

THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

DEPARTMENT OF PSYCHOLOGY

BELONGING UNCERTAINTY AND ITS EFFECT ON
IDENTIFICATION WITH A HIGH STATUS LEADER

JULIA MCKENNA
SPRING 2010

A thesis
submitted in partial fulfillment
of the requirements
for a baccalaureate degree
in Psychology
with honors in Psychology

Reviewed and approved* by the following:

Theresa K. Vescio
Associate Professor of Psychology
Thesis Supervisor

Jeanette N. Cleveland
Professor of Psychology
Honors Adviser

* Signatures are on file in the Schreyer Honors College.

ABSTRACT

To examine the hypothesis that low status people will identify more strongly with high status people when belonging uncertainty is aroused, we assigned participants to low status “employee” roles and led them to believe that they would interact with a high status “leader”. We also manipulated belonging uncertainty, or uneasiness about whether one belongs in a domain. Prior research has shown that belonging uncertainty is particularly aroused among women in Science, Technology, Engineering, and Mathematics (STEM) domains and ethnic minorities in academic domains because these groups are strikingly underrepresented and stereotyped in ways that imply that women and ethnic minorities lack attributes needed to succeed in these domains (i.e., are poorly qualified). Following the manipulation of belonging uncertainty and after staged interactions with the fictitious leader, participants completed measures that assessed *admiration of leader*, *identification* (i.e., self-other overlap, Aron, Aron, & Smollen, 1992) , and *desire for positive leader evaluations*. Findings on identification and leader admiration were consistent with predictions among male participants; male participants in the belonging uncertainty aroused condition perceived significantly more self-leader overlap and felt significantly more admiration for the leader. Our manipulation of belonging uncertainty had less powerful and consistent effects on female participants. No significant effects emerged on one’s desire for positive leader evaluations. The implications of these findings will be discussed in terms of full participant gender (male, female) X gender ingroup representation (underrepresented or equally represented among previous winners) X qualifying exam score (minimum or high qualifying score) design. The results of these findings will also be discussed.

TABLE OF CONTENTS

| | |
|--|----|
| ABSTRACT..... | i |
| Chapter 1. INTRODUCTION..... | 1 |
| Chapter 2. METHOD..... | 11 |
| Chapter 3. RESULTS..... | 16 |
| Chapter 4. DISCUSSION | 11 |
| References..... | 26 |
| Author’s Note..... | 28 |
| Figures | |
| Figure 1. Belonging uncertainty score X gender in-group representation 2 X 2 | 29 |
| Figure 2. Mean difference values for leader admiration..... | 30 |
| Figure 3. Mean difference values for Self-Other Overlap | 31 |
| Figure 4. Test score X gender interaction on perceived power..... | 32 |
| Figure 5. In-group gender representation X gender interaction on perceived power | 32 |
| Appendix A Informed Consent..... | 33 |
| Appendix B Creative Intelligence Questionnaire | 35 |
| Appendix C Written Introduction | 39 |
| Appendix D Gender In-Group Representation: Women Underrepresented Condition | 40 |
| Appendix E Gender In-Group Representation: Men Underrepresented Condition | 41 |
| Appendix F Gender In-Group Representation: Gender Equity Condition..... | 42 |
| Appendix G Score Feedback and Position Assignment..... | 43 |
| Appendix H Getting to Know You Form..... | 44 |
| Appendix I Task Familiarity Worksheet..... | 45 |

| | |
|---|----|
| Appendix J Filler Task: Word Search..... | 50 |
| Appendix K Feedback from Leader Challenge..... | 51 |
| Appendix L Personality Measure..... | 52 |
| Appendix M Symbol Ratings..... | 56 |
| Appendix N Admiration Scale..... | 57 |
| Appendix O Self-Other Overlap Measure | 58 |
| Appendix P Desire for Positive Leader Evaluations Measure | 59 |
| Appendix Q Authentic Pride Measure | 60 |
| Appendix R Debriefing Form | 61 |
| Appendix S Academic Vita | 62 |

Chapter 1

Introduction

As the world becomes more aware of social issues and desires social change, we are seeking remedies to historical abuses of power and inequity. Historically, women and ethnic minorities have been actively excluded from powerful domains. Although open acts of hostility and exclusion are less typically the norm in contemporary intergroup relations, women and ethnic minorities continue to face the threat of exclusion via the less direct acts of powerful people. Women and ethnic minorities' experiences of historical oppression and the consequences of that cycle of oppression are of interest to social psychologists and policy makers. As we are moving toward a more egalitarian society, we are seeking ways to close the gaps that were created from unjust, corrupt, and prejudiced structures and policies in society. Research on the experiences of ethnic minorities and women is illuminating the psychological realities and experiences of historically underprivileged and repressed groups. For example, research on stereotype threat shows us the insidious process whereby ethnic minorities, African Americans for example, experience anxiety and fear of confirming negative stereotypes about their group that impede performance.

Science, Technology, Engineering, and Mathematics (STEM) domains are still largely white male dominated fields. As we seek to close the gaps in achievement in these high status and high power domains, we must consider the experiences of ethnic minorities and women who enter these fields. The challenges they face must be confronted with research based interventions that will help insure retention of women and ethnic minorities in STEM domains.

Disparities can exist for many reasons, and Walton and Cohen (2007) discuss possible reasons beyond overt discrimination for the achievement gaps between women and ethnic

minorities and white men. “Inequality, as we know, can take the form of disparities in objective treatment and resources. But it can also take the form of disparities in subjective construal. When such disparities persist social-psychological intervention can help people to resolve the pressing subjective questions that if left unresolved would undermine their comfort in mainstream institutions and their prospects for success” (p. 94, Walton & Cohen, 2007). Walton and Cohen (2007) point out the importance a person’s subjective construal has on their actions and decisions that affect outcomes for their success.

Thus as policies are enacted to remedy the past discriminations, policy makers still may face obstacles that arise due to a person’s subjective construal of the situation. Insofar as a person believes that “people like them” don’t succeed in a particular domain, they may be less willing to try to succeed in that domain, and even if they initially try, may be less likely to remain in a particular domain. This may be a possible explanation for the gender and/or race differences in people entering STEM domains. While all people are allowed to enter the field, there are still vast achievement and retention gaps between men and women and white men and the racial minorities.

The goal of our work is to examine one possible way that women and ethnic minorities may attempt to appease belonging uncertainty. In other words, I will conclude the introduction by forwarding the hypothesis that motivated the present work; namely, it is predicted that if belonging uncertainty is aroused among low status people, then identification with a high status leader will increase. Toward that end, I will first consider the importance of belonging as a core social motive and relate concerns about belonging to structural features of groups (e.g., prototypicality of a group member). I will then review theory and research on belonging uncertainty, before suggestion that belonging uncertainty may be reduced when a person identifies with a high status, prototypic group member of the important domain. To consider the

viability of this suggestion, I will first review relevant theory and research on belonging and social identity. I will then review the design of our manipulations and our study.

Belonging, Prototypicality, and Status Within Groups

Belonging is a core human motive (Fiske, 2004) and people gain senses of self through belonging. People satisfy their need to belong by belonging in groups and acquire a positive sense of self or social identity, by belonging in groups (Tajfel & Turner, 1976). Our research posits that the need to belong is a core human need and people seek to be in contexts where they belong. As such, the feeling of uneasiness about belonging (belonging uncertainty) may affect whether a person enters and stays in a particular domain. Our research seeks to understand the experiences of people in domains where they feel belonging uncertainty. More specifically, and importantly, I examine ways that people seek to appease the feeling of belonging uncertainty, in other words what adaptations do people pursue in order to feel that they belong?

We suggest that people experiencing belonging uncertainty seek to belong and minimize the psychological distance between themselves and core, high status members of the domain. By *identifying* with a successful, high status member of the domain, people may reduce psychological distance and therefore reduce belonging uncertainty.

Often people are underrepresented because of negative stereotypes about them. For example, women and ethnic minorities are underrepresented in STEM domains. Members of underrepresented groups feel belonging uncertainty, or uneasiness about whether one belongs because they are underrepresented and stereotyped as lacking skills required for success in the domain. People who experience belonging uncertainty are psychologically distant from central members of the group. As a result, people who experience belonging uncertainty have concerns

about social relations and belonging as well as concerns about being seen as a poor group member (Walton & Cohen, 2007).

High status group members are prototypic group members who have more power, marginal members have less. Groups are defined as “a number of people sharing something in common” (Encarta Dictionary). As a group is defined by what people have in common, people can vary in the degree to which they are similar to the group or possess the element that is similar. High status group members embody the attributes that a group values and defines its self as. The most similar people will be at the center/ core of the group, with people who are less similar being on the fringes or outer limits of the group. He or she who is most like the group and best characterizes the defining feature(s) of the group embodies the characteristics of the group and is embraced. These group members become central group members and come to have power within the group (Emerson, 1964; Tajfel, 1982). In fact, prototypic group members are given power and control over outcomes of import to the group in attempts to keep those individuals from leaving the group (e.g., Emerson, 1964).

People seek to belong to groups. Simply desiring to be a member of a group creates an opportunity for power differentials to exist within the structure of a group. Thus, status and power are created when groups exist and belonging within groups is sought. As a result, groups are power-based structures. Typically, power is conceptualized in social influence terms. One has power if he/she has the potential to influence another in psychologically meaningful ways, which include “changes in the behavior, opinions, attitudes, goals, needs, [and] values” (p. 151; French & Raven, 1959; see also Cartwright, 1965; Copeland, 1994; Overbeck & Park, 2001). Those who are at the center of the group have the power to include or exclude others; power in many situations also translates into the ability to include or exclude others.

Low status people in efforts to belong tend to desire to be like high status people within the group. As people seek to belong to groups, they seek to characterize and embody what a core group member is within themselves as a way to show that they belong to the group. They categorize and stereotype themselves as a member of a cherished group, which results in their “adherence to” and “expression of in-group normative behavior” (p. 102; Turner et al., 1987). Low status people, or peripheral group members, have some, but not all, of the valued characteristics of the in-group and are less prototypic and peripheral group members (Noel et al., 1995). Additionally, peripheral group members “constantly face the danger of being unmasked” (p. 15; Tajfel, 1978), or risk being seen as poor group members and rejected by high status people.

