POWERFUL POSTURE AND THE ROLE OF GENDER STEREOTYPES: WHERE IS
POWER EXPRESSION DERIVED FROM?

by

Ryan Kyle Victor

A thesis submitted in partial fulfillment
of the requirements for the degree

of

Master of Science

in

Psychology

MONTANA STATE UNIVERSITY
Bozeman, Montana

May 2013
APPROVAL

of a thesis submitted by

Ryan Kyle Victor

This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citation, bibliographic style, and consistency and is ready for submission to The Graduate School.

Dr. Jessi Smith Co-Chair
Dr. Ian Handley Co-Chair

Approved for the Department of Psychology

Dr. Colleen Moore

Approved for The Graduate School

Dr. Ronald W. Larsen
STATEMENT OF PERMISSION TO USE

In presenting this thesis in partial fulfillment of the requirements for a master’s degree at Montana State University, I agree that the Library shall make it available to borrowers under rules of the Library.

If I have indicated my intention to copyright this thesis by including a copyright notice page, copying is allowable only for scholarly purposes, consistent with “fair use” as prescribed in the U.S. Copyright Law. Requests for permission for extended quotation from or reproduction of this thesis in whole or in parts may be granted only by the copyright holder.

Ryan Kyle Victor

May 2013
# TABLE OF CONTENTS

1. INTRODUCTION ......................................................................................................................... 1
   An Evolutionary Perspective: The Theory of Self Perception............................................. 3
   Social-Cognitive Perspective: Theory of Stereotype Assimilation ................................ 5
   Social Role Perspective: Theory of Role Congruity............................................................ 8
   Project Overview ...................................................................................................................... 11
   Hypotheses ................................................................................................................................ 13
      Theory of Self Perception Explanation of Power Experiences ......................................... 13
      Stereotype Assimilation Theory Explanation of Power Experiences ............................. 13
      Role Congruency Theory Explanation of Power Experiences ......................................... 14

2. METHODS .................................................................................................................................... 15
   Participants ................................................................................................................................. 15
   Procedures ................................................................................................................................. 15
   Independent Variables ........................................................................................................... 17
      Manipulation of Body Position ............................................................................................. 17
      Priming of the Masculine Stereotype .................................................................................. 17
   Manipulation Check ................................................................................................................ 18
   Dependent Variables .............................................................................................................. 19
      Action-Taking Task ............................................................................................................... 19
      Risk Taking Task .................................................................................................................. 20
      Pain Tolerance Task .............................................................................................................. 20
      Personal Sense of Power Scale .............................................................................................. 21
      Fear of Backlash ..................................................................................................................... 21
      Implicit Activation of Power ................................................................................................. 22
      Task Motivation ..................................................................................................................... 22

3. RESULTS ..................................................................................................................................... 23
   Correlational Analysis of Dependent Variables ...................................................................... 23
   Manipulation Check ................................................................................................................ 25
   Action-Taking Task .................................................................................................................. 27
   Risk Taking Task ..................................................................................................................... 28
   Pain Tolerance Task ................................................................................................................ 29
   Personal Sense of Power Survey ............................................................................................. 30
   Fear of Backlash ...................................................................................................................... 31
   Implicit Activation of Power ................................................................................................. 32
   Task Motivation ...................................................................................................................... 33
TABLE OF CONTENTS - CONTINUED

4. DISCUSSION .................................................................................................................. 34
   Limitations and Future Directions ............................................................................ 37
   Conclusion ................................................................................................................. 41

REFERENCES CITED ...................................................................................................... 42

APPENDIX A: Sample Masculine Photos .................................................................... 48
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Characteristics of Words Used in Lexical Decision Task</td>
<td>19</td>
</tr>
<tr>
<td>2. Correlational Analysis Between Dependent Variables</td>
<td>25</td>
</tr>
<tr>
<td>3. Lexical Decision Task</td>
<td>26</td>
</tr>
<tr>
<td>4. Action Taking Task</td>
<td>27</td>
</tr>
<tr>
<td>5. Risk Taking Task</td>
<td>28</td>
</tr>
<tr>
<td>6. Pain Tolerance Task</td>
<td>30</td>
</tr>
<tr>
<td>7. Personal Sense of Power Survey</td>
<td>31</td>
</tr>
<tr>
<td>8. Fear Of Backlash Survey</td>
<td>32</td>
</tr>
<tr>
<td>9. Implicit Activation of Power</td>
<td>33</td>
</tr>
</tbody>
</table>
What makes a person feel powerful? Embodiment scholars assert power arises when the body assumes a powerful, expansive position. The goal of this thesis was to examine how an expansive body position activates feelings of power. I draw from three theoretical perspectives to make predictions about the manifestations of power as a function of body position. The theory of self-perception predicts that power can be embodied and the body influences the mind’s perception of feelings of power. Stereotype assimilation theory also predicts that an expansive position increases feelings of power, but indirectly via concept activation. An expansive position likely activates the concept of masculinity, and when activated, masculinity increases powerful expressions. An expansive position is considered a masculine one, and the power of an expansive position could be explained by activation of the masculine stereotype. Role congruity theory adds that, to the extent power is part of the masculine role, men, but not women, will express power. Women should be less likely to express power when sitting expansively and when doing so should report an elevated fear of “backlash.” The reported experiment tested these three theories by randomly assigning participants to one of three body position conditions and one of two masculine priming conditions in a 3(body position) X 2(masculine priming) X 2 (gender) between subjects design. The experiment measured action-taking, risk-taking, pain tolerance, self-reported power, fear of backlash, and implicit power activation. Results failed to replicate past embodiment research; body position did not significantly influence the expression of power. There was marginal support for masculine concept activation and variations by participant gender affecting power expressions, although no consistent pattern emerged. The null finding for body position, however, suggests self-perception theory’s explanation of power expression may be limited to very specific experimental circumstances and are not generalizable. Further research is necessary to determine if power is truly embodied and if effects seen in past research are misattributions of masculine stereotype activation and the extent to which fear of backlash moderates or mediates expression of power.
INTRODUCTION

“It’s not the size of the dog in the fight, it’s the size of the fight in the dog.” For decades, Mark Twain’s statement about the power of an underdog with enough heart to win has inspired people to believe that, with enough mental determination, anyone can overcome any adversary. Nevertheless, physical size (of a dog or otherwise) is frequently a good indication of prowess. Evolutionary competition generally favors larger body sizes during times of scarce resources and high competition (Peters, 1983). Further, men are on average, physically larger and stronger than women (Hyde, 2000), which may account for systematic power differences favoring men in most societies (Fiske & Stevens, 1993). That is, physical differences between the sexes arguably translated into social differences over time, fostering power-congruent social behaviors related to aggression, leadership, agency, and dominance among men (Archer, 1999), and submissive behaviors among women. Women, for example, only occupy between 10 and 15 percent of the most powerful U.S. leadership and board-of-director’s positions respectively (Equality and Human Rights Commission, 2011). The power associated with physical size differences could provide one possible explanation for women’s lower status in the workplace.

