WHEN IT PAYS TO PERSEVERE: BELIEF PERSEVERANCE AND SELF-ENHANCEMENT

A thesis presented to
the faculty of
the College of Arts and Sciences of Ohio University

In partial fulfillment
of the requirements for the degree
Master of Science

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June 2006
This thesis entitled
WHEN IT PAYS TO PERSEVERE: BELIEF PERSEVERANCE AND SELF-ENHANCEMENT

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GUENTHER, COREY L., M.S., June 2006, Social Psychology

WHEN IT PAYS TO PERSEvere: BELIEF PERSEVERANCE AND SELF-ENHANCEMENT (100 pp.)

Director of Thesis: Mark D. Alicke

Many researchers have demonstrated the belief perseverance phenomenon in both self and social perception (e.g. Ross, Lepper, & Hubbard, 1975; Anderson, Lepper, & Ross, 1980). Several explanations have been provided for this phenomenon, however these explanations have by in large been from a cognitive perspective. Surprisingly, no evidence to date has been obtained in support of a motivational explanation and few if any have been designed to specifically test the influence of motivational mechanisms on belief perseverance.

The present studies examined belief perseverance from a motivational orientation and investigated the influence that self-enhancement and self-protective motives may have on this classic phenomenon. Results of three studies support the contention that the motivation to maintain a favorable self-image may attenuate perseverance effects when discredited feedback threatens an important aspect of the self-concept. Further, results of Study 3 support the argument that task-importance moderates the influence of self-enhancement on belief perseverance.

Approved:

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Acknowledgments

There are several individuals that I would like to thank for their help in the successful completion of this thesis. First, I would like to thank my committee chair and advisor, Mark Alicke, for his guidance, support, and advice throughout this entire process. I would also like to thank Keith Markman and Dan Lassiter for their extremely helpful comments to help improve the quality of this research. I would also like to extend a special thanks to Nicole Gullekson for the endless support, encouragement, and helpful advice she provided from start to finish. Thank you so much, I do not know how I would have done this without you. And lastly, I would like to offer a special thanks to my family (Mom, Dad, Freddie & Marla, Chad & Heidi, and the girls) for their continued support in everything I do. You have always been there for me, and without your love and support none of this would have been possible.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>3</td>
</tr>
<tr>
<td>Acknowledgments</td>
<td>4</td>
</tr>
<tr>
<td>List of Tables</td>
<td>6</td>
</tr>
<tr>
<td>List of Figures</td>
<td>7</td>
</tr>
<tr>
<td>Introduction</td>
<td>8</td>
</tr>
<tr>
<td>Early Research on Belief Perseverance: A Social Cognitive Perspective</td>
<td>9</td>
</tr>
<tr>
<td>Additional Cognitive Explanations for Belief Perseverance Effects</td>
<td>13</td>
</tr>
<tr>
<td>The Limits of Belief Perseverance</td>
<td>17</td>
</tr>
<tr>
<td>Beyond Cognition: Motivational Components to Belief Perseverance?</td>
<td>20</td>
</tr>
<tr>
<td>The Present Research</td>
<td>23</td>
</tr>
<tr>
<td>Study 1</td>
<td>26</td>
</tr>
<tr>
<td>Method</td>
<td>27</td>
</tr>
<tr>
<td>Participants</td>
<td>27</td>
</tr>
<tr>
<td>Procedure</td>
<td>27</td>
</tr>
<tr>
<td>Results</td>
<td>31</td>
</tr>
<tr>
<td>Discussion</td>
<td>34</td>
</tr>
<tr>
<td>Study 2</td>
<td>37</td>
</tr>
<tr>
<td>Method</td>
<td>39</td>
</tr>
<tr>
<td>Participants</td>
<td>39</td>
</tr>
<tr>
<td>Procedure</td>
<td>39</td>
</tr>
<tr>
<td>Results</td>
<td>41</td>
</tr>
<tr>
<td>Discussion</td>
<td>48</td>
</tr>
<tr>
<td>Implications: Belief Perseverance, Self-Enhancement, and Limitations of Previous Designs</td>
<td>50</td>
</tr>
<tr>
<td>Study 3</td>
<td>54</td>
</tr>
<tr>
<td>Method</td>
<td>57</td>
</tr>
<tr>
<td>Participants</td>
<td>57</td>
</tr>
<tr>
<td>Procedure</td>
<td>57</td>
</tr>
<tr>
<td>Results</td>
<td>62</td>
</tr>
<tr>
<td>Discussion</td>
<td>70</td>
</tr>
<tr>
<td>General Discussion</td>
<td>72</td>
</tr>
<tr>
<td>Future Directions</td>
<td>79</td>
</tr>
<tr>
<td>References</td>
<td>82</td>
</tr>
<tr>
<td>Appendix A: List of Words Used in Word-Identification Task, Studies 1 and 2</td>
<td>89</td>
</tr>
<tr>
<td>Appendix B: Actor-Observer Post-Discredit Questionnaire, Study 1</td>
<td>90</td>
</tr>
<tr>
<td>Appendix C: Actor-Observer Pre-Task Questionnaire, Study 2</td>
<td>91</td>
</tr>
<tr>
<td>Appendix D: Actor-Observer Post-Task/Post-Discredit Questionnaire, Study 2</td>
<td>92</td>
</tr>
<tr>
<td>Appendix E: 25 Pair of Authentic and Inauthentic Suicide Notes, Study 3</td>
<td>93</td>
</tr>
<tr>
<td>Appendix F: Actor-Observer Post-Task/Discredit Questionnaire, Study 3</td>
<td>100</td>
</tr>
</tbody>
</table>


## List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mean Scores for Post-Discredit Measures for Actors and Observers, Study 1</td>
<td>32</td>
</tr>
<tr>
<td>2. Mean Scores for Pre-Task Measures for Actors and Observers, Study 2</td>
<td>42</td>
</tr>
<tr>
<td>3. Mean Scores for Post-Task Measures for Actors and Observers, Study 2</td>
<td>43</td>
</tr>
<tr>
<td>4. Mean Scores for Post-Discredit Measures for Actors and Observers, Study 2</td>
<td>44</td>
</tr>
<tr>
<td>5. Mean Scores for Post-Task Measures for Actors and Observers, Study 3</td>
<td>63</td>
</tr>
<tr>
<td>6. Mean Scores for Post-Discredit Measures for Actors and Observers, Study 3</td>
<td>64</td>
</tr>
</tbody>
</table>
# List of Figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mean post-discredit estimations of actor performance for actors and observers in positive and negative feedback conditions, Study 1</td>
<td>33</td>
</tr>
<tr>
<td>2. Mean post-discredit ratings of actors’ mental acuity for actors and observers in positive and negative feedback conditions, Study 1</td>
<td>33</td>
</tr>
<tr>
<td>3. Mean post-discredit ratings of actors’ skill at the task for actors and observers in positive and negative feedback conditions, Study 1</td>
<td>33</td>
</tr>
<tr>
<td>4. Mean post-discredit estimations of actor performance for actors and observers in positive and negative feedback conditions, Study 2</td>
<td>47</td>
</tr>
<tr>
<td>5. Mean post-discredit ratings of actors’ mental acuity for actors and observers in positive and negative feedback conditions, Study 2</td>
<td>47</td>
</tr>
<tr>
<td>6. Mean post-discredit estimations of percentile rank of actors’ mental acuity for actors and observers in positive and negative feedback conditions, Study 2</td>
<td>47</td>
</tr>
<tr>
<td>7. Mean post-discredit estimations of actors’ future performance for actors and observers in positive and negative feedback conditions, Study 2</td>
<td>47</td>
</tr>
</tbody>
</table>
Introduction

Quite often in the course of everyday life people encounter situations in which the evidentiary basis for their beliefs, attitudes, or opinions is undermined or discredited. However, perhaps just as common is people’s resiliency in the face of such challenges, as they often stand firm in their beliefs even when it is irrational to do so. For example, consider the public’s perception of certain Hollywood actors and actresses: the roles they play on television are often so dramatic that people tend to believe that these roles are reflective of their off-screen personalities. Despite knowing that these roles are the fictitious product of the acting profession, people still have difficulty separating these characters from real life. Additionally, consider courtroom trials in which the judge orders jury members to dismiss and ignore pre-trial publicity regarding the defendant. Such orders are given in attempt to minimize the possibility that such information might influence jury perceptions and beliefs. However, research suggests that such orders may not be as effective as desired, and that the discredited pre-trial publicity may still significantly impair the jury’s decision making (Lieberman & Arndt, 2000; Wolf & Montgomery, 1977). Finally, an example of particular importance to the field of psychology is the debriefing procedures used in experimental design. If people tend to cling to discredited beliefs, this suggests that the debriefing procedures we so heavily rely on in deception paradigms may be less successful than we believe. Attempts to reconcile harmful after effects of deception may be undermined by people’s insistence on maintaining invalidated beliefs, thus creating major ethical issues in much of our research.
These are just a few examples of how belief perseverance—the tendency to maintain discredited beliefs—may influence our daily lives. Several researchers have demonstrated belief perseverance in both self and social perception (e.g. Anderson, 1982, 1983; Anderson & Kellam, 1992; Anderson & Sechlar, 1986; Anderson, Ross, & Lepper, 1980; Carretta & Moreland, 1982; Fleming & Arrowood, 1979; Jennings, Lepper, & Ross, 1981; Lepper, Ross, & Lau, 1986; Ross, Lepper, & Hubbard, 1975; Walster, Berscheid, Abrahams, & Aronson, 1967; Wegner, Coulton, & Wentzlaff, 1985), and have done so in a variety of research contexts (e.g. clinical settings, classrooms, politics, impression formation).

**Early Research on Belief Perseverance: A Social Cognitive Perspective**

In the mid to late 20th century belief perseverance became an important topic of social cognitive exploration. While somewhat neglected in much of the belief perseverance literature, Walster, Berscheid, Abrahams, and Aronson (1967) initially documented the phenomenon in their study on the effectiveness of debriefing. Participants completed a “social aptitude test” and were presented with false feedback indicating that they were either highly sociable or unsociable. They then received an extensive debriefing explaining the deceptive nature of the feedback they received, as well as why the deception was necessary. Participants then provided sociability ratings of how they actually perceived themselves, and it was found that those that had been previously given positive feedback regarding their sociability rated themselves as significantly more sociable, better able to make deep friendships, more popular, and more sensitive to the feelings of others than those that had been given negative feedback. In
other words, despite the thorough debriefing the discredited feedback participants received still influenced their self-perceptions.

Intrigued by their findings, Ross et al. (1975) followed up the Walster et al. (1967) study with what has become perhaps the most oft cited article in the belief perseverance literature. In their study, participants took part in a suicide note discrimination task purported to assess physiological responses during decision making. Participants were connected to electrodes and asked to differentiate authentic and inauthentic suicide notes, and bogus feedback was given suggesting they either succeeded or failed at the task. They then underwent a debriefing procedure during which it was explained that the feedback they had been given was completely fictitious, but was necessary because the actual purpose of the study was to assess the effects of success and failure on physiological measures. And, because participants’ actual performance and perceptions may have influenced these measures, experimenters asked them to report these perceptions. Results indicated that despite the thorough debriefing, participants’ perceptions of their actual performance, estimations of future performance, ratings of ability at the task, and ratings of ability on similar tasks were all significantly influenced in the direction of the original feedback. Similar effects were also found in observers who witnessed the initial feedback and debriefing procedures: their perceptions were also heavily influenced by the original feedback.

Ross et al. (1975) took a highly cognitive approach to interpreting their findings. First, they argued that such perseverance effects are the product of biased attributional processing. They contend that initial impressions “structure and distort the attributional processes through which subsequently considered evidence is interpreted” (p.889). In
other words, they become a standard of comparison for all information encountered thereafter, potentially distorting perceptions. They also proposed that perseverance effects are exacerbated by people’s tendency to develop causal explanations. They refer to the process as the “antecedent-consequence link” during which people undergo a biased attributional search in attempt to create causal explanations for surprising situations. People search for antecedent conditions, such as personality dispositions or situational cues, capable of producing and explaining an observed outcome. And once this link is developed they argue that it continues to be highly accessible even when it’s evidentiary basis is discredited, making perseverance in self and social-perception difficult to escape. Using these highly cognitive explanations, Ross et al. (1975) were able to make good sense of their findings and offer plausible explanations of how belief perseverance influences our everyday lives.

Following the footsteps of Ross et al. (1975), Anderson et al. (1980) took one step further in examining belief perseverance from a social cognitive perspective. They aimed to investigate what Ross et al. (1975) had merely proposed: whether the generation of causal explanations facilitated perseverance effects. In their paradigm, participants examined case studies suggestive of either a positive or negative relationship between risk taking and success as a firefighter. The study allegedly aimed at examining the ability to detect and explain relationships between people’s personality traits and their corresponding behavioral tendencies. Participants were given profiles of either successful or unsuccessful firefighters as well as their score on a risk assessment test. Afterwards, they were asked to provide a one-page written explanation of why the particular relationship between risk and success might exist. Finally, participants were debriefed
regarding the fictitious nature of the profiles—they were told that risk scores were contrived only for the purpose of the explanation task, and that the actual relationship between firefighter success and risk was unknown. Once the debriefing was complete, participants were then told that for “control purposes”, the experimenters were interested in whether their personal theories about the relationship in question influenced the explanations provided or their ability to accurately detect the relationships depicted in the profile. Thus, participants were asked to (1) estimate the average percentage of risky choices made by firefighters of varying success levels, (2) predict success of a “new trainee” based on their diagnostic information and response to one risk assessment item, and (3) estimate the percentage of risky choices successful and unsuccessful firefighters would make on a hypothetical set of new risk assessment questions. Results indicated that despite the thorough debriefing, the discredited information still heavily influenced participants’ perceptions: their responses were highly reflective of the relationship that had been initially presented in the fictitious profiles (positive or negative).

Like Ross et al. (1975), Anderson et al. (1980) also pointed to the development of causal explanations as a key mediator of the perseverance effect. In fact, Experiment 2 of the Anderson et al. (1980) study provided direct evidence for this contention, showing that participants who were asked to provide written explanations for the relationship persevered to a significantly greater extent after debriefing than those who did not provide such explanation. Anderson et al. propose that once a causal explanation is created, especially for a particular situation, that account becomes largely autonomous from the data on which it was founded. Therefore, the authors state, it “may remain available and continue to imply the existence of particular relationships or outcomes even
if the data on which [it was] initially based subsequently prove to be completely devoid of evidential value” (p.1047). Their data nicely support this interpretation, again suggesting that cognitive mechanisms play a vital role underlying the belief perseverance phenomenon.

It is important to note however that in both Experiments 1 and 2 of the Anderson et al. (1980) study participants who did not provide written explanations also persevered in their beliefs following data invalidation. This indicates that while the generation of causal explanations may augment perseverance effects, it is likely that other mechanisms also play a role in the maintenance of discredited beliefs.

*Additional Cognitive Explanations for Belief Perseverance Effects*

Taken together, the Ross et al. (1975) and Anderson et al. (1980) studies provided strong initial support for cognitive explanations of belief perseverance. Several researchers have since replicated these findings, using both the original paradigms (e.g. Anderson, 1982, 1983; Anderson & Sechlar, 1986; Fleming & Arrowood, 1979; Hubbard, 1984) as well as designs of their own (e.g. Carretta & Moreland, 1982; Jennings et al., 1981; Lepper et al., 1986; Wegner et al., 1985), and many have pinpointed biased attributional processing and the generation of causal explanations as key mediators of the effect.