Belonging Uncertainty

Marginal group members experience belonging uncertainty, or feel a general uneasiness about whether a person belongs to a group or not. In addition, as Walton and Cohen (2007) suggest, in achievement domains, belonging uncertainty is particularly strong among members of negatively stereotyped groups (e.g., women in math). Belonging uncertainty is a feeling that members of negatively stereotyped groups such as women and African Americans feel when in domains in which they are negatively stereotyped such as women in mathematics and African Americans in academic domains. These negative stereotypes serve to point out supposed deficiencies or shortcomings of women and African Americans, which presumably make them poor group members of the domains in which they are stereotyped. The stereotypes are powerful and influence the situation because they suggest that women and African Americans lack core qualities that a good/ central group member would possess for that particular domain. Stereotypes about women and ethnic minorities lead to negative expectations for the

performances of women and ethnic minorities. Thus women and ethnic minorities in academic achievement domains for example, enter an environment where negative stereotypes about their performance exist and there are few (if any) members of their groups (i.e. they are underrepresented).

By better understanding the experience of stereotyped groups and their feelings of belonging uncertainty, we can understand the experience of peripheral group members who are similarly seen as not possessing the core traits needed to be a central group member. Marginal/peripheral group members, who in many domains are women and ethnic minorities, have a desire to belong to the group, but do not look like core group members and may not be expected to possess the traits of core group members given negative cultural stereotypes. As a result, marginal/peripheral group members may feel uncertain about their position of belonging in the group.

Marginal/ peripheral group members also lack the power to define the group and are instead defined by and included at the discretion of the group's core members. Thus their position within the group is unstable and dependent on other's evaluations of them, namely the evaluation of whether they are similar to the group's core members (traits, skills, dispositions, background, upbringing, experiences). When it is made salient to a person that they are different from core group members, belonging uncertainty is aroused.

Importantly, we suspect, and preliminary findings indicate, that belonging uncertainty is a general process aroused whenever concerns about one's peripheral group status and concerns about social relations are aroused among low status people. Although members of negatively stereotyped groups (women, some ethnic minorities) frequently experience concerns about belonging and relations with those who can include/exclude, whenever these concerns are

aroused, regardless of group membership, belonging uncertainty should be aroused (Vescio et al., 2009). Thus, our experimental manipulation uses assigned test scores and gender underrepresentation to mimic the environment in the real world that a woman or person of an ethnic minority background would face: their skills being perceived as less than sufficient and their group being underrepresented. As gender is a group people identify with and a large part of people's self concepts, gender representation is a good way to manipulate belonging uncertainty.

Identification

The goal of our work is to examine the idea that people seek to identify with high status leaders in an important domain in order to appease belonging uncertainty. At the core of our analysis, we want to see if belonging uncertainty when aroused increases identification with the leader (our supposed result/ coping mechanism for belonging uncertainty). We want to see if *identification* with the leader is an adaptive response to belonging uncertainty being aroused.

We suggest that low status people may be motivated to identify with high power people as a means of reducing psychological distance between themselves and core group members and appeasing belonging uncertainty. As people seek to belong to groups and seek to be core rather than peripheral group members, they seek to be similar to core group members. Low power members seek to be similar and identify with high power core members, and they have the desire to have meaningful relationships with core group members as well. Similarity to and/or identification with core group members suggests that one possess the attributes valued by a group. Peripheral group members seeking to belong to the group desire to embody whatever it is that makes them a good, core group member. They thus have the models of powerful, core group members, which they look to in order to define themselves and know what a good core group member is like.

As they use core group members to define themselves, core group members have the power of influencing peripheral group members. If P is a perceiver and O is another person or group, referent power refers to O's ability to influence P because P identifies, or feels a sense of oneness, with O (French & Raven, 1959). Referent power also refers to the influence that a meaningful group has on a person's self-definition, perception and esteem. In contemporary theory and research, the influence of a meaningful group refers to social identity (Tajfel & Turner, 1986) or domain identification (Steele & Aronson, 1995).

This is partially what gives the core group members their power- the power to influence. By defining what a core group member is (i.e. someone like themselves), high status/power group members influence the strivings of potential, or peripheral group members. To the degree a person sees themselves as similar to core, powerful group members, they see themselves as belonging to the group and representing what a good member is. This proposition is consistent with findings showing that people like (Byrne & Nelson, 1964), want to befriend (Newcomb, 1961), and have relationships with similar others (like low power people who come to think, feel, and act similarly to high power people; see e.g., Aube & Koestner, 1995; Boyden et al, 1984). Therefore, as a person seeks to belong, they seek to identify with core, high status/power people in the group. Furthermore, a person who is uncertain about their belonging will seek/strive to identify with core group members more than a person who is confident in their belonging to the group. This leads us to our hypothesis that in situations that arouse belonging uncertainty, people will seek to identify more strongly with a core group member (i.e. the leader, who has supposedly scored high on the creative intelligence measure). This prediction is consistent with theoretical conceptualizations of referent power (see above).

We manipulate belonging uncertainty in the lab using manipulations shown to create the experience of concerns about belonging i.e. concerns about being seen as a poor group member or fear of visibility (e.g. I am nervous that I will look incompetent in front of others, I am afraid that I will make mistakes that make me stand out) and social relations concerns—assessed through motivation to get along with others scale (e.g. get along with their partner, talk about things that their partner would like). Both of these manipulations—**gender in-group representation** and domain centrality, or **qualifying exam score/ perceived skill** had the main effect of increasing fear of visibility and social relations concerns.

The four conditions created by our design are depicted in Figure 1. By crossing creative intelligence score (high, low) and in-group gender representation (gender in-group underrepresented or equally represented among past winners), we end up with four conditions. The four conditions include: (1) a high score, gender equally represented condition, (2) a high score, gender underrepresented condition, (3) a low score, gender equally represented condition, and (4) a low score, gender underrepresented condition, which is the belonging uncertainty condition. The condition in which participants are expected to have concerns about belonging is the last condition (low score, gender underrepresented) because it is the condition in which their skills relevant to the domain of creative intelligence are questioned and they are underrepresented as a member of their gender.

After manipulating belonging uncertainty via the aforementioned design, we will measure identification with high power person. Evidence consistent with predictions would emerge if participants identify more with the leader when they are in the belonging uncertainty condition. A significant pattern should emerge where identification with the leader is higher in the low score-gender underrepresented condition. It is also possible that participants will see

themselves as similar to the leader and highly identify with the leader when they are in the high score-gender equal condition.

Chapter 2

Method

Participants

Participants were 116 (58 male, 58 female) Pennsylvania State University undergraduate students. Participants were enrolled in introductory psychology classes and completed the study in return for credit towards the research requirements for that class.

Procedure and Materials

Participants were greeted by a Research Assistant (RA), led to the experimental laboratory, and completed the experiment in groups of three to six. Participants were first given two informed consent forms (See appendix A). They signed one and returned it to the RA and kept the second for their records. Participants were told they would be participating in a study on pair interaction and problem solving. Participants were also led to believe that they would be completing tasks with a partner, but that prior to doing so they would exchange getting acquainted information with their partner. Participants were led to believe that “creative intelligence” was a strong predictor of academic success and general career success and that their scores on a creative intelligence test (see Appendix B) would determine their role (either a leader or an employee) in the remainder of the experiment.

Participants were then given a folder and were asked to write an experimental name (e.g., a userid, or nickname) on the folder that could be used to keep their experimental materials together, while protecting their anonymity. Participants then had five minutes to complete a creative intelligence questionnaire (see Appendix B). While the creative intelligence questionnaires were presumably being scored, participants were given a written introduction to the experiment (see Appendix C). The written introduction explained that participants that scored

high enough on the creative intelligence questionnaire would have the chance to compete with other pairs for \$50. In addition, within the context of the written introduction, two independent variables were manipulated.

Participant Role. The written introduction explained that participants would, depending on their score, qualify as leaders, qualify as employees, or not qualify. The written introduction explained that there would be three phases of the experiment. The first two phases of the experiment would presumably involve the exchange of written information between leader and employee. During the third phase of the experiment, participants were led to believe that leaders and employees would interact to complete a series of joint problem solving tasks. The joint problem solving tasks were tasks that a person scoring high in creative intelligence should be good at. The first task was creative problem solving, the second spatial problem solving, and the third verbal problem solving. See Appendix I for a full explanation of the tasks. Participants were told that the team who completed the most tasks would win the \$50. The leader, having scored high on the creative intelligence test, presumably had the personality characteristic, creativity, and skills associated with creative intelligence, thus they were more central to the group (of past winners).

Gender in-group representation among past winners. Within the context of the written introduction, information was varied to manipulate the gender composition of prior participants who had won \$50.00. Participants saw a sheet showing the unambiguously gendered names (e.g. Psychguy, Sara) of past winners. The gender composition of past winners was altered to create three conditions (See Appendices D-F). In the gender equity condition, participants saw equal numbers of male and female names among past winners. In the gender underrepresented

condition, participants saw that only 15.6% of the names were of their gender, whereas 84.4% of the names were of the opposite gender.

After reading the introduction, participants were given Score Feedback and Position Assignment Sheets (see Appendix G). All participants were assigned as employees but believed that some others were assigned as leaders and that some did not qualify. Thus, participants believed that leader participants and employee participants were in the same room and would be paired up for future tasks. Participants believed there would be three phases of the experiment: two involving the exchange of written information and a final in which they would interact and complete three creative intelligence tasks in efforts to win \$50. The first phase of written information commenced, and participants filled out a getting to know you form (see Appendix H), next they had five minutes to read over a task familiarity worksheet (See Appendix I), which explained the tasks they would be asked to complete with the leader in order to win the \$50. Participants were told that the leader had received a packet of information that included a personality questionnaire (see Appendix L) and a challenge activity (see Appendix K) that would determine the pair's place in line.

After the five minutes, all packets were collected and a filler task (see Appendix J) was given to participants to work on while the RA supposedly scored the leader's challenge activity. Packet two was then handed out. It included the leader performance feedback sheet (see Appendix K), the previously filled out leader personality questionnaire, and all of the dependent variables (see Appendices L-Q). The leader's previously filled out personality questionnaire was given to participants due to a supposed lack of questionnaires, and participants were to put their own answers on the same form as their "leader". The remaining dependent variables were filled

out. Packet two was collected and participants were told it was the end of the experiment and were debriefed (see Appendix R) by the RA.