The field of embodied cognition explores the association between bodily sensations and their effect on cognitive processes. Researchers in the field focus on the role that the body plays in shaping mental states and the behaviors related to these states (Borghi & Cimatti, 2010). For example, participants in one embodiment experiment smelled containers filled with noxious fragrances, one of which had the odor of fish.
(Schwartz & Lee, 2012). Following exposure to the scent, participants engaged in a trust game that allowed them to earn money by cooperating with a confederate. Participants exposed to the fishy smell showed less cooperation and more suspicion towards the confederate than those exposed to other noxious scents. According to the researchers, the fishy smell increased suspicion among participants as it activated the cognitive metaphor of “something smells fishy.” The olfactory experience associated with the fishy smell leads to changes in cognitive processes. This surprising result generated immense public curiosity, but the researchers did not present an overarching theory to explain their findings. Although their findings are provocative, embodiment researchers often do not integrate their findings into the larger physiological or social narrative.

Throughout history the largest members of a species often were the most powerful, and for humans, these larger members currently are men (McDowell, Fryar, Oden, & Flegal, 2008). Beyond this, recent theories of embodied cognition suggest that simply assuming larger body positions can make people feel and behave more powerfully (Huang et al., 2011). These feelings of power then lead to changes in mental states and physical behaviors (Huang, 2011). Specifically, feeling powerful engenders optimism, confidence, pain tolerance, and readiness for risk and action (Anderson & Galinsky, 2007; Guinote, 2007). Feelings of power generalize beyond inborn size differences as both men and women experience equal feelings of power when they sit in expansive positions (Huang, Galinsky, Gruenfeld, & Guillory, 2011). But, men are more likely than women to spontaneously assume expansive positions (Hall, 1984).
Embodiment researchers do not provide a clear mechanism for power activation, only that the body influences the mind. This thesis explores a potential mechanism for relating embodiment to psychological factors. A person could feel powerful and ready for action due to the evolutionary advantage of taking up a large physical space (thus, an embodied experience), but taking up a large physical space could also activate masculine stereotypes associated with power. Men and women could also experience power differently, as a result of the social expectations surrounding power and power expression. This thesis project attempts to understand how feelings of power arise following body position manipulations by looking at three possible explanations: evolutionary, social-cognitive, and social role theory.

An Evolutionary Perspective: The Theory of Self Perception

Evolution sometimes favors larger body sizes because larger individuals generally obtain resources for themselves and control the resources of others within their social group (Buss, 1989). Many primate species live in close proximity and must share the resources in their environment. The ability to control resources allows larger male primates to achieve higher reproductive fitness, favoring genes that code for larger, stronger body size (Buss, 1989). However, strength and social dominance are assessed in relation to individuals with whom one is in competition. Successfully evaluating one’s own fitness against the fitness of others prevents conflict with conspecifics. Clear power structures also help reduce the incidence of costly disputes over resources (Buss, 1989).
Thus, mechanisms for accurately evaluating power of ones self and other group members are advantageous to the individual.

When emotions are weak and ambiguous it is useful to consult external cues to assess emotion (Bem, 1967). People often rely on external cues like body position and facial expressions to judge their feelings. The theory of self-perception posits that the position of the body affects conscious appraisal of internal emotional states (Gallagher, 2003). To test this theory, Strack, Martin, & Stepper (1988) asked participants to place a pencil either between their teeth (a motion that mimics a smile) or between their lips (a motion that mimics a frown) while they viewed and rated several cartoons. Participants who held the pencil between their teeth rated the cartoons as more humorous. These results suggest that the muscles used to control facial expression influenced the affective state of participants. That is, participants used bodily positions and movement to interpret their emotional reactions and internal states.

The theory of self-perception counters the common belief that behavior is an outgrowth of internal attitudes and beliefs, rather than the other way around (Bem, 1967). Taking up a large amount of physical space induces feelings of power, which can drive people to take action (Galinsky, Gruenfeld, & Magee, 2003), persist on tasks (Guinote, 2007), increase pain tolerance, and take greater risks (Anderson & Galinsky, 2006). In one experiment highlighting this effect, participants who sat in an expansive body position during a simulated Blackjack game were more likely to take an additional card compared to participants who sat in a smaller, contracted body position (Galinsky et. al, 2003). It is risky to take an extra card in Blackjack, because the participant may score
higher than the dealer, but could lose by scoring higher than 21. However, the propensity to seek such risks increased when participants were sitting in an expansive position. 

Taken together, self-perception theory suggests people infer their own internal attitudes and feelings from their behavior and physical position. Thus, individuals may infer power from an expansive body position along with a number of ancillary concepts: optimism, self-determination, risk-taking, persistence, and an overall sense of agency. Self-perception theory can account for behaviors activated by expansive body position, but it does not explain the activation mechanism for the wide range of power expressions observed in embodiment experiments. One possible mechanism for body position’s activation of power will be explored in the next section using a social-cognitive perspective. Body position might activate internal attitudes and feelings, but it may do so through the cognitive intermediary of concept activation and assimilation. 

Social-Cognitive Perspective: Theory of Stereotype Assimilation 

An alternative theory for expansive body position’s activation of power is that an expansive position is associated with powerful social concepts. The activation of these concepts in turn might activate expressions of power. In particular, the masculine concept is associated with many of the same characteristics as power: pain tolerance, risk-taking, action taking, and optimism (Mahalik, Locke, Ludlow, Diemer, & Scott, 2003). Further, men typically sit in more expansive positions than women and are generally physically larger. Thus, there may be a link between expansive body positions and the masculine
stereotype. Given this, it is possible that sitting in an expansive position activates the masculine stereotype, which ultimately influences expressions of power.

Substantial research indicates that activated stereotypes trigger concepts and behaviors related to the stereotype. As a result, stereotype activation increases the likelihood that individuals will engage in behaviors related to the stereotype. For example, participants primed with words like Florida and grey embedded in scrambled sentences walked slower as they left the lab than those who were not primed with the words. Their walking speed indicates that they assimilated their behavior to the stereotype of elderly people as slow moving (Bargh, Chen, & Burrows, 1996). Indeed, these results persisted even among young participants, suggesting that people assimilate to stereotypes outside of their in-group (Galinsky, Wang, & Ku, 2008). In a related example, Dijksterhuis and van Knippenberg (1998) primed participants with either professors or soccer hooligans. Following the priming task, participants engaged in a general knowledge test modeled after the game Trivial Pursuit. Participants primed with the stereotype of professor performed significantly better on the general knowledge test than those primed with soccer hooligan. Presumably, those primed with the stereotype of professor took on the powerful intellectual qualities associated with a professor, resulting in increased attention and persistence toward the task. Those primed with soccer hooligan, on the other hand, decreased their level of attentiveness to the questions (Dijksterhuis & van Knippenberg, 1998).

Activating a singular component of an out-group stereotype can also activate a full range of stereotype-consistent concepts. For instance, priming “athleticism,” a
component of the African-American stereotype, activates other concepts related to that stereotype such as “unintelligent” and “poor” (Devine, 1989). Thus, if an expansive body position is related to a concept, like masculinity, sitting in an expansive position may activate concepts and behaviors related to the masculine stereotype. The stereotype of masculinity is associated with concepts such as power and power-related behaviors (e.g., dominance, riskiness, action-taking, high pain tolerance, etc.). Thus, individuals may act powerful while they sit in an expansive position because the position activates a masculine stereotype (Galinsky et al., 2003). Furthermore, this effect may occur regardless of whether one is a member of the group associated with the stereotype (Galinsky, Wang, & Ku, 2008).

