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Separating Self-Esteem from Self-Concept Processes: An Investigation of Emotional Responses to Self-Image Threat

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An Investigation of Emotional Responses to Self-Image Threat

By

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Separating Self-Esteem from Self-Concept Processes:

An Investigation of Emotional Responses to Self-Image Threat

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ABSTRACT

The researcher examined self-concept/self-image and self-concept maintenance processes in response to self-image threat. Replicating previous research, the researcher hypothesized that those who had self-image threatened would not engage in derogatory behavior in order to maintain self-concept (Fein & Spencer, 1997). Participants completed a false intelligence test giving negative, neutral, or positive feedback and were given an opportunity to evaluate members of a locally stereotyped or locally nonstereotyped social group for a hypothetical job position. No significant main effects or interactions were found for feedback or applicant social group on participant evaluations of applicants, indicating that derogation did not influence judgements in the current sample. Furthermore, it was hypothesized that emotion variables would explain more variance in participant evaluations of applicants following feedback than previously used self-concept variables. Neither self-esteem nor emotion were found to significantly predict derogation; however, stability in general self-concept, a measure not used in previous work examining factors affecting derogation, was found to significantly predict derogation, consistent with theory.

Keywords: self-concept, self-image, derogation, self-image maintenance, stereotype

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INTRODUCTION

Judgments of qualities, traits, and skills of other individuals are often influenced by appraisals of other qualities of the judged individual, for example, the cultural and/or physical characteristics of the individual. Judgments and appraisals can also be influenced by characteristics of the individual providing the judgement, such as beliefs, attitudes, and emotional state. These appraisals can often be automatic and with little awareness or insight as to the factors influencing the judgments or appraisals made (DeSteno, Dasgupta, Bartlett, & Cajdrie, 2004). One factor that can influence these judgments and appraisals of others is the judge's own self-concept, an objective self-perception that individuals seek to maintain. Self-esteem, the emotional evaluation of one's self-concept that varies from positive to negative, is more pliable than self-concept, which has been theorized to be generally stable (Epstein, 1973). At times, maintenance of self-concept must occur in the face of conflicting feedback such as the belief that oneself is intelligent despite receiving a poor grade on an exam. According to Fein and Spencer (1997), in order to maintain a positive self-concept, individuals often engage in derogation of others in order to restore altered self-concept and self-esteem. The current study examines factors that affect self-concept and self-esteem and how this might affect subsequent

judgments and appraisals of others. Further, the study examines whether derogation of others is a response to the negative affect produced by the negative information as opposed to a challenge to the individuals' self-concept.

Self-Concept

The self-perception of one's own overall personality and individual characteristics forms the individual's self-concept, also referred to as self-image (Bailey, II, 2003). Self-concept is created from the association of the self with attributes such as academic, social, physical, and emotional abilities (Byrne, 1984). One example could be an athlete who associates themselves with agility or a professor who associates themselves with intelligence. Although the strength of association may vary, appraisal of the association (positive or negative feelings towards the attribute) is not included in one's self-concept and is conceptualized as self-esteem when engaging in appraisal of attributes of the self (Greenwald, Banaji, Rudman, Farnham, Nosek, Mellott, 2002). Overall self-concept is dynamic, changing through experience to allow for changes in personality and behavior. As individuals recognize the traits that best define them, they can develop interests and goals based on those traits. An individual who recognizes strong reading ability within their self-concept may pursue books and writing. As attributes of an individual change over time, such as the knowledge a student gains throughout grade school, the self-concept held by the

individual changes as well to reflect the self-concept at any point in time (Epstein, 1973).

Different models have conceptually structured self-concept to help relate dimensions of self-concept as well as to explain behavior resulting from self-concept. Four different models of self-concept have been proposed. The simplest model, termed nomothetic, is a unidimensional model in which self-concept characteristics are used to describe behavior without separating attributes or facets as they are termed; that is, there is a singular self-concept that is comprised of multiple attributes (Byrne, 1984). The hierarchical model is constructed with several general attribute self-concepts divided into situation specific self-concepts arranged into a hierarchy. For example, test-taking ability may exist as a specific facet of academic self-concept which is itself a facet of general self-concept. Specific facets are proportionally related, and the relative stability of facets increases with increasing rank within the hierarchy. For example, general self-concept is more stable than academic self-concept, a lower order attribute, which is itself more stable than math self-concept. This hierarchy creates a relatively stable *general* self-concept within an individual at the top of the hierarchy while *situation specific* facets at lower levels of the hierarchy may change more readily (Byrne, 1984). A third model, the taxonomic model, describes facets of self-concept as independent from others, making them semiautonomous. This model does allow for a general self-concept to exist

in addition to specific facets; however, individual facets are not related (Byrne, 1984). Finally, the compensatory model provides for the existence of a general self-concept but relates facets of self-concept as being inversely related (Byrne, 1984). This structure implies that a deficiency in one facet may allow for strength in another facet. For example, students who are not able to perform strongly in an academic setting may nonetheless perform well in social settings. Overall, these four models differ in the relationships among facets of self-concept or the specific facets that comprise the self-concept. They are similar through the idea that a general self-concept exists to provide a summary self-concept to the holder. The current study uses the framework of the hierarchical model due to the ease of application to everyday situations as well as the ability to separate broad attributes into more specific facets which may be independently studied.

It is important to note that self-concept is comprised of facets lacking affect; that is, they do not include appraisals of whether the attribute is good or bad. For example, one may include their ethnicity within their self-concept but not how they feel emotionally towards that identifier. Assignment of valence to facets implies the use of self-esteem, a separate but related construct (Greenwald et al., 2002). Self-esteem involves the personal feelings towards aspects of self-concept or towards self-concept as a whole. Any factors, such as race or gender, which may help identify an individual would contribute to self-concept whereas the appraisal of traits such as the belief that one is relatively good at a skill or

personal feelings towards facets would contribute to self-esteem. The two are not necessarily correlated positively or negatively as it is possible to feel positively about a facet of self-concept such as the academic facet due to favorable academic performance and yet also feel negatively about that same academic facet if one believes that the academic performance also causes social deficiencies. Although both self-concept and self-esteem rely on the perception one has of themselves, self-concept involves an indifferent assessment of self-facets while self-esteem is directly related to personal feelings or attitudes towards oneself (Pyszcynski, Greenberg, Solomon, Arndt, & Schimel, 2004).

