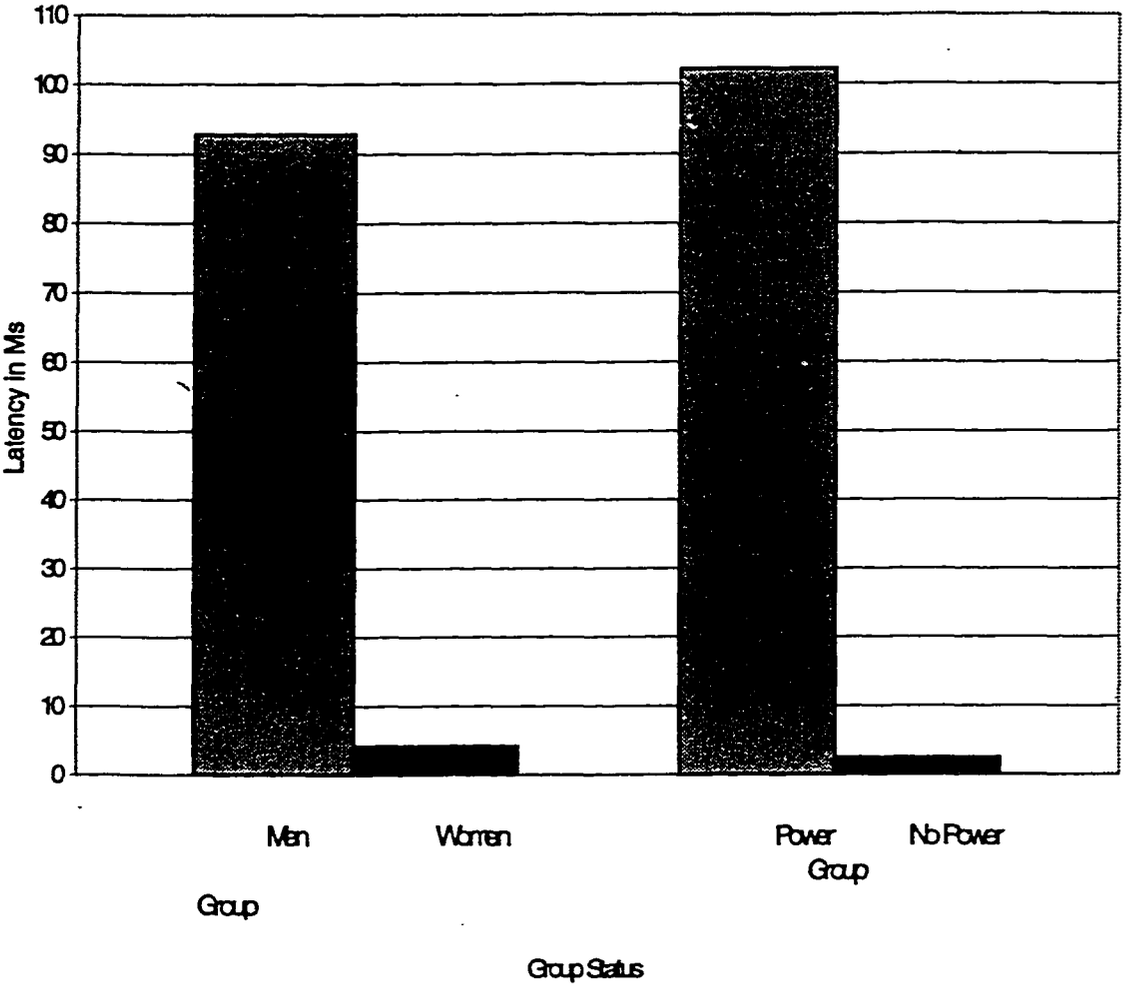

Figure 8. Gender and power differences on Self IAT effects (Study 1 & 2).

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