Of course, there are many ways to activate the masculine stereotype besides having individuals (male or female) sit in an expansive position. Theoretically, priming individuals with masculinity, such as by showing them masculine faces, could be sufficient to activate the stereotype of masculinity (Yong, Wei-Na, & De-Li, 2010). From this perspective, there is nothing unique about the link between an expansive body position and expressions of power. Sitting in an expansive position is merely one way to prime a masculine stereotype. Further, once a masculine stereotype is active in individuals, they will manifest behaviors related to the stereotype (e.g., power behaviors), regardless of how that stereotype became active. In other words, the same effects that result from an expansive posture might result from other context that prime masculinity, and in part this thesis will test for that possibility. However, it is possible that the activation of masculinity and power does not affect everyone in the same way,
particularly those whose social role discourages them from acting out masculine behaviors.

**Social Role Perspective: Theory of Role Congruity**

Stereotypes arise in part from the social roles that men and women occupy. Embedded within the masculine and feminine social roles are different norms regarding power and power expression (Fiske & Stevens, 1993). According to American social norms men should be powerful, self-reliant, bold, and dominant (Mahalik, Locke, Ludlow, Diemer, & Scott, 2003), whereas women should be less powerful, gentle, communal, and compassionate (Eagly, 1987). Further, role congruity theory (Eagly, 1987) suggests that men and women are likely to behave according to cultural and societal expectations (Diekman & Eagly, 2008; Fiske & Stevens, 1993). Thus, although expansive body positions and masculine primes should activate power-related concepts in all people, women may be less likely to behave in powerful ways because doing so is inconsistent with their gender role.

The pressure to conform to the particular expectations set forth by society can be quite strong, especially when it applies to roles with few categories such as gender (Allen & Smith, 2011). Gender stereotypes might form on an evolutionary basis, but society has reinforced these stereotypes to define and justify social role (Else-Quest, Higgins, Allison, & Morton, 2012). Social norms dictate that women should occupy the homemaker role and be more communal whereas men are expected to work outside the home and be more agentic (Eagly, 1987). The male gender role as primary worker
remained relatively intact over the past fifty years; however, women are slowly becoming breadwinners for the family (Charelebois, 2012). However, expectations for men have also changed over the course of the past few decades as men have taken on a greater number of communal qualities (Franklin, 1984). The shift in gender roles is particularly difficult for men, as masculinity, in contrast with femininity, requires frequent social approval and validation (Vandello, Bosson, Cohen, Burnaford, & Weaver, 2008). Men must assert their masculinity by exerting power whereas this is less necessary for women to maintain their femininity.

Cultural expectations have strong and differential impacts on the behavior of men and women. They extend far beyond the subject of power and have equally striking effects for both genders. In an experiment demonstrating the differential effects of social role, parenting was primed using a sentence-unscrambling task. Women adopted a stronger preference for socially dominant men when parenting was primed, whereas men showed no change in preference for physically attractive women (Millar & Ostund, 2006). With parenting primed, women focused on their role, which prescribes that they seek out a mate capable of providing resources for them. In this case, women preferred the trait of social dominance as it suggested that the man would be a better resource provider. On the other hand, men’s social role did not dictate a differential preference for physical attractiveness with parenting primed; they consistently preferred physically attractive mates. Social role compels men and women to behave in a way that is congruent to their role and the expectations set forth by society.
Failure to conform to gender expectations can lead to intense social difficulties. Role congruity theory suggests both men and women face strong pressure to conform to their gender roles in order to avoid disapproval from others (Burn, 1995). Women who exert or seek power face considerable social backlash. They anticipate this backlash will include negative evaluations when they assert themselves (Amanatullah & Morris, 2010). Men and women face both anticipation of social backlash and real consequences when they fail to fulfill the expectations of their gender role (Burn, 1995). Thus both genders are highly motivated to adhere to the norms of their social role even when doing so goes against their personal interest (Smith & Lewis, 2009). Social roles also impact the tasks and careers that a person feels most comfortable performing. For example, men are more comfortable performing tasks they think require looking at a situation analytically over tasks that require emotional evaluations (Allen & Smith, 2011). Adherence to social norms even dictates a decrease in performance on tasks where norms state that performance “should” be low (Prentice & Carranza, 2002). In contrast to the predictions of evolutionary and social cognitive theories, role congruity theory suggests that men and women behave differently to prevent the social backlash that accompanies role incongruity.

A person’s body movement is an expression of the role that they fulfill. Research by Hall, Coats, and LeBeau (2005) suggests that those in power generally adopt an open body position, make physical contact with themselves more frequently, and smile less often. Society discourages women from expressing power and thus, they are more likely to smile, a low power gesture, even when in a position of power (Deutsch, 1990). This
research suggests that women feel less powerful simply because of their gender role. Body positioning is an expression of one’s social role, and gender-incongruent body positioning leads to feelings of discomfort as well as backlash from others (Burn, 1995).

Compared with embodiment and self-perception accounts, role congruity theory uniquely predicts that although men might express power when primed with expansive body positions or social conceptions of masculinity, women will not. Women, fearing social backlash, will be less likely to express power even when the concept is activated by external stimuli. Evolutionary, social-cognitive, and social role perspectives are all capable of explaining a person’s experience of power when sitting in an expansive position. The overall aim of the proposed thesis is to empirically compare these three explanations for the embodied experience of power.

**Project Overview**

Expansive body position increases feelings of power, as indicated by an increased willingness to engage in powerful behaviors, but the mechanism for this increase remains unclear (Huang, 2011). Three possible explanations might account for the experience of power when individuals adopt expansive positions. From an evolutionary perspective, the theory of self-perception predicts that an expansive body position directly activates feelings of power. The activation of these feelings of power occurs because, at least in primates, larger individuals hold more power. Thus, a body position that makes one larger leads to feelings of power (Archer, 1999). Alternatively, an expansive body position may nonconsciously trigger the concept of masculinity, which is associated with
power (Dijksterhuis & van Knippenberg, 1998). People then feel powerful because they integrate the core concepts of a masculine (and thus powerful) other into their behavior. An expansive body position, or any stimuli that activates the stereotype of masculinity should also increase expressions of power. According to this social-cognitive perspective, stereotype assimilation should occur equally for both genders, resulting in identical experiences of power across genders. The activation of masculinity in the context of social role theory sets up a third possibility. Specifically, men but not women will behave powerfully when adopting expansive body positions. Expressions of power are congruent with men’s but not women’s social roles and a violation of one’s role often leads to negative consequences (Brescoll, 2011). Thus, women will not express power following an expansive body position manipulation or after masculine primes because expressions of power constitute violation of their roles.

To test these three explanations for the activation of power, men and women participated in an experiment manipulating body position and masculinity priming, resulting in a 3 (expansive vs. contracted vs. neutral) X 2 (masculinity prime vs. no prime) X 2 (male vs. female) between-subjects design. Following body position and masculine priming manipulations, participants completed a series of surveys and choice-tasks that probed their feelings of power and propensity for powerful behaviors.
Hypotheses

Theory of Self Perception
Explanation of Power Experiences

The theory of self-perception suggests that feelings of power are embodied, and as such, sitting in an expansive position should always lead to greater feelings of power. This theory predicts a main effect of body position on the experiences of power, such that participants should experience more power if they sat in an expansive position versus a neutral or contracted position. A main effect of prime could occur according to self-perception theory. However, the theory is silent on the main effect of priming and such an effect would provide another explanation of power activation separate from self-perception. Further, gender should not qualify the main effect of an expansive position; differences should not arise between men and women because the expansive body position activates feelings of power regardless of social role.