Not all researchers, however, agree with the notion that these processes underlie belief perseverance. Experimental attempts to enhance the effect by prompting participants to engage in causal thinking have not been consistently successful (Anderson, 1983; Carroll, 1978; Fleming & Arrowood, 1979; Jennings et al., 1986),
making it difficult to maintain that perseverance is primarily the product of these processes. Additionally, some researchers have proposed alternative explanations for the perseverance phenomenon (e.g. Anderson & Lindsay, 1998; Carroll, 1978; Nisbett & Ross, 1980; Sherman & Kim, 2000; Smith, 1982; Wegner et al., 1985) that also seem highly plausible.

For example, Smith (1982) applied cognitive schema theory to her explanation of belief perseverance. She argued that people persist in disconfirmed beliefs because they generate explanatory schemata that become independent of the specific situation from which they derived. Because these schemata develop independently, Smith contends that any challenges to their evidentiary basis do not affect their standing. Thus, they remain available for use and interpretation of new data even though they may be inaccurate.

Other researchers have also discussed the role of schema development in belief perseverance (Anderson & Lindsay, 1998; Lieberman & Arndt, 2000). In their discussion of why judicial instructions to ignore pretrial publicity are often unsuccessful, Lieberman and Arndt (2000) point to belief perseverance as a partial explanation. They argue that jurors exposed to pretrial publicity may develop negative schemas about the defendant based on this (often inaccurate) media. Consequently, even when they are specifically ordered to ignore such information, the preexisting schemas may stay intact and inappropriately influence how details encountered during trial are perceived. Theoretically these interpretations are very similar to Anderson’s (1980) discussion of the role of causal explanation. However the approach is slightly different in that perseverance is discussed from a slightly different schematic perspective.
Nisbett and Ross (1980) provide another explanation as to why attributions often persevere beyond invalidation. They argue that belief perseverance occurs because the initial impressions of good or bad performances induce participants to engage in a cognitive search to retrieve and generate additional evidence that may confirm that impression. In other words, participants search for examples of previous experiences or performance that may be reflective of that particular impression. Nisbett and Ross contend that this process leads to the construction of a confirmatory framework that, even after the initial impression is discredited, remains intact and influences subsequent judgments and attributions. Hence, it is not the discredited feedback itself that is responsible for belief perseverance, but rather the set of confirmatory cognitions that are generated which lead to the persistence of erroneous attributions.

Carroll (1978) proposes yet another cognitive explanation for belief perseverance, arguing that simply imagining an event, void of the generation of causal explanations, is sufficient for producing perseverance effects. Because imagining a particular outcome for an event (e.g. outcome of an athletic event, performance on a test) makes that event more available in memory, it may lead people to believe that such an outcome is more likely to occur in the future. With regards to belief perseverance, this theory suggests that simply imagining a specific outcome, even if it is based on invalid data, is sufficient for increasing the subjective likelihood that such outcome may occur. And it is this enhanced cognitively availability that may lead to perseverance effects.

Anderson and Lindsay (1998) also discuss other cognitive mechanisms that potentially underlie belief perseverance. They propose that mechanisms such as illusory correlation, data distortion, and heuristic judgments (e.g. availability heuristic) also
contribute to perseverance effects. They acknowledge that these processes are not mutually exclusive and may have behavioral or motivational components, but nonetheless each may contribute in its own right to the perseverance of invalidated beliefs.

Wegner, Coulton, and Wenzlaff (1985) propose an alternative cognitive explanation of their own for belief perseverance. According to their denial transparency theory, the attributional processing of false information need not be a necessary component of belief perseverance. Rather, it is the notion that instructions to discredit information are a “transparent” addition to the initial impression that leads to the prolonged influence of the invalid data. Wegner et al. ’s theory states that the formation of an initial impression and its subsequent denial are two different processes: first the impression is formed, and second the negation is added as an “addendum” to that belief. And, because it is merely an “addendum”, the denial is a peripheral property of the initial core impression that primarily participates as a cognitive afterthought rather than a prelude. Wegner et al. argue that belief perseverance occurs as a result of people’s inability to reliably retrieve this addendum when they are cued to think about the domain of interest. Thus, the initial impression may be consulted, but its peripheral denial addendum may not, leading to perseverance of inaccurate beliefs. Wegner et al. (1985) provide support for their theory by demonstrating that even when participants are told ahead of time that they’d be receiving false feedback, perseverance effects still emerge when self-perceptions are assessed. The generation of causal explanation argument cannot be used to interpret these results—participants knew before hand that the feedback was fictitious, so no causal attributions had to be constructed. Hence, the findings lent
support to Wegner et al.’s (1985) theory while also casting doubt on the role of causal thinking in belief perseverance.

Taken together each of the interpretations discussed above are well supported by empirical data and are highly plausible explanations for why beliefs often persist in the face of discrediting evidence. These studies provide extensive support for the belief perseverance phenomenon and demonstrate how the effect may manifest in a variety of contexts. The debate regarding which mechanism is primarily responsible for facilitating the effect remains unresolved, but that fact that belief perseverance may greatly influence self and social perceptions is a contention that few will argue.

The Limits of Belief Perseverance

The research discussed thus far clearly demonstrates that people’s beliefs are often so resilient that the data on which they’re based can undergo complete invalidation and yet the beliefs remain unchanged. While these studies portray perseverance as a pervasive phenomenon in self and social perception, it is important to note that researchers have also identified contexts in which belief perseverance may be attenuated (Ross et al., 1975; Anderson, 1982, 1986; Davies, 1982; Massad, Hubbard, & Newton, 1979). The first demonstration of this attenuation was noted by Ross et al. (1975). They found that using a “process-debriefing” manipulation which explicitly informs participants about the processes underlying belief perseverance and the potential costs of maintaining erroneous self and social impressions, virtually eliminated perseverance effects. Such findings have vital implications for research concerned with the ethical conduct of deception research, as they demonstrate an effective debriefing strategy
capable of eliminating unfounded self or social impressions produced by experimental manipulation. Ross et al. conclude that to prevent unwanted belief perseverance “it may not be sufficient enough merely to inform a subject that he has received false feedback; rather, the investigator should explicitly discuss the possibility that erroneous self-perception can survive debriefing” (p.888).

Anderson (1982) identified another effective means of attenuating belief perseverance. Based on the assumption that the generation of causal explanations underlies the perseverance phenomenon, Anderson suggested that asking participants to explicitly consider alternative to a presented outcome would be sufficient for eliminating the effect. To test this hypothesis, Anderson used the firefighter paradigm previously discussed in which participants were asked to study case histories of successful or unsuccessful firefighters and determine the relationship between risk-taking and eventual success at the job. After closely examining the case histories, some participants were asked to provide a written explanation only for the relationship depicted in the data (explanation condition), whereas others were asked to write out plausible explanations for why both a positive or negative relationship may exist (counterexplanation condition). After this manipulation the validity of the case histories was completely discredited by telling participants that the data was contrived and that the true relationship between risk-taking and success was unknown. Participants were told that for control purposes, however, the experimenters were interested in their personal theories regarding the relationship at hand, and several measures assessing these perceptions were obtained. Results indicated that participants in the explanation condition persevered in their impressions to a significantly greater extent than did those in the counterexplanation
condition. Anderson concluded that the success of counterexplanation as a debiasing technique lends support for the contention that perseverance effects are influenced by the relative availability of plausible causal explanations or scenarios.

Davies (1982) investigated how belief perseverance may vary as a function of self-focused attention. Based on research on self-awareness which suggests self-focused individuals’ perceptions of self-relevant information are more accurate (e.g. Carver & Scheier, 1981; Gibbons, Carver, Scheier, & Hormuth, 1979), Davies suggested that when participants become aware of the bogus nature of performance feedback, enhancing their self-focused attention may serve to reduce unwarranted belief perseverance. Using Ross et al.’s (1975) suicide-note discrimination task, Davies found that the perseverance of invalidated self-perceptions was greatly reduced when participants’ self-focused attention was heightened following the invalidation of performance feedback (via a mirror in the experimental room). Davies argued that such attenuation was the result of a reduction in the cognitive biases underlying belief perseverance induced by the enhancement of self-focused attention. He contended that increasing self-focus helped participants realize that their initial impressions were invalid and that a more valid performance standard for comparison was necessary.

The results of these studies clearly demonstrate that there are limits to when belief perseverance may occur. The explanations provided above, as well those provided by others who have demonstrated an attenuation of belief perseverance (Massad et al., 1979), suggest that perseverance effects may be minimized if the cognitive mechanisms which augment the phenomenon are disrupted. Such findings are comforting for ethically
concerned researchers who frequently implement deceptive methodologies into their paradigms.

Despite these limits, as Jelalian and Miller (1984) point out, “perseverance seems to be the rule rather than the exception regarding the fate of a substantial portion of our perceptions of others and ourselves” (p.41). And, the vast majority of research on impression perseverance supports this contention. But is painting a picture of belief perseverance as such an pervasive judgmental phenomenon accurate? Might there be other limiting conditions yet to be discussed in the literature that inhibit attributional persistence? Perhaps approaching the phenomenon from a different perspective will provide a better understanding of potential boundary conditions by which belief perseverance may influence self and social attributions.

Beyond Cognition: Motivational Components to Belief Perseverance?

To this point in the belief perseverance literature the explanations and interpretations regarding potential mechanisms underlying the effect have been solely proposed from a cognitive orientation. While these explanations may approach the perseverance phenomenon from different perspectives, all share a commonality in that they emphasize the role certain cognitive mechanisms play in the development and perseverance of self and social impressions. In fact, if there is interpretive disagreement it does not focus on whether perseverance effects are truly the product of cognitive processes. Rather, such disagreements largely concern which of the proposed cognitive mechanisms plays the most prominent role in producing these effects.
While these cognitive explanations are well supported and make good sense, it is somewhat surprising that to date, few if any researchers have discussed how self-enhancement, self-protection or other motivational processes may influence belief perseverance. The motivation-cognition debate has been pervasive in social psychological literature in recent years, making it surprising that a well-documented phenomenon such as belief perseverance has not yet received attention from a motivational orientation. Thus, to gain a better understanding of belief perseverance and how it influences our daily lives, it may be beneficial to investigate the phenomenon from a motivational perspective.

Another benefit to taking a motivational approach in examining belief perseverance is to more closely investigate an existing paradox between the belief perseverance and self-perception literatures. According to the self-perception literature, people have a general tendency to self-enhance and perceive themselves in an overly favorable light. Research has shown that people consistently evaluate themselves more favorably than their average peer (e.g. Alicke, 1985; Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995; Dunning, Meyerowitz, & Holzberg, 1989), provide overly favorable self-descriptions (e.g. Alicke, Vredenburg, Hiatt, & Govorun, 2001; Epley & Dunning, 2000; Taylor & Brown, 1988), are overly optimistic when it comes to predicting the likelihood of certain life events (e.g. Codol, 1975; Weinstein, 1980), and routinely engage in biased information processing (Markus, 1977; Sedikides & Gregg, 2001), all in attempt to maintain a positive self-image and protect their self-esteem (e.g. Ditto & Lopez, 1992; Kunda, 1990; Trafimow, Armendariz, & Madson, 2004). With an abundance of empirical evidence in support of these contentions, it raises a question
concerning the results of many belief perseverance studies related to self-perception: why, if people are motivated to maintain a positive self-image (and often go out of their way to do so), do individuals who receive negative feedback about their abilities and performance persevere in these beliefs after they have been discredited? If people are motivated to protect their self-esteem, why do they cling to inaccurate and completely discounted negative evaluations?

A potential explanation for the contradictory findings is differences in experimental design. First, there appears to be a general difference in the purported aim of the respective paradigms. In the self-enhancement literature, participants are generally asked to evaluate how they rate on a variety of trait dimensions (e.g. intelligence, sociability, honesty, etc.), most of which are highly central to one’s self-concept. Thus, they focus on personality constructs that people may very well be motivated to protect. On the other hand, paradigms used in belief perseverance research rarely ask participants to make such assessments, more often asking them to take part in novel tasks allegedly used to evaluate some arbitrary ability or physiological measure irrelevant to the self-concept (e.g. suicide note discrimination task to assess physiological responses during decision making). So even if motivation were to influence belief perseverance, it is doubtful that under such paradigms self-enhancement or self-protective tendencies would emerge.

Perhaps a more straightforward explanation for the lack of motivational interpretations in perseverance literature is simply that research in this area has by in-large been designed to examine the influence of certain cognitive mechanisms. A particular aspect of methodological design that highlights this focus is the fact that very
few researchers in this area have implemented actor-observer paradigms in their experimental designs. Actor-observer paradigms are commonly used in self-perception and motivational literature because they allow one to assess differences in the way people perceive themselves and how others perceive them (e.g. Alicke, 1997; Lewinsohn, Mischel, Chaplin, & Barton, 1980; Monson & Snyder, 1977). If such paradigms reveal that people perceive themselves in a more favorable light than others perceive them, then in certain instances it can be argued that such variation is the result of differences in motivation between individuals (i.e. self-enhancement, self-protective, or self-esteem motives held by the actor but not the observer). Certainly, such divergences may partially be the product of differing cognitive processing, but differences in motivation are also likely. Therefore, further research is necessary utilizing the actor-observer paradigm in attempt to investigate the potential influence of motivational mechanisms, in addition to the well-documented cognitive mechanisms, on belief perseverance.

The Present Research

Three studies were designed to examine the belief perseverance phenomenon within an actor-observer paradigm to investigate the potential influence motivational mechanisms may have on the perseverance effect. If such mechanisms do affect belief perseverance (in addition to the influence of cognitive mechanisms), then in certain situations actors and observers should differ in the extent to which they persevere in their beliefs about the actor. For example, following the invalidation of negative feedback regarding a personality trait, actors may experience a significant attenuation or even elimination of perseverance effects due to motivational drives to maintain a positive self-
image. Such invalidation would provide the perfect opportunity to dismiss information that may be an unfavorable reflection of character, and alternatively provide an opportunity for the actor to present him or herself favorably. Thus, perseverance effects are attenuated and estimations of performance and skill are increased. In contrast, observers may not experience such attenuation because it is unlikely they would experience similar motives—they have no reason to protect the actor’s self-image, are in no way threatened by the negative feedback, and thus would probably never consciously consider adjusting their perceptions in a positive direction. As a result, it is likely that they would experience traditional perseverance effects. Study 1 was designed to investigate this issue.

The purpose of Study 2 was twofold: first, Study 2 was designed to replicate Study 1 and provide further support that motivational mechanisms influence belief perseverance. Second, Study 2 was designed to address a limitation that pervades many belief perseverance methodologies, including that used in Study 1, which allows for a potential alternative explanation. It is reasonable to expect that rather than persevering in perceptions based on bogus feedback, it may be that participants simply use that feedback as an anchor on which to base their subsequent estimations. Especially with novel tasks grounded in no prior experience, anchoring and adjustment is certainly plausible and may in fact be a beneficial technique for naïve participants (i.e. observers who have no prior knowledge of the actor’s abilities). Without obtaining a baseline measure for comparison, it is difficult to determine whether traditional belief perseverance is in fact due to perseverant beliefs or to simple anchoring and adjustment. In attempt to account for this interpretation, a baseline measure assessing perceptions of the actor prior to the
experiment was added in Study 2. Doing so allowed us to examine whether post-debriefing measures appear to be more heavily influenced by the initial anchor (baseline) or the discredited feedback.

