INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps. Each original is also photographed in one exposure and is included in reduced form at the back of the book.

Photographs included in the original manuscript have been reproduced xerographically in this copy. Higher quality 6" x 9" black and white photographic prints are available for any photographs or illustrations appearing in this copy for an additional charge. Contact UMI directly to order.

UMI

Bell & Howell Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600
NOTE TO USERS

This reproduction is the best copy available

UMI
PREFERENTIAL SELECTION, STIGMA, AND SELF-DOUBT: EXAMINING THE PSYCHOLOGICAL IMPACT OF AFFIRMATIVE ACTION

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Michael J. Sargent, M. A.

The Ohio State University

1999

Dissertation Committee: Approved by

Professor Marilynn B. Brewer, Adviser
Professor Robert M. Arkin
Professor Michele Alexander

Department of Psychology
ABSTRACT

Although affirmative action is intended to help members of disadvantaged groups, a growing body of research is examining the proposition that it has unintended psychological costs for its recipients. In particular, prior studies have suggested that individuals who believe themselves to be affirmative action recipients may have more negative self-evaluations than they would if they believed that their outcomes (be they admission to competitive universities or hiring into a new job) were solely due to merit. Also, studies have shown that individuals who are believed by others to be the recipients of affirmative action may be stigmatized by that perception.

The present studies sought to extend prior work by examining the impact of affirmative action on self-doubt and on others’ perceptions of one’s competence and confidence. In studies examining self-doubt, women and men were assigned to a leadership role either on the basis of gender or solely due to a high score on a relevant measure of leadership ability. Contrary to prior work, women reported more doubt in anticipation of the task than did men, regardless of how they were selected. After performing the task, however, men’s and women’s levels of self-doubt were equal.

Another set of studies examined others’ perceptions of the competence and confidence of affirmative action recipients. As in prior work, female job candidates were
viewed as less competent when their hiring was linked to affirmative action than when it was not. Participants also anticipated that female affirmative action recipients would be less confident than non-affirmative action women. Additional analyses suggested that these judgments were not the result of participants' use of simple heuristics, but were instead the result of effortful processing of the information.
Dedicated to my grandfather
ACKNOWLEDGEMENTS

I wish to thank my adviser, Marilynn Brewer. She has been an extremely patient and supportive mentor from whom I have learned a great deal. Throughout my time as her student, I have enjoyed remarkable freedom to pursue my interests and remarkable guidance in those pursuits.

I wish to thank Bob Arkin for serving as my committee co-chair. His support on this project--much like his collaboration on other projects and his friendship--has been a rare and cherished gift.

My recently cultivated love of baseball (it's never too late) dictates that I include at least one baseball metaphor in this section: In so doing, I want to thank Michele Alexander for pinch hitting when I was in a bind. Thanks, and I look forward to our being colleagues and fellow Mainers.

Special thanks goes to the Social Cognition Research Group and Arkin Lab Group. Each of these sets of colleagues gave me invaluable feedback and suggestions that improved the project immensely.

The list of friends that I should thank is too long to be covered completely. I thank you all. However, I must make a special mention of a few. Rorie Spill’s verbal kicks in the pants gave me much-needed inspiration at many times. Joanne Miller’s
constant encouragement, advice, and general willingness to go the extra mile were more than I deserved. Finally, I want to thank Dennis Cue for his help at a critical time, which allowed me to stay focused on my work.

Last, but not least, I want to thank my family. My aunts, uncles, cousins, brother, sister, and father all kept me going in one way or another. I especially want to thank my mother and grandmother for their support and all their love.
VITA

July 2, 1971................................. Born--Pine Bluff, AR

1995 ........................................ M.A., Psychology, The Ohio State University

1993 - 1996 ............................... National Science Foundation Graduate Fellow,
                                            The Ohio State University

1996 - present ........................... Graduate Teaching and Research Associate,
                                            The Ohio State University

FIELDS OF STUDY

Major Field: Psychology

Minor Fields: Quantitative Psychology, Political Psychology
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>ii</td>
</tr>
<tr>
<td>Dedication</td>
<td>iv</td>
</tr>
<tr>
<td>Acknowledgments</td>
<td>v</td>
</tr>
<tr>
<td>Vita</td>
<td>vii</td>
</tr>
<tr>
<td>List of Tables</td>
<td>x</td>
</tr>
<tr>
<td>List of Figures</td>
<td>xii</td>
</tr>
<tr>
<td>Chapters:</td>
<td></td>
</tr>
<tr>
<td>1. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2. Preferential Selection and Self-Doubt</td>
<td>6</td>
</tr>
<tr>
<td>Experiment 1</td>
<td>16</td>
</tr>
<tr>
<td>Method</td>
<td>16</td>
</tr>
<tr>
<td>Results and Discussion</td>
<td>24</td>
</tr>
<tr>
<td>Experiment 2</td>
<td>30</td>
</tr>
<tr>
<td>Method</td>
<td>30</td>
</tr>
<tr>
<td>Results and Discussion</td>
<td>34</td>
</tr>
<tr>
<td>Experiment 3</td>
<td>45</td>
</tr>
<tr>
<td>Method</td>
<td>45</td>
</tr>
<tr>
<td>Results and Discussion</td>
<td>48</td>
</tr>
<tr>
<td>General Discussion</td>
<td>61</td>
</tr>
<tr>
<td>3. On the Potentially Stigmatizing Effects of Affirmative Action</td>
<td>67</td>
</tr>
</tbody>
</table>
## LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Cross-tabulation of responses to dichotomous manipulation check item, by condition, Study 2</td>
<td>35</td>
</tr>
<tr>
<td>2.2 Intercorrelations Among The Dependent Measures, Study 2</td>
<td>38</td>
</tr>
<tr>
<td>2.3 Regression Analysis of Implicit Scores as a Function of Dummy Codes for Condition, Controlling for Number of Critical Items Completed</td>
<td>41</td>
</tr>
<tr>
<td>2.4 Cross-tabulation of responses to dichotomous manipulation check item, by condition, Study 3</td>
<td>50</td>
</tr>
<tr>
<td>2.5 Intercorrelations Among The Dependent Measures, Study 3</td>
<td>52</td>
</tr>
<tr>
<td>2.6 Hierarchical Regression of Self-Doubt</td>
<td>57</td>
</tr>
<tr>
<td>3.1 Competence and Confidence Ratings By Condition, Study 1</td>
<td>78</td>
</tr>
<tr>
<td>3.2 Hierarchical Regression of Competence Ratings on Condition, Need for Cognition, and Their Interaction—Study 1</td>
<td>80</td>
</tr>
<tr>
<td>3.3 Hierarchical Regression of Confidence Ratings on Condition, Need for Cognition, and Their Interaction—Study 1</td>
<td>83</td>
</tr>
<tr>
<td>3.4 Competence and Confidence Ratings By Condition, Study 2</td>
<td>90</td>
</tr>
<tr>
<td>3.5 Hierarchical Regression of Competence Ratings on Condition, Need for Cognition, and Their Interaction—Study 2</td>
<td>91</td>
</tr>
<tr>
<td>3.6 Hierarchical Regression of Confidence Ratings on Condition, Need for Cognition, and Their Interaction—Study 2</td>
<td>94</td>
</tr>
</tbody>
</table>
3.7  Competence and Confidence Ratings By Condition, Studies 1 & 2
Combined ................................................................................................................98

3.8  Hierarchical Regression of Competence Ratings on Condition, Need
for Cognition, and Their Interaction—Studies 1 & 2 Combined ...................... 99

3.9  Hierarchical Regression of Confidence Ratings on Condition, Need for
Cognition, and Their Interaction—Studies 1 & 2 Combined ......................... 102
# LIST OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Manipulation Check, Study 1</td>
<td>25</td>
</tr>
<tr>
<td>2.2 Gender Effect on Self-Doubt, Study 1</td>
<td>27</td>
</tr>
<tr>
<td>2.3 Manipulation Check, Study 2</td>
<td>37</td>
</tr>
<tr>
<td>2.4 Gender Effects on Self-Doubt, Study 2</td>
<td>42</td>
</tr>
<tr>
<td>2.5 Manipulation Check, Study 3</td>
<td>51</td>
</tr>
<tr>
<td>2.6 Order Effect on Self-Doubt, Study 3</td>
<td>54</td>
</tr>
<tr>
<td>2.7 Gender Effect on Self-Doubt, Study 3</td>
<td>55</td>
</tr>
<tr>
<td>2.8 Gender and Condition Effect on Self-Serving Attributions, Study 3</td>
<td>58</td>
</tr>
<tr>
<td>3.1 Competence Ratings, Study 1</td>
<td>81</td>
</tr>
<tr>
<td>3.2 Confidence Ratings, Study 1</td>
<td>84</td>
</tr>
<tr>
<td>3.3 Competence Ratings, Study 2</td>
<td>92</td>
</tr>
<tr>
<td>3.4 Confidence Ratings, Study 2</td>
<td>95</td>
</tr>
<tr>
<td>3.5 Competence Ratings, Combined Dataset</td>
<td>100</td>
</tr>
<tr>
<td>3.6 Confidence Ratings, Combined Dataset</td>
<td>103</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION

Few individuals would dispute that inequality between social groups has often been the result (directly or indirectly) of prejudice and discrimination. That is, members of some social groups are at a disadvantage at least in part because of hostility and differential treatment from members of other groups. For example, Thernstrom & Thernstrom (1997) provide a detailed history of the discrimination that American Blacks have received, including outright slavery, lynching, and Jim Crow laws. Sowell (1981) presents separate histories for Blacks, Jews, Mexicans, and other ethnic groups that have, in different ways, arrived and developed in the United States; each of these groups has in some fashion, at one or various points in history, been the target of discrimination.

Because the principles upon which our national government rests include equality, social critics and activists have in different styles and at different times called for the application of this general principle to the conditions of specific groups. An excerpt from the famous "I Have A Dream" address of Dr. Martin Luther King, Jr. exemplifies how activists have called for America to live up to its stated values:

"In a sense we've come to our nation's capital to cash a check. When the architects of our republic wrote the magnificent words of the Constitution and the Declaration of Independence, they were signing a promissory note

1
to which every American was to fall heir. This note was the promise that all men, yes, black men as well as white men, would be guaranteed the unalienable rights of life, liberty, and the pursuit of happiness.” (King, 1963)

Americans generally endorse the notion of equality in responding to surveys (National Opinion Research Center, 1980). Where there is much less agreement, however, is on the issue of how equality should be defined and achieved. While political conservatives are likely to define equality as equality of opportunity, political liberals (not to mention members of disadvantaged groups themselves) are more likely to define equality in terms of results.

In today's political forums, the debate over how best to achieve equality often revolves around affirmative action in general, and preferential treatment in particular. In response to decisions in all three branches of the federal government, organizations have often adopted policies whose goal is increasing the representation of certain classes of individuals protected from discrimination by law (Belz, 1991). These groups include women and racial and ethnic minorities. In trying to select more members of these groups, organizations have employed a number of different affirmative action strategies (Campbell, 1996). For example, some organizations have broadened the recruitment process to entice more women and minorities to apply. Also, some organizations have developed special training programs whose goal is to help applicants who lack particular skills to develop those skills to a competitive level before testing for selection. One assumption (and indeed the one that makes these programs a form of affirmative action)
is that members of the targeted group will be more likely to avail themselves of the opportunity to be in the training programs.

The most controversial forms of affirmative action, however, have been programs that intentionally provide advantages in the selection process for women or minorities. These programs have come about because the application of race-neutral or gender-neutral selection strategies sometimes still leads to racial or gender differences in selection rates. For example, the gender-neutral use of physical ability testing for firefighters (e.g., selecting individuals in part based on fast they can carry a 100 pound dummy across a certain distance) often puts women at a disadvantage, given that there are mean sex differences in upper body strength. Also, the race-neutral use of cognitive ability testing in many occupations often puts Black applicants at a disadvantage, given the typical mean race differences in cognitive ability test performance (Gottfredson, 1996).

Because there are sometimes gender differences and race differences in performance on selection tests, organizations may take group membership into account in making selection decisions in order to achieve the goals of racial or gender diversity. For example, a certain number of slots may be set aside for members of a particular category. Alternatively, different cutoff scores may be set for different groups in order to increase the representation of groups whose members’ scores are on average lower than those of other groups. These practices have been described as “preferential selection” programs because they give some form of preference in selection to members of groups whose increased representation is the goal.
Much of the debate surrounding preferential selection has been over issues outside the realm of empirical inquiry. This debate often centers on matters of conflicting values and value judgments that cannot be resolved by scientific analysis. For example, some might suggest that it is unfair to penalize White males for the effects of past discrimination of which they may be personally innocent. As important as this question of fairness is, it is entirely prescriptive (dealing with what should be) and is, therefore, beyond the scope of dispassionate scientific analysis.¹

On the other hand, some issues raised in this debate are descriptive (dealing with what is). For example, one claim made by some critics of preferential selection is that it actually harms its intended beneficiaries. That is, the individuals who enter an organization that employs preferential selection, and who are labeled as its beneficiaries, may bear a harmful stigma. Because they are suspected of having been selected not because of merit but because of mere category membership, their competence is itself suspect. It is this class of issues on which psychological research can shed some light. For example, understanding the conditions that produce stigma, the consequences of stigma, and how individuals cope with stigma are all social psychological issues. Thus, the results of psychological research can inform our understanding of the conditions under which preferential selection will be stigmatizing, the effects its stigma will have, for whom, and for how long.

¹ Of course, psychological research can answer descriptive questions related to fairness. So, for example, understanding how individuals form judgments of fairness in this domain is something that psychological studies can inform. Tyler's (e.g., Tyler, 1994) work on distributive and procedural justice is a nice illustration of how questions of fairness can be approached from a psychological perspective. The important point here, however, is that even well-designed studies that answer the question, "how do individuals form fairness judgments?" cannot answer the question, "what is fair?"
In this dissertation, I will explore two general questions. In the first empirical chapter, I will examine the hypothesis that preferential selection promotes self-doubt in its recipients. I will review relevant literature and then discuss three studies that test this hypothesis. In particular, I will focus on the situation of women in leadership positions who believe either that their selection as leader was due to merit or to some factor other than merit, such as gender. I will focus on leadership because it is a stereotypically masculine domain, and there is reason to expect that the effects of preferential selection will be limited to domains in which one is stereotyped as a low performer, as women are in the domain of leadership.

Next, I will examine the hypothesis that preferential selection causes its recipients to be viewed by others as less competent and more doubtful. Here, I will discuss two studies that test the hypothesis and examine the potential moderating role of cognitive motivation—individuals' motivation to think. Again, I will focus on the impact the preferential selection label has on evaluations of women in stereotypically masculine domains.

Finally, I will summarize the findings and implications of this work in a general concluding chapter.
CHAPTER 2

PREFERENTIAL SELECTION AND SELF-DOUBT

"Preferential treatment, no matter how it is justified in the light of day, subjects blacks to a midnight of self-doubt...." —(S. Steele, 1990)

These are the words of a conservative opponent of race-based preferential selection. His argument is that preferential selection—and minority recipients’ awareness of it—may create doubts in the minds of those very individuals. Steele believes that, in a context in which preferential selection is believed to operate, members of the targeted group who are admitted are left to wonder whether their admission was due to their individual credentials or to their group membership. By extension, he argues, this leaves minorities and women wondering how strong their credentials indeed are.

Other commentators have made similar arguments. Some have argued that preferential selection activates doubts in Blacks and women who believe they may be recipients (e.g., Eastland, 1997). Because one might expect the opponents of affirmative action to be members of groups that will not receive it (e.g., White males), it is worth noting that the advocates of this position, that some forms of affirmative action may actually damage the recipients’ self-views, are often members of the very groups intended to receive affirmative action. For example, Ward Connerly, a leading spokesman for
campaigns against racial preferences, is Black. He was a leader in the ultimately successful campaign to pass California Proposition 209 (also known as the California Civil Rights Initiative), which banned the government from considering race, sex, and other categories in public education, hiring, or contracting.

Implicit in these critics’ rhetoric is a testable hypothesis. The empirical assertion made in the quote that began this chapter is that recipients of preferential selection will experience greater self-doubt than they would have under meritorious assignment. Or, to borrow Stephen Carter’s term, “affirmative action babies” will doubt their abilities (Carter, 1991).

The hypothesis that preferential selection may produce greater self-doubt in recipients than meritorious selection can be derived from social psychological concepts. First, preferential selection may create attributional ambiguity for success, which could produce doubt. Second, those effects may be particularly prevalent among individuals entering domains in which they are stereotyped as low performers. In many domains, these individuals will be women and minorities.

Attributional Ambiguity

Attributional ambiguity exists when there are multiple plausible causes for a particular outcome (Kelley, 1971). Because of the existence of multiple plausible causes, an individual who is attempting to explain an outcome is less confident in any one cause than he or she would be if it were the only plausible cause. Take, for instance, a child who can successfully ride his bicycle with attached training wheels. Two possible causes exist for this outcome (successful riding). On the one hand, the child may have developed his
ability to ride; on the other hand, it may simply be that the training wheels are keeping him up. An observer (and possibly the child as well) will be less confident in the child’s riding ability than if the training wheels were absent.

If preferential selection creates attributional ambiguity for success among its recipients, it may make them less confident in their ability. In the present context, the outcome to be explained is one’s selection (into a particular university or a particular organization). Individuals who believe they have benefited from preferential selection may be left in a state of attributional ambiguity. One plausible cause for their success is their individual ability. However, the existence of another plausible cause (their group membership) may undermine their confidence in their ability as the cause of selection.

The Impact of Group Membership and Doubt

Should this effect occur—that preferential selection creates attributional ambiguity and undermines self-confidence—it may differ across groups. In other words, different groups may be differentially vulnerable to the effect. In particular, the effect of preferential selection may be most pronounced among members of groups stereotyped as low performers (either in general or in particular domains). So, for example, in the domain of leadership (wherein women are stereotyped as lower in ability than men), the effect of preferential selection on doubt may be stronger among women than men.

To be clear, it is not group membership per se that is assumed to make one more or less vulnerable to the effects of preferential selection. Instead, it is self-doubt. I assume that when women and minorities enter domains in which they are stereotyped as low performers, they enter with greater self-doubt than men or majority group members.
Previous studies have demonstrated that women report lower self-confidence (i.e., greater self-doubt) in their abilities, even in domains that are not rated as stereotypically masculine. Lenney & Gold (1982) found that women rated their confidence in their general academic knowledge lower than men prior to taking a test of such knowledge. Sleeper & Nigro (1987) found that women rated their confidence in their ability to solve anagrams lower than men prior to doing an anagram task. Although there has been little research examining women's self-confidence in stereotypically masculine domains, it seems plausible that the tendency for women to be less confident than men would be maintained (if not exacerbated) in the face of a domain-specific gender stereotype.

It is this self-doubt which makes preferential selection and the attributional ambiguity it creates problematic. Individuals who doubt their abilities need an unambiguous affirmation of high ability if they are to report lower doubt later. Merit gives them this affirmation and preference leaves them without it. Individuals already low in doubt do not need any affirmation; they will report little doubt whether the affirmation is given or not. Consequently, any group that is on average higher in doubt (e.g., women in the domain of leadership) should be more sensitive to the presence or absence of an ability affirmation than a group lower in doubt (e.g., men in that same domain).