Due to the changing nature of individual identities and biological development, self-concept should not be viewed as a static construct; however, self-concept is fairly stable in short-term instances (Epstein, 1973). For example, based on the hierarchical model, specific facets of self-concept are more easily changed than general self-concept. Although the changing of attributes is normal and contributes to an evolving sense of self, for example, when social interaction skills develop throughout childhood, sudden changes of attributes can be detrimental to maintaining a stable sense of self. These potential sudden shifts in self-image are referred to as self-image threat and can often be evident in common situations (Spencer, Fein, Wolfe, Fong, & Dunn, 1998). For example, when a student receives a poor grade for an exam for which they felt adequately prepared, the event may constitute self-image threat if their belief that they are

intelligent is contradicted by their poor exam grade, creating an instance of cognitive dissonance. To prevent potentially detrimental effects of self-image threat, both preventative and reactive processes exist to alleviate cognitive dissonance. These processes collectively make up an automatic process of self-image maintenance. One preventative measure is self-immunization, the ability to prepare for novel trait information through the identification of trait strengths and weaknesses prior to receiving information dissonant with prior beliefs (Greve, Enzmann, & Hosser, 2001). For example, self-immunization may be employed if an individual recognizes that they are not skilled at running before engaging in a footrace which they lose. The individual would avoid self-image threat by recognizing their own deficiency in a specific attribute. Self-immunization has been found to exist in participants who rated traits they believed to be important to their own self-concept congruently with those they possessed. However, self-immunization was unique in participants who scored high in self-esteem (Greve & Wentura, 2010), suggesting that self-immunization is effective in those who had established a clear and understood self-image and also had high self-esteem in their own abilities. For example, for the previous student who performed poorly on an exam, self-immunization would occur if they were aware of their weaknesses in the exam material and prepared for the possibility to perform worse than anticipated. One reactive method of contending with self-image threat is coping. Coping refers to the ability to adapt to new

attribute information as it arises, without responding to the information as a threat. This process incorporates new information into self-concept facets, thus allowing for self-image threat to be avoided and preserving self-concept integrity (Greve et al., 2001). A study of university students revealed that the ability to cope with trait information incongruent with a previously established self-image was positively related to self-esteem. Students exhibiting high self-esteem were able to resolve cognitive dissonance situations while incorporating new trait information more easily than students exhibiting low self-esteem. These results were used to propose that strong self-esteem may provide protection against self-image threat (Steele, Spencer, & Lynch, 1993). Coping would occur in a student who accepts deficiencies in subject knowledge if they fail an exam and then incorporate this information into their own academic self-concept in order to address weaknesses in the future.

<div align="center">Emotional Influences on Judgement</div>

An additional source of influence on judgements and appraisals is the emotional state of the judge. Specifically, emotions can alter the appraisal tendencies of individuals such as anger causing individuals to judge others more harshly. These tendencies occur automatically and directly affect perception and judgement (Lerner & Keltner, 2000). For example, anger, an emotional response associated with intergroup competition and conflict, may directly contribute towards tendencies for prejudice against outgroups (DeSteno et al., 2004). This

emotional effect can be integral, meaning that the reaction to stimuli is producing

the affective state, or the effect can be incidental, meaning not contained within

the stimulus response but still affecting how the judge interprets information; that

is, people process affectively neutral information differently when in a positive or

negative affective state (DeSteno et al., 2004). Threats to self-esteem have also

been shown to produce affective reactions (Pyszcynski et at., 2004). Events

leading to a negative appraisal, especially in which negative feedback is received

relating to personal failure and self-esteem threat have a significant probability to

produce negative affect, especially anger (Lerner & Keltner, 2000). This could

result from an individual receiving negative feedback on an individual task such

as an academic test for which they are solely responsible for and had previously

thought to be well prepared for or had performed well (Lerner & Keltner, 2000;

Pyszcynski et al., 2004). With a change in affect, behavior could be influenced as

well. If anger were present in such an individual, judgement may be influenced

including the appearance of prejudices not previously salient and unrelated to the

precipitating feedback (DeSteno et al., 2004).

Background Study

Fein and Spencer (1997) investigated a potential connection between self-

image maintenance and prejudiced behavior. In their first experiment,

participants completed a self-affirmation task designed to affirm an aspect of their

self-concept. The task involved selecting a life value important to the participant

and writing several paragraphs explaining the personal importance of the value (Fein & Spencer, 1997). Participants then moved on to an evaluation task requiring participants to evaluate a female applicant for a personal manager position of a workplace using job application materials designed to portray an applicant who was qualified for the position but not a "stellar" candidate (Fein & Spencer, 1997). Photographs and video excerpts of applicants were included and edited to portray a member of one of two ethnicities. Half of the participants were shown details suggesting that the applicant was of Jewish descent and the other half of participants were shown details suggesting that the applicant was not of Jewish descent and was likely Italian. These ethnicities were chosen due to salient stereotypes present at the location of the study (the University of Michigan) related to the "Jewish American princess" (JAP), student willingness to openly discuss such stereotypes, and the nonsalient nature of a minority group of Italian women on campus (Fein & Spencer, 1997). Participants rated the job candidate in terms of overall personality and job qualifications by indicating their agreeance on a seven-point scale with statements regarding personality traits potentially possessed by the candidate (Fein & Spencer, 1997). Participants also rated the job candidate in terms of job fit by indicating their agreeance on a seven-point scale with statements regarding qualifications and likeliness to hire the candidate. Results of the first study suggested that participants in the self-affirmation group provided less negative ratings of the "JAP" applicant than a

control group not given a self-affirmation. Applied more broadly, it seems that self-affirmation may reduce the likelihood of engaging in prejudiced behavior (Fein & Spencer, 1997).

For the second study, participants were presented with an intelligence test measuring verbal and reasoning abilities. Upon completion of the test, participants were shown a predetermined percentile score which indicated poorer than expected performance. This negative feedback created self-image threat as opposed to the affirmation in the first study. The control group was told of the bogus nature of the test and told to read it without attempting to correctly answer any questions (Fein & Spencer, 1997). Participants then undertook a social judgement task in which they read a short, fictional passage about a young man living in New York City. The young man was either implied to be heterosexual for half of the participants (indicated by use of the term "girlfriend" to denote his roommate) or gay for the other half of participants (indicated by use of the term, "partner" to denote his roommate) (Fein & Spencer, 1997). Participants then used an 11-point scale ranging from 0 (not at all) to 10 (extremely) to rate the young man's personality on several dimensions. The results suggested that individuals faced with self-image threat in the form of the negative feedback from the false test are more likely to evaluate targets in a manner consistent with gay stereotypes if the target is implied to be gay than if they are heterosexual. The results also suggested that if self-image threat does not occur, no strong effect

on evaluation should occur due to the lack of self-image threat activating a self-image maintenance response (Fein & Spencer, 1997).

In the final study, participants were given a false intelligence test to complete similar to the test used in the second study. Half of the participants were shown results indicating they performed well (affirmation) and the other half of the participants were shown results indicated they performed poorly (threat). Participants then completed the same evaluation task from the first study. Participant self-esteem was measured during this study following the revelation of false test results to participants and following the evaluation task using a state self-esteem scale (Heatherton & Polivy, 1991). Fein and Spencer found that when participants were affirmed as opposed to threatened, the participants' self-esteem was significantly higher than participants who experienced self-image threat. Further, the degree to which participants engaged in stereotyped judgments of the applicant was dependent upon whether they were affirmed or threatened (greater stereotyped judgments when threatened) (Fein & Spencer, 1997).