Dependent Variables

Admiration of Leader. To measure the degree that students admired the leader, participants were asked to complete Fielding and Hogg's (1977) identification measure (see appendix N). This measure was comprised of three items, which included the following: How much do you admire this person? How much do you respect this person? How much do you like this person as a leader? Participants answered the three questions using a 4-point scale (endpoints labeled 1=not at all and 4=very much). Responses on these three items were submitted to a principle components factor analysis using a varimax rotation. A single factor structure emerged from this analysis. Consistent with the findings of the factor analysis, I created a single admiration variable by averaging across each participant's ratings of the three items ($\alpha=.76$). Higher numbers on this variable indicate greater admiration of the leader.

Self-Other Overlap (SOO). Self-Other Overlap was measured using the Inclusion of Other in the Self (IOS) Scale by Aron, Aron, and Smollan (1992) (See Appendix O). Participants were asked to circle one of seven pairs of interlinking circles that best described their relationship with the leader. Higher numbers (indicated by closer interlocking circles) on this scale indicate more self-other overlap.

Desire for Positive Leader Evaluations. To measure the desire for positive leader evaluations, we developed a Relationship Importance scale. Participants were asked to rate on a scale from 1 (not at all) to 7 (very much) how much they agreed with statements such as "What the leader thinks of me is important to me", "I value the opinion of the leader", and "I want the leader to think highly of me". There were eight items in the scale (See Appendix P). The items

were submitted to a factor analysis, and two factors emerged. There seems to be a factor that is focusing more on the power of the leader, which included the items “I will succeed regardless of what the leader thinks of me” (reverse scored) and “My success in this experiment depends on the leader’s opinion of me. I averaged across ratings of these items to create a rating of perceived power ($r=.63$). The other items loaded on factor one, which tapped the importance of the leader’s opinion to the participant. Item five, “it is important to me that the leader thinks highly of me”, cross-loaded but more strongly loaded on to factor one, so it was included with factor one ($\alpha=.74$).

Chapter 3

Results

Identification with the leader was measured with the completion of three different dependent variable measures. The three constructs that make up our definition of identification are *admiration for the leader*, *Self-Other Overlap* with the leader (seeing self as similar to the leader- closeness of relationship), and *desire for positive leader evaluations*. Thus a person who is high in identification admires the leader, sees themselves as overlapping with the leader, and desires positive leader evaluations (places high importance on the leader's opinions). To test this notion, each of the three dependent variables (admiration, self-other overlap, desire for positive leader evaluations) was submitted to a participant gender (male, female) X score (high, low) X in-group gender representation (equal, under) between participants Analysis of Variance (ANOVA). The results of each of the three analyses are reported below.

Admiration

Two significant effects emerged from the analysis of admiration. First, there was a significant main effect of score, $F(1,102)=4.74, p<.04$; admiration of the leader was stronger among peripheral group members ($M=2.94$) than central group members ($M=2.59$). Second, there was a significant participant gender X score X gender in-group representation interaction, $F(1,102)=4.40, p<.04$. The means for the three way interaction are shown in Figure 2. The results for men are depicted in the top panel, and the results for women are depicted in the bottom panel. We examined the data further, comparing the belonging uncertainty condition with the other three conditions, and the cell for the belonging uncertainty condition was significantly different from the other three cells $F(1,52)=4.66, p<.04, \eta_p^2=.08$. Similarly, one cell for the

women (low score, gender equal) was significantly different from the other three cells $F(1,54)=5.55, p<.03, \eta_p^2=.09$. What drove three way interaction was the different single conditions in which leader identification was aroused for men (underrepresented, low score as predicted) and women (equal representation, low score contrary to predictions).

Men follow our predicted pattern of admiring the leader more when they are gender underrepresented peripheral members, $F(1,49)=4.26, p<.05, \eta_p^2=.09$, suggesting that belonging uncertainty does in fact influence men's admiration of the leader. Women's admiration for the leader did not follow predicted patterns. When their gender is underrepresented they admire the leader the same regardless of whether they are central or peripheral group members (high or low score). However, when their gender is equally represented and they are peripheral group members they admire the leader more than members of the other three conditions.

Self-Other Overlap

The mean of the self-other overlap was submitted to a participant gender (male, female) X score (high, low) X in-group gender representation (equal, under) between participants ANOVA. The only significant effect to emerge for this analysis was a marginally significant three way interaction between participant gender, score, in-group gender representation, $F(1,101)=3.72, p<.06$. The results are depicted in Figure 3. with men's results in the top panel and women's results in the bottom panel.

To interpret this interaction, simple effects tests were performed; namely, I performed a score X in-group gender representation ANOVA separately for male and female participants. In line with predictions, females who were in the gender equal condition and who received a low score identified more with the leader ($M_s=2.77$ and 3.00 , respectively). Thus, when equally

represented, score has an effect. For females, gender underrepresentation did not significantly alter identification with the leader, regardless of receiving a high or low score.

For men who whose gender was equally represented, those who received a high score identified more with the leader than those who received a low score ($M_s = 3.60, 2.64$, respectively). Also, those who were equally represented and received a high score identified more with the leader. In the gender underrepresented, consistent with predictions, those who received a low score identified more strongly with the leader ($M_s = 2.87$ and 3.44 , respectively). For men we get the predicted pattern of results with low scoring men (peripheral group members) who are gender underrepresented identifying with the leader more. In addition, men who scored high and were equally represented highly identified with the leader. We did not predict this pattern, but it is plausible that high scoring equally represented men would see themselves as similar to the leader and overlapping with the leader.

We examined the data further and performed an in-group gender X score ANOVA separately for each gender (male, female). For females there were no significant main or interactive effects and all F 's were greater than 1. For males there was a significant in-group gender X score interaction, $F(1,49) = 4.76, p < .04, \eta_p^2 = .09$. We wanted to examine if when males were separated by central or peripheral status equal gender representation or gender underrepresentation differs. We found that for central group members (high score) the equally and underrepresented men differed significantly in their self-other overlap ratings, $F(1,28) = 2.87, p < .10, \eta_p^2 = .09$. Similarly, for peripheral group members (low score) the equally and underrepresented men differed significantly in their self-other overlap ratings, $F(1,21) = 1.98, p < .18, \eta_p^2 = .09$.

Desire for Positive Leader Evaluations

The mean of desire for positive leader evaluations was submitted to a participant gender (male, female) X score (high, low) X in-group gender representation (equal, under) between participants ANOVA. No significant effects emerged. Factor analyses of desire for positive leader evaluations were performed and two factors emerged on the variable.

Desires for positive leader evaluations and perceived power were both submitted to a participant gender (male, female) X score (high, low) X in-group gender representation (equal, under) between participants Analysis of Variance (ANOVA). Analysis of desires for positive leader evaluations revealed no significant effects, all F s > 1. However, analysis perceived power revealed several significant effects. First, there was a significant main effect of score, $F(1,100)=9.13, p<.003$; leaders were perceived to have more power over participants when participants were in the peripheral group member conditions ($M=3.26$) than central group member conditions ($M=2.63$).

Second, there was significant participant gender X score interaction, $F(1,100)=6.72, p<.02$ (See Figure 4.). This finding indicated that men tended to view the leader as having more power when they were peripheral group members (low scorers) than central group members (high scorers) Interestingly, women's perceptions of leaders' power did not vary as a function of peripheral versus central group status. Women rated leader as similar in power regardless of the exam score that they believed they earned.

Third, there was also a significant participant gender X gender in-group representation interaction, $F(1,100)=5.25, p<.03$ (See Figure 5.). This interaction was driven by the fact that men perceived the leader as having more power when their gender is underrepresented among

previous winners than equally represented. Interestingly, however, women's perceptions of the leaders' power did not vary as a function of the gender in-group representation of previous winners.

Chapter 4

Discussion

Concerns about belonging, or belonging uncertainty is aroused whenever it is made salient to a person that they (or people like them) do not belong in a particular domain. Belonging uncertainty has been shown to be aroused in the laboratory by manipulating gender in-group (under- or equally represented) and domain centrality (peripheral or core group members). In a study presumably on creative intelligence, we manipulated gender in-group representation by showing participants a sheet with the “winners of the past four semesters” (see Appendices D-F), where their gender in-group represented 50% (equally represented) or 15% (underrepresented) of past winners. We manipulated domain centrality by assigning either high (central group member) or low (peripheral group member) scores on the creative intelligence test. We predicted that those in the belonging uncertainty condition (gender in-group underrepresented, low score) would feel their lack of belonging and psychological distance from the leader, and thus would act to reduce their psychological distance and feel like they belong. We suggest that this can be done by *identifying* with a high status core group member i.e. the leader in the experiment.

To examine the hypothesis that low status people will identify more strongly with high status people when belonging uncertainty is aroused, we assigned participants to low status “employee” roles and led them to believe that they would interact with a high status “leader” . We also manipulated belonging uncertainty by assigning participants high or low scores and telling them their gender in-group was either equally represented or underrepresented . Participants in the belonging uncertainty condition (gender in-group underrepresented, low score) were predicted to have a greater motive to identify with the leader in order to appease

their feelings of belonging uncertainty. Following the manipulation of belonging uncertainty and after staged interactions with the fictitious leader, participants completed measures that assessed *admiration of leader*, *identification* (i.e., self-other overlap, Aron, Aron, & Smollen, 1992), and *desire for positive leader evaluations*.

Findings Consistent with Predictions

We had several findings that were consistent with predictions. First, on our dependent variable of admiration, there was an effect of test score, which showed that admiration of the leader was stronger among peripheral group members (high scorers) than central group members (low scorers). Second, we had a gender X score X gender in-group 3-way interaction on *admiration*, $F(1,102)=4.40$, $p<.04$. Men admired the leader more in the belonging uncertainty condition (low skill/in-group underrepresented). Third, we had a gender X score X gender in-group 3-way interaction on *Self-other overlap*, $F(1,101)=3.72$, $p<.06$. Again, men perceived more self-other overlap in the belonging uncertainty condition (low skill/in-group underrepresented). There were also three significant findings that emerged from analysis of perceived power. There was a significant main effect of score, with peripheral group members thinking that the leader's opinion had an effect on their success in the experiment.

Findings Inconsistent with Predictions

Inconsistent with our predictions, we did not have any significant effects on participant's *desire for positive leader evaluations*, suggesting that the leader's opinion of participants was not important to the participants. Perhaps in our experimental design the leader did not have enough power over the participant to make them want the leader to think highly of them. They did not have the power to affect outcomes for the participant beyond the fact that they got to choose the order in which supposed tasks would be completed. Also, given the participants were

not expecting to interact with the leader again after the experiment, they did not value the leader's opinion as much as they might if further contact were to be expected.