It is worth noting that gender differences in doubt could occur regardless of whether women have internalized the stereotype and regardless of whether they are even aware of the stereotype. While it is true that either believing stereotypes or being aware of them could activate women's doubts (Stangor, Carr, & Kiang, 1998), there are also other, very different mechanisms by which women could come to be more doubtful in a
stereotypically masculine domain that do not assume awareness of or belief in the stereotype. If important individuals in women's lives (e.g., parents, teachers) believe in the gender stereotype, they may act in ways that subtly diminish women's opportunities to develop confidence in stereotypically masculine domains. For example, if a young girl's parents discourage her from assuming leadership positions in school and she follows their advice, she may grow doubtful of her leadership ability simply because she will develop little relevant experience. These doubts could exist, independent of her endorsement of gender stereotypes about leadership ability. If women are more likely than men to be put in such a situation, gender differences in doubt could be the result, even if those women deny the validity of the stereotype. Each woman might think, "Women are just as good at leadership as men, but I'm not sure I can do it, because I don't have any experience." This result—women perceiving the competence of their group differently than their own as individuals—is consistent with the general notion that individuals may perceive the groups to which they belong differently than they perceive themselves as individuals. For example, the personal/group discrimination discrepancy describes an oft-demonstrated tendency for individuals to perceive more discrimination directed against their group in general than toward them as individuals (Moghaddam, Stolkin, & Hutcheson, 1997; Taylor, Wright, & Porter, 1994).

Taken together, these studies provide a basis for predicting that women who are preferentially selected would experience more doubt than meritoriously selected women, and more doubt than men, who should be less sensitive to the effects of selection method.
Although previous studies have not yet examined self-doubt, a similar pattern to this has emerged on self-evaluations of competence.

Prior Evidence

Most of the relevant evidence on this point comes from experimental studies of women's self-evaluations of their leadership competence. In these studies, men and women have been assigned to a leadership role in a two-person task. Those chosen to be leaders were either told that their assignment was due to individual merit or to their gender. Later, the male and female leaders rated their own competence at leadership.

Heilman, Simon, & Repper (1987) found that women rated their own level of ability lower when they had been assigned leadership roles because of their gender than when assigned meritoriously. In this study male and female participants engaged in a leadership and communication task with an opposite-sex confederate. The naive participant always was assigned the leadership role, with the confederate as the "follower." Prior to assignment, each participant completed a test which was said to measure leadership ability. In the merit condition, the participant was told that his or her assignment to the leadership role was because of superior performance on the examination. In the preference condition, the participant was told that the assignment was made to correct for an underrepresentation of the participant's gender in the study. Such preferentially selected females reported lower self-evaluations of leadership ability than did meritoriously selected females. Males showed no such difference. So, women who had been led to believe they had benefited from preferential selection rated their ability lower than women who believed merit was the reason for assignment, and also lower than men.
This pattern that emerged on self-evaluations also replicated on a behavioral measure. Heilman, Rivero, & Brett (1991) found that preferentially selected women also chose to avoid difficult tasks. In these experiments, women were assigned a leadership role—financial services manager—either on the basis of merit or preferentially by gender. They were then given a choice between two tasks in which a financial services manager might plausibly engage: loan approval or loan verification. The approval task was described as being more demanding than the verification task. Women who were preferentially selected into the leadership role were less likely to choose the demanding approval task than were women who had been meritoriously selected. Male participants generally chose the more challenging task—regardless of selection procedure. Notably, women who had been chosen on merit behaved identically to men; all but one chose the more demanding task. The preferentially selected women appear to have heeded the advice of philosopher Epictetus: "You can be invincible if you do not enter any contest in which victory is not up to you." Such apprehension is unfortunate, however, because it is more likely to hinder than help an employee's advancement in an organization.

One point from the results of these studies should be emphasized. Men and women responded differently to the manipulation of assignment method. Women rated themselves lower on the dimension of competence and were more likely to avoid difficult tasks when preferentially selected than when meritoriously selected. Men were impervious to these effects, both on self-ratings of competence and behavioral measures.
Will Self-Doubt Effects Be Obtained?

It is important to note the distinction between negative self-evaluations of competence and self-doubt. While the two constructs are probably associated, they are conceptually distinguishable. The distinction can best be understood by imagining a continuum ranging from low to high competence. Self-evaluations of competence describe the location on that continuum where an individual places himself or herself when asked "how competent are you?" Self-doubt describes the range of points that an individual is willing to entertain as possibly accurate self-descriptions when asked "how confident are you in your ability?" An individual who is high in doubt (i.e., low in confidence) entertains the possibility of a wider range of points than someone who is high in confidence. In fact, new research suggests that this is not only true conceptually, but that it may be possible to measure self-doubt this way, by having participants indicate the range of points on a dimension (like competence) that they think could describe them (Hermann, Leonardelli, & Arkin, 1998; Leonardelli, Lynch, & Arkin, 1998). Wider ranges indicate greater doubt. Importantly, although there tends to be an association between individuals' degree of self-doubt and their level of self-evaluation (G. Leonardelli, personal communication, July 12, 1999), the two constructs are not isomorphic. A person could rate herself as high in competence but not be very confident. In other words, even if she rates herself as high on the continuum of competence, she may entertain the possibility that she is merely mediocre.

The major purpose of the present studies was to determine whether preferential selection would affect self-doubt. In particular, would preferentially selected women
report more self-doubt than meritoriously selected women and more than men? If self-doubt simply mirrors self-ratings of competence, then the pattern obtained in Heilman’s experiments should be replicated when a measure of self-doubt is the dependent variable.

On the other hand, if the gender stereotype for leadership ability is sufficiently strong, it may overpower the merit induction in these studies. In that case, women would report greater doubt than men even under merit-based assignment. This result would run counter to findings such as those in Heilman’s studies but would offer a useful interpretive clarification. If only a main effect for gender emerges, even with the same merit induction used in Heilman’s experiments, this would suggest that competence ratings and doubt ratings are distinct. It would provide evidence that some conditions that lead women to rate their competence as equal to men’s still leave their confidence lagging behind.

In addition to including merit and preferential selection conditions, the present studies included a condition in which participants were told that their assignment as leader was the result of a random draw. This “random selection” condition was included to facilitate interpretation of any differences between merit and preferential selection. For example, if preferential selection produces more doubt among women than does merit, this result could be because preferential selection (as typically operationalized) does not offer women any merit information. On the other hand, preferential selection may do something above and beyond the mere absence of merit information. For instance, telling individuals that they were assigned to be leader because of their gender may make the gender stereotype more salient, and this could activate or increase self-doubt among women. Steele & Aronson (1995) demonstrated that Black students—another stigmatized group—
who were subtly reminded of racial stereotypes of Black intellectual underperformance (by being told they were about to take a difficult test that was diagnostic of intellectual ability) scored higher on an implicit measure of self-doubt than Blacks who had not been so reminded (but were instead told that the test was “just an exercise”). For example, Blacks who had been reminded of the stereotype were more likely to complete the word fragment “____E R I O R” as “INFERIOR” than Blacks who had not been reminded. Also, Stangor et al. (1998) found that women’s self-confidence could be undermined by activation of gender stereotypes. In their study, they found a tendency for women to report more positive performance expectations in anticipation of a task if they had already received positive feedback on a prior task than if the prior feedback had been ambiguous. However, this effect occurred only among women for whom the gender stereotype had not been activated. Among women who for whom the stereotype had been activated (by telling them the task was one on which men outperformed women), performance feedback had no positive impact; their performance expectations were lower, regardless of feedback, than among women in the positive feedback condition for whom the gender stereotype had not been activated. Thus, evidence exists that the confidence of stigmatized group members (like women) may be undermined by the activation of stereotypes. In the present experimental context, it is plausible that preferential selection—by its explicit reference to gender—activates gender and the accompanying performance stereotypes.

So, preferential selection effects may result from either the absence of merit information or something more (such as stereotype activation). Including a random
condition in which participants are given no merit information allows this ambiguity to be resolved. If preference and random both produce greater doubt than merit, but do not differ from one another, this result would suggest that preferential selection is producing its effects simply because it does not provide merit information. However, if preferential selection produces more doubt than merit and random, that result would suggest that preferential selection does something above and beyond lacking merit information.

Overview

In each of these studies, men and women were assigned to be the leader in a two-person task. The assignment was attributed either to individual merit, gender, or chance. Participants then reported their level of task-specific doubt in anticipation of the task. In the final study, participants actually performed the task and then reported their level of doubt after the task was complete.

Experiment 1

Method

Participants

One hundred and thirty-two introductory psychology students participated in this study for partial credit toward a course requirement. Sixty-nine males and sixty-three females participated. Eight students were omitted from these analyses (seven due to suspicion about the study's purpose and one due to language difficulties), leaving a total of one hundred and twenty-four participants (64 males and 60 females).
Design

The design of the study was a 2 (Gender: Male vs. Female) X 3 (Condition: Merit vs. Preference vs. Random) factorial.

Prior Doubt Measure

Several weeks prior to arriving at the experiment, participants completed the self-doubt subscale of the Subjective Overachievement Scale (Oleson, Poehlmann, Yost, Lynch, & Arkin, in press). This scale is intended to measure chronic levels of doubt about one’s abilities in general. This scale was administered as part of a battery of measures given to participants during the first week of their introductory psychology class. Scores on this inventory were available for use as an additional predictor or covariate in data analysis.

Procedure

While being recruited for the study, participants were told that its purpose involved simulating a workplace environment. They were further led to anticipate working with a partner on tasks and then completing questionnaires individually.

Upon arrival at the laboratory, each participant was greeted by an opposite-sex experimenter and introduced to an opposite-sex confederate, posing as another research participant.\(^1\) The experimenter elaborated on the cover story that had been presented

\(^1\) Choosing an opposite-sex experimenter makes this paradigm different from that used by Heilman, in which the experimenter was always male. In studies where both sexes are included as participants, having a male experimenter at all times leads to a confound between participant sex and level of gender salience. For example, if the experimenter were always male, then in conditions where the confederate is of the opposite sex as the participant (most conditions), females would be a solo because of their sex, while males would not. To avoid this confound, opposite sex experimenters were always used. Importantly, the experience of women—the focal group—is the same in Heilman’s and the present studies. They are met by an opposite sex experimenter and expect to interact with an opposite sex partner.
during recruitment. He or she began by noting that every workplace in the real world includes both managers and subordinates, and that organizational effectiveness depends on occupants of both roles. The script continued by describing the study’s purpose as examining the factors that predict the effectiveness of managers and subordinates.

Participants were told that the study would proceed with the assignment of one of the two individuals (naive participant and confederate) as manager and the other as subordinate. Both the participant and confederate then completed the Managerial Effectiveness Skills Inventory (see Appendix A), henceforth abbreviated as the “MESI.” The MESI was described as a paper and pencil test developed as a predictor of managerial effectiveness. It was said to have been shown to predict managerial effectiveness in real life settings. It consisted of five questions in which the respondent was asked to choose from a number of behavioral responses to a hypothetical scenario. Participants were given five minutes to complete the MESI. It should be noted that the confederate was instructed to appear busy with his or her MESI for the full five minutes.

Upon the completion of the MESI by both participants, the experimenter collected the inventories. In the merit condition the experimenter took them out of the room, ostensibly to the assistant who would score them. The experimenter then returned. (In the preference and random conditions, the experimenter did not leave the room, but instead set the inventories aside, face down, and continued with the script).

---

2 Although this scale shares its name with a scale employed in Heilman et al. (1987), it is not the same scale. Because I was unable to obtain the scale used by Heilman et al., I developed my own, using the description in their methods section as a guide.
At this point, the experimenter described the upcoming task in greater detail. He or she stated that the manager would engage in a decision-making task that would require "the high level reasoning typical among real world managers."

The experimenter then left the room again briefly (for approximately 30 seconds). In the merit condition, the stated purpose was to get the printout of the feedback on the MESI. In the other conditions, no mention was made of feedback. Instead, the experimenter claimed to be checking with his or her assistant to make certain everything was ready to continue in the experiment.

The experimenter then returned to the room. In the merit condition, he or she carried folders (ostensibly containing the feedback on the MESI). In the other conditions the experimenter was empty-handed. The experimenter prepared the participant and confederate for assignment with the following statement:

"Usually in situations like this, managers are selected on the basis of skill and ability, which essentially means they’re good at the task. We have been selecting this way also, by using the Managerial Skills Inventory that you just completed. It is a highly reliable measure of managerial effectiveness developed by psychologists."

This passage is taken from previous experiments conducted by Madeline Heilman and colleagues. Its primary purpose was to emphasize the validity of the MESI as a predictor of managerial effectiveness.
At this point, the scripts for the different conditions diverged. In the merit condition, the following statement indicated that the participant had been chosen as manager because of superior performance on the test:

“As you can see (pointing at the subject), you performed quite well, the better of the two of you. So, you will be the manager in this session. And that means you (pointing to confederate) will be the subordinate.”

The written feedback that participants received in the merit condition was intended to bolster this statement. The written feedback indicated that the participant had scored at the 89th percentile and that he or she was assigned as “manager.” In the preference and random conditions, no written feedback on the MESI was provided.

In the preference condition, the following statement indicated that the participant had been chosen manager to ensure that enough members of his or her gender served as manager:

“But today we are going to have to do things a little differently, because so far this quarter, we haven’t had enough women (men) signing up for the study. So, to make sure we have enough female (male) managers to study, we’re going to assign you (experimenter points to subject) to be manager because you’re a woman (man). And that means you (pointing to confederate) will be the subordinate.”

In the random condition, the following ruse was employed to indicate that the participant had been chosen leader by chance:
“But today we are going to have to do things a little differently, because I want to give each of you an equal chance of being manager. So, we’re going to have a random draw for the position.” (At this point the experimenter showed the participant and confederate a cup that was said to contain two slips of paper, one of which read “manager” and the other of which read “subordinate.” The experimenter went on to say that the person who drew the “manager” slip would be manager. In actuality, both slips said “manager” but the confederate was instructed to pretend his or her slip read “subordinate.” After the participant and confederate each drew a slip from the cup, the experimenter continued):

“OK, who has the manager slip? (Participant raises hand). OK, that means you’re going to be the manager this session (pointing to participant). And that means you (pointing to confederate) will be the subordinate.”

After assignment to their respective roles the participant and confederate were separated for the remainder of the experiment, ostensibly so they could practice their roles before rejoining for the experimental task. The participant stayed in the room and saw the confederate escorted to the room next door, where an experimental assistant was said to be waiting to give instructions to the subordinate.

At this point, the participant was told that, after completing a couple of written measures, he or she would be allowed time to practice for the managerial role and then would be rejoined by the subordinate for the actual task. The dependent measures were then administered to the participant.
Dependent Measures

Manipulation Check. One manipulation check item was included. Participants reported their level of agreement with the statement “My selection as manager had nothing to do with my ability.” Responses were reported on a six-point scale ranging from “disagree very much” to “agree very much.” If the manipulation was effective, then participants in the preference and random condition would endorse this item more strongly than participants in the merit condition, and they would do so regardless of gender.

Explicit Doubt Measure. Participants completed a five item measure intended to gauge their levels of task-specific doubt after assignment to the managerial role. The measure was designed to be specific to that moment in time (thus, it was a state measure, as opposed to a trait measure) and it was specific to doubts about managerial ability (as opposed to doubts about ability in general).

The measure was modified from the self-doubt subscale of Oleson et al.’s (in press) Subjective Overachievement Scale. As previously noted, this eight item subscale is intended to measure levels of chronic doubt about general abilities. Thus, the modifications involved rewording items to be specifically about managerial skills and to refer to the moment of measurement in particular. For example, the original scale item reading, “I often wish I felt more certain of my strengths and weaknesses” was changed to “I wish I felt more certain of my strengths and weaknesses at this upcoming task.” Five of the eight items best lent themselves to translation into items assessing thoughts and feelings in anticipation of a task. These five items are listed in Appendix B. Participants

---

3 The other three items in the original scale dealt with feelings while engaged in tasks or feelings following the completion of tasks, neither of which was the measurement goal of the present scale:
reported their responses to each of the items on a six point scale, ranging from, “disagree
very much” to “agree very much.”

Implicit Doubt Measure. After completing the explicit measure, participants also
completed an implicit measure of doubt. Participants were given a word fragment
completion task that was presented as a “cognitive warm up task.” In other words, they
were told that this task would “get them mentally warmed up” for the managerial task.
The task consisted of 31 word fragments that were to be completed to form a common
English word. Eight of the word fragments were critical items; they could be completed
with a word that was relevant to doubt. The eight fragments (and their doubt-related
completions) were M_ _ ON (MORON), LO _ _ (LOSER), F L _ _ (FLUNK), S H _
_ _ (SHAME), W _ _ K (WEAK), H _ _ D (HARD), _ _ ERIOR (INFERIOR), and D
U _ _ (DUMB). All but the first of these were adapted from fragments used by Steele &
Aronson (1995) The first was added by the present author.

Because the measure was intended to tap participants' most accessible thoughts,
they were instructed to spend no more than five seconds per item, to skip items that could
not be completed in that time, and to not go back to earlier items.

A coder (who was blind to experimental condition and gender) counted the
number of critical fragments completed with the doubt-relevant word. She also counted
the number of filler fragments completed with a doubt-relevant completion. Consistent
with the expectation that the filler words did not function as critical items, only one
participant completed one filler with a doubt-relevant completion. Finally, the coder

feelings and thoughts in anticipation of a task. An attempt was made to translate one of these other items
into an item in the current dependent measure, but (not surprisingly) it did not correlate as highly with the
counted the number of critical items that participants attempted to complete with any English word (i.e., they wrote something in the blanks), as well as the number of total items attempted.

Results & Discussion

Reliability of Explicit Doubt Measure

The five item state doubt scale was a reliable instrument. Its alpha coefficient was .86, which exceeds conventional standards of acceptable reliability (Crano & Brewer, 1986).

Relationship Between the Explicit and Implicit Measures

There was no correlation between the number of word fragments completed in a doubt-related fashion and the explicit doubt measure ($r = .001$).

Manipulation Check

The manipulation of assignment method was apparently effective. Responses to the manipulation check item were subjected to a Gender by Condition analysis of variance (ANOVA). This analysis indicated a significant main effect of Condition, $F(2, 117) = 56.78, p < .01$. No significant effects involving Gender emerged. As Figure 2.1 illustrates, participants in the preference and random conditions endorsed this item more strongly than participants in the merit condition.
It should be noted that the mean rating on this item in the merit condition was 3.00. This corresponds exactly to the point on the scale labeled, “disagree a little.” In other words, participants in the merit condition tended to reject the notion that their assignment was not ability-based, but they only did so “a little.” As will be elaborated later, while these data demonstrate the relative effectiveness of the assignment method manipulation, they do call into question the absolute effectiveness of the merit induction. **Implicit Doubt**

To test the effects of gender and the assignment method manipulation on self-doubt, participants’ responses to the implicit doubt measure were subjected to a Gender by Assignment Method ANOVA. First, the number of critical items completed in a doubt-related fashion was analyzed. A marginally significant gender main effect emerged, $F (1, 118) = 3.04, p < .10$. The direction of this effect was unexpected, however, in that men completed more critical items in a doubt-related fashion than did women.
Importantly, there is evidence suggesting that this effect was an artifact. Men completed more total items than did women, $F(1, 118) = 11.35, p < .01$, and probably as a result, they completed more critical items (in any fashion) than did women, $F(1, 118) = 9.12, p < .01$. Because of this difference, it is possible that—even if men and women did not differ in their proportion of doubt-relevant completions—men might have a greater number of doubt-relevant completions simply because they completed more items. In light of this possibility, it becomes important to know whether men and women differed in the number of doubt-related completions, once the difference in items completed in any fashion is taken into account.

To examine this issue, the number of critical items completed in a doubt-related fashion by each participant was subjected to analysis of covariance (ANCOVA). When the number of critical items completed in any fashion was covaried out, the gender difference failed to reach significance, $F(1, 117) = 1.96, p > .10$.

In none of these analyses was either the Assignment Method main effect or the Assignment Method by Gender interaction statistically significant.

Explicit Doubt

To test the effects of gender and the assignment method manipulation on self-doubt, participants’ responses to the explicit self-doubt measure were subjected to a Gender by Assignment Method ANOVA. Results indicated a significant main effect, such that women reported more doubt about their ability than did men, $F(1, 118) = 20.43, p < .01$. This effect was neither qualified by an interaction, $F(2, 118) = .24, p > .10$, nor was
there a main effect of assignment method, $F(2, 118) = .17, p > .10$. These results are illustrated in Figure 2.2.