Overall, Fein and Spencer (1997) used these studies as a basis for the idea that stereotyping and prejudiced behavior may serve as a third method of self-image maintenance aside from immunization and coping. In their studies, it was demonstrated that participants showed a decreased likelihood to negatively

evaluate a member of a stereotyped group if their self-image had been affirmed and that participants showed an increased likelihood to negatively evaluate a member of a stereotyped group if their self-image had been threatened. Their research suggests that individuals faced with self-image threat and seeking affirmation of previously held self-concepts will resort to "stereotyping or derogation of a member of a stereotyped group [to] provide such situational opportunities to restore a threatened self-image" (Fein & Spencer, 1997, p. 40).

Since the original publication in the *Journal of Personality and Social Psychology*, Fein and Spencer's study has been cited in 1251 academic papers and books on Google Scholar with little to no disagreement from authors. Authors including Dr. Roy Baumeister have used Fein and Spencer's study to justify the inclusion of derogation and discrimination in self-esteem topics (Baumeister, Campbell, Krueger, & Vohs, 2003). The study is also mentioned in less academic web pages including the Wikipedia entry for self-esteem and various other pages. This creates a pattern of the paper being used by researchers to discuss self-esteem but not to discuss self-concept or self-image.

Problems with Background Study

There are some issues with Fein and Spencer's (1997) paper as published which both detract from the strength of their arguments and lead to some questions to be answered. One issue arises from assumptions readers are

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forced to make. Most of these assumptions exist due to a lack of justification for decisions made in the studies. In the first and third studies, the ethnic groups used (Italian American and Jewish American Princess) are discussed as being appropriate for use due to conditions on campus. It is stated that the groups were found to be salient towards students on campus, but it is not stated how this was quantified to be appropriate for use in the study (Fein & Spencer, 1997). It does not appear that any pilot testing was done to ensure the salience of stereotypes regarding these groups (Fein & Spencer, 1997). Doing such a form of pilot testing should be essential before using these groups as potential targets for prejudice. It was indicated that pilot testing was carried out to ensure that the details used to imply target ethnicity were sufficient, but this does not address the stereotypes of the ethnic groups (Fein & Spencer, 1997). Based upon results shown, it appears the stereotypes were indeed salient, but this cannot be assured without pilot data or the necessary ancillary data. Ensuring salience is especially important as without the presence of previously salient stereotypes towards a population group, the prejudices expressed may have occurred spontaneously, appearing without prior consideration. This would imply that the prejudice is not specifically tied to participants finding a target suitable for prejudice, but rather seeking out any opportunity to act in a prejudiced manner towards another person.

The two largest problems associated with Fein and Spencer's (1997) paper are issues on a scale affecting the premise of the paper. The first issue relates to conflation of self-concept and self-esteem. As stated previously, self-concept and self-esteem are differentiated through the assignment of valence to the dimensions of the self-concept (Greenwald et al., 2002). Due to the presence of valence in self-esteem, emotional appraisal is expected along with the initial valence judgement. The topic of the paper is self-image maintenance processes, yet state self-esteem is measured and treated as a suitable stand-in for self-concept despite being a separate construct (Fein & Spencer, 1997; Greenwald et al., 2002). The transference of self-image maintenance processes to self-esteem requires justification which is not presented. This conflation creates another issue for the premise that derogation of stereotyped individuals functions as self-image maintenance. Such an occurrence depends on finding that the derogation reaffirms self-image in individuals following self-image threat. However, from a logical standpoint, nothing inherent in derogation of others should reaffirm threatened self-image as academic performance and appraisal of others are not closely related. In this research, academic self-concept was threatened but was supposedly restored through a process unrelated to academic achievement. Derogation of others may possibly affect social self-concept but not one's own academic self-concept. Per the hierarchical model of self-concept, academic performance on the false test and social evaluations would constitute separate

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facets of self-concept (academic and social, respectively) (Byrne, 1984). If the

derogation is instead addressing valence properties of individuals, it may affect

self-esteem. However, conceptually, self-esteem and self-concept are

independent constructs, with only self-esteem including a valence component.

Instead, it may be possible that the derogation of stereotyped individuals

constitutes an emotional response to self-esteem threat. Emotional response

would affect valence judgements and could be used in a form of self-esteem

maintenance, but this is not the conclusion drawn by Fein and Spencer (1997),

who instead relied on a self-concept maintenance explanation. Therefore, the

impetus for the current study is to address these limitations of the original study.

<div align="center">Alterations for Correction</div>

In their paper, Fein and Spencer (1997) provide evidence for a

phenomenon which requires a very precise sequence of events. Based upon

their conclusion, self-image threat initiated a very specific form of self-image

maintenance. The derogation of stereotyped individuals was taken to constitute

this self-image maintenance which reaffirmed the individual's self-image.

However, the academic self-image was the exact recipient of the self-image

threat while the target of derogation was evaluated in a manner which did not

obviously relate to academic self-image. Given the hierarchical model of the self-

concept, social appraisals used as a form of self-image maintenance should

have no effect on academic self-image due to social self-image existing as a

<div align="center">15</div>

separate facet of general self-concept. Derogation was established to be a self-image maintenance process which was capable of restoring self-image through a separate construct, self-esteem (Fein & Spencer, 1997). This creates another issue as self-esteem was conflated with self-concept/self-image despite being a unique construct separated from self-concept by assignment of valence. Self-image threat was manipulated through the use of a false test but was then measured using a state self-esteem scale (Heatherton & Polivy, 1991). Based upon this error of operational construct definitions, the present study attempted to replicate the study conceptually keeping self-image and self-esteem independent.

While it is possible that self-image threat occurred in the original studies, self-concept is generally fairly stable and should not be so vulnerable to threat as to result in an outcome such as prejudice (Epstein, 1973; Fein & Spencer, 1997). Instead, it is currently hypothesized that the prejudice witnessed was the result of an emotional reaction to negative feedback. This negative feedback, in the form of poor results on the false test, had the possibility to produce anger in participants (Lerner & Keltner, 2000). If this effect was present in participants receiving negative feedback, their appraisal and judgement abilities may have been altered and even have resulted in incidentally prejudiced behaviors (DeSteno et al., 2004). Whether or not the derogation of outgroup members was the direct result of unrelated anger or due to changes in judgement abilities, it

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was presently hypothesized that it was more likely that emotional changes were the cause for prejudice rather than self-image maintenance.