Stereotype Assimilation Theory
Explanation of Power Experience

According to stereotype assimilation, participants should experience more powerful feelings within conditions that activate the concept of masculinity, regardless of gender. Thus, a stereotype assimilation perspective of power expression predicts a main effect for factors that vary the activation of the masculine concept. First, participants should experience more power if the masculine concept is activated through a priming task than if it is not (i.e., main effect of prime). Further, an expansive body position could activate the concept of masculinity. Participants should experience more power if they sit in an expansive position versus a control or contracted one (i.e., a main effect of body
position). Again, gender should not qualify this main effect as masculine priming affects men and women equally.

**Role Congruency Theory**

**Explanation of Power Experiences**

According to role congruency, participant gender should moderate the influence of body position and masculinity priming on the experience of power. In this case, an interaction should emerge between the participant gender and body position, and between participant gender and prime. Men would express more power when they are sitting expansively and when the masculinity concept is primed, as it is congruent with their gender role. Women would not express power in the same situations, as it is incongruent with their gender role. Body position and prime could be additive, and thus no interaction is predicted between the two of them.
METHODS

Participants

Participants consisted of 265 students (53% women, with a mean age of 20.47, SD = 5.03; and 47% men, with a mean age of 20.44, SD = 3.26) enrolled in the introductory psychology course at Montana State University. The experiment consisted of a 3 (Body position: expansive vs. neutral vs. contracted) X 2 (Prime: masculinity prime vs. no prime) X 2 (Gender) between-subjects design.

Procedure

The experiment ran in two separate labs, using identical procedures, on the campus of Montana State University. Participants volunteered for a study ostensibly focused on improving the ergonomics of a desk chair in collaboration with the university industrial engineering department. No more than two participants were in each experimental session. Large partitions and one or two empty workstations prevented the participants from seeing or hearing one another during the session. Before the experiment began, participants gave informed consent. Specifically, they were informed that they could refuse to participate in any portion of the tasks involved in the experiment. A research assistant read the cover story to the participants while an identical description appeared on the participant’s computer screen. Participants began the experiment by sitting in whatever position was most comfortable for them; the experiment’s chair swiveled and reclined to facilitate these positions.
Participants first engaged in a task designed to prime masculinity using masculine faces, and then completed a filler task related to the cover story. Next, participants followed a set of instructions that either placed them in a contracted, neutral, or expansive body position using guidelines taped to the desk and floor. Positions used by Huang and colleagues (2011) were the basis for the body position manipulations. The computer reminded participants to maintain this position at different points throughout the study.

Following the body position manipulation, participants completed dependent variables 1, 2, and 3 (counterbalanced): propensity for action taking, propensity for risk, and pain tolerance. The pain tolerance task was optional and participants could opt out at any time. Following the three tasks, the computer program reminded participants to maintain their assigned body position.

All participants then completed a manipulation check to test for the priming of masculinity. They then rated their self-perception of power, fear of backlash, and completed six ambiguous word fragments designed to measure implicit activation of power. Lastly, participants completed a survey examining their motivation for the experimental tasks, rated their comfort level in their assigned body position, and filled out a demographics survey. They were then debriefed and given credit for their participation.
Independent Variables

Manipulation of Body Position

Manipulation of participants’ posture was adapted from Tiedens and Fragale (2003) and Huang et al. (2011). In the expansive body position condition, participants were told to place their feet outside markings on the floor that were 15 in. apart and their elbows within squares on the desk that were 21 in. apart. Those in the neutral condition placed their feet on floor markings that were 14 in. apart and their arms on desk markings that were 11.5 in. apart. In the contracted position participants were told to place their feet within two markings on the floor that were 11 in. apart and their arms between two tape markings on the desk in front of them that were 7.5 in. apart. The computer screen displayed a photo of a female research assistant from her torso to feet demonstrating the proper body position.

Priming of the Masculine Stereotype

Masculinity was primed using 10 black and white photos (see Appendix) of male faces previously rated as masculine from the no longer available AR Face Database (Martinez & Benevente, 1998). Participants were randomly assigned to either see these masculine faces or to see no face. Participants engaged in an ostensible reaction time task and told to press a key when a red fixation point on the screen in front of them changed from red to blue. The red and blue fixation point appeared over forward and backward masking pictures of random black and white pixels. Participants assigned to the masculine priming condition saw photos of masculine faces for 30ms. The short
presentation length has effectively primed participants in previous experiment without them consciously understanding the prime (Gibson & Zielaskowski, 2013). Participants in the neutral condition saw nothing between the forward and backward masks.

**Manipulation Check**

A manipulation check was carried out to test for priming of masculinity using a lexical decision task (LDT). Participants indicated whether a string of letters displayed on the screen was or was not a word. The list consisted of 10 masculine words, 10 feminine words, 20 neutral words, and 40 non-words randomly presented. Selected words were matched on word length, reaction time, and frequency of word usage, as determined by the English Lexicon Project database (Balota, et al. 2007) (see Table 1). There were no significant differences between the masculine and neutral words on these three characteristics. Feminine words differed from neutral words on reaction time, as indicated by the F statistic of reaction time, however this was acceptable for the study as feminine words were only used to prevent the manipulation check from itself priming masculinity.

The LDT score assessed how many correct word and non-word choices the participants made during the session. A score was calculated to determine participants’ mean reaction time to the neutral, feminine, and masculine words of the task. The mean reaction time for masculine words subtracted from the mean reaction time for neutral words gave a difference score representing an ability to identify masculine themed words following the experimental manipulations. The expectation was that, compared to a
neutral prime, those previously primed with masculine faces would respond faster to masculine words as “words” versus “non-words.”

Table 1: Characteristics of Words Used in Lexical Decision Task

Length, log frequency, and English Lexicon Project’s word reaction time (ms) are given for each category of words (Balota et al., 2007) along with an analysis of variance between word groups. There were no significant differences found between the words on length or log frequency. A marginally significant difference in ELP-reaction time exists between feminine and neutral words.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Masculine Words M (SD)</th>
<th>Feminine Words M (SD)</th>
<th>Neutral Words M (SD)</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>6.60 (2.12)</td>
<td>5.60 (1.26)</td>
<td>6.35 (2.23)</td>
<td>.70</td>
<td>.51</td>
</tr>
<tr>
<td>Log Frequency</td>
<td>8.94 (1.77)</td>
<td>9.12 (1.41)</td>
<td>9.68 (1.87)</td>
<td>.72</td>
<td>.49</td>
</tr>
<tr>
<td>ELP-RT (ms)</td>
<td>636.68 (65.57)</td>
<td>588.02 (58.08)</td>
<td>663.63 (85.92)</td>
<td>3.37</td>
<td>.05</td>
</tr>
</tbody>
</table>

Dependent Variables

Action-Taking Task

Three scenarios in which participants were required to choose to act or not act assessed their propensity for risk (Huang, 2011). These scenarios included whether to negotiate the price of a vehicle (Maggee, Galinsky, & Gruenfeld, 2007), whether to speak first in a debate (Maggee et al., 2007), and whether to take another card in a game of blackjack when they held 16 and saw the dealer had 10 (Galinsky et al., 2003). The scenarios consisted of the options “yes,” or “no.” The sum of the “yes” responses represents a total index of action taking; with more yes responses relating to greater expression of power.
Risk Taking Task

To examine risk-taking behavior, participants completed a risk taking measure based on a simple gambling task (Holt & Laury, 2002). The measure consisted of 10 decision tasks in which participants needed to choose between two possible odds/payout and loss schemes. A final score for the task was calculated by summing the responses associated with the higher expected payoffs. A lower score was associated with greater risk-taking by making non-rational choices for lower expected payoffs.