![Figure 2.2: Gender Effect on Self-Doubt, Study 1](image)

Taking participants' prior levels of chronic, general doubt into account did not change the pattern. The results of an analysis of covariance, which included prior scores on the self-doubt subscale of the Subjective Overachievement Scale as a covariate, indicated only a gender main effect, $F(1, 101) = 18.17, p < .01$. No effects involving condition were significant. Also, the covariate was a significant predictor of the explicit doubt measure, $F(1, 101) = 33.64, p < .01$. There were no significant gender differences
on the pretest measure of general doubt, $F(1, 106) = .09, p > .10$, which suggests that the
gender differences in doubt were specific to doubts regarding managerial ability.$^4$

**Discussion**

Although the condition differences on the manipulation check suggested that
assignment method was effectively manipulated, the predicted interaction on self-doubt
did not emerge. Instead, only a main effect of gender emerged. In all conditions, women
reported more doubt with respect to the management task than did men.

This main effect could be a result of the power of the gender stereotype. In other
words, the fact that women reported more doubt than men, even under merit, could mean
that the gender stereotype and its effects are so strong that women retain their self-doubts
even in the face of feedback indicating they are high in ability. Further evidence of the
relevance of the stereotype comes from the analyses of the pretest measure, which was
about doubts regarding one’s abilities in general. On that measure there were no gender
differences. Such differences only emerged on a measure of doubt regarding ability in a
stereotypically masculine domain—management.

Of course, another possible interpretation of these data is that the assignment
method manipulation was not effective enough. In particular, the merit induction may not
have been strong enough to eliminate the difference between men and women in their
doubts. The reader will recall that the level of rejection of the notion that ability had

---

$^4$ For the sake of completeness, it should be acknowledged that Oleson et al. (in press) did find significant
gender differences in chronic, general doubt in two studies. However, this is largely due to differences in
power. Their effect sizes ($d = .22$ for Study 1 and $d = .30$ for Study 2) and the effect sizes in the present
studies ($d = .06$, $d = .28$, and $d = .20$ for the three experiments, in order) are similar and small. These
differences are most likely statistically significant in Oleson et al.’s samples because those samples are
quite large ($N_1 = 2311$ and $N_2 = 1703$).
nothing to do with selection was only mild under merit, which supports the case for this interpretation.

An unexpected reversal of the gender main effect was apparent on the implicit measure, but further probing indicated that this effect was of no meaning. Men completed more critical fragments in a doubt-related fashion because they simply completed more total items. When this difference in items completed was taken into account, no significant difference emerged on the implicit measure.

Thus, there was no evidence that men and women differed in the accessibility of doubt-related thoughts (since there was no difference on the implicit measure), but there was evidence that women were more likely than men to relate those thoughts to themselves (as indicated by the explicit measure). Women were more likely than men to express doubts about their managerial ability—even under merit. While this result could be evidence of the power of the gender stereotype, it could also be due to the ineffectiveness of the merit induction. As the manipulation check indicated, participants in the merit condition did not strongly reject the notion that their selection as manager had nothing to do with their ability. Thus, it is not clear that they strongly attributed their selection to their having high ability, as an effective merit induction would lead them to do.

The next study retained the design of Experiment 1 but had as its goal developing a more effective induction of merit. This study employed the same design and similar procedures, but operated in a domain different from manager-subordinate relations. This experiment adopted a different cover story that had been used by Heilman and colleagues in other preferential selection studies. This decision was informed by comments made by
several participants from Study 1 during debriefing. These participants stressed their belief that effective management was not something that could easily be predicted by a paper and pencil test. Thus, the positive feedback which they received in the merit condition may not have been particularly affirming of their managerial ability.

It appeared that switching from the management domain, where participants perceived paper and pencil tests as having dubious predictive validity, might be well-advised. The domain to which we moved in Study 2—a combination of leadership and spatial abilities—seemed to be one where participants might view paper and pencil tests as more valid indicators of ability. Spatial ability is based in part on a rudimentary understanding of geometry, and geometry is a domain in which students are familiar with paper and pencil tests and, presumably, view them as valid indicators of that particular knowledge. To the extent that this is true, it should reinforce the perceived validity of the test that forms the basis of the merit induction. Also, because spatial ability—like leadership ability—is a stereotypically masculine domain, its addition is consistent with the current focus on groups in domains for which they are stereotyped as low performers.

Experiment 2

Method

Participants

Eighty introductory psychology students participated in this study for partial credit toward a course requirement. Thirty-nine males and forty-one females participated. Eight students were omitted from the analysis (two were dropped due to suspicion, one entered the same response for every item in the packet, and five were dropped due to errors in the
preparation and presentation of the packets), which left a total of seventy-two participants (34 males and 38 females).

**Prior Doubt Measure**

As in Study 1, participants completed the self-doubt subscale of the Subjective Overachievement Scale weeks prior to the experiment. Scores on this inventory were available for use as an additional predictor or covariate in data analysis.

**Procedure**

The procedures of this experiment were identical to those of Experiment 1, with the exception of a few modifications to the cover story to change the anticipated task.

The cover story described the study's purpose as examining "one way communications," which was characterized as the communication that exists when one person must communicate to another who cannot respond. The script emphasized that often in the real world members of organizations must communicate in this fashion. One example given was that of a manager communicating with employees via memorandum.

The participant and confederate were told that one of them would be assigned to be leader and the other as follower. The leader's responsibility would be to describe a geometric figure to the follower in such a fashion that the follower could draw it without seeing it. After hearing this brief description of the task, both the participant and confederate completed the Spatial Communication Skills Inventory (SCSI), a 20-item test said to predict effectiveness at spatial communications tasks. A copy of this test is included in Appendix C. The confederate was instructed to appear busy while the participant completed it; no time limit was imposed on the participant.
Upon completion of the SCSI, the experimenter collected the responses from both participants. In the preference and random conditions, he or she set the inventories aside, saying “Well, we’re finished with that. Now we’re going to move on.” In the merit conditions, the experimenter set the inventories aside, saying “I’m going to set these aside for now.”

At this point, the experimenter described the upcoming task in more detail. The script indicated that the leader would be given ten seconds to look at a geometric figure and plan a strategy for describing it. Then, he or she would have two minutes to describe it to the follower, who would have his or her back to the leader, and therefore would be unable to see the figure. This process would repeat twice, for a total of three figures.

After describing the task, the experimenter assigned the participant to be leader in the same fashion as in Experiment 1. In the preference condition, the reason for assignment was gender. In the random condition, it was a random draw. In the merit condition, the experimenter sat at his or her desk and pretended to grade the two inventories. The participant then received written feedback indicating that he or she had gotten 17 out of 20 correct and would be leader. The experimenter reinforced the feedback by saying, “As you can see, (pointing at the subject) you performed quite well, the better of the two of you. So you will be the leader this session. And that means you (pointing at the confederate) will be the follower.”

All other aspects of the procedure were identical to those of Experiment 1. Changes in the subsequent measures are discussed in the following section:
Measures Changes

Manipulation Check. In addition to the item used in Experiment 1, a second manipulation check item was added. This item forced participants to make a dichotomous choice. The question asked, “How was the leader selected?” The two options were “based on a test of ability/skill” and “factors other than ability/skill.” In addition to this dichotomous choice item, the original continuous manipulation check item from Study 1 was retained.

Explicit Doubt Measure. The five item doubt measure from Experiment 1 was modified slightly so that it dealt with the leader role rather than the manager role of the previous study. This modified measure is listed in Appendix D.

Implicit Doubt Measure. Although the word fragment completion task did not produce any meaningful effects in Study 1, it was retained as an implicit measure of doubt. It was coded in the same fashion as in the first study.

Competence Measure. Participants were also asked to rate their level of task-relevant competence. They rated their leadership and communication competencies separately. The items used for this assessment are listed in Appendix E. These items were included so that it could be determined whether selection method would have different effects on self-doubt and on competence ratings. The order of presentation was counterbalanced so that half the participants completed the competence measure before the self-doubt measure, and half did the opposite. It should also be noted that, because the continuous manipulation check item was embedded in the filler items in the self-doubt scale, its time of completion varied with the order manipulation; the participants who
completed the doubt scale first completed this manipulation check item earlier than those
who completed the competence measure first.

Results & Discussion

Reliability of Explicit Doubt Measure

The five item doubt scale still proved to be a reliable instrument. Its alpha
coefficient was .91.

Manipulation Check

As is obvious in Table 2.1, most participants endorsed the appropriate option on
the dichotomous manipulation check item. All but five participants (three male and two
female) in the merit condition indicated that their selection was made “on the basis of a
test of ability/skill.” All of the participants in the preference and random conditions, on
the other hand, indicated that their selection was made “on the basis of factors other than
ability/skill.” In other words, the majority of participants reported a belief consistent with
the successful induction of their experimental condition.

The continuous item was analyzed in an ANOVA where the factors included
condition, gender, and time of completion. As previously noted, the continuous item was
embedded among the filler items in the self-doubt scale, so by virtue of the order
manipulation, some participants completed this manipulation check item relatively early in
the process of completing the dependent measures, while others completed it relatively
late.

There was a significant condition effect, $F (2, 60) = 37.86, p < .01$, such that
participants in the preference and random conditions endorsed the idea that their selection
<table>
<thead>
<tr>
<th>Condition</th>
<th>Merit</th>
<th>Preference</th>
<th>Random</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;how was the leader selected?&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>on the basis of a test of ability/skill&quot;</td>
<td>21</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>on the basis of factors other than ability/skill&quot;</td>
<td>5</td>
<td>24</td>
<td>22</td>
</tr>
</tbody>
</table>

Table 2.1: Cross-tabulation of responses to dichotomous manipulation check item, by condition, Study 2.
as leader had nothing to do with ability more so than did participants in the merit condition. This main effect was qualified, however, by a condition by order interaction, $F(2, 60) = 3.54, p < .05$. The relevant means are pictured in Figure 2.3. In that figure, participants labeled “early” completed the continuous manipulation check item earlier than did participants labeled “late.” As is obvious from the figure, order made more of a difference among participants in the random condition. The simple effect of order in the random condition was significant, $F(1, 68) = 16.18, p < .01$; on the other hand, the effect of order was nonsignificant in both the merit, $F(1, 68) = .07, p > .10$, and preference conditions, $F(1, 68) = .08, p > .10$. The pattern suggests that, as indicated by this manipulation check, the random induction was more effective among those people who completed this manipulation check later. That is, although there was a general tendency for participants in the random condition to report that their selection was not due to ability, this tendency was more pronounced among those participants who completed the manipulation check later. It may be that thinking about the random induction over time increases its effectiveness. Importantly, however, even when participants completed the manipulation check early, random participants endorsed the manipulation check more strongly than merit participants, $t(32) = 2.52, p < .05$. 


There was also an unexpected marginally significant gender main effect on this manipulation check, $F(1, 60) = 2.83$, $p < .10$. Women ($M=4.76$) endorsed the idea that their selection as leader had nothing to do with ability more so than men ($M=4.32$). As interesting as this effect is, it is irrelevant to assessing the effectiveness of the manipulation check. Gender did not interact with the condition effect on this item, which suggests that it was equally effective for both men and women.

**Relationships Among The Measures**

Table 2.2 presents the intercorrelations among the various dependent measures. Note that there was no significant relationship between the implicit and explicit measures of doubt. Also, note the substantial correlation between the two competence items. These two were averaged to create a composite competence self-rating, whose coefficient alpha was .85.
<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implicit Doubt</td>
<td>--</td>
<td>-0.09</td>
<td>-0.00</td>
<td>-0.10</td>
</tr>
<tr>
<td>Explicit Doubt</td>
<td>--</td>
<td>-0.66**</td>
<td>-0.61**</td>
<td></td>
</tr>
<tr>
<td>Leadership Competence</td>
<td>--</td>
<td></td>
<td>0.74**</td>
<td></td>
</tr>
<tr>
<td>Communication Competence</td>
<td></td>
<td></td>
<td></td>
<td>--</td>
</tr>
</tbody>
</table>

**p < .01

Table 2.2: Intercorrelations Among The Dependent Measures, Study 2.
Implicit Doubt

To test for effects on the implicit measure, participants' responses to the critical items were subjected to a condition by gender ANOVA. As in Study 1, men completed more critical items in a doubt-related fashion than did women, $F(1, 66) = 2.84, p < .10$, albeit at a marginal level of significance. Again, as in Study 1, covarying out individual differences in the number of critical items completed in any fashion rendered the effect nonsignificant, $F(1, 65) = 1.55, p > .10$.

There was also a marginally significant condition main effect that was obtained when the covariate was included, $F(2, 65) = 2.81, p < .10$. Scores on the implicit measure appeared to be higher in the preference condition ($M = 1.21$) than either the merit condition ($M = 0.73$) or the random condition ($M = 0.73$). To explore the nature of this main effect, the significance of the contrasts between preference and each of the other conditions was estimated in regression.

The parameters of the regression model were estimated in the following equation:

$\text{Implicit Score} = \text{intercept} + b_1 \text{ (Number completed)} + b_2 \text{ (Dummy code #1)}$

$+ b_3 \text{ (Dummy code #2)},$

where “implicit score” is the number of critical items completed in a doubt-related fashion, “number completed” is the number of critical items completed in any fashion, “dummy code #1” is a dummy code that equals 1 only for merit participants, and “dummy code #2” is a dummy code that equals 1 only for random participants. With both dummy codes in the model, the test of significance of $b_2$ represents the test of the contrast between
preference and merit. Likewise, the test of $b_3$ is the test of the contrast between preference and random (see Aiken & West, 1991).

As Table 2.3 shows, the effect of the contrast between the preference and merit conditions (indicated by the first dummy code) is marginally significant, $t (70) = 1.87$, $p < .10$. The effect of the contrast between the preference and random conditions (indicated by the second dummy code) is significant, $t (70) = 2.23$, $p < .05$. In other words, controlling for the total number of critical items completed, the implicit measure indicates greater doubt among preferentially selected participants than among participants of either of the other conditions.

**Explicit Doubt**

Because the order manipulation did not interact with any factors in the effects that were tested on the doubt measure, the analyses reported in this section collapse across order. The condition by gender ANOVA indicated only a significant main effect of gender, $F (2, 66) = 13.27$, $p < .01$. Women reported experiencing more doubt about their leadership ability than did men. This same effect held when the pre-experimental measure of chronic, general doubt was included as a covariate, $F (1, 63) = 10.56$, $p < .01$. Also, the covariate was a significant predictor of task-specific doubt in the experiment, $F (1, 63) = 23.54$, $p < .01$. The relevant means are presented in Figure 2.4.
Table 2.3: Regression Analysis of Implicit Scores as a Function of Dummy Codes for Condition, Controlling for Number of Critical Items Completed.
Figure 2.4: Gender Effects on Self-Doubt, Study 2

As in Study 1, there were no gender differences in doubt on the general, preexperimential measure of doubt, $F(1, 68) = 1.34, p > .10$.

Self-Ratings of Competence

As in the analysis of doubt, the order manipulation did not interact with other factors in the effects tested on individuals' self-ratings of competence, so analyses of this variable collapse across order. Men rated their own competence ($M=6.48$) higher than did women ($M=5.81$), $F(1, 65)=3.91, p < .10$, albeit at a marginal level of significance. No other effects were significant. However, the gender by condition interaction was not significant, so women rated their competence lower than men across all conditions.

Discussion

These data illustrate the same pattern as in Study 1. First, the implicit measure did not indicate greater accessibility of doubt-related thoughts among women than among men. In fact, it appeared that men were higher on this measure than women, but this was
an artifact of the fact that men simply completed more items—both critical items and fillers. Controlling for items completed eliminated the gender difference. While it is true that participants in the preference condition were higher on the implicit measure than participants in the other conditions, this was equally true for men and women. It appears that in all conditions, doubt-related thoughts were equally accessible to both men and women.

Where men and women did differ, however, is in the degree to which doubt-related thoughts were reported as self-descriptive. Women reported more self-doubt than men, and they did so regardless of how they were selected. Even after being told they were competent, as they were in the merit condition, women still harbored more doubts than men.

This result would be particularly noteworthy if it could be shown that the merit induction was strong enough to cause women to rate their competence as highly as men did. This, in fact, has been a typical finding in studies conducted by Heilman and her colleagues (e.g., Heilman, Simon, & Repper, 1987; Heilman, Lucas, & Kaplow, 1990). Consequently, this study included a competence measure so this difference could be examined. Notably, on the competence measure women rated their competence lower than did men, regardless of condition. So, the merit condition in this study did not eliminate the gender difference in competence beliefs, as in previous studies.

Why, then, is the present induction of merit insufficient to eliminate gender differences in self-ratings of competence? What differences between the present methodology and Heilman's methodology might account for this effect? One obvious
difference results from this study’s focus on self-doubt. Because the present examination is focused on self-doubt in anticipation of performance, the present experiments have only included pre-task dependent measures. For example, participants reported their level of doubt about the upcoming task. In Heilman’s studies, participants actually performed the leadership role before they completed the dependent measures.

This difference could potentially account for the different findings. In particular, in the merit condition, it could be the case that women go into the task thinking less of their competence than men, but that the positive feedback inherent in the merit condition activates confirmatory biases. In other words, the positive feedback may instill the hypothesis (that they are competent) which women then attempt to confirm by using their own performance in the task as evidence. If their evaluation of that performance is biased toward confirmation, it becomes more likely they will think well of themselves at its conclusion.

It could also be the case that the default tendency for women is to enter the task with a self-derogating bias, which is attenuated by the positive feedback inherent in the merit condition. Under this interpretation, the merit condition reduces a negative bias among women, rather than creating a positive one.

The important point that must be stressed is that under either of these interpretations, how women view their own performance on the task might be affected by how they are assigned to it, and that perception of their performance could affect their later beliefs about their own competence. So, if women’s self-perceptions of their competence change over the course of performing the task, and if those changes vary
across conditions, then very different patterns should emerge when participants do the
task (as in Heilman's studies) as opposed to when they do not (as in the present studies).

Study 3 was designed to replicate Heilman's methodology more closely by having
participants complete the leadership task and then fill out the dependent measures. The
central question is whether creating a merit induction exactly like Heilman's would
produce results that replicate hers: gender differences in competence beliefs under
preference but not under merit. Given such a replication, if women still reported more
doubt than men even under merit, it would be even more interesting in two ways. It
would demonstrate that self-doubt and low self-ratings of competence are not isomorphic
and that conditions that lead women to rate themselves as high in competence as men
(e.g., merit) may still leave them with lagging confidence.

To test for any mediational role that perceived performance might play, measures
regarding participants' view of their own performance as leader were taken after
completion of the task.

In sum, Study 3 sought to replicate Heilman by actually having participants
perform the spatial leader task that had been described in the cover story of Study 2.

Experiment 3

Method

Participants

One hundred and thirteen introductory psychology students participated in this
study for partial credit toward a course requirement. Fifty-four males and fifty-nine
females participated. Four students were omitted from these analyses due to expressed
suspicion about the study's purpose, leaving a final total one hundred and nine (54 males and 55 females).

**Procedure**

The procedures were the same as those of Study 2 except that instead of completing the dependent measures immediately after assignment to the leader role, participants actually performed the leadership task and then completed the dependent measures.

In this task, the participant sat with his or her back to the confederate. The participant, "the leader", was given a folder containing three geometric figures (see Appendix F). For each figure, the leader was given ten seconds to review the figure and then two minutes to describe it to the follower (the confederate), whose responsibility was to draw the figure as well as possible. This process repeated until all three figures had been completed.

For the sake of plausibility, the confederate was instructed to make writing noises after each verbal instruction. The goal of this instruction was to make certain the leader believed the follower was actually following his or her directions.