In order to provide evidence in favor of this hypothesis, Fein and Spencer's study was replicated in the current study with an effort to address the limitations presented. The source of potential self-image threat, the false test, as well as the evaluation task to provide a potential target of prejudice was used (Fein & Spencer, 1997). Prior to taking the false test, in addition to after the test and after the evaluation task, the same state self-esteem measure (Heatherton & Polivy, 1991) was administered for participants to complete. Multiple data collection periods allowed for more comprehensive monitoring of self-esteem to be carried out. Galvanic skin response data were also gathered from participants during all phases of testing to monitor changes in arousal indicative of changes in emotion (Westerink, van den Broek, Schut, van Herk, & Tuinenbreijer, 2008). In addition, a second self-report measure of emotion, the Brief Mood Introspection Scale (BMIS) provided additional information concerning mood effects in the task (Mayer & Gaschke, 1988). A self-concept measure, the Self-Description Questionnaire III (SDQ-III) was also administered along with the state self-esteem measure in order to examine the independent contributions of self-concept and self-esteem to the observed judgments (Marsh & O'Neill, 1984).

The job applicants for the evaluation task were also modified. A pilot study was conducted to determine suitable stereotyped and nonstereotyped minority groups which were salient to students at Stephen F. Austin State University. Local social group selection addressed two problems, the first being that the ethnic groups used by Fein and Spencer (1997) were not saliently stereotyped by the Stephen F. Austin State University student body; it also attempted to address the construct validity problem in the original paper by ensuring that the stimuli were conceptually replicated and validated to be salient within participants.

METHOD

Participants

Participants were 113 undergraduate students recruited through an online

recruitment system from psychology classes at Stephen F. Austin State

University. Students received course credit for participation. Participants who

submitted demographic information were primarily female with white participants

making up the largest ethnic proportion of participants (M = 19.75 years, SD =

2.147 years). A detailed breakdown of sample demographics is presented in

Table 1.

		Race					
		White	Black or African American	Hispanic or Latino	Asian	Multiple	**Total**
Gender	Female	37 (32%)	21 (18%)	19 (17%)	2 (2%)	12 (10%)	91 (79%)
	Male	12 (10%)	4 (3%)	4 (3%)	0	2 (2%)	22 (19%)
	Total	49 (43%)	25 (22%)	23 (20%)	2 (2%)	14 (12%)	113

Table 1. Sample demographic information regarding gender and ethnicity of
participants.

Measures

Arousal

Arousal was measured using galvanic skin response (GSR). Galvanic skin

response measures the arousal through the conductance of electricity via sweat

released from participants' skin. This is accomplished by measuring direct

current (DC) impedance through electrical sensors placed on the participants'

fingers and is recorded in terms of millivolts. Raised levels indicate increased

sweat and associated arousal. Sweat levels increase during periods of arousal

including variations in emotion (Westerink et al., 2008). The Biopac Systems kit

was used to measure GSR and reports were stored on a computer.

<u>Mood</u>

Mood was measured using the Brief Mood Introspection Scale (BMIS)

(*see Appendix A).* The BMIS is a 16-item mood scale which allows for

measurement of overall pleasant-unpleasant mood and arousal-calm mood with

subscales for positive-tired mood (comparing positively regarded mood

adjectives to a "tired" and a "drowsy" adjective) and negative-calm mood

(comparing negatively regarded mood adjectives to a "calm" adjective). Each

item requires the participant to respond on a four-point scale (definitely do not

feel, do not feel, slightly feel, and definitely feel) to an emotionally charged word,

for example, lively, happy, or content. For each scale or subscale, items which

are associated with the first identifier of the scale or subscale (i.e., pleasant or

arousal) are scored positively while items which are associated with the first

identifier of the scale or subscale (i.e., unpleasant or calm) are reversed scored.

All items can be added together to represent a score between pleasant and

unpleasant. An optional 17th item ascertains overall pleasantness of mood but is

listed separately and is in a different format (-10 to 10) (Mayer & Gaschke, 1988).

<u>Self-Concept</u>

Self-concept was measured using the Brief Version of the Self-Description Questionnaire III (SDQ-III) (*see Appendix B*). The SDQ-III is comprised of 136 items assessing 13 aspects of self-concept including mathematics, verbal ability, school, problem solving/creativity, physical ability/sports, physical appearance, same sex relationships, opposite sex relationships, parent relationships, religion/spirituality, honesty/reliability, emotional stability/security, and general self-concept. Each aspect is measured using 10-12 items. Positively regarded items are scored positively while negatively regarded items are reverse scored and items from each subscale are added together to create an aspect score with higher scores indicating greater strength of an aspect (Marsh & O'Neill, 1984). Strength in self-concept subscales relates to the degree to which a participant feels they are proficient in an aspect or that the aspect adequately describes them except for general self-concept. General self-concept refers to the clarity with which an individual views their own self-concept, making the subscale somewhat retrospective of the overall scale. Therefore, higher scores in general self-concept reflect a strong sense of clarity of one's own self-concept while low scores indicate that participants may be unclear as to their own ideas about themselves. Self-concept was measured to evaluate the degree of self-concept changes due to self-image threat as well as the ability to restore self-concept following a reaction to self-image threat. In order to reduce the overall number of questions presented to participants, only the 62 items pertaining to the

mathematics, verbal, school, problem solving/creativity, emotional stability/security, and general self-concept were used as these items were potentially related to the false intelligence test and the mood variable.

State Self-Esteem

State self-esteem was measured using the State Self-Esteem Scale (*see Appendix C)*. This scale is a 20-item scale measuring participant self-esteem at the time of testing. The 20 items are divided into 3 subdivisions of self-esteem: performance, social, and appearance self-esteem. Items are answered on a 5-point scale according to how well the participant believes the phrase describes them (1 = not at all, 2 = a little bit, 3 = somewhat, 4 = very much, 5 = extremely). Thirteen items are reversed scored and can be combined to represent a total self-esteem rating. High scores indicate strong feelings of confidence regarding skills in each subdivision while low scores indicate feelings of deficiency (Heatherton & Polivy, 1991).

Procedure

Pretest

Participants were told they were participating in two separate experiments in a single session to conserve time. Participants were told they were first taking part in a study of the relationship between test-taking abilities and emotion. After providing consent, participants were fitted with galvanic skin response monitoring equipment consisting of two electrodes applied to participants' non-dominant

hand index and ring fingers and the system self-calibrated using Biopac Systems

software. Three data points were marked during the course of the study with the

first occurring at this time: a baseline reading at the beginning of the pretest.

Participants were then instructed to complete, in order, the State Self-Esteem

Scale, the Self-Description Questionnaire III (SDQ-III), and Brief Mood

Introspection Scale (BMIS) (Heatherton & Polivy, 1991; Marsh & O'Neill, 1984;

Mayer & Gaschke, 1988). These measures were completed on a computer using

Inquisit software. Each page was presented on a white background in black font

and allowed participants unrestricted time to respond to each item with five to

eight items displayed per page to allow for even spacing of items per scale.