Pain Tolerance

Participants were administered a pain-tolerance assessment as a behavioral measure of power as greater pain tolerance is positively related to greater activation of power (Bohns & Wiltermuth, 2012). The research assistant explained to participants that a force-measuring device would be pressed into their skin at a point behind their wrist on their non-dominant arm. They were also told "it has been noted that powerful individuals are able to persist at this task for a longer period of time, indicating a high tolerance for pain." This statement ensured that enduring the task for longer indicated a powerful action by the participant. The experimenter instructed participants to press the spacebar on the keyboard when they could no longer tolerate the discomfort. The pressure at this pain threshold was recorded by a Wagner Instruments FPX-25 algometer (DeWall & Baumeister, 2006). Scores could range from a 0 lb. force to max (30 lb. force).
Personal Sense of Power Scale

To assess their current self-reported sense of power, participants rated five sentences on a 7-point scale (1 = *strongly disagree* to 7 = *strongly agree*). This measure was adapted from Anderson, John, & Kelter (2012). For example, participants rated the statement “right now, I can get others to do what I want.” Greater agreement with these statements indicated an increasing sense of power. Three of the statements pertained to a lower sense of power such as, “My ideas and opinions will be ignored.” These statements were reverse coded and averaged with the other five statements to give a mean self-reported sense of power score.

Fear of Backlash Scale

To assess concerns with expressing power, participants completed the six-item Fear of Backlash scale (Moss-Racusmin & Rudman, 2010). All items lead with the stem: “If other people could see me right now…” followed by six statements regarding embarrassment or fear of reprisal activated by the previous tasks. For example, participants read, “would you be concerned that you would be disliked if people saw you completing the previous reaction time, lexical decision, or choice tasks?” and asked to respond using a 7 point scale (1 = *strongly disagree* to 7 = *strongly agree*). Higher scores on the scale indicated participants’ greater fear of backlash following the previous activities of the experiment. The mean response score of the six statements gave an average fear of backlash rating.
Implicit Activation of Power Assessment

A word completion task assessed the implicit activation of power experienced by participants (adapted from Steele & Aaronson, 1995). For example, participants were given the word stem L_ad and asked to complete it. Completing the stem as “lead” was coded as a power word; whereas completing the word as “load” was coded as a non-power word. Participants were provided with six target power words: power, direct, lead, authority, control, command, and rich; the same words used by Huang and her colleagues (2011). The sum of the fragments completed as power words measured the participants’ activation of powerful feelings.

Task Motivation

Participant’s motivation for engaging in the experiment was analyzed using a 9 item measure (Smith, Sansone, & White, 2007) where they were asked to rate statements regarding how much they they enjoyed or wanted to participate in the previous tasks on a scale of 1 (strongly disagree) to 7 (strongly agree). For example participants rated the statements “I think this is a valuable task” and “I feel doing this task was an enriching experience.” Motivation was analyzed by reverse coding for two of the survey statements including, “I think it was a waste of my time to do this task,” that indicated a lack of motivation for the experiment’s tasks. The mean of the 9 items gave an average task motivation score.
RESULTS

Prior to analysis, data from 18 participants were removed from the data set due to experimental problems including research assistants not following experiment protocols (N = 3), participants not following instructions (N = 8), participants not maintaining their assigned posture (N = 2), and participants who were unable or unwilling to participate in experiment tasks (N = 5). The remaining data from 132 women and 115 men was available for analyses. Analysis of variance of the dependent variables used a 3 (Body position: expanded, neutral, or contracted) X 2 (Prime: masculine face prime given or masculine face prime not give) X 2 (Gender) between-subjects design unless otherwise stated.

Correlational Analyses of Dependent Variables

Pearson-Product Moment Coefficients were calculated in order to investigate correlations among the dependent variables of the experiment and can be seen in Table 2. Fear of Backlash was negatively associated with personal sense of power (r = -.23, p < .01), suggesting that participants felt less powerful when experiencing increased feelings of social backlash. Fear of backlash had a nearly equally negative relationship with personal sense of power in both men (r = -.22, p < .01) and women (r = .23, p < .01). The analysis also revealed that action taking was positively related to the difference score on the lexical decision task (r = .16, p < .05), however this relationship was only significant for women when analyzed separately (r = .20, p < .05). These results suggest that women who identified masculine words faster than neutral words in the lexical
decision task were more likely to take action. This is consistent with the previous hypothesis of stereotype assimilation, as it predicted that participants primed with masculinity, the effect being measured by the lexical decision task, would also be likely to take action. Additionally, task motivation was related to action-taking, personal sense of power, and implicit activation of power. Task motivation was positively related to action ($r = .13, p < .05$), however this correlation was not significant when analyzed separately for men or for women. Task motivation was also negatively related to personal sense of power ($r = .21, p < .01$), with this relationship being stronger in men ($r = .28, p < .01$) than women ($r = .19, p < .05$). These results suggest that participants with a higher sense of personal power were less motivated to engage in the experimental tasks. Lastly task motivation was positively related to implicit activation of power ($r = .16, p < .01$). Participants who scored high in task motivation were more likely to complete a greater number of the word fragments as power words. However, when analyzed separately by gender, only women showed a significant positive relationship between implicit activation of power and task motivation ($r = .19, p < .05$). The correlational analysis revealed interesting relationships between the dependent variables, with the negative relationship between fear of backlash and personal sense of power providing tentative evidence that fear of backlash reduces self-reported sense of power. The relationship between the lexical decision task difference score and action taking also provides tentative support for stereotype assimilation theory. The relationship between task motivation, fear of backlash, and the measures of power will be investigated further
regarding their relationship to the experiment’s manipulations to determine their significance to the theories of power activation and expression.