It was explicitly stipulated that the leader could not ask the follower questions, nor could the follower respond verbally to the leader.

After completing the task, the participant completed the dependent measures. The confederate also pretended to complete his or her questionnaire packet in the adjacent cubicle (from which the participant could not see what was or was not actually being written, of course).
Dependent Measures

Participants completed the same five item measure of self-doubt as in Studies 1 and 2. The only difference in its wording was the replacement of the word “leader” with “spatial communicator”, to make certain that participants knew what type of leadership was being specifically referred to. The new items are listed in Appendix G. The only difference in its administration was timing; it was administered with the other dependent measures after the completion of the leadership task.

In this study, the word fragment completion task—the implicit doubt measure in the previous two studies—was eliminated. In light of the current study’s goal—replicating the design of Heilman’s studies as closely as possible—it could not be retained unless it came last among the dependent measures. Obviously, an implicit measure could be compromised by such an order (since it would follow the explicit measure), so it was eliminated entirely.

Participants also completed the same two competence measures as in Study 2. Additionally, a third item was added that asked participants to indicate how competent they were at tasks that depended on both leadership and communication skills (see Appendix H). This item was included because Heilman asked a similar item and so that I could determine if responses to it were different from merely the average of responses to the other two items (which asked about the two skills separately).

Participants also rated their performance as leader and indicated the degree to which they thought their performance was attributable to their ability or not. Participants responded to each of these questions on a nine point scale. Responses to these questions
were each centered on zero and multiplied together to yield a product term. The properties of this product term were such that positive numbers represented either the tendency to attribute success to ability or failure to factors other than ability (self-serving attributions) and negative numbers represented either the tendency to attribute failure to ability or success to factors other than ability (self-effacing attributions). Thus, this product term was deemed an index of self-serving attributions. This measure and the task performance measure were analyzed separately.

The order of presentation of the self-doubt and competence measures was again varied so that half the participants completed the self-doubt scale before the competence measures and half received the opposite order.

Participants also completed an additional manipulation check item. This item asked participants to indicate how well they thought they had performed on the SCSI. Participants chose one of three options to describe their performance on the SCSI ("below average", "average", and "above average"). If the manipulation was effective, then merit participants (who received positive feedback) should rate their performance higher than participants in the other two conditions (who received no feedback).

Finally, participants rated the perceived fairness of the manner in which they were selected as leader.

Results & Discussion

Reliability of Explicit Doubt Measure

The five item doubt scale still proved to be a reliable instrument. Its alpha coefficient was .82.
Manipulation Check

As can be seen in Table 2.4, most participants responded as expected on the dichotomous manipulation check item. In fact, all but five did. Four participants in the merit condition (two of each gender) reported believing that their selection as leader was due to factors other than ability or skill. Also, one participant in the random condition indicated that he believed his selection as manager was due to a test of ability or skill. Other than these five, the other 104 participants reported acceptance of the manipulation of assignment method.

Likewise, the continuous manipulation check shows a similar picture (see Figure 2.5). Participants in the preference (M=5.66) and random conditions (M=5.86) endorsed the idea that their selection as leader had nothing to with ability more strongly than did participants in the merit condition (M=3.16), F(2, 97)=78.31, p < .01. Notably, this main effect of condition did not interact with order, as it did in Study 2, nor did it interact with gender.
Table 2.4: Cross-tabulation of responses to dichotomous manipulation check item, by condition, Study 3.
Figure 2.5: Manipulation Check, Study 3

To determine whether merit participants rated their performance on the SCSI higher than participants in the other conditions, participants' responses to the final manipulation check item were subjected to a condition by gender analysis of variance. In this analysis, the "below average" response was keyed as a 1, the "average" as 2, and "above average" as 3. As expected, only a condition main effect was obtained, $F(2, 103) = 6.64, p < .01$, such that participants in the merit condition ($M = 2.29$) rated their SCSI performance higher than participants in both the preference condition ($M = 1.89$) and random condition ($M = 1.83$). So, all evidence suggests that the manipulation was effective.

**Relationships Among The Measures**

Table 2.5 presents the intercorrelations among the various dependent measures. Note the substantial correlations among the three competence items. Importantly, the
<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explicit Doubt</td>
<td>-</td>
<td>-0.29**</td>
<td>-0.33**</td>
<td>-0.30**</td>
<td>-0.38**</td>
<td>-0.55**</td>
</tr>
<tr>
<td>Leadership Competence</td>
<td>-</td>
<td>0.74**</td>
<td>0.88**</td>
<td>0.11</td>
<td>0.47**</td>
<td></td>
</tr>
<tr>
<td>Communication Competence</td>
<td>-</td>
<td>0.82**</td>
<td>0.14</td>
<td>0.31**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leadership/Commun. Competence Item</td>
<td>-</td>
<td>0.09</td>
<td>0.43**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-Serving Attributions</td>
<td>-</td>
<td>0.32**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Performance Rating</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**p < .01

Table 2.5: Intercorrelations Among The Dependent Measures, Study 3.
item asking about both leadership and competence was highly correlated with the other
two (which referred to the specific skills). Thus, there is little evidence that participants
view leadership and communication skills differently whether worded separately or
together, at least in this context. All three items were averaged to create a composite
competence item, whose coefficient alpha was .93.

Also note that, as would be expected, self-doubt and self-serving attributions were
negatively related.

Explicit Doubt

In order to test for effects of experimental condition and gender, as well as order
effects, responses to the explicit doubt measure were subjected to a 3 (Condition) X 2
(Gender) X 2 (Order) analysis of variance. An unexpected interaction between order and
condition was obtained, $F(2, 96) = 4.86, p < .01$. The relevant means are depicted in
Figure 2.6. When the doubt measure preceded the competence measure, the simple effect
of condition was not significant, $F(2, 104) = 2.11, p > .10$. However, when the doubt
measure followed the competence measure, the simple effect of condition was significant,$F(2, 104) = 3.15, p < .05$. Among participants who received that order, post hoc tests
indicated that only merit and preference differed significantly from one another.
This unexpected interaction is irrelevant, however, to the central analytic question which is whether gender and condition interact in affecting self-doubt (or if gender has only a main effect). Results indicated that neither of these findings was obtained. There was no main effect of gender, $F(1, 96) = .63$, $p > .10$, nor was there an interaction between gender and condition, $F(2, 96) = .14$, $p > .10$. So, on these posttask ratings of self-doubt, men and women did not differ under any of the three assignment methods. The means are depicted in Figure 2.7.\(^5\)

\(^5\) As in the previous studies, men and women did not differ on the preexperimental measure of general doubt, $F(1, 107) = 1.05$, $p > .10$. Moreover, including this variable as a covariate did not change the pattern on the doubt measure.
There were no significant effects on perceived performance. Neither the condition main effect, $F (2, 103) = 1.42, p > .10$, the gender main effect, $F (1, 103) = 1.89, p > .10$, nor the interaction of the two variables, $F (2, 103) = 0.63, p > .10$, was significant.

Although there were no effects on perceived performance when it was treated as a dependent variable, it seemed likely that, as an independent variable, perceived performance might interact with condition in affecting self-doubt ratings. That is, how participants were assigned to be leader might have different effects depending on how participants thought they had performed. To test this, a regression was run in which self-doubt was predicted by two dummy codes for condition, the perceived performance variable, and their interaction (product) terms. The model including the interaction terms did not account for significantly more variance than the model including only the main
effects, $F(2, 103) = .824, p > .10$, indicating that the two-way interaction between perceived performance and condition was not significant.

However, an unexpected, yet interesting three-way interaction effect on doubt was obtained when gender was added to the model. As the significant change in R-squared in Table 2.6 indicates, the model including the three way interaction terms accounts for more variance in self-doubt than the model omitting those terms, $F(2, 97) = 3.39, p < .05$; therefore, the three way interaction is significant. Post-hoc probing indicated that the interactive effect of performance and condition was different for women and men. For women, performance and condition had no interactive effect on self-doubt, $F(2, 49) = .68, p > .10$. However, for men, the interaction between performance and condition was significant, $F(2, 48) = 4.52, p < .05$. Among men who thought they had performed well, condition had no effect. However, among men who thought they had performed poorly, those assigned to the random condition were higher in doubt than those in the preference condition, $\beta = 0.48, t(53) = 2.49, p < .05$, and marginally higher in doubt than those in the merit condition, $\beta = 0.41, t(53) = 2.00, p = .05$, while the preference and merit conditions did not differ, $\beta = 0.08, t(53) = 0.41, p > .10$. Thus, among men—even when they thought they had performed poorly—the preference condition did not produce any more doubt than merit. However, the random condition did produce more doubt.

Self-Ratings of Competence

Neither the gender main effect, $F(1, 103) = .825, p > .10$, the condition main effect, $F(2, 103) = .849, p > .10$, nor the interaction, $F(2, 103) = 1.03, p > .10$, was significant. Also, on this variable there was no significant interaction between
<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th></th>
<th>Model 2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE B</td>
<td>β</td>
<td>B</td>
<td>SE B</td>
<td>β</td>
</tr>
<tr>
<td>$D_1$ (Condition Dummy Code)</td>
<td>-0.05</td>
<td>0.33</td>
<td>-0.03</td>
<td>-0.02</td>
<td>0.36</td>
<td>-0.01</td>
</tr>
<tr>
<td>$D_2$ (Condition Dummy Code)</td>
<td>-0.10</td>
<td>0.33</td>
<td>-0.05</td>
<td>-0.47</td>
<td>0.37</td>
<td>-0.23</td>
</tr>
<tr>
<td>Perceived Performance</td>
<td>-0.24</td>
<td>0.09</td>
<td>-0.44**</td>
<td>-0.18</td>
<td>0.10</td>
<td>-0.34+</td>
</tr>
<tr>
<td>Gender</td>
<td>0.11</td>
<td>0.35</td>
<td>0.06</td>
<td>-0.14</td>
<td>0.41</td>
<td>-0.08</td>
</tr>
<tr>
<td>Gender * $D_1$</td>
<td>-0.10</td>
<td>0.40</td>
<td>0.00</td>
<td>-0.07</td>
<td>0.55</td>
<td>-0.03</td>
</tr>
<tr>
<td>Gender * $D_2$</td>
<td>0.01</td>
<td>0.40</td>
<td>0.00</td>
<td>0.84</td>
<td>0.57</td>
<td>0.33</td>
</tr>
<tr>
<td>Perceived Performance * $D_1$</td>
<td>-0.08</td>
<td>0.11</td>
<td>-0.10</td>
<td>-0.04</td>
<td>0.15</td>
<td>-0.05</td>
</tr>
<tr>
<td>Perceived Performance * $D_2$</td>
<td>-0.13</td>
<td>0.11</td>
<td>-0.18</td>
<td>-0.39</td>
<td>0.16</td>
<td>-0.53*</td>
</tr>
<tr>
<td>Gender * Perceived Performance</td>
<td>0.02</td>
<td>0.09</td>
<td>0.04</td>
<td>-0.10</td>
<td>0.15</td>
<td>-0.16</td>
</tr>
<tr>
<td>Gender * Perceived Performance * $D_1$</td>
<td></td>
<td></td>
<td></td>
<td>-0.10</td>
<td>0.23</td>
<td>-0.09</td>
</tr>
<tr>
<td>Gender * Perceived Performance * $D_2$</td>
<td></td>
<td></td>
<td></td>
<td>0.46</td>
<td>0.22</td>
<td>0.53*</td>
</tr>
</tbody>
</table>

$R^2$ = 0.31

$\Delta R^2$ = 0.05*

Note. $D_1 = 1$ in the merit condition and $D_2 = 1$ in the random. Consequently, this coding scheme defines the preferential selection condition as the comparison group, because that group is defined by zero on each dummy variable.

$p < .10$ $*p < .05$ $**p < .01$

Table 2.6: Hierarchical Regression of Self-Doubt

57
performance and condition, $F(2, 103) = 1.75, p > .10$, nor was the three way involving gender, performance and condition significant, $F(2, 97) = 1.06, p > .10$.

**Self-Serving Attributions**

An interaction between gender and condition emerged on the index of self-serving attributions, $F(2, 103)=3.13, p < .05$. Figure 2.8 illustrates the results. Under merit and random selection, men and women did not significantly differ from one another in their attributional style. However, under preferential selection, women were more self-effacing than men, $F(1, 105) = 7.8, p < .01$, and also more self-effacing than women under merit, $t(52) = 1.83, p < .10$, albeit at a marginal level of statistical significance.

![Figure 2.8: Gender and Condition Effect on Self-Serving Attributions, Study 3](image)

**Other Measures**

There was a significant effect of condition on the perceived fairness of the assignment method, $F(2, 103)=54.46, p < .01$. Preferentially selected leaders ($M=4.37$)
viewed their selection as least fair. Meritoriously selected leaders (M=6.63) saw their selection as more fair than preferentially selected leaders, t(106)=5.60, p < .01, but less fair than randomly selected leaders (M=8.69), t(106)=5.15, p < .01.

Discussion

The central goal of the present study was to replicate one finding common to prior studies (e.g., Heilman, Simon, & Repper, 1987; Heilman, Lucas, & Kaplow, 1990): an interaction pattern on self-ratings of competence such that women rate themselves lower than men, except when meritoriously assigned. Assuming that replication occurred, the second goal was to determine whether gender differences in doubt would still occur, even under merit. These data did not replicate that pattern, however. It is unclear why, despite following the script and using the materials from Heilman's studies, the data from this experiment did not replicate the interaction pattern obtained in that research.

It is also true that the self-doubt data from Study 3 are inconsistent with the data from the previous two studies. In both Study 1 and Study 2, a gender main effect on doubt was obtained; in Study 3 it was not. One obvious explanation for this discrepancy lies in the differing procedures of the studies. In studies 1 and 2, the dependent measures were administered prior to the leader task (which was, in fact, never performed). In Study 3, on the other hand, the measures were administered after the leader task was completed. It is plausible that performing the leader task provides self-perceptive information for participants. In other words, how well each participants thinks he or she did as leader may be viewed as more diagnostic of competence than any information derived from either gender or assignment method. If so, this effect could attenuate any gender or assignment
method effects. Consistent with this interpretation, participants’ self-evaluations of their performance as leader were correlated with their competence ratings and their self-doubt ratings (see Table 2.5). So, participants who thought they did well rated themselves higher in competence and reported less self-doubt than participants who thought they did not do so well.

The data from male participants was interesting in that perceived performance and condition had an interactive effect on doubt. Among men who thought they had done poorly, having been assigned to be leader by chance produced more doubt than the other two conditions. It is noteworthy that the preferential selection condition did not produce more doubt among these participants. It may be that reminding them of their membership in a positively stereotyped group (as preferential selection may do) buffered them against any negative effects of thinking they had not performed well. Men in the random condition—who received neither merit information nor a reminder of the gender stereotype—had no such buffer. If they felt they had performed poorly, they experienced more doubt as a result.

Finally, this study produced evidence suggesting that men’s and women’s attributional styles may vary as a function of assignment method. Under merit-based and random selection, men and women looked similar in their attributional tendencies. However, under preference, they diverged. Men self-served and women self-effaced. There is little evidence that women’s self-effacing was driven by greater doubt, since they did not differ from men in doubt. One possible explanation of this pattern of results will be proposed in the next section.
General Discussion

This chapter began with a discussion of political rhetoric and previous research. From that discussion a hypothesis was derived—that members of groups stereotyped as low performers would experience greater doubt under preferential selection than when selection was based on merit. In the domain of leadership (in which women are stereotyped as lower performers than men), that hypothesis would imply that women who attributed their selection as a leader to their gender would experience more doubt than men similarly selected, and more than women who attributed their selection solely to their ability.

The three studies presented in this chapter provide no evidence to support this hypothesis. In the first two studies, women reported more doubt than men, regardless of condition. So, while there was evidence of a general tendency for women to be less confident in their ability than men, there was no evidence that merit attenuated it or that preferential selection exacerbated it.

This general tendency, for women to report more doubt than men, is consistent with other studies examining the confidence with which men and women approach tasks (Lenney & Gold, 1982; Sleeper & Nigro, 1987). These studies have shown that women tend to expect less success on tasks than do men, particularly on stereotypically masculine tasks (e.g., spatial ability). Moreover, Stangor et al.'s (1998) data, indicating that positive feedback had no impact on women's confidence when anticipating a task on which there were known gender differences, provide some precedent for the findings in Studies 1 and 2; on stereotypically masculine tasks, the confidence-enhancing effects of positive
feedback (like the merit induction) may be dampened among women. Likewise, the data from studies 1 and 2 show a similar pattern: women reported less confidence in their ability to do a stereotypically masculine task than did men, even after exposure to merit information.

This pattern was different from what would have been predicted from earlier studies (e.g., Heilman, Simon, & Repper, 1987; Heilman, Lucas, & Kaplow, 1990). In these prior studies, women rated their competence lower than did men, but only under preferential selection. After having been assigned to a task based on merit, men's and women's self-ratings of competence were equal. Although, I expected self-doubt to mirror this pattern, it did not. This was true even when steps were taken to bolster the effectiveness of the manipulation of selection method. Of course, it may be that the predicted interaction pattern would be obtained in settings outside the laboratory. For example, in an employment setting, where one's competence is relevant to one's livelihood, the issue of self-doubt is likely of much greater importance and more affectively involving than in the laboratory. This heightened importance could either reinforce the affirming power of merit information or the self-evaluative threat of preferences. Although participants' reports in debriefing suggested that this experiment was more psychologically engaging than others in which they had participated, it still may have lacked that high level of engagement. Future studies should address this issue of whether task importance (particularly at high levels) is a boundary condition for this effect.

While there were gender differences in pretask ratings of task-specific doubt (studies 1 and 2), those differences disappeared on posttask ratings (study 3). In Study 3,
there were no significant differences in self-doubt between men and women under any of the conditions. This result is consistent with results from Sleeper & Nigro (1987) who measured participant's confidence before and after completion of an anagram task. They found a time of measurement by gender interaction, such that there gender differences on the pretask rating of confidence, but not on the posttask measure. As proposed in the prior section, it may be that information derived from gender stereotypes is discounted after the task is complete, because the task (and one's perceived performance in it) provides new information that participants view as more diagnostic. A similar theoretical framework has been proposed by Locksley, Borgida, Brekke, & Hepburn (1980).

In the context of the present experiments, this interpretation could mean that women approach the leadership task with more doubt than men, but that after completion they leave the task with the same level of confidence (or doubt) as men, and that this confidence is determined by the participant's belief about how well the performance went. So, whatever differences existed before the task are eliminated by the wealth of self-perceptive information accrued during the task.

If this interpretation holds in natural settings, it could imply that any stigmatizing effects of preferential selection might diminish over time. Even if women and minorities believe themselves to be the beneficiaries of preferential selection and experience initial self-doubt as a result, those doubts may diminish to the extent that they see themselves performing well in their positions. In fact, it is plausible that preferential selection recipients might avoid upward social comparisons (Crocker & Major, 1989) or difficult
tasks (Heilman, Rivero, & Brett, 1991), thus making it more likely that they will see their performance favorably. So, even in the face of stigma, preferential selection recipients may take steps that, over the long run, mitigate its effects. Future research should conceptualize stigma and self-doubt as fluid—rather than static—phenomena so that individuals’ coping strategies can be fully understood.

The results from Study 3 also imply that it would be worthwhile to pay attention to how individuals explain their successes or failures at a particular task. These data suggest that men and women may differ in their attributional styles under certain conditions. Under merit and random selection, men and women showed similar attributional tendencies. However, under preferential selection, men self-served while women self-effaced. One explanation for this effect may lie in considering the social nature of the experimental context.