Findings for Women

Women were largely unaffected by our manipulation for belonging uncertainty, and they did not produce the predicted patterns of increased identification in the belonging uncertainty condition. It is important to note that females did not follow the predicted patterns. Perhaps women have developed effective coping strategies to deal with belonging uncertainty given greater experience. It is also possible that women disidentify when belonging uncertainty is aroused.

Implications for Interventions

By understanding how belonging uncertainty affects people's identification with leaders, we can better understand the experiences of women and ethnic minorities in STEM/ achievement domains (Walton & Cohen, 2007). This is a necessary precursor to attempts to develop effective interventions. In a real world sense, our research can help us determine what might be an effective intervention for historically underrepresented and stereotyped groups in STEM domains. One possible suggestion is mentoring programs, which would provide a high status, central, prototypic group member for a person to *identify* with. By working with a high status mentor, a student may be able to overcome their sense of belonging uncertainty by coming to see themselves as similar to the high status mentor. In desiring to implement interventions, it is important to examine possible difference between men and women and their reactions to belonging uncertainty.

As women did not identify with the leader more strongly in the belonging uncertainty condition, we must ask why they did not admire the leader more or perceive themselves as

overlapping with the leader. Perhaps they had already disidentified with the domain and were not motivated to belong to the domain once they learned their score and gender in-group underrepresentation. Our results show that identification may be an adaptive response to belonging uncertainty, but only for males. It would be interesting to see if there are any differences between races in their identification. Perhaps ethnic minority men would respond the same way as females and disidentify or have other coping mechanisms in place. Given that it is ethnic minorities and women who these interventions are for, it is important that we have a sound understanding of why women did not respond as predicted to our manipulation of belonging uncertainty.

Possible Alternate Patterns for Women

The gender differences in our results were not expected, but their existence prompts further analysis and perhaps a reevaluation of our assumptions. The gender differences could have been largely because of men and women's differing life experiences with belonging uncertainty (gender underrepresentation). Furthermore, the gender differences suggest differential coping for men and women when belonging uncertainty is aroused. Men follow our predicted strategy of identifying with the leader; however, women may be coping via other means.

Our analysis of admiration for the leader and perceived power revealed several interesting differences between men and women. Men admired the leader more when belonging uncertainty was aroused (gender underrepresented, low score). Women, however, admired the leader significantly more in the gender equally represented, low score condition. Interestingly, the same pattern arose in the analysis of the two interactions on perceived power. The score X gender interaction revealed that men who received a low score desired the leader's positive

evaluations (saw the leader's opinion as having an effect on their success in the experiment), but women did not (they desired the leader's positive evaluations the same regardless of score). Further, the in-group gender X gender interaction showed that men in the underrepresented condition saw the leader's opinion as having importance on their success in the experiment. The women, however, saw the leader as having more power (influence over their outcomes) in the gender equal condition.

Thus we have a pattern by which men are following the predicted pattern and women are following another pattern. It seems that having their gender equally represented is crucial to women being affected by our manipulations. Perhaps women, having had more experiences of being underrepresented, have learned to quickly disidentify from contexts in which their group is vastly underrepresented, as in our gender underrepresented condition. However, when their group is not underrepresented, they react to their low score by identifying more with the leader (admiring the leader more). Similarly, they see the leader as having more power over the situation when their gender is equally represented versus underrepresented. This is an interesting finding because it suggests that women view the power someone has over them differently when their gender is equally represented versus underrepresented.

Future Research

We included measures that assessed the influence leader had on participants which are not discussed in this work in our study. Our next step will be to analyze additional data to examine the degree that belonging uncertainty and identification determine the influence that leaders have over participants. In other words, we will examine the behavioral consequences of these psychological experiences. These results will further our understanding of belonging uncertainty and its effects on identification as well as participant's feelings and behaviors.

References

- Aron, A., Aron, E. N., & Smollan, D. (1992). Inclusion of Other in the Self Scale and the structure of interpersonal closeness. *Journal of Personality and Social Psychology*, *63*, 596-612.
- Aube, J., & Koestner, R. (1995). Gender Characteristics and relationship adjustment: Another look at similarity-complementarity hypothesis. *Journal of Personality*, *63*, 879-904.
- Boyden, T., Carroll, J. S., & Maier, R. A. (1984). Similarity and attraction in homosexual males: The effects of age and masculinity-femininity. *Sex Roles*, *10*, 939-948.
- Byrne, D. & Nelson, D. (1964). Attraction as a function of attitude similarity-dissimilarity: The effect of topic important. *Psychonomic Science*, *1*, 93-94.
- Cartwright, D. (1965) Influence, leadership and control. In J. G. March (Ed.), *Handbook of organizations* (pp. 1-47). Chicago: Rand McNally.
- Copeland, J. T. (1994). Prophecies of power: Motivation implications of social power for behavioral confirmation. *Journal of Personality and Social Psychology*, *67*, 264-277.
- Emerson, R. M., (1964). Power-dependence relations: Two experiments. *Sociometry*, *27*, 282-298.
- Fielding, K., & Hogg, M. (1997). Social identity, self-categorization, and leadership: A field study of small interactive groups. *Group Dynamics: Theory, Research, and Practice*, *1*(1), 39-51.
- Fiske, S. T. (2004). *Social beings: A core motives approach to social psychology*. New York, New York. Wiley.
- French, J. R. P., & Raven, B. (1959). The bases of social power. In Cartwright, D. (Ed.), *Studies in social power* (pp. 150-167). Oxford, England: University of Michigan Press.

- Newcomb, T. M. (1961). *The acquaintance process*. New York: Holt, Rinehart and Winston.
- Noel, J. G., Wann, D. L., & Branscombe, N. R. (1995). Peripheral ingroup membership status and public negativity toward outgroups. *Journal of Personality and Social Psychology*, 68, 127-137.
- Overbeck, J., & Park, B. (2001). When power does not corrupt: Superior individuation processes among powerful perceivers. *Journal of Personality and Social Psychology*, 81(4), 549-565.
- Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology*, 69, 797-811.
- Tajfel, H. (1978). *Differentiation between social groups: Studies in the social psychology of intergroup relations*. Oxford, England: Academic Press.
- Tajfel, H. (1982). Social psychology of intergroup relations. *Annual Review of Psychology*, 33, 1-39.
- Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. Austin (Eds.), *Psychology of intergroup relations* (pp. 7-24). Chicago, IL: Nelson-Hall.
- Turner, J., Hogg, M., Oakes, P., Reicher, S., & Wetherell, M. (1987). *Rediscovering the social group: A self-categorization theory*. Cambridge, MA, US: Basil Blackwell.
- Vescio, T. K., Gervais, S. J., Heiphetz, L., & Bloodhart, B. (2009). The stereotypic behaviors of the powerful and their effect on the relatively powerless. T. Nelson (Ed.), *The Handbook of Prejudice* (pp. 247-265). Lawrence Erlbaum Associates.
- Walton, G. M., & Cohen, G. L. (2007). A question of belonging: Race, social fit, and achievement. *Journal of Personality and Social Psychology*, 92, 82-96.

Author's Note

This research was supported by the 2009 Summer Discovery Grant. I would like to thank the Office of Undergraduate Education for their financial support. I would also like to thank my parents and family for their constant support, love, and encouragement throughout my college career. Finally, I would like to thank Dr. Theresa K. Vescio, my thesis supervisor, for her continual guidance, support, and encouragement throughout the entire thesis process.

Figure 1. Belonging Uncertainty Score X Gender in-group representation 2 X 2.

| | |
|---|--|
| High Score, Gender Equally Represented | High Score, Gender Underrepresented |
| Low Score, Gender Equally Represented | Low Score, Gender Underrepresented *Belonging Uncertainty Condition |

Figure 2. Mean difference values for leader admiration.

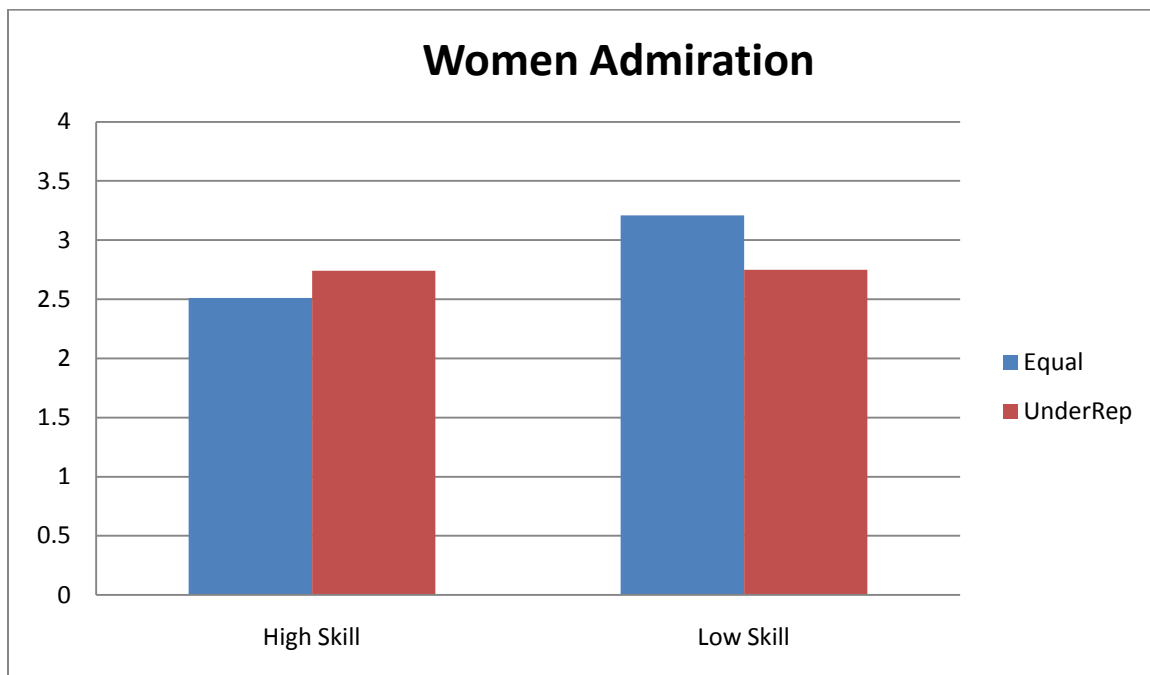
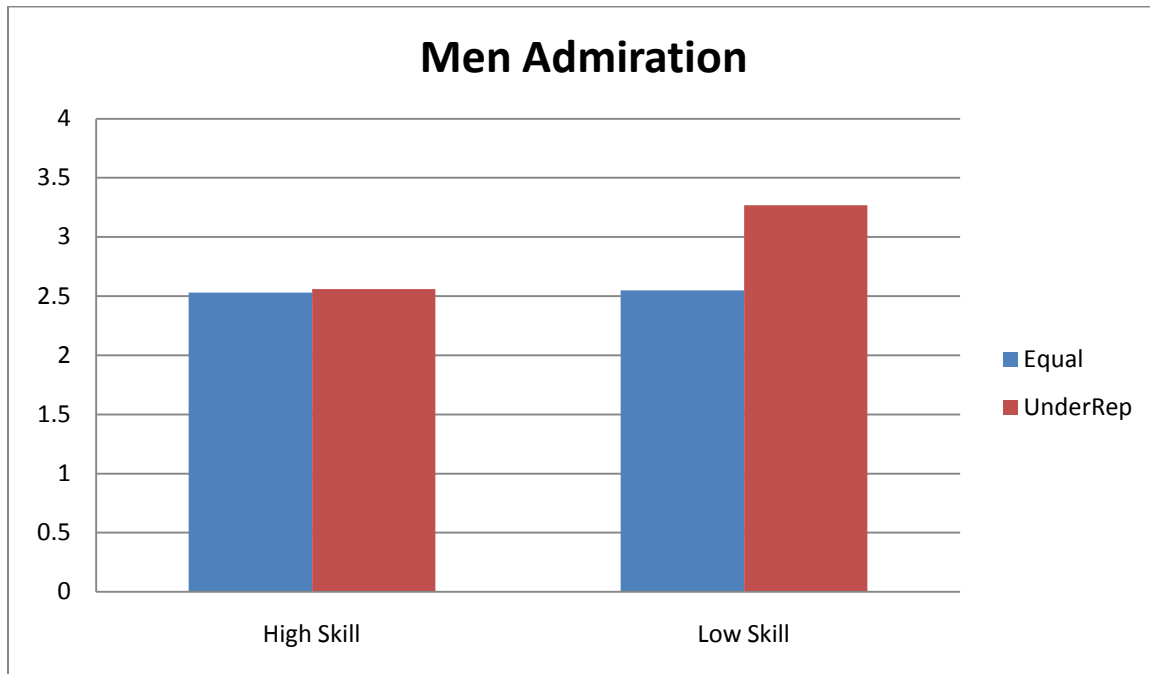