Lastly, using Studies 1 and 2 as pilots, Study 3 further investigated motivational influences on perseverance by examining a potential mediator between self-enhancement and self-protective motives and belief perseverance. It was previously mentioned that one possible explanation for the contradictory findings in self-enhancement and belief perseverance research lies in the purported aim of the studies implemented in each area. The self-enhancement literature generally assesses participants’ perceptions of highly relevant and important personality traits or abilities (e.g. intelligence, sociability), whereas the belief perseverance literature traditionally uses novel tasks allegedly used to evaluate some arbitrary ability or physiological measure irrelevant to the self-concept (e.g. suicide-note discrimination task). Thus, even if self-protective or self-enhancement motives were to play a role in belief perseverance, it is unlikely that they would emerge in paradigms assessing such unimportant and arbitrary characteristics. Studies 1 and 2 provide an initial examination of how using an important personality trait may influence belief perseverance. Study 3 was designed to directly investigate the mediating role of task/trait importance by experimentally manipulating the alleged purpose of the task. Doing so will allow us to directly examine whether differences arise in the extent to which actors and observers persevere in beliefs based on the purpose of the task.
Study 1

The first study was designed to examine actor-observer differences in belief perseverance when it concerns a highly important personality characteristic (intelligence). Participants either engaged in (actor) or observed (observer) the completion of a word-identification task ostensibly used to assess a (fictitious) facet of the actor’s intelligence, called “mental acuity”. A concept derived by the experimenters, mental acuity was defined as “one of three primary components of overall IQ referring to the ability to quickly identify, discriminate, and categorize information in your perceptual field.” After completing the task participants were given false feedback indicating that the actor had performed very well (positive) or very poorly (negative). However, the experimenter then returned to discredit the feedback. Participants were informed that due to a correcting error, the score they had been given was incorrect and did not reflect their performance or intelligence, and that there was no way to determine their actual score. They were then asked to complete a questionnaire pertaining to the actor’s performance and mental acuity based on how well they believed they (the actor) did, while ignoring the previous feedback. This questionnaire was used to assess the extent to which the original feedback participants had been given influenced their perceptions after it had been discredited.

It was hypothesized that in the positive feedback conditions, actors and observers would not differ in their estimations of actors’ actual performance and mental acuity following the invalidation of the initial feedback—both would demonstrate traditional belief perseverance and maintain their positive perceptions. However, in the negative feedback conditions, it was hypothesized that actors and observers would differ in their attributions—observers will persevere in their initial beliefs and provide significantly
lower estimations of actors’ actual performance and mental acuity, while actors discard such feedback and inflate their perceptions in attempt to maintain a positive self-image. Thus, actors will provide significantly higher ratings of their mental acuity and performance than observers in the negative feedback condition.

Method

Participants

Participants were 103 (36 male, 67 female) undergraduate students whose participation partially fulfilled a requirement for introductory psychology. Participants were randomly assigned to one of four experimental conditions.

Procedure

The experiment was conducted in a small room containing a table with a computer, and chair in front of each computer. Participants completed the experiment individually. Upon arrival they were seated in front of a computer and asked to complete the consent form. Within the consent form the experiment was described as a study investigating mental acuity, defined as “one of three primary components of overall IQ.” Once the consent form was completed, the experimenter went on to give the experimental instructions.

Instructions were given both orally and by computer. They reiterated that the study examined mental acuity, further defined as “the ability to quickly identify, discriminate, and categorize information in your perceptual field”. Participants were also told that previous research has shown that “those who score high on tests of mental acuity
also tend to score high on tests of overall intelligence.” Thus, the impression was created that one’s level of mental acuity is highly reflective of their overall intelligence.

Instructions concerning the experimental task were given next.

The experimental task consisted of a series of 25 words being flashed on screen, one at a time for a fraction of a second (12 ms). After each word was shown, actors were asked to record the word they believe was flashed on screen. At the end of the task, participants were shown a pre-determined composite score indicating the number of correctly identified words out of 25. Shortly following administration of the feedback the experimenter returned to discredit the score, and after doing so asked the participant to complete a brief questionnaire.

Actor-Observer Manipulation

Subjects were randomly assigned to perform the task as either an actor or observer. In the actor conditions, participants actively engaged in and completed the word-identification task, and the questions in the post-task questionnaire pertained to their performance, mental acuity, and ability. In the observer conditions, participants were told that through computer networking, they would observe the task (on the computer) as another participant (the actor) completes it from another room. They were told that they would see the task exactly as the acting participant does, and that at the end of the task they would see the actor’s composite score and be asked to complete a questionnaire regarding their performance.

Feedback Manipulation

Once the 25 experimental trials were completed, participants were given bogus feedback regarding the actor’s performance. They were randomly assigned to receive
positive feedback, indicating the actor had correctly identified the word on 20 of the 25 trials, or negative feedback, indicating they had been correct on 12 of the 25 trials. To reinforce the valence of the feedback, participants in positive conditions were told that the actor’s performance fell at the 93rd percentile, while those in negative conditions were told that the actor’s performance fell at the 36th percentile.

Materials

Words used in the experimental task ranged in length from 4-6 letters, appeared in 24 point Times New Roman font, and were flashed on screen for 12 milliseconds (see Appendix A for list of words used). Each word was preceded by a masking row of 8 asterisks (135 milliseconds) used to focus participants’ attention on the center of the screen. Participants were given five practice trials to familiarize themselves with the procedure before beginning the actual experimental task. Thus, each participant completed a total of 30 trials. On each trial, actors were given as much time as necessary to provide a response, while observers saw “PARTICIPANT RESPONSE” on screen for 3 seconds between trials. The experiment was conducted using MediaLab (Jarvis, 2004) and Direct RT computer software. The post-discredit questionnaire was administered via paper and pencil.

Discrediting of Feedback

Once participants had completed the task, the experimenter returned and informed the participant that they had made an unfortunate mistake. The experimenter carefully explained to participants that there were two versions of the experimental task, each with its own answer key, and that by accident they had paired the participant’s test with the wrong answer key. As a result, their performance was scored incorrectly and the
feedback they had been given was incorrect and in no way reflected their actual performance or intelligence. They were further informed that because their responses were entered into the system anonymously, there was no way to recover their test and determine their actual score. Participants were then asked to complete the post-discredit questionnaire based on their perceptions of how well they think they did, rather than on the feedback they had previously been given. They were told that doing so would at least provide the experimenter with some sort of useful data. Once they completed the post-discredit questionnaire, participants were fully debriefed and dismissed.

*Dependent Measures*

Dependent measures were obtained using a paper and pencil questionnaire following invalidation of the original feedback (Appendix B). This questionnaire consisted partially of questions used by Ross et al. (1977) and partially of questions created by the experimenters. The questions of primary interest assessed participants’ perceptions of actors’ performance and mental acuity. Specifically, participants were asked: (1) How many answers do you believe you (the actor) got correct on the task, (2) On a scale of 0-10 (0 = extremely low, 10 = extremely high) how mentally acute do you believe you (the actor) are, (3) On a scale of 1-5 (1 = very poor, 5 = very good) how skilled do you believe you (the actor) are at the task, and (4) How many answers do you believe you (the actor) would get correct on a second, equally difficult set of 25 trials? These four questions served as the primary dependent measures for Study 1.

Also included in the questionnaire were questions pertaining to participants’ perceptions of how the average student may perform at the task, and how mentally acute the average student may be. Specifically, these questions asked: (1) How many answers
do you believe the average student would have gotten correct, (2) On a scale of 0-10 how mentally acute do you believe the average student is, and (3) On a scale of 1-5 how skilled do you believe the average student is at the task? These questions were included mainly for exploratory purposes.

Results

Six participants were excluded from the analysis because they failed to complete all of the primary dependent measures. Mean scores for the post-discredit questionnaire are presented in Table 1. A 2 (actor-observer) x 2 (positive-negative feedback) analysis of variance (ANOVA) was conducted to examine actors’ and observers’ attributions following the invalidation of the original feedback. The test of the actor-observer manipulation revealed a significant main effect for two of the seven measures. First, actors estimated they actually answered more items out of 25 correctly than did observers, $F(1, 93) = 16.34, \ p<.001$. Actors also estimated they would get more answers correct on a second, equally difficult set of 25 trials than did observers, $F(1, 93) = 14.81, \ p<.001$.

A significant main effect for initial feedback (positive-negative) was also obtained for five of the seven measures. Collapsing across actors and observers, it was found that after the initial feedback had been discredited, participants in positive feedback conditions estimated the actor answered more items correctly, $F(1, 93) = 7.11, \ p<.01$, was more mentally acute, $F(1, 93) = 15.67, \ p<.001$, and was more skilled at the task, $F(1, 93) = 18.01, \ p<.001$, than did participants in negative feedback conditions. It was also found that, in somewhat of a reverse fashion, participants in positive feedback conditions
estimated the average student would correctly identify significantly fewer words, \( F(1, 93) = 6.47, p<.05 \), and that they would be less skilled at the task than did participants in negative feedback conditions, \( F(1, 93) = 3.80, p = .054 \).

Table 1
*Mean Scores for Post-discredit Measures for Actors and Observers, Study 1.*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Positive</th>
<th></th>
<th>Negative</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated number correct</td>
<td>20.76</td>
<td>19.65</td>
<td>20.44</td>
<td>16.92</td>
</tr>
<tr>
<td>Predicted future number correct</td>
<td>22.24</td>
<td>20.07</td>
<td>21.52</td>
<td>19.15</td>
</tr>
<tr>
<td>Ratings of actors’ mental acuity</td>
<td>7.33</td>
<td>7.67</td>
<td>7.11</td>
<td>5.81</td>
</tr>
<tr>
<td>Ratings of actors’ skill</td>
<td>4.05</td>
<td>4.22</td>
<td>3.96</td>
<td>3.39</td>
</tr>
<tr>
<td>Estimated number correct for avg. student</td>
<td>17.35</td>
<td>17.42</td>
<td>18.77</td>
<td>19.54</td>
</tr>
<tr>
<td>Ratings of avg. student mental acuity</td>
<td>6.00</td>
<td>6.48</td>
<td>6.50</td>
<td>6.62</td>
</tr>
<tr>
<td>Ratings of avg. student skill</td>
<td>3.52</td>
<td>3.52</td>
<td>3.65</td>
<td>3.85</td>
</tr>
</tbody>
</table>

*Note.* Estimations for number correct could range from 0 to 25. Ratings of mental acuity were made on an 11-point scale ranging from 0 to 10. Ratings of skill were made on a 5-point scale from 1 to 5.

More important for the purpose of the present study, the above main effects were qualified by the predicted Actor-Observer x Feedback interaction for three of the four primary dependent measures. A significant interaction was obtained for estimations of the actors’ actual performance, \( F(1, 93) = 4.39, p<.05 \) (Figure 1), ratings of actors’ mental acuity \( F(1, 93) = 9.64, p<.01 \) (Figure 2), and ratings of actors’ skill at the task, \( F(1, 93) = 11.64, p<.01 \) (Figure 3). The interaction for each of these variables revealed a similar
pattern. In the positive feedback condition, actors’ and observers’ ratings and estimations for all three measures were essentially the same (all $F$’s < 1). In contrast, in the negative feedback condition actors’ and observers’ attributions significantly differed on all three measures. Actors estimated they answered more items correctly, $F(1, 93) = 19.14$, $p<.001$, that they possessed more mental acuity, $F(1, 93) = 12.42$, $p<.001$, and that they were more skilled at the task, $F(1, 93) = 13.88$, $p<.001$, than did observers.

No significant interactions were obtained for predictions of the average students’ performance, skill, or mental acuity (all $F$’s < 1).

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**Figure 1.** Mean post-discredit estimations of actor performance for actors and observers in positive and negative feedback conditions, Study 1.

**Figure 2.** Mean post-discredit ratings of actors’ mental acuity for actors and observers in positive and negative feedback conditions, Study 1.

**Figure 3.** Mean post-discredit ratings of actors’ skill at the task for actors and observers in positive and negative feedback conditions, Study 1.
Discussion

Study 1 is one of few studies in the belief perseverance literature to utilize an actor-observer paradigm, and the first to demonstrate actor-observer differences in attributions following discredited feedback. It is also the first study to my knowledge designed specifically to assess the influence of motivational mechanisms on belief perseverance. Overall, the obtained results provide excellent initial support for the contention that self-enhancement and self-protective motives may attenuate or eliminate belief perseverance effects in certain contexts.

The obtained data lent support for both of the derived hypotheses. As predicted, there were no differences in actor and observer attributions following the invalidation of positive feedback—both persevered in their highly positive perceptions of the actors’ performance and abilities. However, following the invalidation of negative feedback, there were significant differences in attributions made by actors and observers. As predicted, while observers persevered in their negative perceptions of the actor, actors did not—they significantly increased their estimations and ratings, providing higher estimations of their actual performance, mental acuity, and skill at the task than those given by observers.

These findings support the argument that the motivation to maintain a positive self-image may attenuate or eliminate belief perseverance when the discredited feedback poses a legitimate threat to a trait or ability central to one’s self-concept. When initially given positive feedback regarding their intelligence, actors’ self-concept was not threatened—in fact, it may have even been bolstered. Thus, when that feedback was discredited there was no reason for actors to readjust their self-perceptions (especially in
a downward direction), and consequently they persevered in their initially developed beliefs. However actors that were given negative feedback likely experienced an immediate threat to their self-image—few people like to be told that they are unintelligent. Therefore, when that feedback was subsequently invalidated, it provided actors the opportunity to readjust and inflate their perceptions to maintain a favorable self-image.

Similar results were not obtained for observers in the negative feedback condition because it is unlikely that they experienced the same motivation to protect the actor’s self-image. They never came in contact with the actor, did not have a relationship with the actor prior to the experiment, and thus were unlikely to have a vested interest in protecting their positive self-concept. Therefore, regardless of the affective nature of the initial feedback, observers had no reason to readjust their perceptions of the actor’s performance, and thus persevered in their initially developed beliefs in both conditions.

It is important to note that these interpretations are not intended to claim that only motivational mechanisms are responsible for the obtained results. Assuredly, certain cognitive mechanisms could also be used to explain why actors provided higher performance estimates and intelligence ratings than observers in the negative conditions (e.g. differing cognitive schemas, prior knowledge, bias attributional processing, etc.). They are simply intended to highlight the fact that motivational mechanisms may have an additional influence on belief perseverance, and that this influence has never before been empirically investigated. Certainly, further research is necessary to validate the contention that self-protective strategies may attenuate belief perseverance. But as an
initial investigation using an actor-observer paradigm, the findings from Study 1 are certainly compelling.

There is a potential alternative to the present interpretation, however, that may also be used to explain the results of Study 1. Rather than arguing that self-protective processes led to differential perseverance by actors and observers in the negative feedback condition, the results of Study 1 may simply reflect better-than-average tendencies on the part of the actor. Without having baseline measures for comparison, it is reasonable to argue that following the invalidation of the initial feedback, observers, who had no prior knowledge of the actor’s intelligence or abilities, simply used that feedback as a guide for their subsequent evaluations of the actor. Actors, on the other hand, could have based their attributions on previously held self-perceptions which, based on better-than-average and self-enhancement literature, could have been overly positive. Such explanation could account for the differential attributions made by actors and observers in the negative feedback condition.

The feasibility of this explanation is somewhat undermined, however, by the fact that actors in the negative feedback condition provided slightly lower estimations and ratings than did those in the positive feedback condition. Thus, the discredited feedback did at least somewhat influence their attributions. Also, considering that observers’ post-discredit evaluations were heavily swayed in the direction of the initial feedback, their perceptions clearly continued to be influenced by that feedback after it had been invalidated. So even if actor’s estimations were driven by previously held self-views rather than belief perseverance, observers’ estimations were still the product if persevering beliefs. Hence, in this situation it would still hold that the obtained actor-
observer differences resulted from differential perseverance on the part of these participants.

Regardless of the way this argument is addressed, the most rationale solution is to obtain a pre-experimental baseline measure of actor and observer perceptions to use as a comparison reference for post-discredit attributions. Doing so will allow us to directly examine whether these attributions more closely resemble pre-experimental perceptions, or perceptions that developed as a consequence of the discredited feedback. Study 2 was designed to address this limitation.