Schlenker, Weigold, & Hallam (1990) demonstrated that individuals may be more likely to exhibit self-serving biases when they believe their audience is supportive rather than critical. With a critical audience, actors are concerned about offering defensible explanations for their performances. Consequently, they may opt for less self-serving attributions, lest the audience dispute them. However, with a supportive audience, they may be more likely to self-serve, because they think that audience will believe it.

In Study 3, the relevant audience for each participant is—primarily—the experimenter. When is that audience likely to be supportive? It depends in part on gender. Female participants—by virtue of their awareness of a negative stereotype about

---

6 Of course, as Steele & Aronson (1995) have shown, the mere awareness of a negative stereotype may be sufficient to interfere with successful performance and thus, make it less likely that they will experience
their group in that domain—are more likely than males to be concerned that the experimenter may think less of their ability. This should be particularly true under conditions where the experimenter has given no indication that he thinks highly of the participant’s ability and where gender is made salient—just the conditions that exist in the preferential selection condition. So, it follows from this that women who are preferentially selected should be most likely to think their audience is critical, and (if Schlenker et al. are correct), least likely to self-serve. This is exactly what was found in Study 3.

So, the self-serving attribution effect found in Study 3 may be the result of impression management. Seeking to maintain or establish positive impressions, women attempted to offer self-serving attributions, but only when they were credible. When they believed the experimenter was a supportive audience (merit-based selection), women self-served to the same degree as men. However, when they most feared that the experimenter was critical (under preferential selection), women self-effaced.

Future studies should attempt to replicate this effect. Should it hold, and should this interpretation be supported, it would suggest the need to view data in this domain as not only the indications of the participants’ true beliefs, but also as reflections of their interpersonal motives and their beliefs about others’ stereotypes of their group. Even in a context as bereft of lively social interaction as a psychology lab can be, individuals may be motivated to maintain or preserve a positive impression. In light of that motivation, a more accurate understanding of their data can be gained from knowing what beliefs they impute to their audience.
In closing, two lessons emerge from these data. First, when approaching stereotypically masculine tasks, men and women are likely to have different levels of self-confidence. Contrary to the assumptions of some affirmative action critics, however, this difference in self-confidence may persist—even under merit. Merit may not be a panacea. But the second lesson of these data is that if women and minorities complete the tasks to which they are assigned (preferentially or otherwise), and if they view their own performance in a positive light, that positive self-perception may be the basis for the elimination of their own doubts.
CHAPTER 3

ON THE POTENTIALLY STIGMATIZING EFFECTS OF
AFFIRMATIVE ACTION

"Where once a degree from one of the better schools plainly implied something about the academic achievement of the person who possessed it, the existence of affirmative action and the lower standards it requires provide a basis for employers to question that implication in the case of minority students." —(Eastland, 1997)

Apart from how recipients of preferential selection view their own competence, one frequent criticism of this policy (as exemplified by this quote) is that women and minorities are stigmatized in the eyes of others, to the extent that they are perceived to be recipients of preferential selection. That is, if others believe that lower standards are applied to members of these groups, then those others may discount the qualifications of those group members.

Although one might expect opposition to affirmative action to be motivated by prejudice—and sometimes it is (Clayton & Crosby, 1992; Sniderman & Carmines, 1997)—the fact that criticisms like these have often come from members of the groups targeted to receive affirmative action (S. Steele, 1990), suggests that prejudice is incomplete as an explanation for them. It is plausible that these critics are concerned about the welfare of
their own group, and in particular, that the stigma which they believe results from affirmative action may do its recipients more long term harm than good.

If there is an empirical basis for this prediction—that the affirmative action label carries with it a stigma—then being perceived as an affirmative action recipient could carry quite negative consequences. If potential clients discount one’s competence, they may take their business elsewhere. If employers discount one’s credentials, they may promote someone else.

There is some basis in social psychological theory for this prediction. Just as in the previous chapter, attributional ambiguity is the relevant construct. In the last chapter, it was noted that Kelley’s (1971) theory predicts that individuals who attribute their selection to affirmative action will discount ability as a cause, and rate their own ability lower. Likewise, if attributional ambiguity affects others’ evaluations of job applicants, then they may discount ability in explaining the selection of those persons whom they believe to be affirmative action recipients, and to rate those individuals lower in competence than individuals whose selection is believed to be solely due to merit.

Existing published evidence supports this prediction. Garcia, Erskine, Hawn, & Casmay (1981) found that participants rated a Hispanic graduate school applicant’s qualifications lower when the school accepting him was described as committed to affirmative action than when no mention was made of affirmative action.

Moreover, Heilman, Block, & Lucas (1992) found that women were rated lower in competence when their hiring was described as an affirmative action hire than when no mention was made of affirmative action. Notably, this occurred on both a strongly sex-typed occupation (electrician) and a weakly sex-typed occupation (lab technician). Also,
similar results were obtained with both college student participants in an experiment and with White male workers (in a variety of occupations) in a survey. Their conclusion was that the affirmative action label created low performance expectations for women when they were not already there (in the case of the weakly sex-typed occupation) and exacerbated them when they were there (in the case of the strongly sex-typed occupation).

As much as these studies support the proposition that affirmative action may produce a stigma—perceptions of lower competence—which its recipients must bear, several questions remain, two of which will be addressed in the present chapter. First, how general is this effect? Second, how thoughtful is the process by which it occurs?

How General Is The Stigma?

The studies just cited have shown that perceptions of an individual’s competence may be affected by the belief that that person benefited from affirmative action. So, for example, a female manager who is perceived by her peers and subordinates as having been promoted in part because she is a woman may be viewed as less competent than if she were viewed as having achieved her position solely by merit.

But is this effect limited to assessments of competence? Or might it extend to other judgments as well? Research on halo effects (Cooper, 1981) illustrates the potential for judgments on one dimension to affect judgments on other dimensions. Also, implicit personality theory (Anderson & Sedikides, 1991; Schneider, 1973) posits that the presence of certain traits is often taken by social perceivers to imply the existence of other traits, even in the absence of behaviors diagnostic of that quality.
In light of these perspectives, then, it seems plausible that the conditions that lead individuals to rate an individual as high or low in competence might also produce correspondingly high or low ratings on other related dimensions. Because of this dissertation's focus on doubt (as in the last chapter's examination of self-doubt), the research in this chapter tests the possibility that being associated with affirmative action may lead not only to low ratings on perceived competence, but also perceived confidence. In other words, do the conditions that lead observers to think affirmative action recipients are less competent also lead them to think affirmative action recipients are less confident?

**How Thoughtful Is The Process?**

While previous studies have established the existence of what I will call *affirmative action effects*—that the same individual may be viewed less favorably when linked to affirmative action than when not—they have not been particularly informative regarding the underlying process. There are multiple ways these effects could occur, and these ways differ greatly. As research on persuasion (Petty & Cacioppo, 1986) has shown, the same outcome (e.g., greater liking of a product after seeing a commercial for it) can be arrived at via very different routes.

The various routes by which judgmental destinations are reached differ in their relative thoughtfulness. For instance, consider a student who is forming an impression of a new teacher who is both a member of an extremely disliked outgroup and an extremely disagreeable personality. There are at least two ways this student can come to dislike this teacher (Brewer, 1988), and one route is more thoughtful than the other. First, the student may use information associated with the category (stereotypes). The application of this information is generally thought to be relatively less thoughtful than the
alternative route, which is to ignore the category information and attend instead to
individuating information (e.g., the teacher's specific behaviors). The latter method
requires more time, effort, and thought. The key point is that, in this example, the two
different routes may lead to the same outcome.

Previous studies have not addressed the question of how thoughtful this
affirmative action effect is. Believing that an individual is an affirmative action recipient
is like having any other bit of information, in that it can be used in multiple ways. That
information can be used as a cue, or heuristic, in a manner involving little cognitive effort
(Petty & Cacioppo, 1986). For example, affirmative action may activate negative affect
that is then associated with the job applicant being reviewed. Although this process
could lead to a negative evaluation, it requires little thought. Alternatively, the
affirmative action label can be processed more extensively, much like the recipient of a
persuasive message might carefully evaluate the merits of the arguments in that message.
In evaluating the merits of a job applicant, a social perceiver may treat the affirmative
action label as another argument against the applicant's' qualifications. For example, the
observer may go through a syllogism ("Affirmative action leads to the selection of
relatively less qualified applicants, and this person benefited from affirmative action,
therefore she must be less qualified"). Careful processing of the affirmative action
information such as this requires more cognitive effort than using it as a cue or heuristic.

It is also true that relatively thoughtful observers may rate the affirmative action
woman as less competent than the non-affirmative action woman as a result of different
attributional processing (Kelley, 1971). When evaluating the credentials of a woman
who has applied for and been hired into a stereotypically male occupation (e.g., engineer)
but for whom no mention has been made of affirmative action, observers may believe that her gender is a handicap. This could result from their thinking that women are lower in job-relevant abilities than men or that women are more likely to be discriminated against than men. This thinking—that women's hiring prospects are hindered by their gender—could lead observers to augment ability attributions when evaluating a non-affirmative action woman. On the other hand, when evaluating the credentials of a woman whose hiring is linked to affirmative action, observers may believe that her gender is a help. In other words, they may think that women’s hiring prospects under affirmative action are helped by their gender, which could lead them to discount ability attributions in that case, as predicted before. Thus, attributional logic could be sufficient to lead observers to rate women differently if they believe they are affirmative action hires than if they do not believe that. Additionally, it is plausible that discounting and augmentation processes require cognitive effort, and there is also evidence that processes like these—which involve adjusting dispositional inferences to take into account the presence of situational factors—consume cognitive effort (D'Agostino & Fincher-Kiefer, 1992; Gilbert, Pelham, & Krull, 1988). Thus, it can be predicted that if discounting and augmentation account for the difference between ratings of female affirmative action recipients and non-affirmative action women, then that difference should occur more so among more motivated thinkers.

So, there are alternative ways that the affirmative action effect could occur, and they differ in the amount of thought required. One way to address this question of how much thought underlies the effect is to identify individuals who are more or less motivated to think extensively. If the affirmative action label is simply a cue that is
applied with little thought, then less motivated thinkers should be more likely to rate affirmative action recipients in negative terms. However, if more thought is required to use the affirmative action label in making judgments, then the more motivated thinkers should provide negative ratings of the affirmative action recipient. Of course, it is possible that negative ratings of affirmative action recipients could result from both types of processes (relatively thoughtful ones and less thoughtful ones). In that case, individuals who were both high and low in motivation to think would show the affirmative action effect.

To answer this question, the present studies included the need for cognition scale (Cacioppo, Petty, Feinstein, & Jarvis, 1996). This scale is a measure of individual differences in cognitive motivation. High need for cognition individuals enjoy thinking and are motivated to do it; they are motivated thinkers. Low need for cognition individuals do not enjoy thinking and are motivated to avoid it; they are less motivated thinkers. If the affirmative action effect results solely from cue-based processes, then only the low need for cognition individuals would show it. In other words, only they would rate the affirmative action woman more negatively than the non-affirmative action woman. However, if the processes underlying the effect are more thoughtful, then only the individuals high in the need for cognition should show the effect. If both groups show the effect, then the logical inference would be that either set of processes (high or low effort) can lead to lower ratings of affirmative action recipients.

In summary, the present studies included measures of both competence and confidence, so that it could be determined whether the conditions that lead affirmative action recipients to be judged as low in competence also lead to low ratings on
confidence. In addition, individual differences in cognitive motivation were assessed in an attempt to discover how thoughtful the processes are that lead to these effects.

Experiment 1

Method

Participants

Sixty-four introductory psychology students participated in this study for partial credit toward a course requirement. Thirty-seven males and twenty-seven females participated.

Procedure

Participants were told that the purpose of the study was understanding social judgments. They were told that they were going to read information about another person and form judgments of that individual. According to the cover story, the researchers were interested in how the way information is received can affect judgments, as well as how the type of judgment can affect judgments. Each participant was told that the experimental conditions he or she had been assigned to called for the receipt of information by reading and that the type of judgment would be an employment-related one.

Participants read a description of a job opening at a computer company and also an excerpt from the file of an applicant for that position. The packet included a questionnaire packet containing the major dependent measures. The stimulus materials used in this study are presented in Appendix I.
Experimental Manipulation

In all conditions, participants read about an applicant who had been hired as an electrical engineer at Epic Technologies, a California computer company. The fact of his or her hire was indicated in the materials in a space marked “clerical use only,” where “hire” was handwritten. It was decided to make the job opening be for an electrical engineer, so that it would be a stereotypically masculine occupation. Although past research had indicated that this was not necessary for an affirmative action effect to occur, it was thought that it might enhance it.

Participants were randomly assigned to one of three conditions. In the “man” condition, participants read about a male applicant for the position, whose gender was identified as Sam. Also, all questions in the dependent measures that referred to him used masculine pronouns.

In the “non affirmative action woman” condition, participants read about a female applicant for the same position, whose credentials were identical. The only difference was that this applicant was named Sara. All questions referring to her used feminine pronouns.

In the “affirmative action woman” condition, participants read about an applicant with the same credentials as in the other conditions, and also named Sara. In this condition, however, “affirmative action hiree” was written in a space marked “conditions.” In the other conditions, nothing was written in this space. The affirmative action manipulation was bolstered by including an affirmative action rider at the end of the job description: “Epic Technologies Inc. is an Affirmative Action Equal Opportunity

1 To the author’s best knowledge, no real company by this name exists.
Employer. Applications from women and minorities are strongly encouraged.” This rider was omitted in the man and non-affirmative action woman conditions.

The credentials of the applicant indicated that he or she fell just short of the qualifications for the position. The decision to make the applicant slightly below minimum qualifications was based on pretesting in which ceiling effects occurred if the applicant was minimally qualified or better.

**Dependent Measures**

Participants were asked to rate the degree to which they believed the applicant had been hired because of his or her qualifications to do the job well. This item was intended as a manipulation check, with the expectation that the affirmative action woman would be rated lower on this variable than the other two targets.

Also, participants indicated how competent they expected the applicant to be on the job, as well as how effective they would be. These two items were combined into a general perceived competence rating.

Finally, participants indicated how confident they thought the applicant would be, both about his or her ability, as well as his or her chances of success. These two items were combined into a general perceived confidence rating. The manipulation check, competence, and confidence items are listed in Appendix J.

Finally, participants completed the eighteen item Need for Cognition Scale. This scale is included in Appendix K. Each participant's eighteen responses were averaged and centered prior to analysis.²

---

² Centering involved subtracting the mean from each participant's original score. This transformation yielded a new variable with the same properties as the old, except that its mean was zero. Aiken & West (1991) discuss the desirable properties of centered variables, such as reducing multicollinearity problems.
Results & Discussion

Manipulation Check

As a check on the effectiveness of the manipulation, participants' responses to the question, "To what degree do you believe the applicant was hired because of his (her) qualifications to do the job well?" Although the pattern suggested that participants were less willing to attribute the affirmative action woman's (M = 6.73) hire to her qualifications than either the non-affirmative action woman (M = 7.52) or the man (M = 8.14), the main effect failed to reach statistical significance, F(2, 61) = 2.25, p = .11.

Relationship Between Competence and Confidence Ratings

The correlation between perceived competence and confidence was substantial (r = .84). The strength of this relationship made it especially likely that the two variables would be similarly affected by and related to other factors.

Perceived Competence Ratings

Because there were no interactions involving participant gender, analyses of this measure collapsed across that factor. To test for replication of the pattern obtained by Heilman et al. (1992), participants' ratings of the applicant's competence were subjected to a one-way analysis of variance. There was no significant main effect of condition, F(2, 61) = .05, p > .10. Thus, there was no evidence that the affirmative action effect occurred generally, across different levels of cognitive motivation. The means are listed in Table 3.1.

To test for an interaction between experimental condition and individual differences in the need for cognition, perceived competence ratings were regressed onto dummy codes for experimental condition, need for cognition scores, and the interaction
<table>
<thead>
<tr>
<th>Condition</th>
<th>Competence Rating</th>
<th></th>
<th>Confidence Rating</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
</tr>
<tr>
<td>Man</td>
<td>7.62</td>
<td>2.01</td>
<td>21</td>
<td>7.69</td>
</tr>
<tr>
<td>Woman</td>
<td>7.69</td>
<td>1.10</td>
<td>21</td>
<td>8.02</td>
</tr>
<tr>
<td>Affirmative Action Woman</td>
<td>7.77</td>
<td>1.62</td>
<td>22</td>
<td>7.82</td>
</tr>
</tbody>
</table>

Table 3.1: Competence and Confidence Ratings By Condition, Study 1
A hierarchical analysis was conducted, in which the main effects were entered first, followed by the interaction terms. The significance test of the increment in \( R^2 \) squared is the test of the interaction. As Table 3.2 indicates, this change in \( R^2 \) squared (.07) was marginally significant, \( F (2, 58) = 2.62, p < .10 \). Thus, the interaction between condition and need for cognition was marginally significant.

Figure 3.1 illustrates the form of this interaction. This interaction’s form was probed using a procedure recommended by Aiken & West (1991). This procedure involves running the same regression described as Model 2 in Table 3.2 twice. Each time, the need for cognition scores were transformed so that the zero point corresponded to different points of interest. In one equation, the zero point was set at a value equal to the mean plus one standard deviation (representing high need for cognition individuals). In the other, the zero point was set at the mean minus one standard deviation (representing low need for cognition individuals). In the regression equations, each of the coefficients for the condition dummy codes represented the contrast between two conditions at the corresponding point of interest on need for cognition. This occurred because all terms involving need for cognition—the condition main effect and the interaction—went to zero. So, for example, consider the equation in which need for cognition is transformed to equal zero at one standard deviation above the mean. In that equation, the test of the coefficient for the dummy code representing the contrast between the man condition and the non-affirmative action woman condition is the test of the

\[ D_1 \]

\[ D_2 \]

For clarity’s sake, if one dummy code (\( D_1 \)) is equal to 1 when the target is male and zero otherwise, while the other dummy code (\( D_2 \)) is equal to 1 when the target is an affirmative action woman and zero otherwise, then the following is true: When both dummy codes are in the regression equation, then \( D_1 \) represents the contrast between the male condition and the non-affirmative action condition (Aiken & West, 1991).
<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th></th>
<th>Model 2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>D₁ (Condition Dummy Code)</td>
<td>-0.17</td>
<td>0.48</td>
<td>-0.05</td>
<td>-0.27</td>
<td>0.48</td>
<td>-0.07</td>
</tr>
<tr>
<td>D₂ (Condition Dummy Code)</td>
<td>-0.14</td>
<td>0.48</td>
<td>-0.04</td>
<td>-0.35</td>
<td>0.48</td>
<td>-0.11</td>
</tr>
<tr>
<td>Need for Cognition</td>
<td>-0.82</td>
<td>0.30</td>
<td>-0.35**</td>
<td>-1.53</td>
<td>0.59</td>
<td>-0.65*</td>
</tr>
<tr>
<td>Need for Cognition * D₁</td>
<td>1.49</td>
<td>0.74</td>
<td>0.39*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Need for Cognition * D₂</td>
<td>0.29</td>
<td>0.76</td>
<td>0.07</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| R²                                     | 0.12    |          | 0.19     |          |          |          |
| ΔR²                                     |         |          | 0.07+    |          |          |          |

Note. D₁ = 1 in the non-affirmative action woman condition and D₂ = 1 in the affirmative action woman condition. Consequently, this coding scheme defines the man condition as the comparison group, because that group is defined by zero on each dummy variable.

+ p < .10  * p < .05  ** p < .01

Table 3.2: Hierarchical Regression of Competence Ratings on Condition, Need for Cognition, and Their Interaction—Study 1 (N = 64)
contrast between those two conditions, but only among high need for cognition individuals.