Figure 3. Mean difference values for Self-Other Overlap.

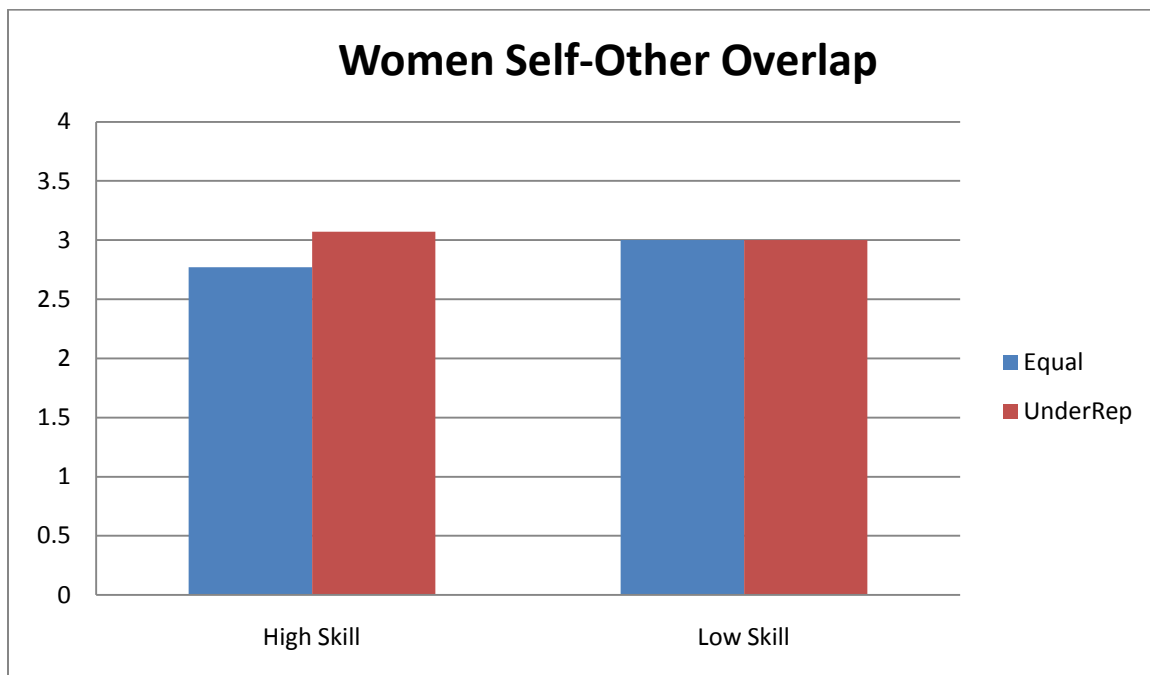
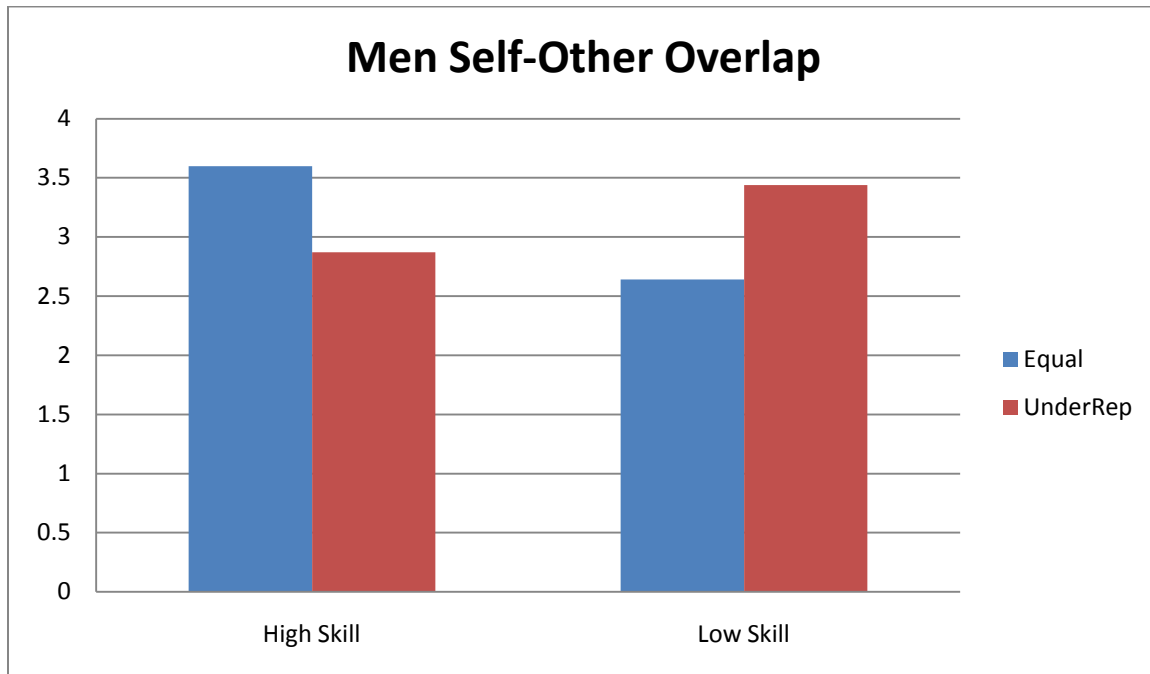


Figure 4. Test score X gender interaction on perceived power.

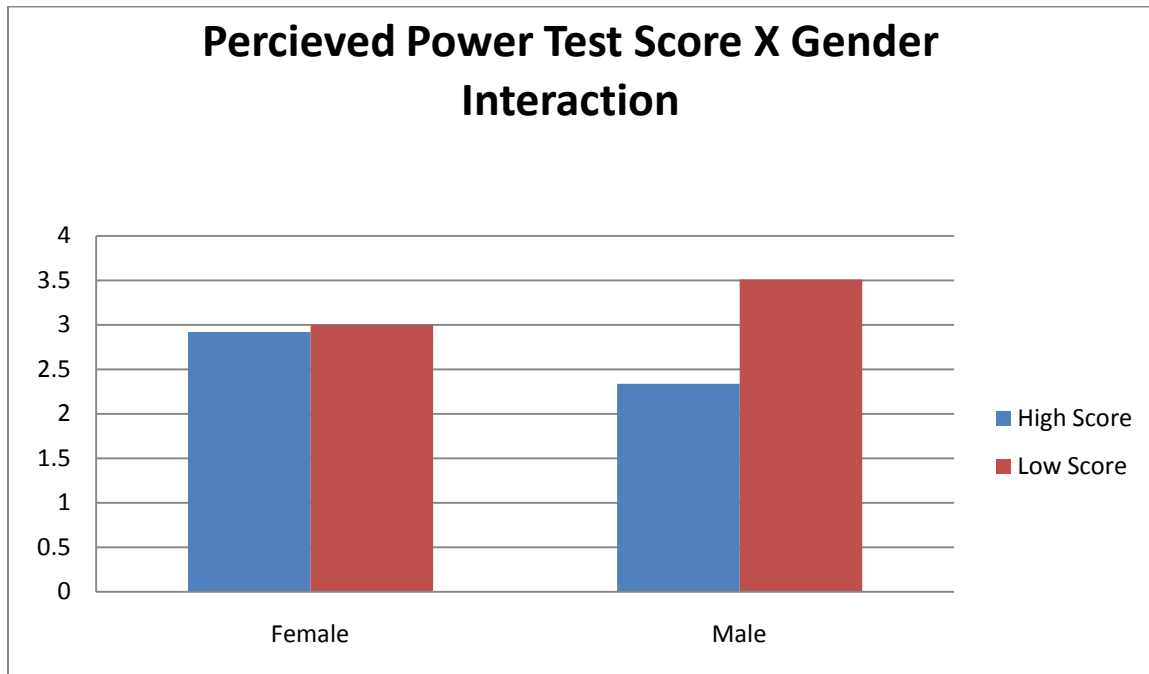
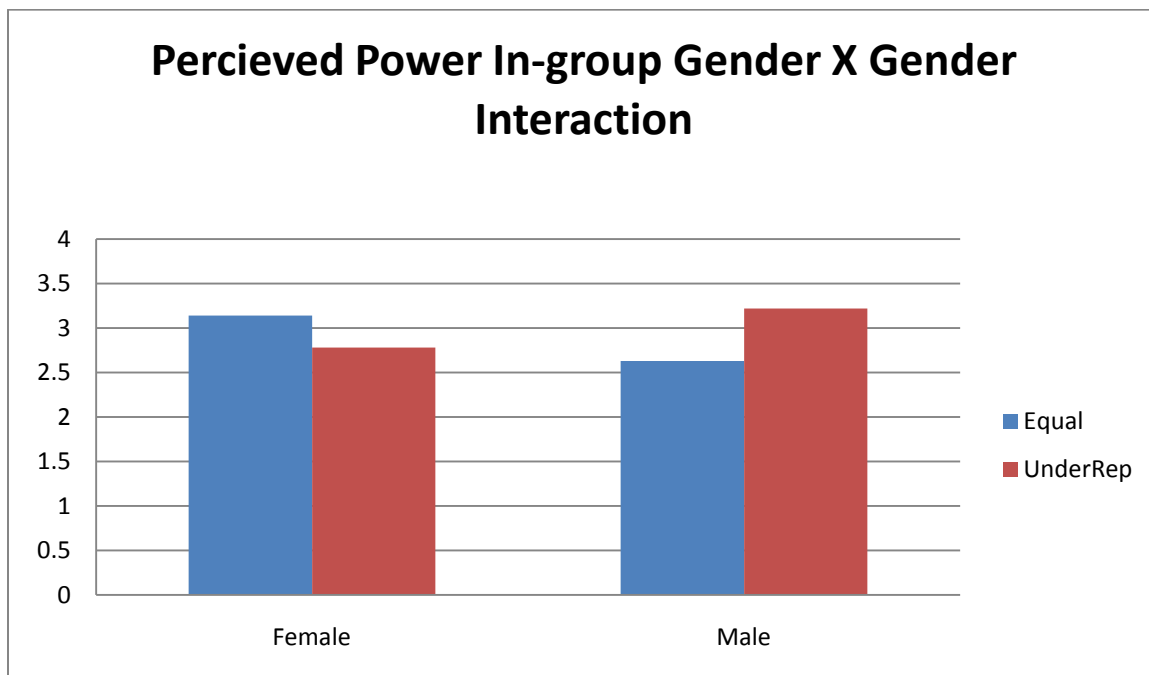