Study 2

The primary purposes of Study 2 were twofold: first, it aimed to replicate the findings obtained in Study 1. Study 1 provided strong initial evidence that the motivation to maintain a positive self-image may attenuate or eliminate perseverance effects when discredited feedback threatens a highly important personality characteristic. Study 2 aimed to strengthen this argument by attempting to replicate these findings.

Second, Study 2 was also designed to address a potential alternative explanation for the results of Study 1. With the methodologies employed in Study 1, as well as in the vast majority of belief perseverance research, it is difficult to differentiate whether the phenomenon is due to the perseverance of discredited beliefs, or if it is simply the product of divergent pre-existing perceptions of the actor. Study 2 aimed to address this limitation by obtaining a baseline measure of participants’ perceptions prior to the experimental task, a measure that previous perseverance methodologies have neglected to obtain. If the demonstrated effects are due to differences in pre-existing perceptions, then
the actor-observer differences observed in the negative feedback condition of Study 1 should also be demonstrated prior to the task. If, however, differences in post-discredit evaluations are the product of differential perseverance and are unrelated to pre-existing perceptions, the observed pattern of differences should not be present prior to the experimental task. Thus, a baseline measure was added in Study 2 for the purpose of examining this issue.

Lastly, the experimental task used in Study 2 was altered to be slightly more difficult than it was in Study 1. It is possible that actors’ inflated ratings in the negative feedback condition were due to perceptions that the task was too easy to have performed as poorly as the initial feedback suggested, rather than being due to self-enhancement effects. Thus, when given the chance to dismiss that feedback, actors simply adjusted their estimations to reflect how they really think they did on the task, void of any self-enhancement motives. Observers may not have adjusted their estimations in a similar manner because without actually completing the task, it may have been difficult for them to make an accurate assessment of task difficulty. Thus, the results of Study 1 may have been due to differing perceptions of task difficulty rather than to self-enhancement effects. In attempt to minimize this possibility minor changes were made to the experimental design to make the task slightly more difficult.

The hypotheses for Study 2 mirrored those derived for Study 1. In positive feedback conditions, it was hypothesized that actors and observers would not differ in their estimations and ratings of actors’ performance and mental acuity following invalidation of the initial feedback. However, in negative feedback conditions, it was
hypothesized that actors’ estimations and ratings would be significantly higher than those provided by observers.

Additionally, it was also hypothesized that differences in the favorability of participants’ post-discredit evaluations of the actor would result from beliefs persevering on the invalidated feedback, not from participants’ return to different pre-existing perceptions. Thus, it was hypothesized that there would be no differences in estimations on the pre-task (baseline) measure across conditions, but on post-discredit measures, participants in positive feedback conditions would provide significantly higher evaluations than participants in negative feedback conditions (a pattern reflective of traditional belief perseverance). If differences are observed on the post-discredit measures that were not apparent on the pre-task (baseline) measures, this would indicate that the discredited feedback significantly influenced participant perceptions.

Method

Participants

Participants were 122 (47 male, 75 female) undergraduate students whose participation partially fulfilled a requirement for introductory psychology. Participants were randomly assigned to one of four experimental conditions.

Procedure

The procedure for Study 2 exactly replicated the procedure implemented in Study 1, with a few exceptions. First, a pre-task questionnaire not used in Study 1 was administered just prior to the experimental task. After explaining the concept of mental
acuity and providing instructions for the word-identification task, this questionnaire assessed participants’ predictions for the actor’s performance, as well as ratings of the actor’s mental acuity and estimations of the percentile rank of the actor’s mental acuity. Exploratory questions regarding perceptions of the average student were included as well. This questionnaire is intended to serve as a baseline measure for participants’ perceptions of the actors’ mental acuity and performance.

Second, the post-discredit questionnaire administered in Study 1 was also administered following the experimental task but prior to invalidation of the original feedback (post-task). This questionnaire was intended to serve as a manipulation check to ensure that the bogus feedback did indeed influence participants’ attributions. It was also intended to serve as a reference to determine whether participants’ post-discredit attributions were more highly reflective of their initial baseline perceptions or the attributions they developed based on the discredited feedback.

Additionally, the following changes were made to the experimental design to slightly increase task difficulty: (1) the font size for each word was reduced from 24 to 22 point; (2) the amount of time each word appeared on screen was reduced from 12ms to 11ms; and (3) in addition to the row of asterisks flashed prior to each word, the same 135ms mask was added following each word. In making these changes, the possibility that task difficulty would be responsible for any type of enhancement effects was minimized. Aside from these changes, the remainder of the experimental procedure exactly replicated that used in Study 1.
Dependent Measures

The pre-task (baseline) questionnaire consisted of six questions, three of which were primary measures pertaining to perceptions of the actor, and three of which were exploratory questions pertaining to perceptions of the average student (Appendix C). These questions asked participants to make estimations regarding the actor’s and average students’ performance at the task, level of mental acuity, and percentile rank for mental acuity.

The post-discredit questionnaire administered in Study 2 consisted of the same items administered on the post-discredit questionnaire in Study 1, with one exception: rather than asking participants to rate the actor’s skill at the task, they were asked to estimate the percentile rank of actor’s mental acuity instead (see Appendix D). Again the primary dependent measures were the four questions pertaining to the actor’s performance, mental acuity, and abilities, while questions pertaining to the average student were included for exploratory purposes. This questionnaire was also used as the post-task questionnaire and administered following the experimental task, prior to feedback invalidation. The questionnaire was administered at the post-task phase via MediaLab computer software (Jarvis, 2004) and by paper and pencil during the post-discredit phase.

Results

Nine participants were excluded from the analysis because they failed to complete all of the primary dependent measures. Mean scores for the pre-task questionnaire can be found in Table 2. A 2 (actor-observer) x 2 (positive-negative feedback) analysis of
variance (ANOVA) revealed no differences across conditions for any of the dependent measures (all F’s < 1). Thus, as predicted, there were no differences in participants’ evaluations of the actors’ or average student’s mental acuity or ability prior to the start of the experimental task.

Table 2

Mean Scores for Pre-Task Measures for Actors and Observers, Study 2.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Positive</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated number correct</td>
<td>Actors</td>
<td>Observers</td>
<td>Negative Actors</td>
<td>Observers</td>
<td></td>
</tr>
<tr>
<td></td>
<td>17.00</td>
<td>17.89</td>
<td>17.50</td>
<td>17.39</td>
<td></td>
</tr>
<tr>
<td>Ratings of actors’ mental acuity</td>
<td>6.39</td>
<td>6.07</td>
<td>6.50</td>
<td>6.04</td>
<td></td>
</tr>
<tr>
<td>Estimated number correct for avg. student</td>
<td>15.68</td>
<td>17.57</td>
<td>16.19</td>
<td>16.36</td>
<td></td>
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<tr>
<td>Ratings of avg. student mental acuity</td>
<td>5.52</td>
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<td>5.46</td>
<td>5.46</td>
<td></td>
</tr>
<tr>
<td>Estimated percentile of actor’s mental acuity</td>
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<td>69.32</td>
<td>73.04</td>
<td>65.32</td>
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</tr>
<tr>
<td>Estimated percentile of avg. student’s mental acuity</td>
<td>59.87</td>
<td>61.68</td>
<td>61.19</td>
<td>61.54</td>
<td></td>
</tr>
</tbody>
</table>

*Note:* Estimations for number correct could range from 0 to 25. Ratings of mental acuity were made on an 11-point scale ranging from 0 to 10. Estimations of percentile rank could range from 0 to 100.

Mean scores for the post-task questionnaire can be found in Table 3. A 2 (actor-observer) x 2 (positive-negative feedback) analysis of variance (ANOVA) was conducted as a manipulation check to determine whether the fictitious feedback influenced participants’ self and social perceptions. As predicted, the analysis revealed a main effect of feedback for every dependent measure. Participants in the positive condition rated the
actor as more mentally acute, $F(1, 109) = 154.33, p < .001$, estimated they would perform better on future trials, $F(1, 109) = 269.13, p < .001$, estimated the average student would get more items correct, $F(1, 109) = 18.55, p < .001$, rated the average student as more mentally acute, $F(1, 109) = 11.18, p < .001$, and estimated the average student’s mental acuity to lie at a higher percentile, $F(1, 109) = 87.80, p < .001$, than did participants in the negative feedback condition. Thus, the initial feedback clearly influenced the favorability of participants’ attributions in the direction of the performance feedback.

Table 3
Mean Scores for Post-Task Measures for Actors and Observers, Study 2.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Positive</th>
<th></th>
<th>Negative</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actors</td>
<td>Observers</td>
<td>Actors</td>
<td>Observers</td>
</tr>
<tr>
<td>Ratings of actors’ mental acuity</td>
<td>7.55</td>
<td>8.46</td>
<td>4.69</td>
<td>4.21</td>
</tr>
<tr>
<td>Predicted future number correct</td>
<td>20.68</td>
<td>21.71</td>
<td>15.96</td>
<td>14.25</td>
</tr>
<tr>
<td>Estimated number correct for avg. student</td>
<td>16.26</td>
<td>18.50</td>
<td>13.62</td>
<td>14.04</td>
</tr>
<tr>
<td>Ratings of avg. student mental acuity</td>
<td>5.74</td>
<td>6.32</td>
<td>5.39</td>
<td>5.18</td>
</tr>
<tr>
<td>Estimated percentile of avg. student’s mental acuity</td>
<td>65.36</td>
<td>70.93</td>
<td>37.89</td>
<td>45.64</td>
</tr>
</tbody>
</table>

Note. Estimations for number correct could range from 0 to 25. Ratings of mental acuity were made on an 11-point scale ranging from 0 to 10. Estimations of percentile rank could range from 0 to 100. Estimated number correct and estimations of percentile rank for actor not included; participants specifically given these values with feedback.

Mean scores for the post-discredit questionnaires can be found in Table 4. A 2 (actor-observer) x 2 (positive-negative feedback) analysis of variance (ANOVA) was conducted to assess the extent to which participant perceptions may have been influenced
following invalidation of the original feedback. The test of the actor-observer manipulation found a significant main effect for only one of the dependent measures.

Actors estimated they would correctly identify significantly more words on future trials than did observers, $F(1, 109) = 5.05, p < .05$.

As expected, the test for the feedback manipulation (positive-negative) revealed a significant main effect for every dependent variable pertaining to actors’ performance and abilities. Collapsing across actors and observers, participants initially given positive

Table 4

*Mean Scores for Post-discredit Measures for Actors and Observers, Study 2.*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Positive</th>
<th></th>
<th>Negative</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Actors</td>
<td>Observers</td>
<td>Actors</td>
<td>Observers</td>
</tr>
<tr>
<td>Estimated number correct</td>
<td>19.16</td>
<td>19.68</td>
<td>15.00</td>
<td>13.04</td>
</tr>
<tr>
<td>Ratings of actors’ mental acuity</td>
<td>7.10</td>
<td>7.86</td>
<td>6.15</td>
<td>5.00</td>
</tr>
<tr>
<td>Predicted future number correct</td>
<td>20.03</td>
<td>20.89</td>
<td>18.00</td>
<td>14.93</td>
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<tr>
<td>Estimated number correct for avg. student</td>
<td>15.94</td>
<td>16.83</td>
<td>14.62</td>
<td>14.25</td>
</tr>
<tr>
<td>Ratings of avg. student mental acuity</td>
<td>5.71</td>
<td>6.46</td>
<td>5.46</td>
<td>6.11</td>
</tr>
<tr>
<td>Estimated percentile of actor’s mental acuity</td>
<td>82.42</td>
<td>87.07</td>
<td>55.75</td>
<td>42.96</td>
</tr>
<tr>
<td>Estimated percentile of avg. student’s mental acuity</td>
<td>66.58</td>
<td>73.57</td>
<td>52.19</td>
<td>50.57</td>
</tr>
</tbody>
</table>

*Note.* Estimations for number correct could range from 0 to 25. Ratings of mental acuity were made on an 11-point scale ranging from 0 to 10. Estimations of percentile rank could range from 0 to 100.
feedback estimated that the actor got more items correct, $F(1, 109) = 125.114, p<.001$,
provided higher ratings of actors’ mental acuity, $F(1, 109) = 63.81, p<.001$, predicted
actors’ would perform better on future trials, $F(1, 109) = 66.08, p<.001$, and estimated
actors’ level of mental acuity to lie at a higher percentile, $F(1, 109) = 154.05, p<.001$,
than did participant initially given negative feedback. These results replicate those
obtained in Study 1, again providing a strong demonstration of traditional belief
perseverance as found in previous research.

A main effect of feedback was also obtained for every measure pertaining to the
average student. Participants in positive feedback conditions estimated the average
student would correctly identify more words, $F(1, 108) = 12.66, p<.01$, rated the average
student as more mentally acute, $F(1, 109) = 14.64, p<.001$, and estimated their mental
acuity to lie at a higher percentile rank, $F(1, 109) = 53.57, p<.001$, than did participants in
negative feedback conditions.

Most important for the present study, the above main effects were qualified by the
predicted Actor-Observer x Feedback interaction for all four dependent measures
pertaining to the actor: estimations of actors’ actual performance, $F(1, 109) = 6.60, p<.05$,
ratings of actors’ mental acuity, $F(1, 109) = 16.19, p<.001$, estimations of actors’
percentile rank for mental acuity, $F(1, 109) = 9.35, p<.01$, and predictions of future
performance, $F(1, 109) = 15.98, p<.001$. For each of these measures, the obtained
interaction revealed a similar pattern. In the positive feedback condition, actors and
observers provided virtually identical estimations of actors’ actual performance, future
performance, and their percentile rank for mental acuity (all $F$’s $< 1$). The one exception
to this pattern was for ratings of actors’ mental acuity, where observers provided
significantly higher ratings than did actors, $F(1, 109) = 5.34, p<.05$. In contrast, actors and observers attributions following the invalidation of negative feedback significantly differed for each measure. Actors estimated they answered more items correctly, $F(1, 109) = 7.93, p<.01$ (Figure 4), provided higher ratings of mental acuity, $F(1, 109) = 11.28, p<.001$ (Figure 5), provided higher estimations of their percentile rank, $F(1, 109) = 9.63, p<.01$ (Figure 6), and predicted they would perform better on future trials, $F(1, 109) = 18.68, p<.001$ (Figure 7), than did observers. Thus, the obtained results nicely replicate those obtained in Study 1, despite the increase in task difficulty.

A somewhat different actor-observer x feedback interaction was obtained for post-discredit ratings of the average student’s mental acuity, $F(1, 109) = 5.88, p<.05$. In the negative feedback condition actors’ and observers’ attributions are essentially the same ($F<1$). However following the invalidation of positive feedback, actors provided significantly lower ratings than did observers, $F(1, 109) = 9.49, p<.01$.

**Differential Perseverance or Differences in Pre-Existing Perceptions?**

To address the question of whether the differences between actors and observers in the negative feedback condition were due to differential perseverance or to differences in pre-existing views of the actor, pre-task ratings were included as a covariate in the analysis of post-discredit evaluations. The fact that these participants did not differ in their evaluations prior to the task, but did so drastically after the performance feedback had been administered and discredited, suggests that differential perseverance is responsible for the observed effects. The results of the covariance analysis confirmed this assumption: when controlling for pre-task evaluations, the same Actor-Observer x Feedback interactions were obtained for estimates of how many items the actor answered
Figure 4. Mean post-discredit estimations of actor performance for actors and observers in positive and negative feedback conditions, Study 2.

Figure 5. Mean post-discredit ratings of actors’ mental acuity for actors and observers in positive and negative feedback conditions, Study 2.