Table 2. Correlational Analysis Between Dependent Variables
Pearson Product Moment Correlation Coefficients Between Dependent Measures Associated with Power

<table>
<thead>
<tr>
<th>Dependent Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Action Taking</td>
<td>--</td>
<td>.06</td>
<td>.06</td>
<td>.00</td>
<td>.12</td>
<td>.08</td>
<td>.04</td>
<td>.16*</td>
</tr>
<tr>
<td>2) Fear of Backlash</td>
<td>--</td>
<td>.07</td>
<td>-.09</td>
<td>.23**</td>
<td>-.08</td>
<td>.08</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>3) Risk Taking</td>
<td>--</td>
<td>.09</td>
<td>-.04</td>
<td>-.02</td>
<td>-.10</td>
<td>-.02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Pain Tolerance</td>
<td>--</td>
<td>.01</td>
<td>.09</td>
<td>.03</td>
<td>.07</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Personal Sense of Power</td>
<td>--</td>
<td>-.22**</td>
<td>.08</td>
<td>-.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6) Implicit Activation of Power</td>
<td>--</td>
<td>.18**</td>
<td>-.02</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7) Task Motivation</td>
<td>--</td>
<td>.03</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8) Lexical Decision Task</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p < .05 (two-tailed)  **p < .01 (two-tailed)

Manipulation Check

An analysis of the manipulation check determined if the priming manipulations activated masculinity as intended. The expectation was that participants would respond
faster to masculine words in the lexical decision task following priming with expansive body position or masculine faces. Data from 41 participants was removed from the analysis because they had fewer than 90% correct choices on the task. Table 3 displays the standardized reaction time difference scores between neutral and masculine words on the task. There was a marginally significant main effect of priming on the difference score ($F[1,189] = 3.69, p = .06$) such that participants who saw the masculine faces tended to respond to masculine words faster compared to neutral words. The main effect for participant gender and body position was not significant ($ps > .05$). There were no significant two-way or three-way interactions between the manipulations ($ps > .05$). The results of the manipulation check suggest that masculine faces primed masculinity, whereas the assigned body position did not. This does not support the idea that an expansive body position activates concepts of masculinity.

Table 3. Lexical Decision Task
Primed Effect in ms (Neutral words subtracted from masculine words) on the lexical decision task. Results presented as Z scores with standard deviations given in parenthesis.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Men Prime M (SD)</th>
<th>Men No Prime M (SD)</th>
<th>Women Prime M (SD)</th>
<th>Women No Prime M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracted</td>
<td>.01 (.95)</td>
<td>-.03 (1.00)</td>
<td>.14 (.66)</td>
<td>-.16 (.61)</td>
</tr>
<tr>
<td>Neutral</td>
<td>.34 (.72)</td>
<td>-.32 (.86)</td>
<td>.13 (.92)</td>
<td>-.27 (1.05)</td>
</tr>
<tr>
<td>Expansive</td>
<td>-.16 (2.21)</td>
<td>-.13 (1.55)</td>
<td>.18 (.64)</td>
<td>-.21 (.93)</td>
</tr>
</tbody>
</table>

* $p < .05$ (two-tailed)  ** $p < .01$ (two-tailed)
The expectation was that participants would respond with action taking more often after priming with masculine faces or an expansive body position. However, a reliability analysis across the three scenarios gave a Cronbach’s alpha of -.074, suggesting low reliability between items of the measure. In Action Task 1, 93.5% (N = 231) of participants responded with action-taking behavior (negotiating on the price of a car), and in Action Task 2 82.2% (N = 203) of participants responded with a non-action behavior (speaking second in a debate). The uniformity of the responses in these two action tasks prevented them from contributing to the analysis of action taking in a meaningful way. Thus, only Action Task 3 (whether to take a card in a game of blackjack) was used to analyze action taking as 65.6% (N = 162) of participants chose to take action, while 34.6% (N = 85) chose not to (see Table 4). Binary logistic regression revealed no effect of body position, priming, or participant gender (ps > .05) on action-taking behavior. These results contradict Huang and colleagues (2011) findings that expansive body position increases action-taking behavior.

Table 4. Action Taking Task

<table>
<thead>
<tr>
<th>Condition</th>
<th>Prime M (SD)</th>
<th>No Prime M (SD)</th>
<th>Prime M (SD)</th>
<th>No Prime M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracted</td>
<td>.73 (.46)</td>
<td>.76 (.44)</td>
<td>.61 (.50)</td>
<td>.58 (.50)</td>
</tr>
<tr>
<td>Neutral</td>
<td>.71 (.47)</td>
<td>.67 (.48)</td>
<td>.65 (.49)</td>
<td>.52 (.51)</td>
</tr>
<tr>
<td>Expansive</td>
<td>.65 (.49)</td>
<td>.67 (.48)</td>
<td>.54 (.51)</td>
<td>.85 (.37)</td>
</tr>
</tbody>
</table>
Risk Taking Task

Risk taking was also expected to be activated by the masculine primes and expansive posture. The risk taking analysis did not include eight participants beyond the participants excluded from the analysis as a whole as they failed an experimental check by accepting a lower payout on a no risk decision. Table 5 displays the mean risk propensity as calculated from the nine items of the risk-taking scale. This analysis revealed only a main effect of gender ($F[1,227] = 7.65, p = .01$), such that men chose more risky options than women. These results are consistent with role congruity theory as social norms suggest that women should be less risk-taking compared to men. The analysis revealed no other significant effects ($ps > .05$). Similar to the results for action taking, risk taking does not appear to appear to be affected by manipulations of body position and masculine priming.

Table 5. Risk Taking Task
Mean risk propensity as measured by the sum of the nine-item decision task. Higher scores indicate higher risk-taking as higher scores indicate decisions that are contrary to expected payoff.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Men Prime M (SD)</th>
<th>Men No Prime M (SD)</th>
<th>Women Prime M (SD)</th>
<th>Women No Prime M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracted</td>
<td>4.05 (1.25)</td>
<td>4.24 (1.25)</td>
<td>4.68 (1.43)</td>
<td>4.37 (1.44)</td>
</tr>
<tr>
<td>Neutral</td>
<td>4.13 (1.20)</td>
<td>4.33 (1.53)</td>
<td>4.42 (1.39)</td>
<td>4.68 (1.73)</td>
</tr>
<tr>
<td>Expansive</td>
<td>4.13 (1.31)</td>
<td>3.75 (1.07)</td>
<td>5.04 (1.16)</td>
<td>4.32 (1.16)</td>
</tr>
</tbody>
</table>
Pain Tolerance Task

Pain tolerance is associated with masculinity and power, and the expectation was that participants primed with masculinity and expansive body position would show higher pain tolerance. The pain tolerance device used in the study was limited to measuring a pressure of 30 lb. force. Of the 247 participants analyzed, 18 reached this limit. The mean pain tolerance for each condition appears in Table 6. Analysis of the measure demonstrated a main effect for participant gender ($F[1,229] = 93.91, p = <.001$), such that men expressed a higher pain tolerance ($M = 23.73$) than women ($M = 15.18$). Role congruity theory predicted such results as the male gender role prescribes a higher pain tolerance. The analysis further demonstrated a marginally significant main effect of prime, ($F[1,229] = 2.68, p = .10$), suggesting that brief priming with masculine faces, relative to no faces, increased expressions of pain tolerance. No significant main effects for body position occurred ($ps > .05$). No two-way or three-way interactions among the manipulations were significant ($ps > .05$). The analysis confirmed predictions regarding role congruity theory and pain tolerance, and hinted at the idea that masculine faces could prime greater pain tolerance, consistent with stereotype assimilation theory.
Table 6. Pain Tolerance Task
Mean pain tolerance of participants who did not exceed the measurement of 30 lb. force on the Wagner FPX-25 algometer. Standard deviations given in parenthesis.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prime M (SD)</td>
<td>No Prime M (SD)</td>
</tr>
<tr>
<td>Contracted</td>
<td>24.57 (7.61)</td>
<td>21.51 (8.25)</td>
</tr>
<tr>
<td>Neutral</td>
<td>25.12 (6.14)</td>
<td>23.91 (7.06)</td>
</tr>
<tr>
<td>Expansive</td>
<td>22.87 (7.19)</td>
<td>22.87 (5.76)</td>
</tr>
</tbody>
</table>