Figure 3.1: Competence Ratings, Study 1

In the present analysis, these tests indicate that, among low need for cognition individuals, the male target was rated as more competent than the non-affirmative action woman, $\beta = .38$, $t (58) = 1.70$, $p < .10$, at a marginal level of significance. Ratings of the male target did not differ significantly from ratings of the affirmative action woman, $\beta = -.16$, $t (58) = -.74$, $p > .10$. Also, ratings of the affirmative action woman did not differ significantly from ratings of the non-affirmative action woman, $\beta = .22$, $t (58) = 1.22$, $p > .10$.  81
Among high need for cognition individuals, there were no statistically significant differences. There was no difference between ratings of males and non-affirmative action females, $\beta = -.22$, $t (58) = -1.16$, $p > .10$, between ratings of males and affirmative action females, $\beta = -.05$, $t (58) = -.25$, $p > .10$, or between ratings of non-affirmative action females and affirmative action females, $\beta = -.27$, $t (58) = -1.29$, $p > .10$.

**Perceived Confidence Ratings**

Because there were no interactions involving participant gender, analyses of this measure also collapsed across that factor. To test for the pattern obtained by Heilman et al. (1992) on competence ratings, participants’ ratings of the applicant’s confidence were subjected to a one-way analysis of variance. There was no significant main effect of condition, $F (2, 61) = .18$, $p > .10$. The means are listed in Table 3.1.

To test for an interaction between experimental condition and individual differences in the need for cognition, perceived confidence ratings were regressed onto dummy codes for experimental condition, need for cognition scores, and the interaction (product) terms. A hierarchical analysis was conducted again, in which the main effects were entered first, followed by the interaction terms. As Table 3.3 illustrates, the change in $R^2$ squared (.09) was significant, $F (2, 58) = 3.68$, $p < .05$. Thus, the interaction between condition and need for cognition on perceived confidence ratings was statistically significant.

Figure 3.2 illustrates the form of this interaction, which is similar to the pattern on perceived competence ratings. The form of the interaction was probed using the same procedure previously described.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE B</td>
<td>β</td>
<td>B</td>
</tr>
<tr>
<td>D₁ (Condition Dummy Code)</td>
<td>0.01</td>
<td>0.53</td>
<td>0.00</td>
<td>-0.19</td>
</tr>
<tr>
<td>D₂ (Condition Dummy Code)</td>
<td>-0.27</td>
<td>0.53</td>
<td>-0.07</td>
<td>-0.56</td>
</tr>
<tr>
<td>Need for Cognition</td>
<td>-1.10</td>
<td>0.33</td>
<td>-0.41**</td>
<td>-2.30</td>
</tr>
<tr>
<td>Need for Cognition * D₁</td>
<td></td>
<td></td>
<td></td>
<td>2.12</td>
</tr>
<tr>
<td>Need for Cognition * D₂</td>
<td></td>
<td></td>
<td></td>
<td>0.96</td>
</tr>
</tbody>
</table>

R²                           | 0.17    |          | 0.26    |          |
ΔR²                          |         | 0.09*    |         |          |

Note. D₁ = 1 in the non-affirmative action woman condition and D₂ = 1 in the affirmative action woman condition. Consequently, this coding scheme defines the man condition as the comparison group, because that group is defined by zero on each dummy variable.

+p < .10  *p < .05  **p < .01

Table 3.3: Hierarchical Regression of Confidence Ratings on Condition, Need for Cognition, and Their Interaction—Study 1 (N = 64)
These tests indicate that, among low need for cognition individuals, the male target was rated as more confident than the non-affirmative action woman, $\beta = .42, t (58) = 1.99, p < .10$, at a marginal level of significance. Ratings of the male target did not differ significantly from ratings of the affirmative action woman, $\beta = -.32, t (58) = -1.51, p > .10$. Also, ratings of the affirmative action woman did not differ significantly from ratings of the non-affirmative action woman, $\beta = .11, t (58) = .62, p > .10$.

Among high need for cognition individuals, the male target was rated lower in confidence than the non-affirmative action woman, $\beta = -.32, t (58) = -1.81, p < .10$, at a
marginal level of significance. As will be discussed later, this could be due to a contrast effect.

High need for cognition individuals' ratings of the affirmative action woman were not different from their ratings of the man, $\beta = .02, t (58) = .12, p > .10$, nor were they different from ratings of the non-affirmative action woman, $\beta = -.30, t (58) = -1.53, p > .10$.

Discussion

These data fail to replicate the pattern obtained by Heilman, Block, & Lucas (1992). Whereas they found that men were rated as more competent than (non-affirmative action) women who were, in turn, rated as more competent than women whose hiring was linked to affirmative action, the present data did not yield a significant main effect on competence. Also, there was no main effect of condition on perceived confidence.

However, there was a marginally significant interaction between condition and need for cognition on competence ratings, as well as a significant interaction between condition and need for cognition on confidence ratings. Apparently, low need for cognition participants relied on the gender stereotype. They rated the male target as more competent and more confident than the non-affirmative action woman. Among highs, the pattern was different. For this subset of participants, the affirmative action woman tended to receive lower ratings than the non-affirmative action woman, although the trend did not reach statistical significance. Interestingly, the male target was rated similarly to the affirmative action woman. Thus, while there was an affirmative action effect—the same woman was rated lower when linked to affirmative action than when not—it is not
fair to necessarily attribute it to stigma since males (a group not stigmatized in this domain) were rated similarly. As will be discussed later in this chapter, there are a number of possible explanations for this effect. For example, if ability is discounted in the case of the affirmative action woman and augmented in the case of the non-affirmative action woman, this pattern could occur; that the effect is evident among the participants highest in cognitive motivation is consistent with those processes requiring cognitive effort.

Since the occupation was intended to be stereotypically masculine, it is not surprising that less motivated thinkers relied on a gender stereotype (of relative male superiority). Further, it was to be expected that more motivated thinkers would attempt not to rely on that information and would, therefore, not show that same pattern, which they did not.

On the question of generality, these data are also informative. Because the same pattern is obtained on both competence and confidence, the data suggest that the same conditions that produce lower ratings of the competence of affirmative action recipients also produce lower ratings of their confidence. Also, the strength of the correlation between the two variables supports this point.

To confirm that this pattern is sufficiently reliable to warrant explanation, a second follow-up study was conducted with the same design and measures. The primary goal was to replicate the pattern from Study 1. Also, minor changes were made to the materials in order to boost the effectiveness of the manipulation.
Experiment 2

Method

Participants

Thirty-nine introductory psychology students participated in this study for partial credit toward a course requirement. Twenty-three males and sixteen females participated.

Procedure

The procedures in this study were similar to those of Experiment 1, with a few minor changes. Those changes are outlined below.

Cover Page. To enhance the packet’s capacity to capture the attention of participants, a more interesting and self-relevant opening paragraph was added (see Appendix L). This paragraph was self-relevant in that it implied that the study’s purpose was relevant to the participant’s future employment prospects.

Also, to make it less likely that participants would rush through the materials (an occasional problem in Study 1), a new paragraph was added emphasizing the importance of taking one’s time. This paragraph was underlined for emphasis.

Job Description. To increase the likelihood that participants noticed the information in the job description, the information about the job and the required qualifications was bolded for emphasis.

Applicant Information. To make it clear that the applicant’s qualifications were minimal, the amount of experience was reduced to eleven months (from two years). Also, the duration was made explicit, so participants did not have to determine it from the
dates, as in Study 1. Additionally, the information about high school was eliminated, to make salient that the applicant had only the minimum education required for the position.

The “clerical use only” section—in which the central part of the affirmative action manipulation was embedded—was put on its own page to make it salient, as well.

Finally, the application material was intentionally placed askew on the photocopier to degrade its quality (i.e., to ensure that it looks like a photocopy of a real application, rather than an original printout from a computer). This was done to ensure the credibility of the materials.

**Dependent Measures**

No changes were made in the dependent measures.

**Results & Discussion**

**Manipulation Check**

As a check on the effectiveness of the manipulation, participants’ responses to the question, “To what degree do you believe the applicant was hired because of his (her) qualifications to do the job well?” Participants were less willing to attribute the affirmative action woman’s (M = 5.57) hire to her qualifications than either the non-affirmative action woman (M = 8.08) or the man (M = 7.77), F (2, 36) = 4.05, p < .05. Post hoc tests revealed that the affirmative action woman mean was different from both the mean in the non-affirmative action woman condition, t (36) = 2.57, p < .05, and the mean in the man condition, t (36) = 2.29, p < .05. Those two latter conditions did not differ from one another, however, t (36) = .32, p > .10.
Relationship Between Competence and Confidence Ratings

The correlation between competence and confidence was still strong ($r = .76$). Again, this result suggests that the two variables would be similarly related to other factors.

Perceived Competence Ratings

Because there were no interactions involving participant gender, analyses of this measure collapsed across that factor. To test for replication of the pattern obtained by Heilman et al. (1992), participants' ratings of the applicant's competence were subjected to a one-way analysis of variance. There was no significant main effect of condition, $F(2, 36) = .86, p > .10$. The means are listed in Table 3.4.

To test for an interaction between experimental condition and individual differences in the need for cognition, perceived competence ratings were regressed onto dummy codes for experimental condition, need for cognition scores, and the interaction (product) terms. A hierarchical analysis was conducted, in which the main effects were entered first, followed by the interaction terms. As Table 3.5 illustrates, the change in $R^2$ (.12) was not statistically significant, $F(2, 33) = 2.41, p = .11$. As is clear from Figure 3.3, however, the pattern of the data is similar to that in Study 1. To probe this pattern, the effects of condition were examined at one standard deviation below the mean on need for cognition (lows) and one standard deviation above (highs), as in Experiment 1.
<table>
<thead>
<tr>
<th>Condition</th>
<th>Competence Rating</th>
<th>Confidence Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Man</td>
<td>8.12</td>
<td>1.46</td>
</tr>
<tr>
<td>Woman</td>
<td>7.75</td>
<td>1.14</td>
</tr>
<tr>
<td>Affirmative Action Woman</td>
<td>7.32</td>
<td>1.95</td>
</tr>
</tbody>
</table>

Table 3.4: Competence and Confidence Ratings By Condition, Study 2
### Table 3.5: Hierarchical Regression of Competence Ratings on Condition, Need for Cognition, and Their Interaction—Study 2 (N = 39)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$\text{SE} \ \beta$</td>
<td>$\beta$</td>
<td>$\text{SE} \ \beta$</td>
</tr>
<tr>
<td>$D_1$ (Condition Dummy Code)</td>
<td>-0.47</td>
<td>0.62</td>
<td>-0.14</td>
<td>-0.30</td>
</tr>
<tr>
<td>$D_2$ (Condition Dummy Code)</td>
<td>-0.76</td>
<td>0.60</td>
<td>-0.24</td>
<td>-0.71</td>
</tr>
<tr>
<td>Need for Cognition</td>
<td>-0.55</td>
<td>0.36</td>
<td>-0.25</td>
<td>-0.83</td>
</tr>
<tr>
<td>Need for Cognition * $D_1$</td>
<td>-0.40</td>
<td>0.82</td>
<td>-0.10</td>
<td>1.45</td>
</tr>
<tr>
<td>Need for Cognition * $D_2$</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

$R^2$                                      | 0.11    |          | 0.22    |          |

$\Delta R^2$                                | 0.12    |          |          |          |

**Note.** $D_1 = 1$ in the non-affirmative action woman condition and $D_2 = 1$ in the affirmative action woman condition. Consequently, this coding scheme defines the man condition as the comparison group, because that group is defined by zero on each dummy variable.

$^{+}p < .10$  $^{*}p < .05$  $^{**}p < .01$
These tests indicate that, among low need for cognition individuals, there were no significant differences between any conditions. Male targets were rated no different from affirmative action females, $\beta = -.13$, $t(33) = -.50$, $p > .10$. Also the apparent difference between ratings of male targets and non-affirmative action women failed to reach statistical significance, $\beta = .41$, $t(33) = 1.65$, $p = .11$. Finally, affirmative action women were rated no different from non-affirmative action women, $\beta = .28$, $t(33) = 1.08$, $p > .10$.

Among highs, there was a marginally significant difference between ratings of the affirmative action woman and the non-affirmative action woman. The affirmative action
woman was rated as less competent than the non-affirmative action woman, $\beta = -.53$, $t(33) = -1.93$, $p < .10$. Neither ratings of the affirmative action woman, $\beta = -.31$, $t(33) = -1.28$, $p > .10$, nor ratings of the non-affirmative action woman, $\beta = -.22$, $t(33) = -.81$, $p > .10$, differed from ratings of the male target.

Perceived Confidence Ratings

Because there were no interactions involving participant gender, analyses of this measure also collapsed across that factor. To test for the pattern obtained by Heilman et al. (1992) on competence ratings, participants' ratings of the applicant's confidence were subjected to a one-way analysis of variance. There was no significant main effect of condition, $F(2, 36) = .46$, $p > .10$. The means are listed in Table 3.4.

To test for an interaction between experimental condition and individual differences in the need for cognition, perceived confidence ratings were regressed onto dummy codes for experimental condition, need for cognition scores, and the interaction (product) terms. A hierarchical analysis was conducted again, in which the main effects were entered first, followed by the interaction terms. As Table 3.6 illustrates, the change in $R^2$ squared (.08) was not statistically significant, $F(2, 33) = 1.44$, $p > .10$.

As is clear from Figure 3.4, however, the pattern appears similar to that obtained thus far in both studies, and on both competence and confidence ratings. To probe this pattern, the same post hoc procedures were employed as in the previous analyses.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th></th>
<th>Model 2</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE B</td>
<td>β</td>
<td>B</td>
<td>SE B</td>
<td>β</td>
</tr>
<tr>
<td>D₁ (Condition Dummy Code)</td>
<td>0.29</td>
<td>0.72</td>
<td>0.08</td>
<td>0.44</td>
<td>0.71</td>
<td>0.12</td>
</tr>
<tr>
<td>D₂ (Condition Dummy Code)</td>
<td>-0.29</td>
<td>0.69</td>
<td>-0.08</td>
<td>-0.23</td>
<td>0.68</td>
<td>-0.06</td>
</tr>
<tr>
<td>Need for Cognition</td>
<td>-0.40</td>
<td>0.41</td>
<td>-0.16</td>
<td>-0.62</td>
<td>0.65</td>
<td>-0.25</td>
</tr>
<tr>
<td>Need for Cognition * D₁</td>
<td></td>
<td></td>
<td></td>
<td>1.28</td>
<td>1.00</td>
<td>0.28</td>
</tr>
<tr>
<td>Need for Cognition * D₂</td>
<td></td>
<td></td>
<td></td>
<td>-0.42</td>
<td>0.96</td>
<td>-0.10</td>
</tr>
</tbody>
</table>

\[ R^2 \]

\[ \Delta R^2 \]

Note. D₁ = 1 in the non-affirmative action woman condition and D₂ = 1 in the affirmative action woman condition. Consequently, this coding scheme defines the man condition as the comparison group, because that group is defined by zero on each dummy variable.

*p < .10  *p < .05  **p < .01

Table 3.6: Hierarchical Regression of Confidence Ratings on Condition, Need for Cognition, and Their Interaction—Study 2 (N = 39)
Among low need for cognition individuals, there were no significant differences between any conditions. Male targets were rated no different from affirmative action females, $\beta = .02, t(33) = .07, p > .10$, and no different from non-affirmative action females, $\beta = .13, t(33) = .49, p > .10$. Finally, affirmative action women were rated no different from non-affirmative action women, $\beta = .15, t(33) = .54, p > .10$.

Among highs, there was a marginally significant difference between ratings of the affirmative action woman and the non-affirmative action woman. The affirmative action woman was rated as less confident than the non-affirmative action woman, $\beta = -.52, t(33) = -1.80, p < .10$. Ratings of the male target were not different from ratings of the
affirmative action woman, $\beta = -0.15, t(33) = -0.58, p > .10$, and no different from ratings of the non-affirmative action woman, $\beta = -0.37, t(33) = -1.28, p > .10$.

**Discussion**

Although the interaction effects were not significant, the patterns in Experiment 2 were similar to those in Experiment 1. Here, however, the differences were more robust among high need for cognition individuals. The data from high need for cognition individuals again suggested an affirmative action effect, but the effect was now marginally significant. High need for cognition individuals rated the affirmative action woman lower than the non-affirmative action woman, on both competence and confidence. That this effect occurred solely among those individuals most motivated to think suggests that it occurred via a relatively thoughtful process. These data do not allow determination of the precise nature of the process (i.e., what highs were thinking about), but it is reasonable to conclude that it was relatively thoughtful.

Because the overall pattern of the data from each of these studies was so similar, and because the changes in the materials were so minor (not to mention that there were no changes to either the procedure or design), the analyses just described were also run on the combined dataset (both studies). With the increased sample size, this analysis provides a more powerful test of the effects. It is possible that in the combined sample, both the tendency for less motivated thinkers to stereotype and more motivated thinkers to use the affirmative action information would be detected.
Experiments 1 & 2 combined

Results

Manipulation Checks

Participants were less willing to attribute the affirmative action woman’s (M = 6.28) hire to her qualifications than either the non-affirmative action woman (M = 7.23) or the man (M = 8.00), F (2, 100) = 5.67, p < .01. Post hoc tests revealed that the affirmative action woman mean was different from both the mean in the non-affirmative action woman condition, t (100) = 2.61, p < .05, and the mean in the man condition, t (100) = 3.12, p < .01. Those two latter conditions did not differ from one another, however, t (100) = .48, p > .10.

Relationship Between Competence and Confidence Ratings

The correlation between competence and confidence in the combined sample was substantial (r = .81), of course, as it was in each of the separate samples.

Perceived Competence Ratings

As in the separate datasets, there were no interactions involving gender on this measure, so gender is ignored in the subsequent analyses. It was also the case that—as in the separate studies—there was no significant main effect of condition, F (2, 100) = .16, p > .10. The means are listed in Table 3.7.

The same hierarchical strategy that was employed in analysis of the separate datasets was used in analyzing the combination of the two. As Table 3.8 illustrates, this change in R squared (.08) was significant, F (2, 97) = 4.89, p < .05. Thus, when the two datasets are combined, the interaction between condition and need for cognition was reliable.
<table>
<thead>
<tr>
<th>Condition</th>
<th>Competence Rating</th>
<th>Confidence Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Man</td>
<td>7.81</td>
<td>1.81</td>
</tr>
<tr>
<td>Woman</td>
<td>7.71</td>
<td>1.10</td>
</tr>
<tr>
<td>Affirmative Action Woman</td>
<td>7.60</td>
<td>1.74</td>
</tr>
</tbody>
</table>

Table 3.7: Competence and Confidence Ratings By Condition, Studies 1 & 2 Combined
<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE B</td>
<td>B</td>
<td>SE B</td>
</tr>
<tr>
<td>Di (Condition Dummy Code)</td>
<td>-0.28</td>
<td>0.38</td>
<td>-0.08</td>
<td>-0.26</td>
</tr>
<tr>
<td>D2 (Condition Dummy Code)</td>
<td>-0.36</td>
<td>0.37</td>
<td>-0.11</td>
<td>-0.45</td>
</tr>
<tr>
<td>Need for Cognition</td>
<td>-0.73</td>
<td>0.22</td>
<td>-0.32**</td>
<td>-1.19</td>
</tr>
<tr>
<td>Need for Cognition * Di</td>
<td>1.36</td>
<td>0.53</td>
<td>0.35*</td>
<td></td>
</tr>
<tr>
<td>Need for Cognition * D2</td>
<td>-0.07</td>
<td>0.53</td>
<td>-0.02</td>
<td></td>
</tr>
</tbody>
</table>

| R²                                    | 0.10    |           | 0.18    |           |
| ΔR²                                   |         |           | 0.08*   |           |

Note. Di = 1 in the non-affirmative action woman condition and D2 = 1 in the affirmative action woman condition. Consequently, this coding scheme defines the man condition as the comparison group, because that group is defined by zero on each dummy variable.