<u>Manipulation of Feedback</u>

Participants were told that they would next complete a test designed for

students at their level of education and that the test would be completed on a

computer using Inquisit software. One third of the participants were assigned

randomly to the negative feedback condition. One third of the participants were

assigned randomly to the positive feedback condition. One third of the

participants were assigned randomly to the neutral feedback condition. For the

positive and negative feedback groups, participants were told that the test was

designed to study test-taking abilities in students and that they should attempt to

complete the items to the best of their ability. For the neutral feedback group,

participants were instructed to read through questions but to refrain from

attempting to correctly answering questions correctly or thinking about questions for any significant amount of time because the questions require more time to complete than is allowed. The neutral condition allowed for participants to be presented with the same academic material as other participants without challenging or reinforcing self-esteem and self-concept. A three level design allowed for comparison of both directions of change (positive and negative reinforcement) to a neutral condition. Participants were told that the score displayed at the conclusion of the test would be false and not indicative of their true test-taking abilities. The purpose of the neutral condition was to ensure that all participants were presented with identical materials for identical periods of time between measurement periods for dependent variables.

All instructions for the test were displayed on the computer. The test consisted of 25 questions pulled from advanced tests used for admission to graduate school or law school (see *Appendix D*) (Council, 2007; Staff of Kaplan Test Prep and Admissions, 2004). Constraining time limits were set for each question to facilitate uncertainties about performance as sufficient time was not available for each test item. For items pertaining to verbal ability, 15 seconds were allowed for each item. For items pertaining to syllogisms, 30 seconds were allowed for each item to account for the reading necessary for each item. A maximum time of eight minutes and 15 seconds was allowed for the test. At the conclusion of the test, the computer displayed a screen indicating a test scores in

the form of percentile scores amongst other participants for 30 seconds and the score was read to the participant using an audio file on the computer. Unbeknownst to the participants, all percentile scores were predetermined in line with the feedback condition assigned to each participant. The audio file conveying percentile scores was designed with intentional pauses in cadence to imply the message was being automatically generated by the program following calculation of legitimate scores. The explanation consisted of the phrase, "You scored in the "xx" percentile. This means that you scored higher than "xx" % of other participants and that "xx" % of participants scored higher than you." Participants in the positive feedback condition were shown a percentile score placing them in the 90th percentile amongst participants. Participants in the negative feedback condition were shown a percentile score placing them in the 30th percentile amongst participants. Participants in the neutral feedback condition were shown a screen thanking them for their participation.

<u>Mid-Test</u>

Participants were instructed to again complete the State Self-Esteem Scale, the Self-Description Questionnaire II (SDQ-III), and Brief Mood Introspection Scale (BMIS) in the same manner as during the pretest (Heatherton & Polivy, 1991; Marsh & O'Neill, 1984; Mayer & Gaschke, 1988). The Biopac System continued collecting data with a second marker added to indicate the beginning of the mid-test.

The evaluation task was portrayed as a separate experiment. Participants were told that the first experiment had ended and that they were to proceed to an experiment to study social evaluations and emotion. Participants were shown a copy of a completed job application for a managerial position at an unspecified local business. The application provided information about the applicant's previous work experience, academic and extracurricular skills and interests, and other job-related information. The completed application suggested that the applicant was sufficiently well qualified for the position but was not an outstanding candidate (Fein & Spencer, 1997). An accompanying description of position responsibilities was provided including necessary previous experience and skills for the position at the unnamed business (see *Appendix E).* A photograph of the applicant was also provided to the participant. The applicant pictured was portrayed as either a locally nonstereotyped (marching band member) or a locally stereotyped group (fraternity member) as determined by a pilot study (see *Appendix F*). The picture was created using an image from the Chicago face database which had a purple shirt and lettering indicating a fraternity or a logo indicating the Stephen F. Austin State University Marching Band (Ma, Correll, & Wittenbrink, 2015).

Prior to experimentation, pilot testing was completed to determine local stereotypes held by Stephen F. Austin State University students. This pilot study

assessed salient stereotypes known to students as well as student openness to discussion of these stereotypes. The pilot study was conducted online in two parts. The first part defined social groups to participants and then asked them to identify several social groups on campus as well as list physical and personality characteristics of group members. From the first part of the pilot study, 110 unique social groups were identified. Social subgroups belonging to larger groups such as specific sororities to sororities in general were combined and the five groups identified by participants most frequently were selected for use in the next part of the study. In part two of the pilot study, participants were asked to rate each social group in terms of campus perception (positive/negative) and personal perception (positive/negative) as well as identifying common stereotypes for each group and the participant's openness to discuss these stereotypes with others. From this pilot study, a locally nonstereotyped population (marching band members) and a locally stereotyped population (fraternity members) were identified. The locally nonstereotyped population was comprised of a local population for which no strong stereotypes existed for Stephen F. Austin State University students. The locally stereotyped population was comprised of a local population for which strong negative stereotypes existed as well as which were readily and openly discussed by Stephen F. Austin State University students.

Participants from each feedback condition were randomly assigned to one of the two stereotype conditions. Half of the participants were randomly assigned to the locally nonstereotyped condition. The other half of participants were randomly assigned to the locally stereotyped condition. Participants in both conditions were shown the same completed application and description of position responsibilities. The photograph of the applicant differed between experimental conditions to portray a member of the corresponding stereotype condition. The individual depicted in the photograph was the same person in each photograph but had shirt details depicted to correspond with each experimental condition.

Participants were allowed to look over the provided material for unlimited time prior to completing questions on the computer using Inquisit software. Participants rated the applicant in terms of overall personality (rating) and qualifications for the job (suitability) using the same scales constructed by Fein & Spencer (1997) (see *Appendix G*). The applicant rating scale consisted of 20 items (α = .919) and the applicant suitability scale consisted of four items (α = .892). Personality was assessed by the extent to which participants agreed (on a 7-point scale) that each of the following traits described the applicant: intelligent, insensitive, trustworthy, arrogant, sincere, inconsiderate, friendly, self-centered, down-to-earth, rude, creative, materialistic, motivated, cliquish, ambitious, conceited, happy, vain, warm, superficial. Negative traits (insensitive, arrogant,

inconsiderate, self-centered, rude, materialistic, cliquish, conceited, vain,

superficial) were reverse scored to provide a single direction-oriented final score.

This score provided an integer-value rating of the applicant from the participant.

High scores for an applicant indicated a positive evaluation of the applicant from

the participant while low scores indicated a negative evaluation of the applicant

from the participant. Job qualifications for applicants were assessed by the extent

to which participants agreed (on a 7-point scale) with the following statements: "I

feel this person would make an excellent candidate for the position in question,"

"I would likely give this person serious consideration for the position in question,"

"I would guess that this person is in the top 20% of people interviewed," and "I

felt favorably toward this person."