Personal Sense of Power Survey

The personal sense of power survey consisted of a self-report scale of power and measured how powerful participants felt following the manipulations. A data collection error occurred for 43 participants' due to a malfunction of the MediaLab computer software being used. Table 7 displays the mean score for the eight-item survey. There was no main effect of body position, priming, or participant gender on personal sense of power \((p>.05)\). There were no significant two-way or three way interactions between the manipulations for personal sense of power \((p>.05)\). The analysis of the personal sense of power measure does not indicate that the manipulations were effective in priming self-reported power.
Table 7. Personal Sense of Power Survey
Mean personal sense of power score by condition. Standard deviations given in parenthesis.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prime M (SD)</td>
<td>No Prime M (SD)</td>
</tr>
<tr>
<td>Contracted</td>
<td>5.24 (.74)</td>
<td>4.67 (1.18)</td>
</tr>
<tr>
<td>Neutral</td>
<td>4.88 (.73)</td>
<td>5.01 (.85)</td>
</tr>
<tr>
<td>Expansive</td>
<td>5.00 (.29)</td>
<td>5.02 (.71)</td>
</tr>
</tbody>
</table>

Fear of Backlash

The fear of backlash scale measured the extent to which participants felt they would face reprisal for their expression of power in the manipulation tasks. Results for the fear of backlash scale are shown in Table 8. The expectation was that women would have a greater fear of backlash after sitting in an expansive body position or after being priming with masculinity, as power activated by these manipulations is incongruent with women’s social role. Women had a greater overall fear of backlash ($M = 1.75$) compared to men ($M = 1.53$), ($F[1,235] = 6.19, p = .01$). However, there were no significant two-way interactions between body position and participant gender or masculine priming and gender ($ps > .05$). The manipulations of body position and masculine priming did not differentially affect men and women’s fear of backlash; these results are inconsistent with role congruity theory, which would predict women would fear backlash more following power inducing manipulations.
Table 8. Fear of Backlash Survey
Mean fear of backlash as indicated on the six-item fear of backlash measurement on a scale from 1-5. Standard deviations given in parenthesis.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Prime M (SD)</th>
<th>No Prime M (SD)</th>
<th>Prime M (SD)</th>
<th>No Prime M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracted</td>
<td>1.71 (.84)</td>
<td>1.71 (.73)</td>
<td>1.81 (.70)</td>
<td>2.02 (.79)</td>
</tr>
<tr>
<td>Neutral</td>
<td>1.25 (.36)</td>
<td>1.51 (.74)</td>
<td>1.75 (.67)</td>
<td>1.66 (.76)</td>
</tr>
<tr>
<td>Expansive</td>
<td>1.43 (.61)</td>
<td>1.54 (.50)</td>
<td>1.52 (.62)</td>
<td>1.71 (.80)</td>
</tr>
</tbody>
</table>

Implicit Activation of Power

The implicit activation of power measure consisted of a six-item word completion task. The average proportion of power words completed appears in Table 9. There was no main effect for body position, priming, or participant gender on implicit activation of power ($ps>.05$). No significant two-way interactions were found between manipulation conditions ($ps>.05$). If body position and the masculine priming task activate power, than participants should have completed a greater number of words as power words. The results suggest that power was not implicitly activated by these manipulations.
Table 9. Implicit Activation of Power
Average proportion of words completed as power words from the six-item word completion task. Standard deviations given in parenthesis.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Men Prime M (SD)</th>
<th>Men No Prime M (SD)</th>
<th>Women Prime M (SD)</th>
<th>Women No Prime M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracted</td>
<td>.42 (.17)</td>
<td>.48 (.21)</td>
<td>.45 (.16)</td>
<td>.41 (.22)</td>
</tr>
<tr>
<td>Neutral</td>
<td>.45 (.20)</td>
<td>.38 (.18)</td>
<td>.45 (.14)</td>
<td>.48 (.18)</td>
</tr>
<tr>
<td>Expansive</td>
<td>.34 (.20)</td>
<td>.39 (.17)</td>
<td>.44 (.19)</td>
<td>.41 (.18)</td>
</tr>
</tbody>
</table>

Task Motivation

The task motivation measurement determined if any of the manipulation conditions resulted in participants liking the power assessment task more or if they caused participants to feel more motivated to engage in the assessments. The results of the analysis indicated that there were no main effects for body position, masculine priming, or participant gender ($p > .05$). There were no significant two-way interactions found between the manipulation conditions either ($p > .05$). These results suggest that task motivation was unaffected by any of the independent variables.
This experiment examined alternative explanations to embodiment theory’s activation of power; rather than a powerful body position activating power, it was proposed that masculine priming would activate power, as the body position was thought to be activating power through the concept of masculinity. However, the five dependent variables examining power did not yield conclusive results about the types of manipulations that activate power. Women were less likely to take risks overall and men demonstrated a higher pain tolerance, however these results were not significantly related to the manipulation of body position or masculine priming. The activation and subsequent expression of power was not affected by any of the study variables; therefore we cannot draw conclusions about the main effect of the manipulations or their interaction with gender. However, participants who were primed with masculine faces responded marginally faster in the word/non-word judgment task to words associated with masculinity compared to neutral words, whereas those who were not primed with masculine faces responded slower. Thus the priming task appears to have primed masculinity, even though this did not result in greater expression of power. Such null results for the five measures of power suggest that the expressions of power seen in previous embodiment research may be due to very specific circumstances that are not easily replicated. However, no conclusive evidence was found to support any of the three hypotheses tested.

The theory of self perception suggested that if power is embodied, and the experience of power results from the physical experience of bodily position (Bem, 1967)
then people sitting in an expansive body position should report greater feelings of power compared to those sitting in neutral or contracted positions. Yet, body position did not significantly influence any of the five measures of power (action taking, risk, pain tolerance, personal sense of power, and implicit activation of power). As these measures did not vary with body position manipulation, self-perception theory cannot be used to draw conclusions about how body position activates feelings of power.

The alternative hypothesis to self-perception explanation of power used the theory of stereotype assimilation and suggested that participants in the experiment would demonstrate increased expression of power, regardless of gender, when they had (vs. had not) been primed with masculine faces (Dijksterhuis & van Knippenberg, 1998). Further, if an expansive body position is associated with masculinity and a contracted body position with femininity (Anderson & Berdahl, 2002), the posture manipulations should also influence expressions of power. The expectation was that an expansive posture would prime the masculine stereotype in the absence of the masculine face prime and vice versa, but together would result in an even greater expression of power. The results of the lexical decision task manipulation check suggest that the masculine faces tended to prime masculinity compared to no-face primes, but body position did not prime the activation of masculinity. Priming masculinity with faces also did not lead to greater expressions of power, even if it did prime masculinity. Stereotype assimilation theory did not explain the activation of power to a much greater extent than self-perception theory did.
While neither self-perception theory nor stereotype assimilation theory explained the activation of power, as the measures of power did not show greater activation under various manipulation conditions, it was still of interest to determine if the activation of power might be different between men and women. Role congruity theory predicted that women would express less power compared to men following the power manipulations. Such a prediction was made because women are typically discouraged from acting as powerful and agentic as men, and women who do so often face negative consequences (Rudman & Glick, 1999). The results of the experiment provide partial support for this hypothesis; women demonstrated lower expressions of power as women indicated that they had met their pain tolerance level at a lower pressure than men. This finding can be interpreted in one of two ways; women’s lower levels of pain tolerance might result from greater physiological pain felt at lower pressures compared to men. Alternatively, women might not feel it necessary to endure the task for longer as high pain tolerance is not associated with their social role (Lowery, Fillingim, & Wright, 2003). The action-taking task showed no significant differences between men and women or their responses to the body position and priming manipulations. The results of the risk-taking measure were as predicted in that women, more often than men, chose less risky options. However, no interaction emerged between participant gender and the manipulations of body position or priming, thus it is difficult to draw any conclusions about role congruity. Collectively, these results do not clearly support one of the three theories over the other two; this may be due to limitations in the study that will need to be addressed before future research is conducted.
Limitations and Future Directions