Figure 6. Mean post-discredit estimations of percentile rank of actors’ mental acuity for actors and observers in positive and negative feedback conditions, Study 2.

Figure 7. Mean post-discredit estimations of actors’ future performance for actors and observers in positive and negative feedback conditions, Study 2.

correctly, $F(1, 108) = 6.30, p < .014$, ratings of the actor’s mental acuity $F(1, 108) = 21.24, p < .001$, and on estimates of the actor’s percentile standing, $F(1, 108) = 7.02, p < .009$. Just as when pre-task ratings were not controlled for, there were no actor-observer differences following the receipt of positive, discredited feedback on any of the response dimensions.
However, actors again provided higher estimations of performance, mental acuity, and percentile than did observers after negative feedback was discredited, when pre-task ratings were included as a covariate.

Discussion

The results of Study 2 nicely replicate those obtained in Study 1 despite the increase in task difficulty, providing even stronger support for the contention that motivational mechanisms influence belief perseverance. Increasing task difficulty limits the actors’ ability to inflate their performance evaluations because when a task is extremely difficult, they can only make performance estimations so high before appearing completely unrealistic. Thus, using extremely difficult tasks in belief perseverance paradigms may reduce the chances of obtaining self-enhancement effects. Nevertheless, the predicted results were still obtained despite the increase in difficulty, providing even stronger evidence that self-enhancement motives influence belief perseverance.

The obtained results also provide support for each of the derived hypotheses. As predicted, following the invalidation of positive feedback actors and observers did not differ in their estimations and ratings of actors’ performance and mental acuity—both maintained their positive perceptions of the actor. However, following the invalidation of negative feedback, these estimations did differ—actors provided higher estimations of their actual performance, predicted they would perform better on a second set of trials, and rated their mentally acuity and percentile rank significantly higher than did observers. Hence, in the positive feedback condition actors and observers persevered in
their beliefs to an equal extent, while in the negative feedback condition observers persevered in their beliefs to a much greater extent than did actors.

The present findings lend additional support the contention that self-enhancement and self-protective motives may influence belief perseverance, especially when the invalidated feedback threatens an important aspect of an individual’s self-concept. Actors’ self-concept was immediately threatened when they received feedback suggesting they were unintelligent. Therefore, when that feedback was invalidated as inaccurate, they subsequently readjusted their performance estimations and ratings of mental acuity in a positive direction, likely due in part to self-protective motives. Observers, on the other hand, never experienced this threat. The feedback did not pertain to them, and therefore had no implication for their self-image. Thus, when the negative feedback was discredited, there was no reason to suspect they’d change their perceptions—and they didn’t. These results nicely support the argument that motivational mechanisms play a role in belief perseverance.

Furthermore, Study 2 also provides evidence that the observed actor-observer differences in the negative feedback condition of both Study 1 and the present study is due to differential perseverance on the part of these participants, and not to differences in their pre-existing views of the actor. Pre-task measures indicated that prior to the experimental task, estimations of the actor’s mental acuity and performance did not differ across any of the conditions. However, once performance feedback had been administered and discredited, differences in evaluations suddenly emerged: while actors and observers in the positive feedback condition did not differ in their performance evaluations, in the negative feedback condition observers provided significantly less...
favorable evaluations than did actors. So clearly, it is not the case that the observed differences were due to differences in pre-existing views of the actor. Rather, the feedback presented between the pre-task and post-discredit periods clearly influenced participants’ perceptions to differential extents. The fact that the same pattern of results emerges when pre-task evaluations were controlled for further supports this argument.

Implications: Belief Perseverance, Self-Enhancement, and Limitations of Previous Designs

Given the consistency of the results obtained in Studies 1 and 2, it naturally follows to wonder why previous perseverance studies utilizing actor-observer paradigms did not report differences between actors and observers in the extent to which they persevered in the face of negative feedback (e.g. Ross et al., 1975; Wegner et al., 1985). Especially considering that self-perception research suggests people often go to great lengths to portray themselves in an overly favorable light (Taylor & Brown, 1988), it is curious that actors in these studies persevered in negative beliefs about their abilities to the same extent that observers did. What might account for this inconsistency?

One potential explanation that was discussed but not directly investigated in Studies 1 and 2 concerns the nature of the tasks used in these lines of research. In self-perception research, participants are generally asked to evaluate the extent to which a variety of personality traits central to their self-concept characterize them. For example, Alicke (1985) asked participants to rate the extent to which a variety of trait adjectives, varying from highly desirable, to moderately desirable, to highly undesirable, characterized themselves or the average college student. As predicted, results indicated that participants perceived the desirable traits to be significantly more characteristic of
themselves than the average college student, and the undesirable traits to be significantly less characteristic of themselves than the average student. Coined the “better-than-average effect”, similar findings have been obtained in a number of other studies (e.g. Alicke et al., 2001; Epley & Dunning, 2000; Trafimow et al., 2004; Svenson, 1981), making this effect one of the most robust findings in all of social psychology (Taylor & Brown, 1988).

Along similar lines, Weinstein (1980) found evidence for an optimistic bias in self-perception, again demonstrating people’s tendency to hold overly favorable self-perceptions. He found that participants perceive themselves as having a higher than baseline chance of experiencing positive life events and having positive personality traits, but a lower than baseline chance of experiencing negative life events or having negative traits. Codol (1975) obtained similar results, finding that individuals believe they are more likely to uphold positive moral values than others. These findings again exemplify people’s tendency to self-enhance, especially when evaluating characteristics central to the self-concept (e.g. moral values, personality traits).

On the other hand, paradigms used in studies on belief perseverance rarely use tasks allegedly aimed at assessing important personality traits, but rather often ask participants to take part in novel tasks purported to evaluate some arbitrary ability or physiological measure irrelevant to the self-concept. So even if motivation were to play a part in belief perseverance, the paradigms utilized may not be sensitive enough to capture its influence. For example, the commonly used paradigm first utilized by Ross et al. (1975) asks participants to differentiate between authentic and inauthentic suicide notes, allegedly to examine certain physiological responses during decision-making. After being
given feedback that is subsequently discredited, participants are then asked to estimate their performance and ability at that task. The ability to accurately differentiate between real and fictitious suicide notes is doubtfully one that many find central to their self-concept, and the task is unlikely to have been encountered before. Consequently, receiving negative feedback regarding one’s performance in this context is probably insignificant. Therefore, when asked to estimate actual task performance, it is unlikely that participants’ estimations will deviate far from the initial feedback given, considering they have no prior-experience for comparison and little reason to inflate their estimations. In a sense, this paradigm is optimal for demonstrating perseverance effects in the face of both positive and negative feedback. Had a task been used that allegedly assessed an ability or trait central to one’s self-concept (e.g. intelligence), it is possible that different results may have been obtained.

For those belief perseverance paradigms that do purportedly assess important aspects of one’s self-image, the dependent measures intended to assess these traits are often indirect and task specific. For example, Jennings et al. (1981) developed a paradigm to assess persistence of personal persuasiveness. Participants’ task was to persuade other students to donate blood. They first completed a practice trial in which they either “succeeded” or “failed”. This feedback was subsequently discredited by informing participants that their target in the practice trial was actually a confederate randomly assigned to agree or disagree with their request. Despite the debriefing, participants who had “succeeded” in the practice trial estimated they would persuade more students to donate blood during future trials than did those who had “failed” the practice trial. Jennings et al. (1981) interpreted these findings as suggesting that participants initially
given positive feedback perceived themselves as more persuasive than those given negative feedback. However, such interpretation may be inaccurate, as participants were never directly asked how persuasive they perceive themselves to be—they were only asked to estimate performance at that specific task. Without directly assessing perceptions of persuasive ability, it is difficult to differentiate whether it was subjects’ perceptions of their persuasiveness or simply their ability at that task that were affected. Were perceptions of persuasiveness directly addressed, self-image maintenance motives may have produced different results.

The one other perseverance study to my knowledge that did purportedly assess a trait central to the self-concept was conducted by Lepper et al. (1986). Participants’ performance at a logical reasoning task was experimentally manipulated by providing either highly effective or thoroughly useless instructions, which respectively led to either success or failure. This feedback was subsequently invalidated by making participants aware that it was the quality of the instructions, not their ability, which led to their performance. Nonetheless, following debriefing students’ perceptions of their logical reasoning abilities continued to be heavily influenced by the initial feedback—those given positive feedback perceived their logical reasoning to be significantly better than those given negative feedback. To the extent that it can be argued that logical reasoning abilities are central to one’s self-concept, these results suggest that belief perseverance may occur even when doing so reflects poorly on one’s self-image. However, it could also be argued that while important, logical reasoning skills are not necessarily central to one’s self-concept. Especially with the sample used (high school freshman), the concept of logical reasoning may not have been addressed enough in their educational experience
to create the perception that such abilities are important. Therefore threatening that ability may be unlikely to initiate self-protective motives.

Furthermore, neither the Jennings et al. (1981) nor the Lepper et al. (1986) studies described above utilized an actor-observer manipulation in their paradigms. Without having observer evaluations to use as a reference of comparison, it is difficult to assess whether self-protective or self-enhancement motives may have influenced attributions in these studies. For example, perhaps although actors in the negative feedback conditions provided less favorable self-evaluations than those in positive feedback conditions, they may have still provided more favorable evaluations than observers might have. However, observers were not included in these studies, so no such comparisons can be made. Thus, further research is necessary to more fully understand how using ego-involving traits may influence belief perseverance. Study 3 proposes to investigate this issue.

Study 3

The primary purpose of Study 3 was to directly investigate the potential mediating role of task importance on belief perseverance by manipulating the purported purpose of a task within a belief perseverance paradigm. Replicating the suicide-note discrimination task used in previous belief perseverance designs (e.g. Ross et al., 1975; Fleming et al., 1979; Hubbard, 1984; Wegner et al., 1985), the study was purported to assess either a trait highly central to the self-concept (intelligence), or something non-central to the self-concept (physiological measures during decision making). Thus, all participants completed or observed the completion of the same task but did so under the guise of different cover stories.
By manipulating task importance it was hoped to create an experimental context in which task performance had important implications for the self-concept of some participants (high importance condition), but did not for others (low importance condition). By manipulating how relevant the task was to participants’ self-concept, the extent to which negative performance feedback threatens their self-image was also manipulated. Thus theoretically, self-protective and self-enhancement motives should be activated for some participants but not for others, allowing for the direct examination of how these motivations influence belief perseverance. Based on the results of Studies 1 and 2, and following self-perception literature that suggests people are motivated to maintain a positive self-image, differences should exist in the extent to which actors in high importance and low importance conditions persevere in their beliefs following the invalidation of negative feedback.

Participants either completed (actor) or watched the completion (observer) of a suicide-note discrimination task in which they were asked to discern authentic from inauthentic suicide notes. For some participants the task was purported to assess something highly central to the self-concept (intelligence), while for others it was alleged to examine something non-central to the self-concept (physiological measures). Following the completion of the task participants received pre-determined feedback regarding their performance. They were then asked to respond to several questions pertaining to the actor’s performance, ostensibly ending the experiment. At this time the experimenter returned to discredit the feedback. Participants were told that due to a correcting error, the score they had been given was incorrect and did not reflect their (the actor’s) actual performance, and that unfortunately, there was no way to determine their
actual score. Participants were then asked to re-complete the questionnaire based on how well they believed they (the actor) did, while ignoring the previous feedback. This questionnaire was used to assess the extent to which the original feedback participants were given influenced their perceptions after it had been discredited.

For the purpose of the present study, only perceptions following the invalidation of negative performance feedback were examined. Previous research, as well as Studies 1 and 2, has clearly demonstrated that actors and observers persevere to equal extents following the invalidation of positive feedback. Additionally, it is doubtful that the motivational mechanisms proposed to attenuate belief perseverance would have been activated following the invalidation of positive feedback. Self-protective and self-enhancement behaviors should only be triggered when an individual’s self-concept is threatened. And because such threat is not likely to occur following the presentation of positive feedback, the present analysis only focused on potential differences in actor and observer perceptions following the invalidation of negative feedback.

Hypotheses and Expected Results

The hypotheses for Study 3 were as follows:

H1: When the experimental task is proposed to assess a personality characteristic central to the self-concept (intelligence), following the invalidation of negative feedback observers will persevere in their beliefs to a greater extent than actors. Thus, actors will provide significantly higher estimations of actual performance, future performance, ratings of mental acuity, ratings of skill, and estimations of percentile rank than will observers.
H2: When the experimental task is proposed to assess something irrelevant to the self-concept (physiological measures during decision making), actors and observers will persevere in their beliefs following the invalidation of negative feedback to an equal extent. Thus, there will be no differences in estimations of actual performance, future performance, ratings of skill, or estimations of percentile rank between actors and observers.

H3: Actors in the “high importance” condition will estimate they got more answers correct, that they will perform better on a second set of 25 equally difficult trials, will rate themselves as more skilled at the task, and will estimate their performance fell at a higher percentile than will actors in the “low importance” condition following the invalidation of negative feedback. Thus, actors in the low importance condition will persevere to a greater extent than actors in the high importance condition.

Method

Participants

A total of 100 students (30 male, 70 female) enrolled in introductory psychology courses at Ohio University participated in the study. Each participant received credit toward fulfilling the course requirement for experimental participation. They were randomly assigned to one of four conditions.

Procedure

The procedure was designed to replicate in most respects the methods used by Ross et al.. (1975, Experiment 2). The experiment took place in a small room containing
a table, chair, and computer on the tabletop. A set of dummy electrodes attached to long wires were placed on the table and exited through a passage to an adjoining room, where ostensibly they were connected to another computer. Upon arrival participants were seated in front of the computer, and after completing the consent form, began the experimental task.

Task-Importance Manipulation

High-Importance Conditions. Participants were given a similar cover story to that employed in Studies 1 and 2. They were informed that the study assessed their level of mental acuity, defined as “one of three primary components of overall IQ referring to the ability to exhibit social sensitivity, sociability, and attention to detail.” Furthermore, participants were told that research has shown that “those who score high on tests of mental acuity also tend to score high on tests of overall intelligence, be more successful in occupations requiring social interaction, and better able to maintain social relationships.” Thus, the experimental instructions portrayed mental acuity as a highly important aspect of intelligence, consequently making it central to participants’ self-concept. Any negative feedback regarding their performance should have therefore been threatening to participants’ motivation to maintain a positive self-image.

Lastly, it was explained that electrodes intended to obtain basic physiological measures will be attached as standard procedure, and that these measures are unrelated to the primary purpose of the experiment. Electrodes were connected to participants’ left hand, and instructions for the experimental task were then given.

Low-Importance Conditions. This condition exactly replicated the procedures and cover story used by Ross et al. (1975). Participants were told that the experiment was a
study of physiological responses during decision making. They were informed that the electrodes being used measured galvanic skin response (GSR) during the experimental task. GSR was defined as “a measure of skin resistance reflecting the electrical conductance of the skin, which changes when sweating occurs.” By portraying the task as an assessment of physiological measures rather than a trait or ability, participants in no way should have perceived the task as central to their self-concept. Thus, it is doubtful that poor performance feedback threatened their self-image. The electrodes were connected to participants’ left hand, and instructions for the experimental task were then given.

Experimental Task

Participants were presented 25 pair of genuine and fictitious suicide notes via MediaLab software (Jarvis, 2004). Each pair consisted of one authentic and one inauthentic note (Appendix E). Participants’ task was to examine the slides one at a time and determine for each pair of notes, which was the authentic suicide note. After each answer they were informed whether their selection was correct or incorrect, and at the conclusion of the 25 trials they were given a composite score indicating their total number of correct responses out of 25. Following the task a short questionnaire was administered (post-task questionnaire) via MediaLab.