Figure 5. In-group gender representation X gender interaction on perceived power.



Appendix A Informed consent



Informed Consent Form for Social Science Research The Pennsylvania State University

ORP USE ONLY: IRB# 26802 Doc. #2
 The Pennsylvania State University
 Office for Research Protections
 Approval Date: 4/2/2008 – J. Mathieu
 Expiration Date: 10/28/2008 – J. Mathieu
 Social Science Institutional Review Board

Title of Project: Workplace Performance and Pair Interaction

Principal Investigator:

Julia McKenna
 Undergraduate Student
 417 Moore Building
 University Park, PA 16802
 (814) 865-3180; jmm5341@psu.edu
tkv1@psu.edu

Advisor:

Dr. Theresa K Vescio
 Associate Professor
 416 Moore Building
 University Park, PA 16802
 (814) 863-1714;

1. **Purpose of the Research:** This study examines pair processes and functioning. Because the results of this study could be affected if the full purpose is known prior to your participation, by signing below you are indicating that you understand that the entire purpose of the study cannot be explained to you at this time. Please understand, however, that you will receive a complete explanation of the study's purpose following your participation in the study.
2. **Procedures to be followed:** During this experimental session you will be asked to complete a Creative Intelligence Assessment, interact in a workplace environment, and fill out questionnaires about your experience and feelings.
3. **Discomforts and Risks:** This study involves no risks to your physical or psychological health beyond those encountered in the normal course of everyday life.
4. **Benefits:** You might learn more about yourself by participating in this study. You might have a better understanding of how you work with others in pairs or realize that others have had similar experiences as you have. This research might also provide a better understanding of how pair dynamics affect those involved. This information could help to plan educational and managerial strategies and give those involved in pair projects insight into different roles.
5. **Duration:** It will take about one hour to complete the study project.
6. **Statement of Confidentiality:** Your participation in this research is confidential. The data will be stored and secured with the Principal Investigator in a password protected file. Penn State's Office for Research Protections, the Social Science Institutional Review Board and the Office for Human Research Protections in the Department of Health and Human Services may review records related to this research study. In the event of a publication or presentation resulting from the research, no personally identifiable information will be shared.

7. **Right to Ask Questions:** Please contact Dr. Theresa K. Vescio or Julia McKenna at the numbers provided above with questions, complaints or concerns about this research. You can also call this number if you feel this study has harmed you. Questions about your rights as a research participant may be directed to Penn State University's Office for Research Protections at (814) 865-1775.
8. **Payment for participation:** You will receive 1 hour of credit for completing this study through the Psychology Subject Pool. Alternative means for earning this course credit are available as specified in the syllabus. Additionally, you may have the opportunity to earn \$50.

Please note: Total payments within one calendar year that exceed \$600 will require the University to report these payments to the IRS annually. This may require you to claim the compensation that you receive for participation in this study as taxable income.

9. **Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer. Refusal to take part in or withdrawing from this study will involve no penalty or loss of benefits you would receive otherwise.

You must be 18 years of age or older to take part in this research study.

If you agree to take part in this research study and the information outlined above, please sign your name and indicate the date below.

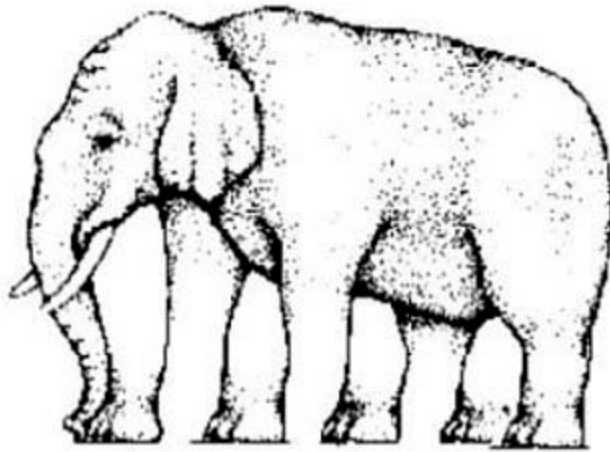
You will be given a copy of this consent form for your records.

Participant Signature

Date

Person Obtaining Consent

Date



How many legs does this elephant have?

Look at the graphics below and choose the description of what you saw first.



What did you see first?

The word liar A man's face



What did you see first?

A musician

A woman's face

Pick and circle 8 adjectives from the list below that best describe you.

Determined

Understanding

Independent

Dependable

Inventive

Polite

Enthusiastic

Popular

Individualistic

Rational

Versatile

Practical

Daring

Organized

Informal

Responsible

LEADERSHIP QUESTIONNAIRE

Please read through each question quickly and provide your immediate reaction. Please answer each of the following questions using the scale below:

Strongly Disagree 1 2 3 4 5 Strongly Agree

1. _____ Most people spend too much time in unprofitable amusements
2. _____ One should be kind to all people.
3. _____ Our society would have fewer problems if people had less leisure time.
4. _____ One should find ways to help others less fortunate than oneself.
5. _____ Money acquired easily is usually spent unwisely
6. _____ A person should be concerned about the well-being of others.
7. _____ Most people who don't succeed in life are just plain lazy.
8. _____ There should be equality for everyone—because we are all human beings.
9. _____ Anyone who is willing and able to work hard has a good chance of succeeding.
10. _____ Those who are unable to provide for their basic needs should be helped by others.
11. _____ People who fail at a job have usually not tried hard enough.
12. _____ A good society is one in which people feel responsible for one another.
13. _____ Life would have very little meaning if we never had to suffer.
14. _____ Everyone should have an equal chance and an equal say in most things.
15. _____ The person who can approach an unpleasant task with enthusiasm is the person who gets ahead.
16. _____ Acting to protect the rights and interests of other members of the community is a major obligation for all persons.
17. _____ If people work hard enough they are likely to make a good life for themselves.
18. _____ In dealing with criminals the courts should recognize that many are victims of circumstances.
19. _____ I feel uneasy when there is little work for me to do.

Appendix C Written Introduction

Today, you are being asked to participate in a study on joint problem solving. **If you score high enough on the Creative Intelligence Questionnaire you'll have a chance to win \$50 during a series of problem solving tasks with an experimental partner.** Importantly, creative intelligence scores are associated with one's ability to generate innovative solutions to problems. As a result, **creative intelligence scores are strong predictors of both academic success and general career success.** People who qualified to participate in the study will either be leaders or employees. In order to qualify as an **employee** for the next round of the study you must score in the **65th percentile or above.** To qualify as a **leader** you must score in the **85th percentile or above** (note this does not guarantee you a spot as a leader, **if there are too many people who have qualified to be leaders, the leaders will be randomly picked**). *If you do not qualify, you will be asked to complete a different experiment for course credit.*

Those who qualify will have the opportunity to earn \$50.00 by participating in a study that involves three phases. There will be two rounds of questionnaire packets, which will contain some information that is exchanged between the leader and employee. **In the third phase of the experiment, participants will meet one another and be given time to prepare for the tasks that they will be asked to complete together.** All pairs will have a leader and an employee. All groups will be asked to complete tasks during a timed session, which will be scored when completed. The highest scoring team will win \$50, which they will divide evenly.

To protect confidentiality, please do not place any self-identifying marks on your experimental materials. Instead, please select an **experimental name** (e.g., first name, nickname, name of famous person) to write on all materials to help us keep your papers together. We ask that you please write this name on the folder the experimenter will give you.