Posttest

After completion of the evaluation task, participants were instructed to

once again complete the State Self-Esteem Scale, the Self-Description

Questionnaire III (SDQ-III), and Brief Mood Introspection Scale (BMIS) in the

same manner as during the pretest (Heatherton & Polivy, 1991; Marsh & O'Neill,

1984; Mayer & Gaschke, 1988). After completing the above measures,

participants completed a demographics form including items for age, gender, and

ethnicity. They were also asked to identify any social groups they believed the

applicant may have belonged to as well as if they identified with that group as

potential exclusion criteria as bias may have resulted from strong identification

with a job applicant due to the effect of in-group bias. After placing a final marker in the Biopac Systems software to indicate the conclusion of the posttest, participants were then debriefed and were informed that they had completed a single study. Participants were informed of the necessity of deception in order to limit demand characteristics and responses due to social desirability. Participants were also told that the purpose of the study was to investigate the effects of self-image threat and emotion on judgment. The Biopac Systems software was then stopped and the Biopac equipment was removed from participants. Participants were thanked for their participation, given contact information for experimenters in the event of further questions, asked to keep the procedure and contents of the experiment confidential, and escorted out of the experiment area.

Correlations Between Measures

Using baseline measurements, correlations were calculated for measures to predict any potential relationships between measures and multicollinearity. Correlations are shown in Table 2.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. State Self-Esteem	1													
2. Performance Self-Esteem	.765**	1								** = $p < .01$				
3. Social Self-Esteem	.861**	.576**	1							* = $p < .05$				
4. Appearance Self-Esteem	.837**	.430**	.605**	1										
5. Math Self-Concept	.087	.206*	.082	.004	1									
6. Verbal Self-Concept	0.13	.286**	.164	-.017	-.181	1								
7. School Self-Concept	.307**	.468**	.245*	.134	.326**	.373**	1							
8. Problem Solving Self-Concept	.192	.227*	.199*	.072	-.028	.378**	.196*	1						
9. Emotion Self-Concept	.509**	.369**	.437**	.463**	.116	.155	.179	.279**	1					
10. General Self Concept	.761**	.499**	.655**	.721**	.079	.168	.157	.210*	.603**	1				
11. BMIS Pleasant/Unpleasant	.464**	.272**	.450**	.455**	.171	.118	.284**	.275**	.583**	.500**	1			
12. BMIS Arousal/Calm	-.309**	-.195	-.240*	-.299**	-.235*	.003	-.077	.183	-.355**	-.268**	-.118	1		
13. BMIS Overall	.333**	.294**	.277**	.328**	.018	.032	.211*	.140	.462**	.417**	.591**	.038	1	
14. GSR	-.142	.028	-.142	-.212*	.074	.035	.014	.053	-.221*	-.101	-.183	.124	.236	1

Table 2. Correlations of measures at baseline

Manipulation Check

Using a factorial multivariate analyses of variance (MANOVA), manipulation checks were performed to ensure that the false intelligence test and

evaluation tasks had significant effects on dependent variables relating to self-esteem (state self-esteem, performance self-esteem, social self-esteem, and appearance self-esteem) and self-concept (math, verbal, school, problem solving, emotion, and general). Independent variables were feedback group (negative, neutral, and positive) and applicant social group (stereotyped and nonstereotyped). All dependent variables were measured continuously, and all independent variables were independent, categorical groups. Observations were independent from each other for each independent variable. Sample size was adequately large ($111 \leq n \leq 113$) for each measure with 18-20 participants per experimental group. Two participants were excluded from the analysis of GSR data due to errors in data recording. No significant outliers were observed in any variables and multivariate normality was observed. There was a homogeneity of the variance-covariance matrices and no multicollinearity. With all assumptions satisfied, the MANOVA was carried out.

Overall tests of effect revealed that no statistically significant main effect for feedback group existed, Wilks' Lambda = .612, $F(40, 176) = 1.234$, $p = .188$, $\eta_p^2 = .218$. No statistically significant main effect for applicant social group existed, Wilks' Lambda = .924, $F(20, 88) = .363$, $p = .994$, $\eta_p^2 = .076$. Furthermore, no statistically significant interaction existed between feedback and applicant social group, Wilks' Lambda = .741, $F(40, 176) = .713$, $p = .896$, $\eta_p^2 = .139$. Looking at individual measures, there was a statistically significant

difference in general self-concept based on feedback group, $F(2, 104) = 3.651$, p = .029, η_p^2 = .064. Post-hoc tests revealed that the positive feedback group had a higher general self-concept score than both the negative and neutral feedback groups as expected while no significant difference existed between negative and neutral feedback groups (see Figure 1). No statistically significant differences were found in any other dependent variables based on feedback group or evaluation target. Based on these results, it was determined that failures to manipulate occurred for most dependent variables relating to self-esteem or self-concept except for the effect of feedback group on general self-concept. This applied to changes in each measure from baseline to posttest although there was no significant change from posttest to postevaluation.
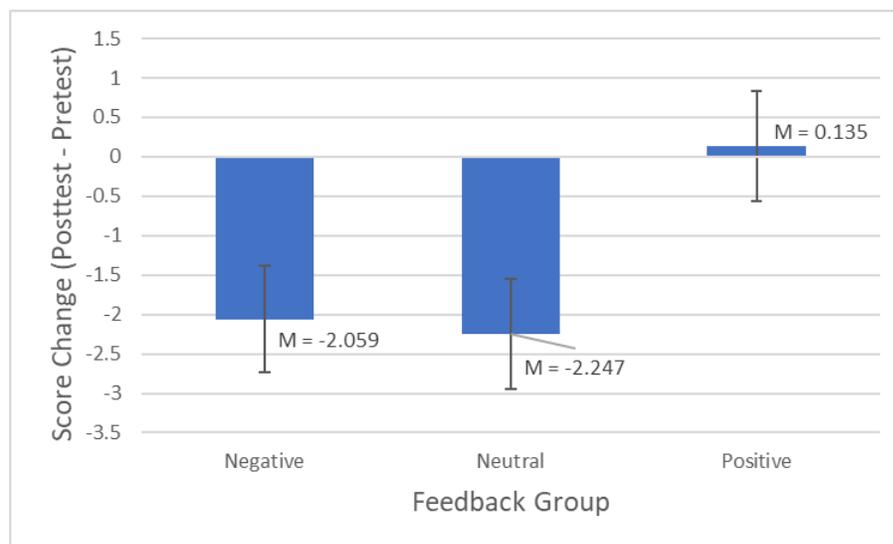
Figure 1. Mean general self-concept score changes in relation to feedback group. Positive values indicate increases in general self-concept score while negative values indicate decreases in general self-concept score. Error bars indicated +/- range of one standard deviation.