Actor-Observer Manipulation

Subjects were randomly assigned to perform the task as either an actor or observer. In the actor conditions, participants actively engaged in and completed the suicide-note discrimination task. The questions in the questionnaire therefore pertained to their performance and abilities. In the observer conditions, participants were told that
through computer networking, they would observe the task as another participant (the actor) completed it from another room. They were informed that they would see the task exactly as the acting participant does, see the answers the actor provides (and whether they are correct or incorrect), and be shown the actor’s overall composite score at the end of the task. The questions presented in the questionnaire therefore pertained to the actor’s performance and abilities.

**Feedback**

All participants received negative performance feedback indicating that they (the actor) correctly identified the authentic suicide note on only 12 of the 25 trials. To reinforce the negative valence of this feedback, participants were informed that this performance fell at the 36th percentile of the general population.

**Materials**

The suicide notes were taken from Schneidman and Farberow (1957) and were presented to participants using MediaLab computer software (Jarvis, 2004). Each pair of suicide notes was presented simultaneously in 12 point Times New Roman font. On each trial, actors were given as much time as necessary to select the note they believed was authentic, and once they had, a pre-determined “CORRECT” or “INCORRECT” response was presented for 3 seconds. Observers were presented each pair of notes for 60 seconds, saw the actor’s answer on each trial (pre-determined), and also saw the “CORRECT” or “INCORRECT” (pre-determined) response for 3 seconds.

Also, a set of dummy electrodes was used for each participant to create the impression that physiological measures were being obtained during the experimental task.
Discrediting of Feedback

The discrediting procedure exactly replicated the procedure used in Studies 1 and 2.

Dependent Measures

Participants completed the same post-task and post-discredit questionnaires administered in Study 2, with two significant changes. First, questions pertaining specifically to the actor’s and average student’s mental acuity were removed from the questionnaire. Because the low-importance condition was not portrayed to assess a specific trait, including these questions was not appropriate for the present study. Including them in the high-importance condition but omitting them from the low-importance condition would have been illogical, as responses could not have been compared across conditions. Consequently, questions pertaining specifically to mental acuity were omitted from the questionnaire.

Second, two other questions were added to the post-task and post-discredit questionnaire. Participants were additionally asked: (1) On a scale of 0-10 (0 = Not at all, 10 = Extremely) how skilled do you believe you (actor) are at the task; and (2) On a scale of 0-10 how skilled do you believe the average student would be at the task? Thus, there were seven dependent measures in all, with the four pertaining to the actor serving as the primary dependent measures (Appendix F). Questions pertaining to the average student were again included for exploratory purposes. This questionnaire was administered twice: once following the completion of the experimental task via MediaLab (post-task), and again after the initial feedback was discredited by paper and pencil (post-discredit).
Results

Three participants were excluded from the analysis because they failed to complete all of the primary dependent measures. Thus a total of 97 participants (30 male, 67 female) were included in the analysis.

Post-Task Questionnaire

Mean scores for the post-task questionnaire can be found in Table 5. A 2 (actor-observer) x 2 (high-low importance) analysis of variance (ANOVA) was conducted to assess whether participants’ evaluations of the actor differed across conditions following administration of the performance feedback. This analysis revealed an actor-observer main effect for two of the dependent variables: estimations of future performance and the average student’s skill at the task. After feedback had been given actors estimated they would perform better on a second set of 25 trials, $F(1, 93) = 4.20, p<.043$, and that the average student would be more skilled at the task, $F(1, 93) = 4.25, p<.042$, than did observers.

The test of the task-importance manipulation revealed a main effect for only one of the dependent variables. Participants in the high-importance condition estimated that actors would perform significantly better on a second set of 25 trials than did participants in the low-importance condition, $F(1, 93) = 5.71, p<.019$.

Tests of the Actor-Observer x Task Importance interaction yielded no significant interactions (all $F$’s<1).

These results indicate that for the most part, participants were equally influenced by the negative performance feedback, as evidenced by the lack of differences in their performance evaluations across conditions. For those variables that main effects were
revealed, as Table 5 shows these differences seem to be primarily driven by fluctuating evaluations in specific cells (i.e. evaluations by low-importance observers were more negative only for estimations of future performance), rather than by systematic variations across several measures (i.e. evaluations by low-importance observers were not more negative on all measures).

Table 5

Mean Scores for Post-Task Measures for Actors and Observers, Study 3.

<table>
<thead>
<tr>
<th>Measure</th>
<th>High-Importance</th>
<th>Low-Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ratings of actors’ skill</td>
<td>5.26</td>
<td>5.28</td>
</tr>
<tr>
<td></td>
<td>5.16</td>
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<tr>
<td>Predicted future number correct</td>
<td>14.17</td>
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<td></td>
<td>13.32</td>
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<td>Estimated number correct for avg. student</td>
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</tr>
<tr>
<td></td>
<td>13.20</td>
<td>12.96</td>
</tr>
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<td>Ratings of avg. student’s skill</td>
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<td></td>
<td>5.80</td>
<td>5.71</td>
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<tr>
<td>Estimated percentile of avg. student’s mental acuity</td>
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<td>40.72</td>
</tr>
<tr>
<td></td>
<td>43.80</td>
<td>36.63</td>
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</tbody>
</table>

Note. Estimations for number correct could range from 0 to 25. Ratings of skill were made on an 11-point scale ranging from 0 to 10. Estimations of percentile rank could range from 0 to 100. Estimated number correct and estimations of percentile rank for actor not included; participants were specifically given these values with feedback.

Post-Discredit Questionnaire

Mean scores for the post-discredit questionnaire can be found in Table 6. To begin, a 2 (actor-observer) x 2 (high-low importance) analysis of variance (ANOVA) was conducted to assess the extent to which evaluations of the actor’s performance and abilities differed across conditions, following invalidation of the original feedback.
**Actor-Observer Manipulation.** The test of the actor-observer manipulation revealed a main effect for two of the dependent measures. It was found that after the initial feedback was discredited, actors estimated they correctly identified significantly more authentic suicide notes, $F(1, 93) = 4.83, p<.031$, and that their performance fell at a higher percentile, $F(1, 93) = 7.84, p<.006$, than did observers.

**Table 6**  
*Mean Scores for Post-discredit Measures for Actors and Observers, Study 3.*

<table>
<thead>
<tr>
<th>Measure</th>
<th>High-Importance</th>
<th>Low-Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated number correct</td>
<td>15.00</td>
<td>13.52</td>
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<tr>
<td>Ratings of actors’ skill</td>
<td>5.39</td>
<td>4.84</td>
</tr>
<tr>
<td>Predicted future number correct</td>
<td>15.83</td>
<td>14.20</td>
</tr>
<tr>
<td>Estimated number correct for avg. student</td>
<td>14.00</td>
<td>13.84</td>
</tr>
<tr>
<td>Ratings of avg. student skill</td>
<td>5.17</td>
<td>5.12</td>
</tr>
<tr>
<td>Estimated percentile of actor’s performance</td>
<td>60.17</td>
<td>49.48</td>
</tr>
<tr>
<td>Estimated percentile of avg. student’s performance</td>
<td>54.35</td>
<td>49.60</td>
</tr>
</tbody>
</table>

*Note.* Estimations for number correct could range from 0 to 25. Ratings of skill were made on an 11-point scale ranging from 0 to 10. Estimations of percentile rank could range from 0 to 100.

**Task Importance Manipulation.** The test of the task importance manipulation revealed a main effect for six of the seven dependent variables. With regards to participants’ evaluations of the actor, participants in the high-importance condition estimated that actors correctly identified more authentic suicide notes, $F(1, 93) = 4.13,$
were more skilled at the task, \( F(1, 93) = 4.96, p <.028 \), that their performance fell at a higher percentile, \( F(1, 93) = 10.20, p <.002 \), and that they would correctly identify more authentic notes on a second, equally difficult set of 25 trials, \( F(1, 93) = 4.87, p <.03 \), than did participants in the low-importance condition. With regards to perceptions of the average student, participants in the high-importance condition estimated that the average student would be more skilled at the task, \( F(1, 93) = 6.03, p <.016 \), and that their performance would fall at a higher percentile, \( F(1, 93) = 7.73, p <.007 \), than did those in the low-importance condition.

**Actor-Observer x Task Importance Interaction.** The test of the Actor-Observer x Task Importance interaction revealed no significant interactions for any of the primary dependent measures. A significant interaction was revealed for estimations of how skilled the average student would be at the task, \( F(1, 93) = 4.32, p <.04 \). Actors in the high- and low-importance conditions did not differ in their estimations of the average student’s skill (\( F<1 \)), whereas observers’ did: their estimations in the high-importance condition were significantly higher than those in the low-importance condition, \( F(1, 93) = 10.39, p <.002 \).

**Repeated Measures Analysis**

A repeated measures analysis was conducted on the primary dependent measures to assess the extent to which participants’ evaluations of the actor changed from the post-task to post-discredit periods. However, because two of these measures were given at the post-task period (number correct and percentile rank), the analysis could only be conducted on two of the primary measures: estimations of the actor’s skill at the task, and estimations of their future performance.
The analysis revealed a main effect of Time for estimations of actor’s skill, $F(1, 93) = 3.67, p<.01$, and future performance, $F(1, 93) = 23.89, p<.001$. Participants’ estimations of the actor’s skill decreased after the performance feedback was discredited, while their estimations of future performance increased after the feedback was discredited.

The main effect of Time for estimations of actor’s skill was qualified by a significant Time x Task Importance interaction, $F(1, 93) = 10.58, p<.002$. In the high-importance condition, participants’ ratings of the actor’s skill were essentially the same before and after the performance feedback was discredited. However, in the low-importance condition, participants’ ratings were significantly lower after the feedback had been discredited than they were prior to its invalidation.

Planned Comparisons for Tests of the Derived Hypothesis

The lack of significant Actor-Observer x Task Importance interactions for the primary dependent measures in the presence of several main effects appears to suggest that the present study fails to provide support for the derived hypotheses. However, because the hypotheses make very specific predictions regarding where differences in attributions ought to exist between actors and observers in high and low-importance conditions, the analysis of primary interest is the results of planned comparisons comparing evaluations made by participants in these conditions.

Actor-Observer Comparisons in the Low-Importance Condition. To begin the analysis, I first compared attributions made by actors and observers in the low-importance condition. This condition replicated the paradigm used in several classic studies (e.g. Ross et al., 1975; Hubbard, 1984; Wegner et al., 1985) and served as a
reference by which evaluations in the high-importance condition could be compared. Before the self-enhancement hypothesis could be examined using this paradigm, it was important to first demonstrate that the experimental task could successfully replicate the findings of previous studies that have implemented this design.

Planned comparisons revealed that this replication was successful. As Hypothesis 2 predicted, actors and observers in the low-importance condition did not differ in their estimations of actor’s performance, skill at the task, future performance, or percentile rank of performance after the initial feedback was discredited (all p’s > .05). Thus, these results replicate those obtained in the classic belief perseverance studies (e.g. Ross et al., 1975; Hubbard, 1984; Wegner et al., 1985) which have also failed to find actor-observer differences in attributions following the invalidation of performance feedback.

Actor-Observer Comparisons in the High-Importance Condition. In light the lack of actor-observer differences in the low-importance condition, the comparisons of primary interest in the present study were those comparing attributions made by actors and observers in the high-importance condition, where the task was purported to assess something central to the actor’s self-concept (intelligence). Demonstrating actor-observer differences in this condition would replicate the results obtained in Studies 1 and 2 using an experimental task that has been used in previous research (e.g. Ross et al., 1975; Hubbard, 1984; Wegner et al., 1985). Lastly, given that there were no actor-observer differences in the low-importance condition, differences in the high-importance condition would support the argument that self-enhancement motives may influence the extent to which actors perseverate on negative feedback.
Therefore, planned comparisons comparing attributions made by actors and observers in the high-importance condition were conducted. As Hypothesis 1 predicted, after the performance feedback was discredited, actors in the high-importance condition estimated they correctly identified more authentic suicide notes, $F(1, 93) = 5.16, p<.025$, and that their performance fell at a higher percentile, $F(1, 93) = 4.45, p<.038$, than did observers. Actors also predicted they would perform better on a second, equally difficult set of 25 trials than did observers, but this difference was only marginally significant, $F(1, 93) = 3.47, p=.066$. Actors did also provide higher ratings of their skill at the task, but this difference was non-significant ($F<1$). Thus, for two of the four primary measures, actors provided significantly higher evaluations than did observers (and marginally higher on a third). These results replicate those obtained in Studies 1 and 2 and support the contention that task-importance moderates the belief perseverance phenomenon.

*Actor High-Importance vs. Actor Low-Importance Comparisons.* To further substantiate the present argument, planned comparisons directly comparing attributions made by actors in the high-importance condition to those made by actors in the low-importance condition were conducted. If actors in the high-importance condition experienced a self-threat that those in the low-importance condition did not, only they should experience the self-enhancement and self-protective motives that would lead to inflated performance evaluations. This is exactly what happened. As Hypothesis 3 predicted, actors in the high-importance condition estimated they correctly identified more authentic suicide notes, $F(1, 93) = 4.65, p=.034$, that they would perform better on a second set of trials, $F(1, 93) = 4.26, p<.042$, that they were more skilled at the task, $F(1, 93) = 3.87, p=.052$, and that their performance fell at a higher percentile, $F(1, 93) = 5.70,$
p<.019, than did actors in the low-importance condition. Again, these results support the contention that negative performance feedback in the high-importance condition may have threatened the actor’s self-concept, consequentially activating self-protective and self-enhancement motives that led to an attenuation in belief perseverance, relative to actors in the low-importance condition.

**Further Tests of the Self-Enhancement Hypothesis**

Several other comparisons are important in providing evidence for the argument that task-importance may moderate belief perseverance via the activation of self-enhancement motives. First, it is important to recognize that observers in the high-importance condition did not inflate their evaluations of the actors relative to participants in the low-importance conditions. In fact, evaluations made by observers in the high-importance condition did not differ from those made by actors in the low-importance condition on any of the primary measures (all $F$’s<1), and differed from those made by observers in the low-importance condition only in their estimations of the actor’s percentile rank, $F(1, 93) = 4.53$, p<.036. Thus, it was only actors in the high-importance condition that provided inflated evaluations. This finding lends further support for the self-enhancement argument.

An additional comparison that is appropriate for testing the current argument is the comparison of attributions made by actors in the high-importance condition to those made by participants in all other conditions. Since it is argued that the motivation to maintain a positive self-image will attenuate belief perseverance only when the discredited feedback may be perceived as threatening to participants’ self-concept, it would be expected that under the current paradigm only actors in the high-importance
condition should experience this attenuation. They are the only participants for whom the negative feedback ought to be threatening, and thus the only participants who ought to demonstrate self-enhancement following invalidation. Thus, planned comparisons comparing attributions made by actors in the high-importance condition to those made by participants in all other conditions would further test the present argument. This contrast coded (actor high-importance = 3, actor low-importance = -1, observer high-importance = -1, observer low-importance = -1) comparison revealed that actors in the high-importance condition estimated they correctly identified more authentic suicide notes, $F(1, 93) = 8.91$, $p < .004$, that they would perform better on a second set of 25 trials, $F(1, 93) = 7.58$, $p < .007$, that they were more skilled at the task, $F(1, 93) = 3.72$, $p = .057$, and that their performance fell at a higher percentile, $F(1, 93) = 12.35$, $p < .001$, than did participants in the other 3 conditions. These results again provide evidence in support of the argument that when discredited feedback threatens an individuals’ self-image, that person will be less likely to persevere on the discredited feedback than those who were not threatened by the feedback.