*p < .10   **p < .05   ***p < .01

Table 3.8: Hierarchical Regression of Competence Ratings on Condition, Need for Cognition, and Their Interaction—Studies 1 & 2 Combined (N = 103)
Figure 3.5 illustrates the form of this interaction. This pattern was probed using the same procedures used in Studies 1 and 2.

![Competence Ratings, Combined Dataset](image)

Figure 3.5: Competence Ratings, Combined Dataset

Among low need for cognition individuals, the male target was rated as more competent than the non-affirmative action female, $\beta = .36$, $t(97) = 2.26$, $p < .05$. Also, the affirmative action woman was rated as more competent than the non-affirmative action female, $\beta = .24$, $t(97) = 1.66$, $p < .10$, albeit at a marginal level of significance. Ratings of the male target did not differ from ratings of the affirmative action woman, $\beta = -.12$, $t(97) = -.76$, $p > .10$. 
Among highs, the affirmative action woman was rated lower in competence than the non-affirmative action woman, $\beta = -0.35$, $t(97) = -2.22$, $p < .05$. Ratings of the male did not differ from either ratings of the non-affirmative action woman, $\beta = -0.20$, $t(97) = -1.34$, $p > .10$, or ratings of the affirmative action woman, $\beta = -0.15$, $t(97) = -1.02$, $p > .10$.

**Perceived Confidence Ratings**

As in the separate datasets, there were no interactions involving gender on this measure, so gender is ignored in the subsequent analyses. It was also the case that—as in the separate studies—there was no significant main effect of condition, $F(2, 100) = .47$, $p > .10$. The means are presented in Table 3.7.

The same hierarchical strategy that was employed in analysis of the separate datasets was used in analyzing the combination of the two. As Table 3.9 illustrates, this change in $R^2$ is significant, $F(2, 97) = 3.80$, $p < .05$. Thus, when the two datasets are combined, the interaction between condition and need for cognition is reliable.

Figure 3.6 illustrates the form of this interaction. To probe this analysis, the same procedure that has been followed in all analyses was employed.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$B$</td>
<td>$SE_B$</td>
</tr>
<tr>
<td>$D_1$ (Condition Dummy Code)</td>
<td>0.13</td>
<td>0.42</td>
</tr>
<tr>
<td>$D_2$ (Condition Dummy Code)</td>
<td>-0.20</td>
<td>0.41</td>
</tr>
<tr>
<td>Need for Cognition</td>
<td>-0.82</td>
<td>0.25</td>
</tr>
<tr>
<td>Need for Cognition $\times D_1$</td>
<td>1.49</td>
<td>0.60</td>
</tr>
<tr>
<td>Need for Cognition $\times D_2$</td>
<td>0.19</td>
<td>0.61</td>
</tr>
</tbody>
</table>

$R^2$ | 0.11 | 0.17 |
$\Delta R^2$ | 0.07* |

Note. $D_1 = 1$ in the non-affirmative action woman condition and $D_2 = 1$ in the affirmative action woman condition. Consequently, this coding scheme defines the man condition as the comparison group, because that group is defined by zero on each dummy variable.

+p < .10 
* p < .05 
** p < .01

Table 3.9: Hierarchical Regression of Confidence Ratings on Condition, Need for Cognition, and Their Interaction—Studies 1 & 2 Combined (N = 103)
Among low need for cognition individuals, there were no significant differences among the conditions. Ratings of the male target did not differ from either the non-affirmative action woman, $\beta = .23$, $t (97) = 1.48$, $p > .10$, or the affirmative action woman, $\beta = -.12$, $t (97) = -.73$, $p > .10$. Also, ratings of the affirmative action woman and non-affirmative action woman did not differ from one another, $\beta = .12$, $t (97) = .82$, $p > .10$.

Among highs, the affirmative action woman was rated lower in confidence than the non-affirmative action woman, $\beta = -.36$, $t (97) = -2.24$, $p < .05$. Also, the male was rated lower in confidence than the non-affirmative action woman, $\beta = -.31$, $t (97) = -2.03$,
$p < .05$. Ratings of the male and the affirmative action woman did not differ from one another, $\beta = -.05, t (97) = -.33, p > .10$.

**Discussion**

When the two datasets were combined, several robust effects emerged, suggesting that individuals low in the need for cognition processed the information differently from highs. Among lows, the male target was rated as more competent than the non-affirmative action woman. Also, to some extent, the affirmative action woman was also rated higher in competence than the non-affirmative action woman.

Among highs, the affirmative action woman was rated lower than the non-affirmative action woman on both competence and confidence. Also, the male was rated lower in confidence than the non-affirmative action woman.

These results suggest at least two things. First, less motivated thinkers showed a tendency to rely on gender stereotypes. The male was viewed as more competent than the non-affirmative action female, but only by low need for cognition individuals. This reliance on stereotypes is in line with other work suggesting that less motivated thinkers will be more likely to rely on category information and less likely to evaluate others as individuals (Neuberg & Fiske, 1987). Less motivated thinkers did not, however, use the affirmative action label in the same way they used gender. One might have expected them to use it as a heuristic, assuming that affirmative action recipients are less qualified. Instead, less motivated thinkers tended to rate the affirmative action recipient more positively than the non-affirmative action woman, a surprising finding for which an explanation will be proposed in the next section.
A different pattern emerged in the results for participants high in the need for cognition. The results from the high need for cognition individuals suggested that the differential rating of women who were or were not linked to affirmative action may have resulted from processes involving more thought. These individuals, the most motivated to think carefully and extensively, were the ones who exhibited the affirmative action effect. Thus, the affirmative action effect—the tendency to rate affirmative action recipients as less competent than non-affirmative action recipients—appears not to be the result of less effortful cognitive processes but instead more effortful processes.

General Discussion

Previous studies have demonstrated that being perceived as a recipient of affirmative action may carry a price: stigma. In other words, others may question one's competence to the extent that they attribute one's selection to group membership. These studies build on that prior literature in two important ways.

First, the parallel between the effects on perceived competence and perceived confidence indicate the generality of the affirmative action effect. The same individuals who thought affirmative action women to be less competent, often also expected them to be less confident in their own abilities. This result could be due either to a halo effect or to participants' implicit personality theories (e.g., believing that competence causes confidence).

Second, the pattern of these data suggests that the process by which some individuals come to think less of recipients of affirmative action may be relatively thoughtful. By "thoughtful" I do not mean "accurate," but simply the result of more extensive thought. In rating the competence of the female affirmative action recipient,
high need for cognition observers rated her lower than the non-affirmative action woman. So, the affirmative action effect—the tendency for ratings of competence to be lower for women when their hiring is linked to affirmative action than when it is not—was evident in these data, but only among more motivated thinkers. This is in contrast to what would be expected if the affirmative action label was nothing more than a heuristic that “cognitive misers” employed in forming their judgments. If the affirmative action effect resulted solely from the use of heuristics, then it would have occurred among the individuals most likely to rely on heuristics—the low need for cognition individuals. Instead, the effect was evident only among the individuals most motivated and most likely to think—the high need for cognition individuals. Thus, the affirmative action effect resulted from more thought—not less.

As previously noted, one way this effect could have occurred was through augmentation and discounting. When evaluating the woman whose hiring was not linked to affirmative action, participants may have assumed her gender was a handicap to hiring. As a result, they may have augmented ability as an attribution by essentially thinking, “If she was hired in spite of her gender, she must be really qualified.” On the other hand, when evaluating the credentials of the woman whose hiring was linked to affirmative action, participants may have discounted ability as an attribution by thinking, “Since she may have been hired because of her gender, I’m not sure how qualified she is.” These processes would lead to lower ratings of the affirmative action woman than the non-affirmative action woman—the pattern obtained among high need for cognition individuals. That it was obtained only among that subset of participants is consistent with discounting and augmentation being relatively effortful processes.
Interestingly, high need for cognition participants tended to rate men lower in competence than non-affirmative action women (non-significantly) and also tended to rate men lower in confidence (significantly). This result could be due to a contrast effect. In other words, the male target may have appeared less qualified in contrast to an initially positive expectation than he would have if not contrasted to that standard. Because of the gender stereotype (of male superiority in this domain), participants may have had an initial positive expectation for male targets, an expectation which more motivated thinkers—in their attempt not to rely on stereotypes—attempted to discount as they evaluated the target’s individual qualifications. Previous studies have shown that attempts like this—to ignore expectations or other information that forms the context for a judgment—can cause contrast (Martin, 1986) if individuals overcorrect. Moreover, high need for cognition individuals—because they are more likely to engage in effortful correction—are more prone to show this type of contrast than low need for cognition individuals (Martin, Seta, & Crelia, 1990). In the present context, it may be that high need for cognition individuals, in their attempt to ignore the gender stereotype, overcorrected in their ratings of the male target, leading to more negative evaluations of the male target. Because it is less likely that high need for cognition participants were attempting to ignore a positive expectation when evaluating the non-affirmative action female (for whom the gender stereotype implies low ability), then negative contrast in evaluations of the male would lead to more negative ratings of him than her. That is indeed what was obtained.

The fact that the affirmative action woman was sometimes rated more positively than the non-affirmative action woman by the low need for cognition observers could be
due to self-presentational concerns. Given that the experimenter in most sessions was an African-American male, participants may have presumed that he strongly favored affirmative action. To the extent that individuals were concerned with self-presenting to the experimenter, they might be reluctant to express negative evaluations of the affirmative action woman, lest they appear to be against affirmative action. This attempt to appear “politically correct” could account for more positive ratings of the affirmative action woman than the woman for whom no mention is made of affirmative action. That this effect occurs solely among low need for cognition individuals is not surprising since they tend to be more concerned with self-presentation than highs (Miller, Omens, & Delvadia, 1991).

The central points that bear repeating are these: Less motivated thinkers tended to rely on stereotypes in forming their competence and confidence judgments. They rated the male target as more competent and more confident than the non-affirmative action female. More motivated thinkers, on the other hand, did not show such a pattern. They rated the affirmative action woman more negatively than the non-affirmative action woman. In other words, the most motivated thinkers showed the affirmative action effect. The fact that it was isolated to them suggests that this effect occurs via relatively thoughtful processes. The goal of future studies will be determining what the precise nature of those thoughtful processes are. For example, it may be that high need for cognition individuals are walking through a syllogism or treating the affirmative action information as a persuasive argument against the qualifications of the woman to whom it is attached, as proposed earlier. Or, discounting and augmentation may account for the
pattern. Future studies should examine the nature of the thoughtful processes that lead to these affirmative action effects.

Conclusion

These results suggest that negative evaluations of the recipients of affirmative action may have more general and more persistent impact than prior studies had demonstrated. First, these results show that the same conditions that lead observers to rate female affirmative action recipients low on competence may also lead them to rate those same women low on the dimension of confidence as well.

This result could, of course, have important consequences. The extent to which observers attribute self-confidence to others may affect how those others are treated. In organizations this could produce unfortunate outcomes for the perceived beneficiaries of affirmative action. Imagine a female sales manager, for example. Because it involves frequent interpersonal contact and presentations, sales is an occupation in which self-confidence is essential. If this sales manager’s supervisors believe that she lacks confidence, they may be reluctant to assign her to tasks of great consequence. This reluctance to assign her responsibility—however benign its motivation—could hinder her advancement in the company.

Moreover, if these perceptions of low confidence result from thoughtful processes (as the present results suggest), they are particularly likely to have impact. Judgments that result from more careful thought are more likely to persist over time, more difficult to change, and more likely to determine behavior than judgments based on little thought (Petty & Cacioppo, 1986). So, if negative evaluations of affirmative action recipients do
result from careful thought in some cases, it is in those cases where those negative evaluations will be most likely to have significant effects.

In conclusion, the quote which began this chapter—Eastland's suggestion that employers would question the academic achievement of minority students whom they believe to be beneficiaries of affirmative action—most likely describes how recipients of affirmative action are indeed perceived. In fact, these data suggest an even more sobering picture. Negative evaluations may not be limited to the dimension of competence. Also, because they occur among the most thoughtful observers, they may be particularly likely to have significant, long-lasting effects on the treatment of individuals who are perceived as affirmative action recipients.
CHAPTER 4

GENERAL DISCUSSION

Summary of Key Findings

The first two studies reported in Chapter 2 yielded a main effect of gender on doubt, unqualified by assignment method. Regardless of how they were assigned to the leadership task, women reported more doubt in anticipation of it than did men. Also, in the second study, women rated their own competence lower than did men, regardless of condition.

In the third study, the pattern was markedly different. After completing the leadership task, women and men rated their competence the same and reported the same levels of doubt, regardless of condition. There was also an interesting interaction between assignment method and gender on self-serving attributions. Women offered more self-effacing attributions for their performance as leader, but only under preferential selection.

In the studies reported in Chapter 3, participants rated a hypothetical job applicant on the dimensions of perceived competence and perceived confidence. Each participant read about either a man, a woman, or a woman whose hiring was linked to affirmative action.
There were significant interactions between need for cognition and type of target. Individuals low in the need for cognition tended to rate the male applicant higher on competence than the non-affirmative action woman. This was interpreted as likely due to lows’ tendency to rely on basic gender stereotypes (which attribute greater ability to men). High need for cognition individuals did not show this pattern. Instead, they tended to rate the affirmative action woman lower in competence and in confidence than the non-affirmative action woman. So, through whatever thoughtful processes the high need for cognition individuals employed, the affirmative action label affected their judgments and led to lower ratings.

Self-Doubt Effects

One central question in this work was whether preferential selection would lead to more doubt among individuals who believed themselves to be its beneficiaries than among those who believed their selection was entirely due to merit. These data provide no evidence that it did. Instead, women tended to approach the leadership task with more doubt than men—regardless of how they were assigned to it. Although there may be other contexts where preferential selection would affect women’s doubts, it did not in these studies.

Numerous studies have documented women’s tendency to expect less of their performance than do men—to be less self-confident (Lenney & Gold, 1982; Sleeper & Nigro, 1987). These differences have been observed even on tasks that are not male sex-typed. Thus, it is certainly to be expected that such differences would occur on a task that is male sex-typed, such as leadership. The present data confirm this expectation.
Moreover, as Stangor et al. (1998) showed, giving women positive feedback (as is done in the merit condition) may not be sufficient to boost their self-confidence when approaching a stereotypically masculine task. The present data confirm this.

One might question the desirability of raising women’s initial self-confidence, by arguing that women are appropriately modest about their abilities in this domain. It may be that undergraduates like the ones in this study have limited leadership experience and skills, and so self-doubt is warranted for most participants. Given this interpretation, the women’s relative doubt is more justified than the men’s relative confidence. The women are accurate and the men are arrogant, the argument goes. As noted earlier, however, Beyer’s (1990) data call this interpretation into question. She did find that men’s relatively high expectancies regarding future performance were often associated with overestimating their actual performance; however, she also found that women’s lower expectancies were often associated with underestimating their own performance. So, if those same processes operate in the present context, these female participants’ greater doubts about their leadership ability might be associated with underestimating their own performance. The present data do not allow for the objective evaluation of participant performance, so that hypothesis cannot yet be tested. Future studies should include performance measures so it can be.

One additional point to be drawn from the studies in Chapter 2 is that doing the task has effects on self-evaluations. In Studies 1 and 2, participants did not do the task, but merely reported their doubts in anticipation of it. Under those circumstances, women reported more doubt than did men. However, when participants reported their doubts after the task was completed, no differences emerged. It is likely the case that, before the
task, participants' levels of doubt were determined by factors extraneous to the experimental context, many of which are correlated with gender (whether participants were aware of it or not). After the task, though, participants may have viewed their own performance in the task as more diagnostic of their ability than any other information. Unless there were gender differences in the construal of that performance (which there were not), then relying on that new information should reduce gender differences in doubt. In fact, in these data, those differences were eliminated in posttask ratings.

If this finding generalizes to organizational settings, its implications are clear. Although women (and perhaps minorities) may be less confident as they enter domains in which they are stereotyped as lower performers, if they come to view their performance as members of other groups view their own performance, these differences in confidence may dissipate over time. For example, surveys have indicated that male and female managers in real organizations do not differ in their levels of self-confidence (Chusmir, Koberg, & Stecher, 1992; Melamed & Bozionelos, 1992). It is quite plausible that women entered these managerial roles with more doubt than men, but as they performed their roles their doubts evaporated.¹

The attributional data from the third study in Chapter 2 provide another useful point: Even if women experience no more doubt than men, they may still appear more modest in describing or explaining their performance. In that study, women tended to provide more self-effacing attributions than men, but only under preferential selection. It

¹ Of course, there are a number of alternative explanations. For instance, the women with the most doubt about their managerial skill may never have entered those roles (a selection bias), or they may have entered briefly and then departed (differential attrition). The key point, however, is that the lack of a difference is consistent with the argument that doing the task may eliminate group differences in doubt.
is possible that in that condition, because they had received no positive feedback from the experimenter and because gender had been made salient, it is plausible that women viewed the experimenter as a critical audience. Schlenker et al. (1990) demonstrated that actors may exhibit a more modest attributional style when they are concerned that a critical audience will be skeptical of their explanations. Moreover, Gould & Slone (1982) argued that women may be particularly sensitive to self-presentational concerns when their attributions are public, as they were in the present experiments. Even in the absence of doubt, women may appear modest.

This framework implies a useful next study. That next study would involve manipulating the publicity (public versus private nature) of participants' responses in the same paradigm used in Study 3 of Chapter 2. If the gender by condition interaction on self-serving attributions were qualified by a three-way interaction with publicity, then this result would implicate the self-presentational motives of women as the mechanism underlying the attribution effect.

If this interpretation is valid, it is a useful reminder of the need to be sensitive to the interpersonal motives of participants. Only then can researchers gain an accurate understanding of their data. It is possible, for instance, that women may sometimes be more confident than their words indicate. This discrepancy—between private confidence and public modesty—may be beneficial or disadvantageous in certain situations. Sometimes maintaining a poker face, behind which one's confidence stays hidden, is helpful. Other times, however, such as when a female sales manager is attempting to secure responsibility for a major account, modesty may be an impediment.
Others’ Doubts

Chapter 3 confirmed what previous studies have shown—that the presence of the affirmative action label can lead to lower ratings of competence than when it is absent. When an individual’s success is attributed to category membership by others, those others may view him or her in less positive terms. The data from this chapter provide helpful clarifications to the existing literature.

The “Double Whammy.” The data from these studies showed that the conditions that produce lower ratings on competence often also produce lower ratings on attributed confidence. So, the female manager or the Hispanic professor who is viewed as less competent is also likely to be viewed as less confident in his or her own ability. It may be that observers’ implicit theories posit a relationship between confidence and competence, perhaps even a causal one. For example, observers may believe that having competence allows one to be truly confident, or that self-confidence is a component of competence. Whatever the theory, the correlations and similarity of effects on competence and confidence suggest that observers see the two constructs in similar terms when evaluating others.

As a result of this similarity, when the affirmative action label does produce lower ratings, it is likely to do so on both variables. So, not only will the competence of “affirmative action babies” be questioned; so will their self-confidence. Therein lies the “double whammy.” One label—affirmative action recipient—produces lower ratings on two dimensions. This effect is particularly unfortunate given that observers’ beliefs about the degree to which an individual’s success is attributable to category membership
may be wholly inaccurate. Still, even those inaccurate perceptions can have effects on the evaluations of the individuals in question.

This Effect Results From Thinking. One of the primary purposes of the studies in Chapter 2 was to determine the extent to which careful thought underlay these affirmative action effects. Were the effects obtained by Garcia et al. (1981) and Heilman et al. (1992) merely the results of relatively effortless reliance on stereotypes—in which case they should occur primarily among individuals less motivated to think? Or were these effects the result of more careful evaluation of the information—in which case they should occur primarily among individuals more motivated to think?

While low need for cognition individuals appeared to rely on stereotypes, the evidence suggests that they relied on simple gender stereotypes. They rated the male as more competent than the non-affirmative action female. They did not rate the affirmative action female as either less competent or less confident than the non-affirmative action female.