A second factorial MANOVA was used to perform manipulation checks to ensure that the false intelligence test and evaluation tasks had significant effects on dependent variables relating to mood (BMIS pleasant-unpleasant, BMIS arousal-calm, BMIS overall) and GSR. Independent variables were feedback group (negative, neutral, and positive) and applicant social (stereotyped and nonstereotyped). All dependent variables were measured continuously, and all independent variables were independent, categorical groups. Observations were independent from each other for each independent variable. Sample size was adequately large ($111 \leq n \leq 113$) for each measure with 18-20 participants per experimental group. No significant outliers were observed in any variables and multivariate normality was observed. There was a homogeneity of the variance-covariance matrices and no multicollinearity. With all assumptions satisfied, the one-way MANOVA was carried out.

Overall tests of effect revealed that no statistically significant main effect for feedback group existed, Wilks' Lambda = .802, $F(16, 194) = 1.414$, $p = .138$, $\eta_p^2 = .104$. No statistically significant main effect for applicant social group existed, Wilks' Lambda = .977, $F(8, 97) = .289$, $p = .968$, $\eta_p^2 = .023$. Furthermore, no statistically significant interaction existed between feedback and applicant social group, Wilks' Lambda = .858, $F(16, 194) = .966$, $p = .496$, $\eta_p^2 = .074$. Looking at individual measures, there was a statistically significant difference in BMIS overall based on feedback group, $F(2, 104) = 8.718$, $p < .000$, $\eta_p^2 = .144$.
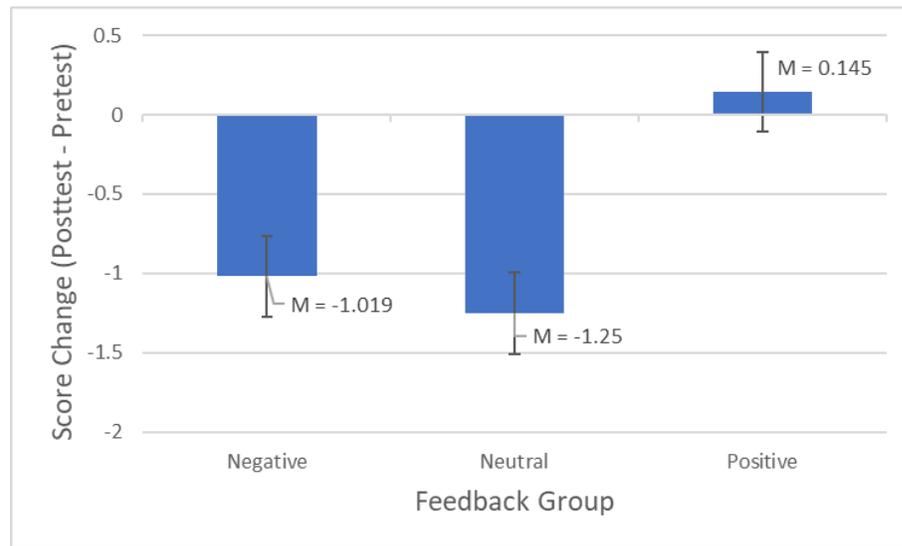
Figure 2. Mean BMIS overall score changes in relation to feedback group. Positive values indicate increases in BMIS overall score while negative values indicate decreases in BMIS overall score. Error bars indicated +/- range of one standard deviation.

Post-hoc tests revealed that the positive feedback group had a higher BMIS overall score than both the negative and neutral feedback groups as expected while no significant difference existed between negative and neutral feedback groups (see Figure 2). No statistically significant differences were found in any other dependent variables based on feedback group or evaluation target. Based on these results, it was determined that failures to manipulate occurred for most dependent variables relating to mood and GSR except for the effect of feedback group on BMIS overall. This applied to changes in each measure from baseline to posttest although there was no significant change from posttest to postevaluation.

Replication of Fein and Spencer

The results of the original study indicated that participants who received negative feedback would evaluate job applicants from a stereotyped group more negatively than participants who received neutral or positive feedback or who evaluated job applicants from a nonstereotyped group. To analyze the replication of Fein and Spencer's original study, a two-way ANOVA was carried out for both dependent variables, applicant rating and applicant suitability. Participant feedback group (negative, neutral, positive) and applicant social group

(stereotyped fraternity member vs. nonstereotyped marching band members) were independent variables. Prior to analysis, data were screened for assumptions needed. All dependent variables were continuous; independent variables were categorical, observations were independent, significant outliers were removed, the dependent variables were approximately normally distributed, and homogeneity of variances for each group combination was confirmed.

A two-way ANOVA was conducted that examined the effect of feedback and applicant social group on applicant rating, an evaluation of applicant personality traits. There was not a statistically significant main effect for feedback on applicant rating, $F(2, 107) = 1.433$, $p = .243$, Post-hoc Power = .301. There was not a statistically significant main effect for applicant social group on applicant rating, $F(1, 107) = 3.194$, $p = .077$, Post-hoc Power = .425. There was not a statistically significant interaction between feedback and applicant social

group on applicant rating, $F(2, 107) = .588$, $p = .557$, Post-hoc Power = .146.

Comparative means and standard deviations for applicant rating from feedback groups and applicant social groups are presented in Figure 3. The analysis was repeated excluding participants data for participant who indicated that they personally identified with the job applicant, but results were not significantly changed.
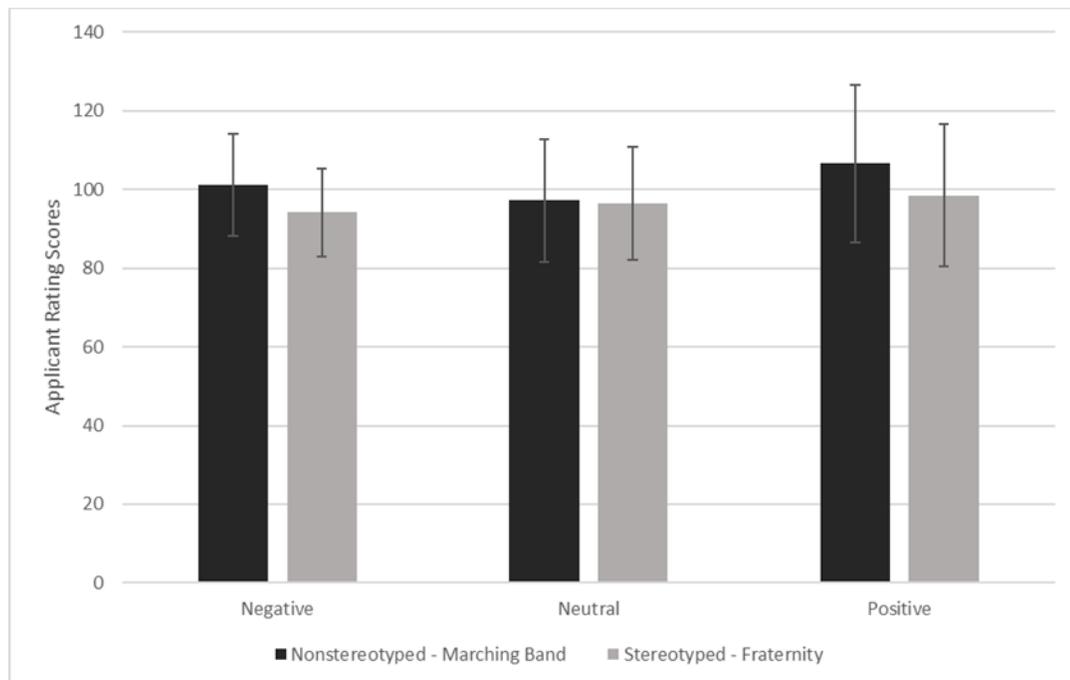
Figure 3. Mean applicant rating scores and standard deviations based on feedback group and applicant social group. Error bars indicated +/- range of one standard deviation.