**Discussion**

The results of Study 3 lent support for each of the derived hypotheses, and like Studies 1 and 2, support the argument that motivational mechanisms may attenuate the belief perseverance phenomenon when the perseverant beliefs have negative implications for one’s self-concept. As predicted, when the experimental task was purported to assess something non-central to the actor’s self-concept (physiological measures), actors and observers did not differ in their estimations of the actor’s abilities after performance feedback was discredited. These results replicate those obtained in classic belief
perseverance studies (e.g. Ross et al., 1975; Wegner et al., 1985), and do so using the same experimental paradigm that these oft-cited studies use. However, when the same experimental task was used but purported to assess something highly important to the actor’s self-concept (intelligence), differences did emerge in actors’ and observers’ evaluations: after feedback invalidation, actors’ performance estimations were significantly higher than observers’.

These results support the argument that self-enhancement and self-protective motives may influence belief perseverance, especially when the invalidated feedback threatens an important aspect of an individual’s self-concept. In the low-importance condition, the negative performance feedback was not threatening to the actor’s self-image. In fact the feedback was tangential to the purported purpose of the task (to assess physiological changes during decision making). Therefore, it is unlikely that participants would experience any threat in being told they had done poorly, and unlikely they would feel a motivation to inflate their performance estimations after they had heard the initial feedback was inaccurate—there would be no apparent benefit in doing so.

In contrast, the negative performance feedback in the high-importance condition was likely very threatening to actors. Given that research has firmly established that people hold overly favorable self-views (e.g. Alicke, 1985; Weinstein, 1980) and are often highly motivated to maintain them (e.g. Taylor & Brown, 1988), feedback indicating that the actors were rather unintelligent and lacking “mental acuity” was likely threatening. Therefore, when this feedback was subsequently invalidated, the activation of self-protective and self-enhancement motives led actors to inflate their performance evaluations in attempt to maintain a favorable self-image. Because observers were
unlikely to experience similar motives, they, like participants in the low-importance condition, demonstrated traditional belief perseverance and perseverated on the discredited feedback.

Furthermore, when considering actors’ self-evaluations independently, it was found that self-evaluations in the high-importance condition were significantly more favorable than those provided in the low-importance condition. Like observers, the feedback presented to actors in the low-importance condition was likely non-threatening. Consequently self-enhancement motives were not activated, and therefore they experienced belief perseverance to essentially the same extent as did observers and neglected to raise their self-evaluations. In comparison, actors in the high-importance condition were likely threatened by the negative feedback, and as a result self-protective motives led to an inflation performance estimations not experienced in the low-importance condition.

These findings support the contention that task-importance moderates the belief perseverance phenomenon. To the extent that the discredited feedback is unimportant and non-threatening to participants, they are likely to demonstrate the effect as has been repeatedly shown in previous studies. If however the discredited feedback poses a threat to an important aspect of participants’ self-concept, then the motivation to maintain a positive self-image may attenuate the extent to which belief perseverance occurs.

General Discussion

The tendency for people to be influenced by discredited feedback has become one of the classic findings in social psychological literature. Research on belief perseverance (e.g. Anderson, 1982; Anderson et al., 1980; Ross et al., 1975), the fundamental
attribution error (e.g. Jones & Harris, 1967; Ross, 1977), correspondence bias (e.g. Gilbert & Jones, 1986), and the influence of pre-trial publicity on jury decision making (Lieberman & Arndt, 2000; Wolf & Montgomery, 1977) has all emphasized the power initial information has on subsequent behaviors and judgments, even when that information is deemed inaccurate or completely discredited as incorrect.

In some of these paradigms, it is not entirely irrational that the discredited information may influence participants’ perceptions. In many cases, the feedback or information being discredited is only partially discredited, making the extent to which participants ought to pay attention to that feedback ambiguous. For example, when jurors are asked to ignore pre-trial publicity they are not told that the information they were exposed to was incorrect. Rather, they face the difficult task of consciously blocking out vivid information that may in fact hold merit, simply because they are asked to do so. Other paradigms also utilize designs in which discrediting is only partial. Research on attitude change often uses source credibility (rather than message content) as a means of manipulating the diagnosticity of information (e.g. Petty & Cacioppo, 1986), thus not entirely undermining the validity of the message. Other studies have focused on situations in which it is impossible for attitudes or beliefs to undergo complete invalidation, such as when political attitudes are examined following counter-attitudinal events (e.g. Carretta & Moreland, 1982). Such events do not mean that previously held attitudes were incorrect or entirely wrong, but simply challenge how firmly they should be advocated. In these types of situations participants must ascertain how much of the original information should be taken at face value when making subsequent judgments.
Thus it is rational to understand how it may be difficult to avoid allowing such information to taint later perceptions and judgments.

However, in paradigms such as those used in belief perseverance research in which feedback is completely discredited, it is in-defensible for participants to continue allowing that feedback to influence their subsequent judgments. Once participants are aware that the feedback they had been given was randomly assigned or completely bogus, the rational next step would be to discard that information from further consideration and rely on pre-existing knowledge to assist in subsequent judgments. As numerous studies in belief perseverance have shown however, people clearly do not adhere to this pattern of thinking (e.g. Anderson, 1983; Ross et al., 1975; Wegner et al., 1985). These studies have repeatedly documented people’s tendency to cling to beliefs and attitudes which are completely based on invalidated information. The effect has been demonstrated in both self and social perception, and with positive and negative information. Explanations for why these perseverance effects occur have primarily focused on different cognitive processes, with the generation of causal explanations highlighted as the mechanism most largely responsible for the effect. (e.g. Anderson et al., 1980; Anderson & Sechlar, 1986; Hubbard, 1984; Ross & Lepper, 1980)

Despite the robustness of these findings, one aspect of this research is paradoxical when considered in light of research on self-perceptions. Given that social psychological research has firmly established that people often hold overly favorable self-views (e.g. Taylor & Brown, 1988), are overly optimistic in their life predictions (e.g. Weinstein, 1980), and think they are better-than-average in several self-related domains (e.g. Alicke, 1985), the finding that people cling to negative feedback that may undermine these
favorable perceptions is puzzling. Why, if people are motivated to present themselves in such a positive light, do they persist in beliefs that would contradict this goal?

The three studies reported herein offer one explanation for these contradictory findings, and do so by examining the perseverance phenomenon from a motivational perspective. More specifically, these studies provide evidence that the motivation to maintain a favorable self-image will limit the extent to which people perseverate on negative feedback, but only in certain situations. It is argued that self-enhancement and self-protective motives will attenuate perseverance only when the discredited feedback threatens an individual’s self-image. If the discredited feedback is non-threatening, traditional perseverance will occur.

Study 1 provided initial support for this argument. Participants either engaged in (actors) or watched the completion of (observers) a word-identification task ostensibly used to measure a facet of the actor’s intelligence. Participants then received either positive or negative feedback regarding the actor’s performance which was subsequently discredited as inaccurate. Finally, participants were asked to make a variety of estimations regarding how well they believed the actor actually performed. Results indicated that as expected, actors and observers did not differ in their evaluations of the actor’s performance following the invalidation of positive performance feedback (non-threatening). However, following the invalidation of negative performance feedback (threatening), actors provided significantly higher evaluations of their performance and intelligence than did observers. It was argued that differences in motivation led actors and observers to perseverate in the negative feedback condition to different extents. Self-enhancement motives led actors to inflate their estimations in attempt to present
themselves more favorably, while the lack of such motives in observers led them to demonstrate traditional perseverance effects.

Study 1 was the first to my knowledge to demonstrate actor-observer differences in belief perseverance and also the first specifically designed to examine the influence of motivational mechanisms on belief perseverance. Study 2 provided further support for the contention that self-enhancement motives may attenuate belief perseverance by replicating the results obtained in Study 1, and extended the findings by addressing an important limitation that has plagued many perseverance paradigms. In Study 1 it could be argued that following invalidation of the original feedback, actors simply reverted to their (overly favorable) pre-existing self-views, while observers, knowing nothing about the actor, used the discredited feedback as an anchor on which to base their subsequent evaluations. In this case the observed difference would have been due to differences in pre-existing views of the actor rather than differential perseverance. Study 2 cast doubt on this interpretation by demonstrating that prior to the task actors and observers did not differ in their predictions of the actor’s performance, or in evaluations of actor’s intelligence and abilities. Thus, the pattern of results revealed in both Studies 1 and 2 do not appear to be due to differences in pre-existing self-views, but rather the result of differential perseverance on the part of actors and observers in the negative feedback condition. These findings lent further support for the argument that the motivation to maintain a positive self-image led to attenuated perseverance by actors in the negative feedback condition.

Given that Studies 1 and 2 revealed actor-observer differences in attributions following the invalidation of negative performance feedback, why had previous research
failed to find such differences? It is believed that because tasks used in previous experimental paradigms were purported to assess something irrelevant to the self-concept (i.e. physiological measures during decision making), it is doubtful that negative performance feedback would have threatened participants’ self-concept. Under such circumstances the performance feedback was relatively meaningless, and therefore the self-enhancement motives proposed to account for the differences obtained in Studies 1 and 2 would not have even been activated. Had the tasks in the classic studies been alleged to assess something more important (e.g. intelligence), actor-observer differences in attribution may have emerged. To investigate this issue Study 3 was designed to bridge the gap between the current and previous research by directly manipulating task-importance.

Using the same experimental task utilized in the classic belief perseverance research (e.g. Ross et al., 1975; Hubbard, 1984; Wegner et al., 1985), the results of Study 3 lent support for the argument that task-importance moderates the influence of self-enhancement on belief perseverance. When the experimental task was purported to assess something unimportant to the self-concept (physiological measures during decision making), actors and observers did not differ in their evaluations following the invalidation of negative performance feedback. These findings replicated those obtained in previous research. However, when the same task was ostensibly intended to examine something highly important to the self-concept (intelligence), the pattern of differences obtained in Studies 1 and 2 again emerged—actors provided significantly higher evaluations of their performance and abilities than did observers. Thus, task-importance did appear to influence the extent to which actors persevered in their beliefs. These
findings shed light on where the differences between the results obtained in Studies 1 and 2 and those obtained in previous research may have arisen.

In all, the current studies provide strong evidence that self-enhancement motives influence belief perseverance, and that task-importance is one moderator of this effect. While the primary aim of these studies was to emphasize the influence of motivational mechanisms on belief perseverance, by no means was it intended to suggest that cognitive mechanisms do not play a role in the perseverance effect. There is strong evidence demonstrating that mechanisms such as the generation of causal explanations (e.g. Anderson et al., 1980; Anderson & Sechlar, 1986), the development of cognitive schemas (e.g. Smith, 1982), and errant cognitive processing (Wegner et al., 1985) facilitate the perseverance of discredited beliefs. And, the influence of such mechanisms is clearly apparent in the results obtained in both Studies 1 and 2. In Study 1 participants in the positive feedback conditions gave more positive evaluations than did participants in the negative feedback condition on almost every measure. Similarly, while actors in the negative feedback condition in Study 2 inflated their estimations and provided more positive evaluations than observers, they still failed to fully bounce back to the level of their pre-experimental evaluations. Thus while perseverance was certainly attenuated in some conditions of these studies, the effect was still demonstrated by almost all participants to some extent. One likely culprit for this finding is the cognitive elaboration that occurs between receipt of the feedback and its subsequent invalidation. Even though participants may not wish to integrate unfavorable feedback into their self-perceptions, it’s likely that some aspect of the feedback “sticks” due to the causal explanations generated following feedback administration. Thus, even in situations in which
motivational mechanisms attenuate perseverance, cognitive mechanisms will still produce the effect to some extent.

Future Directions

The present studies are the first in the belief perseverance literature to demonstrate the influence of motivational mechanisms on the classic phenomenon. Thus, additional research is certainly necessary to further investigate how such mechanisms may influence this effect, as well as examining other variables that could potentially moderate this relationship. One such variable is task difficulty. It might be expected that as task difficulty increases, the potential influence self-enhancement motives may have on belief perseverance would be minimized. As task difficulty increases, the extent to which performance estimates can be inflated while remaining reasonable decreases. One can only estimate they will perform so well on a task that is extremely difficult without seeming completely irrational. Thus, even if a person is motivated to present themselves favorable after the invalidation of feedback on such tasks, it is unlikely that self-enhancement motives would have the same effect on belief perseverance as it would in less difficult tasks. Preliminary evidence of this moderation can be observed when comparing the results of Study 1 to Study 2. Performance estimates made by actors in the negative feedback condition were considerably lower in Study 2 relative to Study 1, and this difference is likely due to the fact that Study 2 was intentionally designed to be more difficult than Study 1. Further research is necessary to more fully investigate this relationship, and also to investigate other variables that could potentially moderate the effect as well.
Another avenue for future research is investigating how self-enhancement motives influence perseverance in areas other than performance evaluations, such as attitudes. If a novel attitude were induced within an individual based on bogus information, and that information was subsequently invalidated in some fashion, how would the motivation to present one’s self favorably influence that attitude thereafter? Would the individual continue advocating the original attitude to avoid having to admit they were wrong? Or, would attitude change occur as to align the attitude with what has been proven to be accurate? Further research is necessary to examine exactly how far the relationship between self-enhancement and belief-perseverance will extend.

Lastly, the results of the present studies suggest that further research is also necessary to examine the interplay between informational discrediting and self-enhancement motives. In particular, it is necessary to investigate how people use discrediting in their pursuit of maintaining a positive self-image. Several studies, such as those reported herein and research on self-evaluation (e.g. Ehrlinger & Dunning, 2003; Ditto & Lopez, 1992), have found that people are quick to scrutinize, discard, and often fail to recognize information that may reflect poorly on their self-image. In this case people discredit information to satisfy self-enhancement motives. Other research however, such as work on defensive pessimism (e.g. Taylor & Shepperd, 1998; Shepperd, Ouellette, & Fernandez, 1996), suggests that at other times people do just the opposite in their quest to maintain a positive self-image—they cling to negative information in attempt to protect themselves from future let downs. In this case it may be the unwillingness to discredit given information that serves the self-enhancement motivation. Thus, more research is necessary to investigate the complex interplay
between the motivation to present one’s self favorably, the means by which one does so, and the variables most likely to influence the method by which one engages in self-enhancement.
References


Appendix A: List of Words Used in Word-Identification Task, Studies 1 and 2

Practice Trials
Switch
Trade
Spin
Rink
splash

Experimental Trials
Push Ream
Plant Plan
Plot Note
Lunch Rock
Dog Fish
Clay Cinch
Paper Tack
Mug Flag
Fear Case
Feel Tall
Stool Wart
Cruel Clock
Mouse Keys
Appendix B: Actor-Observer Post-Discredit Questionnaire, Study 1

1) How many answers do you believe you (actor) got correct on the task? _____

2) On a scale of 0-10, how mentally acute do you believe you (actor) are? _____

   0    1    2    3    4    5    6    7    8    9    10
   Extremely low              Average              Extremely high

3) How many answers do you believe the average student would have gotten correct? _____

4) On a scale of 0-10, how mentally acute do you believe the average student is? _____

   0    1    2    3    4    5    6    7    8    9    10
   Extremely low              Average              Extremely high

5) How many answers do you believe you (actor) would get correct on a second, equally difficult set of 25 trials? _____

6) On a scale of 1-5, how skilled do you believe you (actor) are at the task?

   1  2  3  4  5
   Very Poor Poor Mediocre Good Very Good

7) On a scale of 1-5, how skilled do you believe the average student would be at the task?