The results obtained from the experiment failed to replicate past embodiment research (Huang et al., 2011; Carney et al., 2010), however a few limitations were inherent in this experiment that might be able to explain why different results were obtained. The limitations of the study consist of methodological issues, flaws in the measurement of power, and shortcomings of the theory of embodiment itself. The experiment conducted differed from previous embodiment research on a few key aspects. Participants sat at a computer throughout the study, which may have limited their ability to maintain an expansive body position. The operation of the keyboard and mouse constrains the participant’s body position compared to previous studies that did not use a computer set-up. The less expansive body position might limit the activation of power, and explain why body posture did not increase expressions of power on any of the dependent variables previously used in embodiment research. The masculine priming task could also be modified to include an awareness check for priming at the end of the study investigate the salience of the masculine faces. It is possible that participants were able to recognize the faces that they were viewing as male. Expectation congruent effects are more consistently found when the prime is visibly salient to participants (Ranier, 2001), thus participants who could clearly see the masculine faces would be more likely to demonstrate priming effects consistent with the masculine stereotype. Participants who could not identify the face as a man’s would be less likely to show masculine priming effects.
In addition to changes to manipulations of the study, modifications could be made to address some of the issues present in the measures of power. The action-taking scenarios that questioned whether participants would choose to negotiate on a car or speak first in a debate suffered from a problem of uniform response, meaning that most participants responding in a certain way, regardless of manipulation. The risk-taking measurement also did not yield useful results, which may have been due to the hypothetical nature of the study. Participants received actual payment for their choices in the original study by Holt & Laury (2002). Participants’ response to the risk task may not reflect their actual risk preferences when the payoff is purely hypothetical. Differential risk preference for real and hypothetical payoffs in laboratory scenarios has previously been noted (Laury & Holt, 2002), however the conditions under which these differences occur is not necessarily conclusive from their research. Future experiments should implement scenarios with real monetary payoffs for risk to ensure that participants are strongly motivated to respond using their actual risk preference.

The measure of pain tolerance, as taken by the force measurement device, was another limitation for this study. The device’s maximum pressure was 30 lb. force, which a significant number of the participants would surpass if given the chance. This maximum pressure limit was necessary to prevent participants from allowing the device to perpetrate serious pain and tissue damage. However, this resulted in a ceiling effect (Breakwell, Hammond, Fife-Schaw, & Smith, 2006), whereby a large number of participants scored the upper limit (30 lb force) of the measurement device. The ceiling limits the effectiveness of data analysis as it eliminates some of the variance that might
have been seen with participants who reached this limit. The effect that an independent variable might have becomes less visible when this variance is eliminated. Participants who would have surpassed this pressure limit may provide further evidence for pain tolerance’s relationship with masculinity and embodied power. Future research could specify new testing sites where pain would be greater with less pressure, thereby avoiding the possibility of injury to participants who can withstand greater pressures. Additionally, participant’s willingness to participate in the pain task twice could be measured to investigate preference towards engaging in the task after becoming aware of the pain involved.

The cover story may also have forced participants to focus on their body position while sitting in the chair, which could eliminate the increased feelings of power expected from sitting in an expansive position. Previous studies on embodiment had participants sit in an ostensibly ergonomic chair, which forced them into expansive or contracted position. It is possible that explicitly telling participants that they would evaluate the chair’s comfort level diminished feelings of power by focusing participants’ attention on the expected source of the powerful feelings (Schwarz, Clore, & Lawrence, 1983). Power expression may not increase when people are conscious of their body position. Future studies on the subject should test whether covert manipulations of body position (as was used in Galinsky, 2003) differ from explicit instruction for body position (as was used in this study). The conscious accessibility of the activation of power may diminish feelings of power.
Alternatively, the failure to replicate the results of previous embodiment research on any of the measurements of power might suggest that there is a problem with the way embodiment research is constructed. Even if experimental conditions are not identical to those of previous research, conceptual replication of their work should yield similar results. This is especially true given the generalizability that should come with an evolutionary explanation of activation of power. This could be an example of publication bias, wherein a number of researchers carry out similar methods that yield null results, but those results are never communicated to the scientific community because of the “file drawer problem” (Rosenthal, 1979). Meanwhile, when a manipulation yields significant results, the data are more often published despite the large body of unpublished evidence that would run counter to these results. The conclusions of embodiment research are also difficult to falsify (Zwaan, 2009); the conclusions about what the results mean are often post-hoc and not based in a strong theoretical framework. Failure to replicate the effects of embodiment may be due to a “confirmation bias” (Mynatt, Doherty, Tweney, 1977) that is inherent to the theory. Embodiment theory is explanatory, but not does attempt to falsify other theories that could explain the same phenomenon. Experiments designed to test embodied phenomenon are very susceptible to the confirmation bias because they do not consider alternative hypothesis; they simply investigate whether embodiment could explain the phenomenon. This thesis attempted to provide an alternate explanation for embodied power. The addition of the masculine priming along with manipulation of posture provided for a strong theoretical framework wherein embodied power could occur, but could also be accounted for by stereotype
assimilation. The addition of role congruity to the theoretical framework also allowed us to examine how social role might affect the expression of power if activated by self-perception or stereotype assimilation. However, the failure to replicate results of past research or find significant effects of the priming manipulations provides inconclusive evidence for the theories tested. Despite these limitations, the few positive results suggest that further research into the field of embodied power and masculinity could prove fruitful.

Conclusion

The study’s results, while not clear evidence for any of the theories presented, may provide future avenues for researching the activation of power. The failure to replicate the findings of previous embodiment research, even when a number of dependent variables associated with power were tested, suggests that embodiment does not predict the activation of power as well as the theory’s researchers might desire. The activation of power may be a much more complex process, that cannot be adequately explained using just one theory. Power may be activated by a number of sources, both physical and cognitive, and future research should explore the degree to which different sources contribute to the activation of power. Feelings of power may arise from the unconscious mind, and they may surface when a multitude of complex factors interact, however the resulting expression of power in real-world scenarios can have important and wide-ranging effects that make the source of such power an essential field of study.


Prentice, D.A., & Carranza, E. (2002). What women should be, shouldn’t be, are allowed to be, and don’t have to be: The contents of prescriptive gender stereotypes. *Psychology of Women Quarterly, 26*(4), 269-281.


Sprecher, S. & Regan, P.C. (2002). Liking some things (in some people) more than others: Partner preference in romantic relationships and friendships. *Journal of


APPENDIX A:

SAMPLE MASCULINE PHOTOS
Sample Masculine Photos

Martinez & Benavente (1998)