Appendix D

Gender In-Group Representation: Women Underrepresented Condition

Each of the last four semesters, we have conducted related studies. The experimental names of those who have done well on this task and who have received \$50.00 in each of the four past semesters are noted below.

| | MEN | WOMEN |
|--------------------|---|------------------|
| Spring 2009 | Michael Chris Matt Josh Andrew Sam | Jess Ashley |
| Fall 2008 | Justin David Daniel JJ84 Rob Ryan Johnboy18 Nicholas | |
| Spring 2008 | Jonathan WillWin Brandon Anthony Kevin Bball 89 Kyle | Psychgirl06 |
| Fall 2007 | Brian Thomas Steven Tim Adam Jason | Sarah Jessica |

Appendix E
Gender In-Group Representation: Men Underrepresented Condition

Each of the last four semesters, we have conducted related studies. The experimental names of those who have done well on this task and who have received \$50.00 in each of the four past semesters are noted below.

| | MEN | WOMEN |
|--------------------|--------------------|---|
| Spring 2009 | J Michael Chris | Jess Melissa Greenday11 Heather Lauren Meg |
| Fall 2008 | | Nicky Elizabeth Tiffany Cute1 Emily Stardust87 Kayla Christina |
| Spring 2008 | Drew | Amy Sara Crystal Erica KellyStar4 Mary Andrea |
| Fall 2007 | Psychguy James | Erin Love2play Allison Alyssa Blueyes21 Caitlin |

Appendix F
Gender In-Group Representation: Gender Equity Condition

Each of the last four semesters, we have conducted related studies. The experimental names of those who have done well on this task and who have received \$50.00 in each of the four past semesters are noted below.

| | MEN | WOMEN |
|--------------------|--|---|
| Spring 2009 | Chris Matthew Josh Andrew | EMM2003 Rachel Kayla Christina |
| Fall 2008 | Tom Steven Tim Adamapple Jason | Alyssa Stardust87 Caitlin |
| Spring 2008 | Jonathan DJWill Brandon | Melissa Amber Love2play Blueyes21 Megan |
| Fall 2007 | Aaron Psychguy Jeremy Jeffrey | Alicia Lindsey Vickyball3 Kristen |

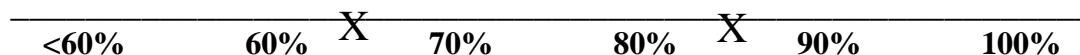
Appendix G

Score Feedback and Position Assignment

Your score on creative intelligence

Low score/ skill
Peripheral group
member condition

High score/ skill
Central group
member condition



 X Congratulations, you qualified for the study

 Unfortunately, your score did not qualify you for the study

Experimental Role Assignment

Each person's creative intelligence scores were calculated. Based on these scores, you have been assigned the role of

TEAM LEADER

EMPLOYEE

Appendix H Getting to Know You Form

Blank:

Age:

Major:

Favorite Movie:

Favorite Band/Musician:

Favorite Color:

Favorite Restaurant:

Favorite Vacation Spot:

Favorite TV Show:

Hometown:

Favorite Animal:

Favorite Hobby:

Biggest accomplishment:

Dream job:

Leader Form:

Age: 19

Major: Psychology

Favorite Movie: Pirates of the Caribbean

Favorite Band/Musician: Jay-Z

Favorite Color: green

Favorite Restaurant: Chili's

Favorite Vacation Spot: California

Favorite TV Show: House

Hometown: Philadelphia

Favorite Animal: dogs

Favorite Hobby: playing sports

Biggest accomplishment: qualifying for the state track meet

Dream job: probably owning my own business

Appendix I Task Familiarity Worksheet

Task Familiarity Worksheet

This handout is to help you get acquainted with the tasks that you will be completing with your partner. In the second half of the experimental session there will be **three stations** set up in other rooms down the hall and a research assistant will supervise each group. The employee will read over the types of tasks and decide which station they think they and their leader should attempt to do first. It is recommended that you choose the easier stations first so that you can get maximum points. Each team will have **five minutes** to complete the three stations, which are described below. Points are awarded for completed tasks and for having time remaining on the clock if all tasks are completed before the five minutes is up. Please read the descriptions of the different tasks and look at the example problems. It is advised that you try some of the sample problems to get an idea of which station you want to complete first. You may check the back of the worksheet to see which questions you got correct.

1. **Creative Problem Solving:** This task will involve abstract thinking about new situations or problems. Various riddles will be written on cards at the station. The pair will work on one riddle at a time and must complete two successfully before moving on to the next station. Incorrect guesses will not be penalized, and the pair may choose to skip one riddle but would lose 10 seconds of time.
2. **Spatial Problem Solving:** There will be a geometric design laid out on the table. Blocks that fit within the design will be on the table. The leader and employee may complete the design in any way they wish, but they must take alternating turns in putting the blocks down. Communication will be important. The pair must complete one design to go to the next station.
3. **Verbal Problem Solving:** This task involves cooperation and verbal creativity. Both the leader and the employee must describe a word to their partner that will be written on a card only they can see. However, on the card will be five words that would be common to use to describe the main word, and they are not allowed to be used. If you have ever played the game Taboo, this is very similar. If a player accidentally uses one of the “no say/taboo” words they will have to pick a new card to describe. Once the leader and employee both successfully describe (by having their partner guess the word) one card each, they may move on to the next station.

After reading the descriptions, looking at the examples, and trying the practice problems please decide in what order you would like to complete the tasks. (Put in order by using 1, 2, 3)

Employee:

Creative Problem Solving: ___ Spatial Problem Solving: ___ Verbal Problem Solving: ___

Leader: After taking your employees preferences in to account, please select the order in which your pair will complete the tasks.

Creative Problem Solving: ___ Spatial Problem Solving: ___ Verbal Problem Solving: ___

Creative Problem Solving Examples—give them a try:

1. What is:
The beginning of eternity
The end of time and space
The beginning of every end
And the end of every place

2. What is so delicate that when you say its name it is broken?

3. What comes next in this sequence?
1
3
4
7
11

4. What was the tallest mountain before Mount Everest was discovered?

Practice Creative Problem Solving:

1. Feed me and I Live
Give me Drink and I Die

What Am I?

2. How many letters are in the alphabet?

3. A farmer and his hired help were carrying grain to the barn. The farmer carried one sack of grain and the hired help carried two sacks. Who carried the heavier load and why?

4. A boy was at a carnival and went to a booth where a man said to the boy, "If I write your exact weight on this piece of paper then you have to give me \$50, but if I cannot, I will pay you \$50."

The boy looked around and saw no scale so he agrees, thinking no matter what the man writes he'll just say he weighs more or less.

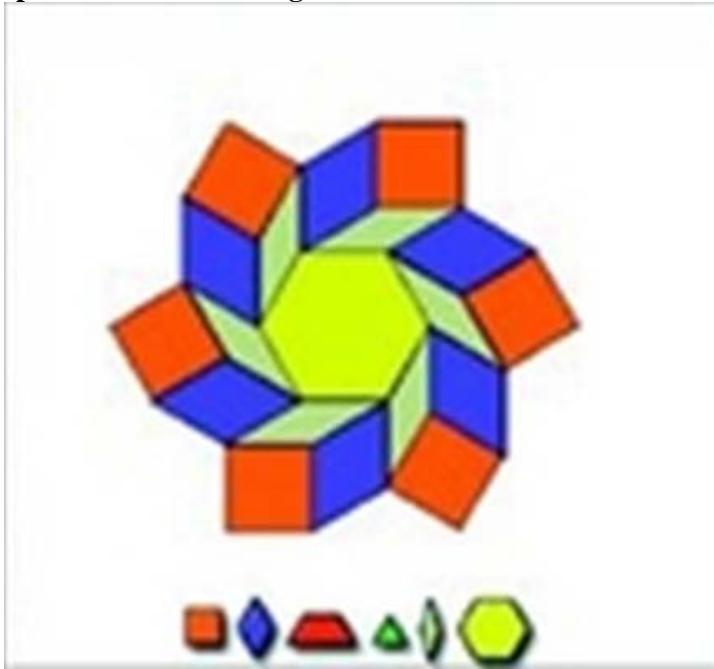
In the end the boy ended up paying the man \$50. How did the man win the bet?

Creative Problem Solving Answers:

1. the letter "e"
2. Silence
3. 18, you simply have to add the previous 2 terms to get the next one.
4. Mount Everest

Practice Creative Problem Solving answers:

1. Fire
2. There are 11 letters in "THE ALPHABET"
3. The farmer's load was heavier. His hired help only carried two sacks, while the farmer carries one sack, but his sack is a sack of grain. The hired help only carried 2 sacks - both empty.
4. The man did exactly as he said he would and wrote "your exact weight" on the paper.

Spatial Problem Solving:

Using the blocks at the bottom the partners would need to recreate the image.

Practice Spatial Problem Solving:

List ideas you have for communicating with your partner. What strategies could you use to build the image? How could you alternate turns? What things might make your team more efficient at the task?

Appendix J

Filler Task: Word Search

Find and circle all of the animals that are hidden in the grid.
The remaining letters spell the name of an additional animal.

```

A K Y E K N O D P M B I S O N E F O X
T E W I P R B E A R O T A G I L L A T
O S W A I A L V U L T U R E N A W S U
R I U C H I N C H I L L A M A G G P O
T H C M C T W T B B N R E E D N I E R
O S A A A N O O H A A E L K T I P A T
I I N R M T E R O E R B V A C T O C R
S F E W E O O N R D R R O A W H T O N
E Y A C A T O P I A P G A O R G T C E
V L G O D C S S O R P E R C N I E K R
O L L B O C A M E P E C C H U N R O W
D E E R W A O M A Z P V S K R D A L J
N J S A L M O N N H D I L E E D A I A
O O L G A E C A F R F O H O R R D O C
O K I U R L P E A D H P T U W M I N K
C C A O K M R P R T O I N N O R E H A
C E U C I R O O O G G N Y E K R U T L
A G Q H E E W L I E E K R A V D R A A
R L C T L S S E R R P O R C U P I N E

```

| | | | | |
|------------|---------|--------------|------------|------------|
| AARDVARK | DONKEY | HIPPOPOTAMUS | OTTER | SALMON |
| ALLIGATOR | DOVE | JACKAL | PANTHER | SLOTH |
| BABOON | EAGLE | JELLYFISH | PARROT | SWAN |
| BARRACUDA | ELK | KIWI | PEACOCK | SWORDFISH |
| BEAR | FERRET | LEOPARD | PELICAN | TIGER |
| BISON | FOX | LION | PIG | TORTOISE |
| CAMEL | GECKO | LLAMA | PORCUPINE | TROUT |
| CHIMPANZEE | GOAT | MACAW | QUAIL | TURKEY |
| CHINCHILLA | GOPHER | MEADOWLARK | RACCOON | VULTURE |
| COBRA | HAMSTER | MINK | RAVEN | WOLVERINE |
| COUGAR | HAWK | MOOSE | REINDEER | WOODPECKER |
| CROW | HERON | NIGHTINGALE | ROADRUNNER | WREN |

Appendix K Feedback from Leader Challenge

*The leader's gender
always matched the
participant's gender.