   1  2  3  4  5
   Very Poor Poor Mediocre Good Very Good
Appendix C: Actor-Observer Pre-Task Questionnaire, Study 2

1) How many words do you believe you (actor) will be able to correctly identify in the following task?  
__________

2) On a scale of 0-10, how mentally acute do you believe you (actor) are?  
0    1     2      3       4        5         6          7           8             9          10  
Extremely low                                Average        Extremely high

3) How many words do you believe the average student would be able to correctly identify in the following task?  
__________

4) On a scale of 0-10, how mentally acute do you believe the average student is?  
0    1     2      3       4        5         6          7           8             9          10  
Extremely low                                Average        Extremely high

Percentile rank scores represent where an individual’s score or ability in a given area ranks relative to others in the population. For example, a percentile rank of 50 on a mental acuity task would indicate that a person’s mental acuity is better than 50% of the population, a percentile rank of 87 would indicate that their mental acuity is better than 87% of the population, and so on.

5) Relative to the general population, at what percentile do you believe your (actor’s) level of mental acuity lies?  
__________ percentile

6) Relative to the general population, at what percentile do you believe the average student’s level of mental acuity lies?  
__________ percentile
1) How many answers do you believe you (actor) got correct on the task? __________

2) On a scale of 0-10, how mentally acute do you believe you (actor) are?

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3) How many answers do you believe the average student would have gotten correct? __________

4) On a scale of 0-10, how mentally acute do you believe the average student is?

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5) How many answers do you believe you (actor) would get correct on a second, equally difficult set of 25 trials? ________

Percentile rank scores represent where an individual’s score or ability in a given area ranks relative to others in the population. For example, a percentile rank of 50 on a mental acuity task would indicate that a person’s mental acuity is better than 50% of the population, a percentile rank of 87 would indicate that their mental acuity is better than 87% of the population, and so on.

6) Relative to the general population, at what percentile do you believe your (actor’s) level of mental acuity lies?

_________ percentile

7) Relative to the general population, at what percentile do you believe the average student’s level of mental acuity lies?

_________ percentile
Appendix E: 25 Pair of Authentic and Inauthentic Suicide Notes, Study 3

1-A To the Police. No note—one was written before this. Los Angeles Police already have a record of one attempt. Notify—Anne M. Jones, 100 Main St., Los Angeles, tel. BA 00000. I love at 100 Spring St., Los Angeles. I work at Ford, 100 Broadway. That is all.

I can’t find my place in life.

J. William Smith

1-B Dear Mom, In the last week a number of occurrences have forced me into a position where I feel my life is not worth continuing.

Friday I lost the job I have held for the past seven years. When I told my wife she packed her bags and left me. For six years she has been living with me, not for me but for my money.

Mom please take care of Mary for me. I’m leaving and I don’t want Betty to have her.

I have nothing left to live for so I’m just checking out.

I love you Mom, Bill

2-A I hope this is what you wanted.

2-B Dear, please forgive me for leaving you with all the responsibilities that this is certain to bring on you. If there is anything of me that can be used in any medical or scientific way please don’t refuse to let them as my last request. I am very proud of our son, and his high potential in his chosen field for which he has real talent. Bye for the last time, and never forget that you were the best thing that ever happened to me. Have my brother help you, I know he will want to very much.

3-A Dearest Mary. This is to say goodbye. I have not told you because I did not want you to worry, but I have been feeling bad for 2 years, with my heart. I knew that if I went to a doctor I would lose my job. I think this is best for all concerned. I am in the car in the garage. Call the police but please don’t come out there. I love you very much darling.

Goodbye.

Bill

3-B I am tired of living so I decided to end it all, hope this will not distress anybody.

4-A Dearest: Not being of sound mind I have decided to leave this world by electrocuting myself.

Bill

4-B Honey I got you into this thing and it was no fault of yours—so I am taking the only way out and I leave everything which has all been acquired since we were married to you my darling wife—Mary Smith—and God Bless You Darling. Forgive me—goodbye dear. You trusted me and I thought I was doing everything for the best but I used poor judgment and poor management on my part and bit off more than I could chew but didn’t know it at the time I did it. Sell everything before winter sets in—I leave
everything of value of any kind or nature including real estate—home—and all to my
darling wife. Tell my mother—sister I said God bless them all and forgive me—Goodbye
darling and God bless you all.

You loving husband always, William J. Smith

5-A Dear Mary. I don’t know why I am doing this unless my reasoning has gone all to
pot. Something must have slipped.

Bill

5-B My Dearest Wife: I cannot endure this situation any longer. I cannot believe I
have been so bad a husband as to merit this. Something is certainly wrong. I honestly
don’t know what it is.

Whatever you may be searching for I hope with all my heart you find. Please be
good to little Betty, our daughter, I love her so.

I am talking over this Cyanide deal to myself. God knows what I’ll do. I have it
here. Possibly 20 grains—5 more than is necessary. I still love you. Be good to Betty
please.

6-A Dear Mary. I don’t know why I am doing this unless my reasoning has gone all to
pot. Something must have slipped.

Bill

6-B My dearest Wife: I cannot endure this situation any longer. I cannot believe I have
been so bad a husband as to merit this. Something is certainly wrong. I honestly don’t
know what it is.

Whatever you may be searching for I hope with all my heart you find. Please be
good to little Betty, our daughter, I love her so.

I am talking over this Cyanide deal to myself. God knows what I’ll do. I have it
here. Possibly 20 grains—5 more than necessary. I still love you. Be good to Betty
please.

7-A Dear Mary. You have been the best wife a man could want and I still love you
after fifteen years.

Don’t think too badly of me for taking this way out but I can’t take much more
pain and sickness also I may get to much pain or so weak that I can’t go this easy way.
With all my love forever—

Bill

7-B Goodbye dear wife. I cannot stand the suffering any longer. I am doing this by my
own free will. You will be well taken care of. Love and Goodbye

8-A My Darling: I’m sorry to leave you this way, but it looks like the only way out for
me. Things have become so uncertain and unbearable, that I believe it will be better this
way. Have the kids remember me, and don’t be grievous because I took this way out.
Never forget that I love you with all my heart and soul.
8-B Dear Mother. I just cannot take it any more this is no way out but this has me
down. I Joseph William Smith give ever thing to Henry Jones my car and what ever I
have.

Joseph Smith

9-A Dearest darling i want you to know that you are the only one in my life i love you
so much i could not do without you please forgive me i drove myself sick honey please
beleave me i love you again an the baby honey don’t be mean with me please I have lived
fifty years since i met you, I love you—I love you. Dearest darling i love you i love you.
Please don’t discriminat me darling i know that i will die dont be mean with me please i
love you more than you will ever know darling please an honey Tom i know don’t tell
Tom why his dady said good by honey. Can’t stand it any more. Darling i love. Darling i
love you.

9-B I am Sorry Mary But i just Can't Stand Life Any Longer.

William Smith

10-A To Mary Jones. Please take care of my bills. Tell Tom I made enough money for
him. He can take care of these small bills. Mary, I love Betty and I can’t stand being
without her. She’s something I spoiled myself.

Love, Bill

Mary take this pen as Helen gave it to me when I went to the army.

10-B Dear Mary. Although in the past you may have thought the idea of suicide had
never entered my mind, I will tell you now that it has. I have given every other way my
utmost but this seems to be the only solution—No doubt you remember times in the past
when I have said, “I am worth a lot more dead than alive.” Well, I wasn’t just kidding—
My insurance will leave you well provided for and you can now have all those things I
could never give you—you see, I know now that I can never hope to really make a
success of life and I see no use to continue and drag you down with me, although the
years we have been together have been the happiest of my life, I want it to stop here. I
want you to marry again as soon as possible and the next time choose someone who can
make it. I love you deeply.

Bill

11-A Dear Mary. Im sorry for all the troubl e Ive caused you. I guess I can’t say any
more. I love you forever and give Tom my love. I guess I’ve disgraced myself and John I
hope it doesn’t reflect on you.

Bill

11-B Darling: It’s been great but I just can’t go on for reasons you may know but I
can’t explain. There’s enough insurance for all of you. Be happy and all my love always
to you and our three.

Remember me as your adoring
12-A  Mary Darling. It’s all my fault. I’ve thought this over a million times and this seems to be the only way I can settle all the trouble I have caused you and others. This is only a sample of how sorry I am. This should cancel all.

Bill

12-B  Dear Mary. I can go on no longer so will take the easy way out. I’ve take care of everything. Sorry

Bill

13-A  I’m tired. There must be something fine for you. Love.

Bill

13-B  Darling: All of my life I have looked upon suicide as a weak and cowardly way out but after thinking it out carefully I honestly believe that this is the best way, I realize that this will be quite a shock to you but as you know, time heals all wounds, and as time goes on I hope you will realize that this was the best solution of our problems. Please try to explain to Tom and teach him to grow into a fine man, far better I hope than his Dad has been.

My insurance will take care of both of you at least until Tom is through school. God bless and keep you both. All of my love is for you and Tom forever and ever.

Bill

14-A  To Tom, Betty, John—The stigma I bring upon you cannot be much more than has already been done. Be good to your mother and do all you can to help as she is a wonderful person. Tom—a rather gruesome thought—Remember when we worked in the yard and you asked to see a cadaver at the College? Little did we know that I would be the first deceased for you to encounter. I love you and know you will make a wonderful man. Betty—We have been very close to each other. Please don’t think too harshly of my actions. Stabilization takes place in time, and I know you will grow up to be one of the best women in the world. My love, dear. Johnny—You came last in our offspring so couldn’t know me as well as your brother and sister. Just follow your brother’s example, love your sister and help Mother. Remember, I love you, Johnny. Mary—There is no more or less to say than I have already told you—Truth will triumph eventually.

Bill

14-B  Dear Mary: As we both might reasonable recognize this is not the right way to solve any situation. Lord how I wish it could be done in any other way. No use of thinking about that now, its like a dead end road in the middle of the night. Confusion,
bewilderment, questions with no answers. What can a person say? How do you lift yourself up again and try to keep going? The will is gone, reason is gone, there is only one answer. You’ll probably ask why—over and over again—I’ve been doing that and only creating more confusion. Continue with your will to live, fill any emptiness with your love for our children, find a new live for yourself and forgive me for whatever results to you from this. Love,

Bill

15-A Dear wife; I am sorry to cause you this embarrassment but I can’t seem to stand life this way. This is the easy way for me. You will get over it in time too.

15-B Dearest Mary—I just can’t go on without Tom, John, and you. I hope some day you can forgive me. I know you will find someone better for you and the boys. God bless you all.

Love, Bill

16-A Dearest Wife. I am writing this to explain why I am going to end it all. I know that this is a cowardly way and I am sorry but I just haven’t the will to do otherwise. Please forgive me if you can and believe that I loved you to the end.

Bill

16-B Dear Mary. Since you are convinced that you are an invalid and no one can help you, I hope my $3,000 insurance will help you to see the truth about yourself and get rid of your mental sickness. You are now free to marry Joe. Remember you will never have any happiness with anyone until you learn to help yourself. I have no regrets and hold no malice or unkind thoughts toward you. We would have had a happy life together if you had wanted to help yourself. I hope you eventually will find happiness. Love, Bill

Tell my folks I’m sorry I couldn’t see them before I went.

17-A I’m tired of being sick and in pain and can see no use in prolonging it as they say there is no hope of recovery.

17-B I specifically request that my body be disposed of by cremation. To my good friends, Joe Smith and Mary Jones I give my deep and undying affection. My dear parents, Henry W. and Betty C. Brown have done their best for me and it is my failure, rather than anything they have failed to offer that has brought this about. My sister, Helen White of 100 Main Street, New York, is closest and dearest to me and, with her consent, I ask that she take and raise my son. My phonograph records, now in storage with my parents, I give to my former wife, Wilma Brown, 200 Broadway, Los Angeles, Calif.

Explanations would be useless, suffice to say I have tried and failed. Given unto my hand this ninth day of June in the year of 1943, A.D., in the city of Los Angeles, California.

Jack Brown
18-A  Some where in this pile is your answers. I couldn’t find it. Mom, you should have known what was about to happen after I told you my troubles now I will get my rest.

Dad, I am in this jam because I trusted people (namely you) and some people trusted me, because I am, in my present state a menace to me and my customers I think this is the best way out, and out of my insurance if you ever take a drink I hope you drown yourself with it.

18-B  Dear Mary. Things are piling up too high for me. I love you but I know our basic difficulties are not soluable. Please don’t think too harshly of me if I take this way out. You have insurance and your health to help get started again. Tell the kids I had an accident so they wont be ashamed of their daddy.

Love, Bill

19-A  Dearest Wife: I’m sorry I had to do this but I know you will be happier as a result. I hope you will be married as soon as it is proper to be, and I feel sure that you and Fred will have a full and happy life together.

Love always,
Bill

19-B  My dearest family: I am terribly sick and it is all my fault. I blame no one but myself. I know it is going to go hard with Tommy and Sister. Please see that Tommy gets Mickey Mouse Watch for his birthday. Helen I am counting on you to take care of Mother. Please do not follow in my footsteps.

Mary darling I know you did everything possible to avoid this, but please forgive me, as I think it was the only way out. God forgive me and help take care of my family.

20-A  To the Police. I can see no reason to battle the elements of life any longer with no progress being made.

20-B  Mary: The only thing you never called me was crazy. Now you can do that. I loved you so.

21-A  Dear Mary. Everything is kind of mixed up with me and what I am doing is the only way out I guess I can think of no other I am very sorry I got you in the shape we are in but I did I love you very much. It is going to hurt my mother and Dad to and also you I think. I hope you all the luck in the world.

With all my love, Bill. Goodbye.

21-B  Dear Mary. I have decided to end my life. Things are not going right and don’t look as though they ever will. I’m doing this to help you, so that you may continue unhampered.

Love, Bill
22-A  Mary—I know this is a terrible thing to do but believe me, dear, it is for the best. The events of the last few months have left me at my wit’s end and I see no other way out. I am sorry I was such a trial to you and the children, please forgive me.

22-B  Dear Mary; I’m just too tired and too sick of trying to continue. Sorry it had to be this way. I’m sure everything will work out for the best. Keep everything quiet as possible. Say I had a heart attack.

                      As Ever, Bill

                      God forgive me. God bless you and John.

23-A  Dear Wife. My health has broken and I no longer feel that I can be of help in the Support of the family therefore becoming a burden—So I’m ending it all. Sorry to leave in this manner but feel that it is best for all concerned—Love.

23-B  Honey. I am sorry this is the only way I know. I am all wrong. I love you very much.

24-A  I’m tired of it all. I Love you and God Bless you.

24-B  Good bye my Dear. I am very sorry but it is just too hard to breathe.                             Love, Bill

                      Dearest have someone at the Legion call the V.A. I think they will take care of me.

25-A  To the police. please tell family that I love them why say more.

25-B  Good by Kid. You couldn’t help it. Tell that brother of yours, When he gets where I’m going. I hope I’m foreman down there. I might be able to do something for him.

          Bill
Appendix F: Actor-Observer Post-Task/Discredit Questionnaire, Study 3

1) How many answers did you (actor) get correct on the task? ________

2) How many answers do you believe the average student would have gotten correct? ________

3) How many answers do you believe you (actor) would get correct on a second, equally difficult set of 25 trials? ________

4) On a scale of 0-10, how skilled do you believe you (actor) are at the task?

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0    1     2      3       4        5         6          7           8             9          10
Extremely low                                Average        Extremely high
```

5) On a scale of 0-10, how skilled do you believe the average student would be at the task?

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0    1     2      3       4        5         6          7           8             9          10
Extremely low                                Average        Extremely high
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Percentile rank scores represent where an individual’s score or ability in a given area ranks relative to others in the population. For example, a percentile rank of 50 on a mental acuity task would indicate that a person’s mental acuity is better than 50% of the population, a percentile rank of 87 would indicate that their mental acuity is better than 87% of the population, and so on.

6) Relative to the general population, at what percentile do you believe your (actor’s) level of mental acuity lies?

_________percentile

7) Relative to the general population, at what percentile do you believe the average student’s level of mental acuity lies?

_________percentile