High need for cognition individuals, however, rated the affirmative action woman lower than the non-affirmative action woman—on both dimensions. So, the individuals most motivated to think—and whose judgments are most reflective of extensive thought—rated the affirmative action woman as less competent and less confident. They showed the affirmative action effect.

Future research will attempt to replicate these findings and determine precisely how it was that more thought led to the effect. Potentially, there are multiple ways the affirmative action label could have influenced the judgments of high need for cognition.
individuals (Petty & Cacioppo, 1986). First, it could have functioned as a “persuasive argument” against the qualifications of the candidate. For example, as previously noted, more motivated thinkers may have walked through a syllogism that led from the premise, “she is an affirmative action hire”, to the conclusion “she is less qualified.” Also, it could have biased observers’ scrutiny of the application. So, they may have thought more negative thoughts in response to the application than they would have in the absence of the affirmative action label. Finally, observers may have discounted ability as an explanation for the hiring of the affirmative action woman, as they augmented ability in the case of the non-affirmative action woman. If the affirmative action label played any of these roles, it could have produced the observed effects.

That the affirmative action effect occurred only among those high in cognitive motivation rather than cognitive miserliness is of great practical importance. It suggests that the influence of the affirmative action label on participants’ judgments occurred as a result of relatively extensive thought. As research from attitude strength shows, judgments based on more thought are more resistant to change, more persistent, more likely to guide behavior, and more likely to guide information processing. Thus, in the real world, women or minorities who are perceived as having benefited from their category membership are in an unfortunate position. Their peers, clients, and supervisors’ behavior may be guided by these inferences of relatively low competence and self-confidence, so they may treat the women and minorities in an undeservedly critical or patronizing fashion. Moreover, this treatment may be difficult to change over time.
Conclusion

When women and minorities enter domains in which they are stereotyped as low performers, they often enter in a vulnerable position. They may be the sole representative of their group, which can have negative consequences for performance (Lord & Saenz, 1985). Their attempts to disconfirm negative stereotypes about their group may backfire and impair their performance (Steele & Aronson, 1995). They may enter with greater doubts than males or majority group members (Lenney & Gold, 1982; Sleeper & Nigro, 1987). It is this already precarious context in which affirmative action often operates.

The present studies were conducted to determine if affirmative action might carry additional costs for these individuals. The research questions were twofold: First, if individuals perceive themselves to be affirmative action recipients, do they experience greater self-doubt as a result? The present data provided no evidence of this. Second, if individuals are perceived by others to be affirmative action recipients are they more negatively evaluated than they would be if not so perceived? The current data support a qualified “yes” to this question.

The current data suggest that, among individuals highly motivated to think, when they encounter an individual whose success is linked to affirmative action, they will rate that person lower in competence and lower in confidence than they would if that same individual’s success was not linked to affirmative action. The fact that it occurs among these individuals suggests that the affirmative action effect may be the result of relatively thoughtful processing.
Future research should attempt to replicate this result in both laboratory and organizational settings. If the findings generalize to non-laboratory contexts, then policy makers should consider the implications. In light of presidential directives to “mend it, don’t end it” (Clinton, 1996), serious reform of affirmative action would have among its goals minimizing effects like this. Social psychological research should continue to inform this reform.


Appendix A

Managerial Effectiveness Skills Inventory

Scenarios

1. As an upper-level manager at a large corporation, you are responsible for organizing a meeting of mid-level managers. At this meeting, wages will be discussed. Which of the following individuals should be invited?

(Choose as many individuals as appropriate)

☐ Vice-President for Purchasing
☐ Vice-President for Marketing
☐ Vice-President for Distribution
☐ Vice-President for Retail Operations
☐ Vice-President for Finance
☐ Vice-President for Facilities
☐ Vice-President for Personnel
☐ Vice-President for Manufacturing
☐ Legal Counsel

2. The following individuals have applied for the position of secretary. For each applicant, you know how many words per minute he or she typed, and how many years experience he or she has. Which applicant would you select?

(Choose only one)

☐ Applicant A—25 wpm/10 years
☐ Applicant B—35 wpm/11 years
☐ Applicant C—60 wpm/no experience
☐ Applicant D—45 wpm/1 year
3. You are a new department manager (DM) in a department store. On the 15th of each month, the DM orders merchandise for the next month. The following is the previous DM’s record of monthly inventory and ordering of one product. How much would you order for the month of March?

<table>
<thead>
<tr>
<th>Month</th>
<th>Inventory</th>
<th>Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>September</td>
<td>2000 units</td>
<td>8000 units</td>
</tr>
<tr>
<td>October</td>
<td>2100 units</td>
<td>7900 units</td>
</tr>
<tr>
<td>November</td>
<td>300 units</td>
<td>9000 units</td>
</tr>
<tr>
<td>December</td>
<td>0 units</td>
<td>10,000 units</td>
</tr>
<tr>
<td>January</td>
<td>0 units</td>
<td>11,000 units</td>
</tr>
<tr>
<td>February</td>
<td>9000 units</td>
<td>0 units</td>
</tr>
<tr>
<td>March</td>
<td>100 units</td>
<td>?????</td>
</tr>
</tbody>
</table>

How many units would you order in March? _________

4. You manage a small bank. One day you discover that one of your most valuable, experienced tellers has stolen $10. Which of the following responses would you choose?

(Choose only one option)

- □ Permanent dismissal of that employee
- □ Temporary suspension of that employee
- □ Integrity counseling for that employee
- □ Integrity training for all employees
- □ Closer monitoring of that employee
- □ Closer monitoring of all employees
- □ Do nothing
5. You are a mid-level manager with a large corporation. After returning from a two-week vacation, you have a variety of tasks awaiting you. However, you can only do one thing at a time, so you must prioritize them. There are several such tasks listed below. Rank them in the order that you would attempt to perform them.

☐ Meet with your secretary
☐ Meet with your immediate supervisor
☐ Read and respond to e-mail
☐ Read and respond to faxes
☐ Read and respond to in-house memos
☐ Meet with a particular employee who “says he really needs to talk”
☐ Hold a general meeting with all the staff under your supervision
☐ Work on tomorrow’s presentations
Appendix B

Self-Doubt Items—Study 1

Right now, I feel unsure of my managerial ability

I wonder if I have the ability to succeed at the upcoming managerial task

I wish I felt more certain of my strengths and weaknesses at this upcoming task

I feel confident in my ability to do well at the upcoming task (reverse scored)

I feel confident that I will succeed at the upcoming task (reverse scored)

Responses were made on the following scale:

1 = Disagree very much
2 = Disagree pretty much
3 = Disagree a little
4 = Agree a little
5 = Agree pretty much
6 = Agree very much
Appendix C

"Spatial Communication Skills Inventory—Studies 2 & 3"
RESULTS (EXPERIMENTER'S USE ONLY):

NUMBER CORRECT (MAX. 20):

ASSIGNMENT:
Spatial Communication Skill Inventory

Directions: Read each of the following items below carefully and place an "X" in the blank space corresponding to the response you feel most appropriately answers each question. Please work as quickly as you can and answer every question even if you have to guess.

1. Verbal ability is the most important factor in giving directions effectively.
   T ___ F ___

2. When giving instructions on a complicated task, it is best to begin with a general picture of the whole task to be completed, than to start off right away with specifics.
   T ___ F ___

3. Which of the following is an obtuse angle?
   [Diagram of angles]

4. Which of the following basic geometric shapes has proven most difficult for subjects to draw?
   [Diagram of shapes: circle, square, triangle, rectangle]

5. Which geometric shape has proven the easiest for subjects to draw?
   [Diagram of shapes: circle, square, triangle, rectangle]

6. People find it easier to describe figures with curves than figures with straight lines.
   T ___ F ___

7. When giving instructions, it generally is more effective to speak in an informal, conversational manner than in a formal, commanding manner.
   T ___ F ___

8. The greater the number of directions, the more complex the task?
   T ___ F ___
9. Which geometric shape is most common in our society?  

O □ △ □

10. Which geometric shape is least common in our society?  

O □ △ □

11. Before giving instructions, it is always best to anticipate any questions the listener might pose.  

T F

12. When working under time pressure, it is best to use a different strategy for giving directions than when there is no time pressure.  

T F

13. The ability to give clear instructions only comes with practice.  

T F

14. Drawing simple geometric figures takes very little "artistic" ability.  

T F

15. When giving directions, it is best to break up the information into small units.  

T F

16. No matter what the task, there are many different ways in which directions can be given effectively.  

T F

17. When giving directions, simple is always better.  

T F

18. In describing abstract shapes, the best strategy is to provide real-life examples.  

T F
19. It is best to give directions in terms of NORTH, SOUTH, EAST, and WEST; as opposed to directions in terms of UP, DOWN, LEFT, and RIGHT.

T____  F____

20. Speed necessarily reduces clarity when giving directions.

T____  F____
Appendix D

Self-Doubt Items—Study 2

Right now, I feel unsure of my ability to perform the leader role

I wonder if I have the ability to succeed at the upcoming leader role

I wish I felt more certain of my strengths and weaknesses at the leader role

I feel confident in my ability to do well at the leader role (reverse scored)

I feel confident that I will succeed at the leader role (reverse scored)

Responses were made on the following scale:

1 = Disagree very much
2 = Disagree pretty much
3 = Disagree a little
4 = Agree a little
5 = Agree pretty much
6 = Agree very much
Appendix E

Competence Items—Study 2

1. How do you generally do on tasks which, like the upcoming one, involve leadership skills?

2. How do you generally do on tasks which, like the upcoming one, involve communication skills?

(Responses were made on a nine point scale ranging from “very poorly” to “very well”)

136
Appendix G

Self-Doubt Items—Study 3

Right now, I feel unsure of my ability to be an effective spatial communicator

I wonder if I have the ability to succeed as a spatial communicator

I wish I felt more certain of my strengths and weaknesses as a spatial communicator

If I performed the spatial communicator role again, I feel confident in my ability to do it well (reverse scored)

Were this task to be repeated, I feel confident that I would succeed as a spatial communicator (reverse scored)

Responses were made on the following scale:

1 = Disagree very much
2 = Disagree pretty much
3 = Disagree a little
4 = Agree a little
5 = Agree pretty much
6 = Agree very much
Appendix H

Competence Items—Study 3

1. How do you generally do on tasks which, like this one, involve leadership skills?

2. How do you generally do on tasks which, like this one, involve communication skills?

3. How do you generally do on tasks which like this one, involve both leadership and communication skills?

(Responses were made on a nine point scale ranging from “very poorly” to “very well”)

142
Appendix I

Stimulus Materials—Experiment I
Thank you for agreeing to participate in this study. This is a study about social judgments. Everyday, people receive information about other individuals and use it to make judgments about those individuals. The general purpose of this study is to understand the psychological processes that underlie these judgments.

There are a number of factors that may affect these judgments. We are interested in two. First, the way the information is obtained may affect social judgments. For example, receiving information about an individual in a letter may lead to different types of judgments than receiving that same information over the telephone. We want to understand what effect this factor has.

Second, the type of judgment may matter. For example, the judgments you form about a potential romantic partner may be very different from the judgments you form about a potential roommate. We also want to understand what effect this factor has.

To understand what effects these factors have, we are asking participants to use information about other individuals to make judgments. Different participants are assigned to receive the information different ways, and also different participants are assigned to make different types of judgments.

You have been assigned to form employment-related judgments based on information that you read. Understanding these types of judgments is important, because employers in the real world must frequently evaluate applicants to determine which ones are fit to be hired. Also, employers must evaluate the performance of current employees to determine which ones should be promoted, or in some cases, which ones should be terminated. Understanding how reading affects these judgments is also important, because written material (e.g., job applications, memos) is often the basis for job-related decisions. So, we want to use this study as a first step toward understanding these important issues.

The procedure you will follow is simple. Read the information enclosed in the packet and respond to the questions that are asked. You will first read about a particular job opening that existed in a computer company. Then you will read an excerpt from a particular applicant's application material. You will then read other information related to that person. Throughout all of this, you will be asked periodically to report relevant judgments. Once you have finished reviewing information about this individual and forming judgments, you will then be asked to complete a few questionnaires.

As you complete this packet please do not write your name or any personally identifying information anywhere. We want you to feel free to be honest, so your responses must remain anonymous.

After you finish this first packet, please raise your hand so the experimenter can take your packet. Then wait for further information.

PLEASE DO NOT TURN THE PAGE UNTIL THE EXPERIMENTER INSTRUCTS YOU TO DO SO
Job Description

ELECTRICAL ENGINEER—Epic Technologies Incorporated is a growing computer hardware company based out of California. We seek an aggressive, independent-thinker who is ready to join our staff of engineers and help us design new computer hardware. The ideal individual has the analytical and mathematical skills necessary to comprehend complex computer hardware design issues, as well as the willingness and ability to take a leadership role on the design team.

Minimum qualifications: Bachelor's degree in electrical or computer engineering, 3-5 years experience.
Preferred qualifications: Master's degree in electrical engineering, more than 5 years experience.

For application materials, e-mail Ron Downs at rdowns@epictech.com or visit our website at www.epictech.com. Applications will be considered until the position is filled.

*Epic Technologies Inc. is an Affirmative Action Equal Opportunity Employer. Applications from women and minorities are strongly encouraged.*
The next page contains an excerpt from the file of an applicant for this position:
EPIC TECHNOLOGIES JOB APPLICATION

Name: ____________________________

Date of Birth: 07 / 03 / 73

Age: 25

Social Security Number: _______ _______ _______

Education (detail below):
1991 Lincoln Valley High School (Nebraska)

1996 B.S. in Engineering— Nebraska Wesleyan University

Experience (detail below):
1996-present Design Team Member— Tanner Electronics

Responsibilities: Assisting with design of computer circuitry for automotive applications.

CLERICAL USE ONLY:
Status— Position— Engineer

Decision— Hire

Conditions— Affirmative Action Hire
Now, we'd like you to answer a few questions about this applicant.
Appendix J

Dependent Measures—Experiments 1 & 2

Manipulation Check

To what degree do you believe the applicant was hired because of his (her) qualifications to do the job well?

Competence Items

How competently would you expect this individual to perform this job?
How effective do you think this individual would be at doing the work?

Confidence Items

If hired, how confident do you think this individual would be about his (her) ability?
If hired, how confident do you think this individual would be about his (her) chances of success on this job?

All responses were on an eleven point scale, labeled only at the endpoints with the anchors, "not at all" (at 1) and "very much" (at 11).
Appendix K

The Need for Cognition Scale

For each of the statements below, please indicate whether or not the statement is characteristic of you or of what you believe. If the statement is extremely uncharacteristic of you or of what you believe (not at all like you), please place a “1” on the line to the left of the statement. If the statement is extremely characteristic of you or of what you believe (very much like you), please place a “5” on the line to the left of the statement. You should use the following scale as you rate each of the statements below.

1. extremely unlike me
2. somewhat unlike me
3. uncertain
4. somewhat like me
5. extremely like me

Answer all questions as accurately as you can, but please remember that there are no right or wrong answers. We are interested in your perceptions. Please spend no more than about 5-6 seconds on each question.

1. _____ I prefer complex to simple problems.
2. _____ I like to have the responsibility of handling a situation that requires a lot of thinking.
3. _____ Thinking is not my idea of fun.
4. _____ I would rather do something requiring little thought than something that is sure to challenge my thinking abilities.
5. _____ I try to anticipate and avoid situations where there is a likely chance I will have to think in depth about something.
6. _____ I find satisfaction in deliberating hard for long hours.
7. _____ I only think as hard as I have to.
8. _____ I prefer to think about small daily projects to long-term ones.
9. _____ I like tasks that require little thought once I've learned them.
10. _____ The idea of relying on thought to make my way to the top appeals to me.
11. _____ I really enjoy a task that involves coming up with new solutions to problems.
12. Learning new ways to think doesn’t excite me much.
13. I prefer my life to be filled with puzzles that I must solve.
14. The notion of thinking abstractly is not appealing to me.
15. I prefer tasks that are intellectual, difficult, and important to ones that do not require much thought.
16. I feel relief rather than satisfaction after completing a task that required a lot of mental effort.
17. It’s enough for me to know that something get the job done; I don’t care how or why it works.
18. I usually end up deliberating about issues even when they do not affect me personally.
Appendix L

Stimulus Materials—Experiment 2
How will your future employer determine whether to hire you or not? That is the type of question this study is designed to answer.

Thank you for agreeing to participate in this study. This is a study about social judgments. Everyday, people receive information about other individuals and use it to make judgments about those individuals. The general purpose of this study is to understand the psychological processes that underlie these judgments.

We are interested in two factors that may affect judgments. First, the way the information is obtained may affect social judgments. For example, receiving information about an individual in a letter may lead to different types of judgments than receiving that same information over the telephone. Second, the type of judgment may matter. For example, the judgments you form about a potential romantic partner may be very different from the judgments you form about a potential roommate. We want to understand these effects.

To understand what effects these factors have, we are asking participants to use information about other individuals to make judgments. Different participants are assigned to receive the information different ways, and also different participants are assigned to make different types of judgments.

You have been assigned to form employment-related judgments based on information that you read. Understanding these types of judgments is important, because employers in the real world must frequently evaluate applicants to determine which ones are fit to be hired, and these evaluations are often based on reading job applications. In fact, these employers often evaluate the applications of recent college graduates, just like all of you will be soon. We want to understand how these judgments operate because they affect real people everyday. So, we want to use this study as a first step toward understanding these important issues. We need you to help us by playing the role of the employer.

The procedure you will follow is simple. Carefully read the information enclosed in the packet and respond to the questions that are asked. It is very important that you take your time and read the information carefully. No matter how long this first packet takes you, you will be here for the full thirty minutes, so there is no reason to rush. We would rather you not finish but have a clear understanding of all the information than for you to rush and make mistakes.

You will first read about a particular job opening that existed in an actual computer company. Then you will read an excerpt from a particular applicant’s application material. The identity of that applicant has been deleted. You will then read other information related to that person. Throughout all of this, you will be asked periodically to report relevant judgments. Once you have finished reviewing information about this individual and forming judgments, you will then be asked to complete a few questionnaires.

As you complete this packet please do not write your name or any personally identifying information anywhere. This is so you can feel free to be completely honest.

After you finish this first packet, please raise your hand so the experimenter can take your packet. Then wait for further information.

PLEASE DO NOT TURN THE PAGE UNTIL THE EXPERIMENTER INSTRUCTS YOU TO DO SO

153
Job Description

ELECTRICAL ENGINEER—Epic Technologies Incorporated is a growing computer hardware company based out of California. We seek an aggressive, independent-thinker who is ready to join our staff of engineers and help us design new computer hardware. The ideal individual has the analytical and mathematical skills necessary to comprehend complex computer hardware design issues, as well as the willingness and ability to take a leadership role on the design team.

MINIMUM QUALIFICATIONS: BACHELOR’S DEGREE IN ELECTRICAL ENGINEERING AND 3-5 YEARS EXPERIENCE.

For application materials, e-mail Ron Downs at rdowns@epitech.com or visit our web site at www.epitech.com. Applications will be considered until the position is filled.

Epic Technologies Inc. is an Affirmative Action Equal Opportunity Employer. Applications from women and minorities are strongly encouraged.
The next two pages contain excerpts from the file of an applicant for this position:
EPIC TECHNOLOGIES JOB APPLICATION

Name: Sara

Date of Birth: 07/03/73

Age: 24

Social Security Number:

Education (detail below):

B.S. in Engineering—Nebraska Wesleyan University 1996

Experience (detail below):

Eleven months of relevant experience:

1996-1997 Design Team Member—Tanner Electronics

Responsibilities: Assisting with design of computer circuitry for automotive applications.
Clerical Use Only:

Status: 
Decision: Hire
Conditions: Affirmative Action Hire
Now, we'd like you to answer a few questions about this applicant.