Justin

LEADER CHALLENGE

Using the letters SIPICYITACNDMLE come up with as many words as you can. Words must be at least four letters long. Please place the words in the appropriate column.

SIPICYITACNDMLE

Four Letter Words ⁺⁸

mind
mild
lead
tame
melt
stem
raid
paid

Five Letter Words ⁺⁵

spicy
candy
tipsy
leads

Six Letter Words ⁺⁶

acidic
elicit

Seven Letter Words ⁺⁴

decimal

Eight Letter Words ⁺⁵

accident

Nine or more letter words ⁺⁶

simplicity

Total: 37
 Highest Score!

1st in line

Appendix L Personality Measure

Please rate how characteristic these traits are of you from 1(not very characteristic) to 9 (very characteristic).

Boastful

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Bold

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Clumsy

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Conforming

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Extravagant

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Forgetful

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Meticulous

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Neat

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Obedient

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Overcautious

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Philosophical

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Progressive

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Prudent

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Reserved

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Restless

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Self-satisfied

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Strict

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Tiresome

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Unpoised

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Witty

| | | | | | | | | |
|--------------------------|------------------|------------------------------|------------------------------|---------|----------------------------|----------------------------|----------------|------------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Very Uncharacteristic | Uncharacteristic | Somewhat Uncharacteristic | Slightly Uncharacteristic | Neutral | Slightly Characteristic | Somewhat Characteristic | Characteristic | Very Characteristic |

Appendix M Symbol Ratings

Please look at the eight symbols below and rank your favorite three.



只要美无

Appendix N Admiration Scale

Please answer the following questions about your attitude toward the leader by rating your answer with 1 being not at all and 9 being very much.

How much do you like this person as a leader?

| | | | | |
|------------|---|---|---|-----------|
| 0 | 1 | 2 | 3 | 4 |
| Not at All | | | | Very much |

How much do you respect this person?

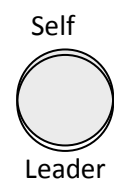
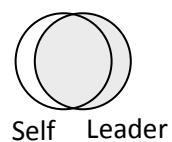
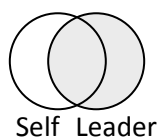
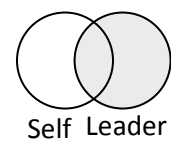
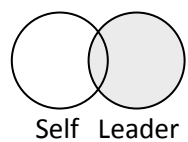
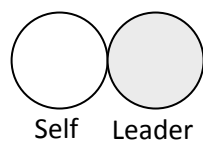
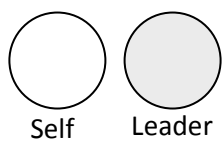
| | | | | |
|------------|---|---|---|-----------|
| 0 | 1 | 2 | 3 | 4 |
| Not at All | | | | Very much |

How much do you admire this person?

| | | | | |
|------------|---|---|---|-----------|
| 0 | 1 | 2 | 3 | 4 |
| Not at All | | | | Very much |

Appendix O Self-Other Overlap Measure

Please circle the picture below which best describes your relationship with the leader.



Appendix P

Desire for Positive Leader Evaluations Measure

Please consider how you are feeling right now and circle the number that best describes your agreement or disagreement with each statement.

| | | | | | | |
|---|---|---|----------------------------------|---|---|-------------------|
| What the leader thinks of me is important to me | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly Disagree | | | Neither Agree nor Disagree | | | Strongly Agree |
| The leader's opinion of me is unrelated to how I feel about my performance | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly Disagree | | | Neither Agree nor Disagree | | | Strongly Agree |
| I will succeed regardless of what the leader thinks of me | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly Disagree | | | Neither Agree nor Disagree | | | Strongly Agree |
| My success in this experiment depends on the leader's opinion of me | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly Disagree | | | Neither Agree nor Disagree | | | Strongly Agree |
| It is important to me that the leader thinks highly of me | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly Disagree | | | Neither Agree nor Disagree | | | Strongly Agree |
| I value the opinion of the leader | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly Disagree | | | Neither Agree nor Disagree | | | Strongly Agree |
| I want the leader to think highly of me | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly Disagree | | | Neither Agree nor Disagree | | | Strongly Agree |
| The leader's opinion of me has little impact on me | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Strongly Disagree | | | Neither Agree nor Disagree | | | Strongly Agree |

Appendix Q Authentic Pride Measure

Please consider how you are feeling right now and circle the number that best describes your agreement or disagreement with each statement.

| | Strongly Disagree | | | Neither Agree nor Disagree | | | Strongly Agree |
|---|----------------------|---|---|-------------------------------------|---|---|-------------------|
| I feel successful | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel accomplished | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel arrogant | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel achieving | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel confident | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel conceited | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel egotistical | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel fulfilled | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel pompous | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel productive | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel like I have self- worth | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel smug | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel snobbish | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| I feel stuck-up | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Appendix R Debriefing Form

Debriefing

The study in which you just participated is research for understanding social psychological principles. You were asked to complete a questionnaire to presumably measure creative intelligence. You were told that you qualified to win \$50 in order to ensure your motivation. The surveys were not scored; instead you were assigned to a treatment group. You were either assigned as a central group member (told that your score was one of the highest qualifying scores) or as a peripheral group member (told that your score was one of the lowest qualifying scores). You were also assigned to either a high or low gender in-group representation (told that 50% or 15% of past winners your same gender). You were paired with a leader, and after interacting with the leader on various tasks, you filled out five additional measures that rated your experience and feelings. One of the measures required us to imply that there was a printing malfunction so that the employee would be aware of the leader's ratings.

Our hypothesis was that people in low status roles identify with, seek relationships with, and value the perspectives of people in high status roles to make up for a feeling of uneasiness about fitting in a particular environment, a feeling called belonging uncertainty. The people assigned as a peripheral group member and/or were told that their gender was underrepresented in past winners presumably would have experienced more belonging uncertainty. We also hypothesized that people in low status roles would then highly value the relationship with the high status person and feel and behave like the high status person.

If you have questions or concerns regarding this study, you may ask the experimenter now. You are also encouraged to contact the primary investigators, listed below, if you have any further questions or needs, or would like a summary of the experimental findings at the completion of the study. Finally, thank you for your time and participation in our study. Without you, this research would not be possible.

If you have any questions about this study, you are welcome to contact:

Principal Investigator:

Julia McKenna
Undergraduate Students
417 Moore Building
University Park, PA 16802
(814) 865-3180
jmm5341@psu.edu

Advisor:

Dr. Theresa K Vescio
Associate Professor
416 Moore Building
University Park, PA 16802
(814) 863-1714
tkv1@psu.edu

Appendix S
Academic Vita

Julia M. McKenna

451 Mountain View Rd.
Reading, PA, 19607
jmm5341@psu.edu
484-818-3868

Education

Bachelor of Arts Degree in Psychology
The Pennsylvania State University, University Park, PA Spring 2010
Minor in Spanish
Honors in Psychology
G.P.A.: 3.9
Thesis Title: The Effect of Belonging Uncertainty on Identification with a High Status Leader
Thesis Supervisor: Dr. Theresa K. Vescio

Related Experience

- Research Assistant
- Social Cognition Lab, Department of Psychology, The Pennsylvania State University, University Park, PA
 - Designed and prepared study i.e. created experimental materials, experimental instructions, study set up
 - Completed IRB paperwork
 - Ran study i.e. worked with students in groups of six, gave instructions, handed out questionnaires, debriefed participants
 - Analyzed results with SPSS and wrote up results
 - Created poster presentation
 - Completed honors thesis

Internship Experience

- Character Education Intern
- Universal Peace Federation, Dominican Republic (2007), Trinidad and Tobago (2007, 2008)
 - Taught “Discovering the Real Me” character education curriculum at summer camps
 - Gave presentations to groups of students and adults (groups ranging from 25-100 people)
 - Led discussions and group activities
 - Planned lessons
 - Attended community meetings
 - Prepared written group report

Volunteer Experience

- Hurricane Katrina Relief Volunteer
- Christian Student Fellowship, Spring Break 2007 & 2008- Pascagoula, MS & New Orleans, LA
 - Painted buildings, cleared yards
- Summer Camp Counselor and Volunteer, White Haven, PA
- Family Federation for World Peace Youth Group
 - Led group activities
 - Helped with various service projects
- Psychology Advising Department Academic Liaison, State College, PA
- Psi Chi Psychology Honors Society
 - Helped peers with quick question advising preparation

Work Experience

Server

- Adecco Hospitality Services (2010), State College, PA
- Mack Employment Hospitality Services (2008-2009), Reading, PA

Tutor

- Penn State Berks Learning Center (2008), Reading, PA
 - Assisted peers with homework and exam preparation for Elementary Statistics
- Penn State America Reads and Counts (2006-2008), Reading, PA
 - Assisted teacher and worked with elementary school children
- Penn State Educational Partnership Program (PEPP) (2007), Reading, PA
 - Assisted middle school children with homework after school

Auxiliary Officer

- Penn State University Police (2010), State College, PA
 - Directed traffic and did general security

Honors and Awards

- Schreyer Honors College
- Psi Chi
- Golden Key Honor Society
- Phi Kappa Phi
- The President's Freshman Award (2007)
- Dean's List all 8 semesters (2006-2010)

Activities

- Christian Student Fellowship
- Outdoors Club
- Penn State Berks Women's Soccer
- Penn State Women's Rugby

Scholarships and Grants

- Summer 2009 Discovery Grant
- Schreyer Ambassador Travel Grant
- Joel Kraut Renaissance Scholarship (2006-2010)
- William Klein Memorial Trustee Scholarship in the College of the Liberal Arts (2009-2010)
- Catherine Schultz Rein Trustee Scholarship in the College of the Liberal Arts (2008-2009)
- Russell L. Hiller Charitable Trust Scholarship (2006-2007)

Professional Memberships

- Society for the Study of Peace, Conflict, and Violence, Peace Psychology Division of the American Psychological Association (Division 48)
- Psychologists for Social Responsibility

Presentations

Cleveland, J. N. & Vescio, T.K. (2010, April). *The effect of belonging uncertainty on identification with a high status leader*. Poster presented at the 2010 Undergraduate Research Conference, University Park, PA.