A second two-way ANOVA was conducted that examined the effect of feedback and applicant social group on applicant suitability, an evaluation of

applicant suitability for the job position presented. There was not a statistically significant main effect for feedback on applicant suitability, $F(1, 107) = .399$, $p = .672$, Post-hoc Power = .113. There was not a statistically significant main effect for applicant social group on applicant suitability, $F(1, 107) = .155$, $p = .068$, Post-hoc Power = .301. There was not a statistically significant interaction between feedback and applicant social group on applicant suitability, $F(2, 107) = 1.599$, $p = .332$, Post-hoc Power = .301. Comparative means and standard deviations for applicant suitability from feedback groups and applicant social groups are presented in Figure 4. These results present a failure to replicate Fein and Spencer (1997) as no statistically significant interaction between feedback and applicant social group or main effects for feedback group or applicant social group was observed. The analysis was repeated excluding participants data for participant who indicated that they personally identified with the job applicant, but results were not significantly changed.
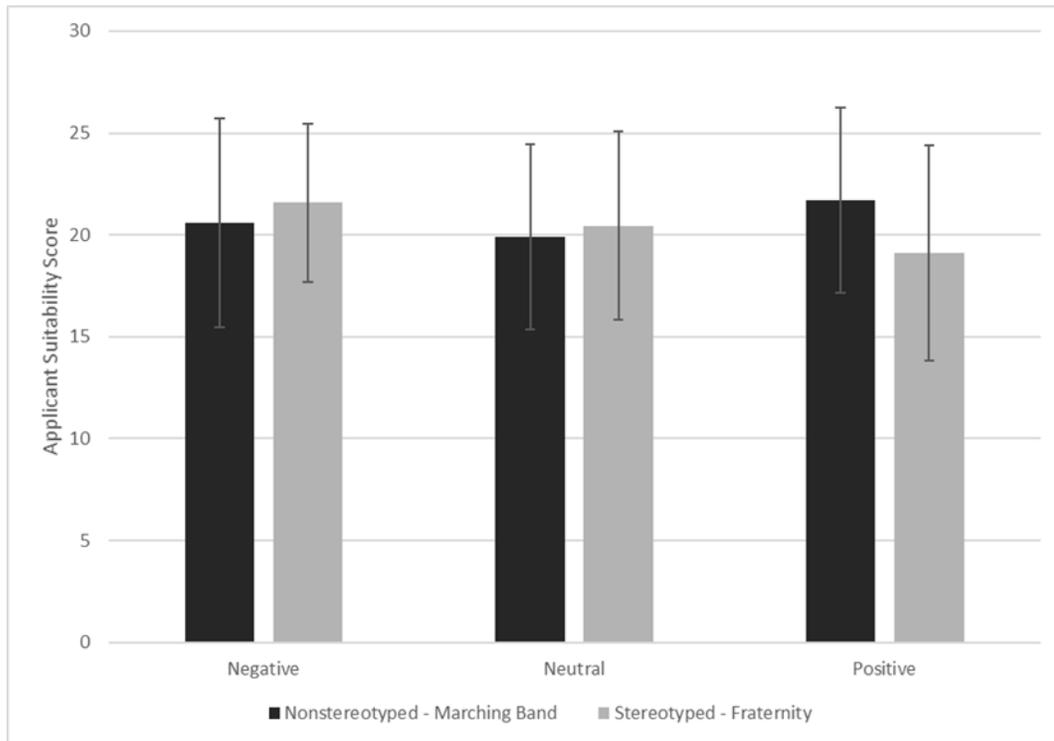
Figure 4. Mean applicant suitability scores and standard deviations based on feedback group and applicant social group.

Comparing Self-Esteem and Emotion Predictor Variables

The second main hypothesis was that emotion variables would be better predictors of derogation or negative evaluations than the self-esteem variable used by Fein and Spencer (1997). This hypothesis was tested using a hierarchical linear regression to predict job applicant evaluation in two forms, applicant rating and applicant suitability. The model first entered the self-esteem predictor variables used by Fein and Spencer (1997) followed by novel predictor variables. The self-esteem predictor variables were state self-esteem delta (the

change in self-esteem scores before and after feedback according to the State

Self-Esteem Scale), social self-esteem delta and appearance self-esteem delta,

two subscales of the State Self-Esteem Scale. Delta values were used as

opposed to raw scores because of the nature of the hypothesis. It was believed

that participants who were angered or otherwise upset by their feedback would

provide better predictive strength due to emotional changes compared to their

self-esteem changes. These changes could only be measured using differences

between variables before and after feedback. Performance self-esteem was not

included due to multicollinearity indicated by a strong correlation with state self-

esteem delta (Pearson's r (113) = .901, p < .001). Novel predictor variables

included delta values for BMIS overall and general self-concept from before and

after feedback. Data were screened for assumptions needed. Dependent and

predictor variables were measured on continuous scales. Independence of

observations was examined via a Durbin-Watson value of d = 2.001 and d =

2.234 for applicant rating and applicant suitability, respectively. Data points were

approximately linear and residuals showed homoscedasticity. No multicollinearity

was present as indicated by variance inflation factors which were below 3.2 for all

predictor variables. No outliers were found during standard data screening and

residual plots for each predictor variable presented normal distributions.

The first regression was conducted using applicant rating as the

dependent variable. Self-esteem variables were entered in the first block of

predictor variables followed by general self-concept in the second block and BMIS overall in the third block. Regression statistics are presented in Table 3. The model revealed that the self-esteem model did not statistically significantly predict applicant rating, $F(3, 109) = .032$, $p = .992$, $R^2 = .001$ and no individual predictor variable predicted applicant rating. When general self-concept was added to the model, the model still did not statistically significantly predict applicant rating, $F(4, 108) = 1.750$, $p = .144$, $R^2 = .061$. However, general self-concept did significantly predict applicant rating ($\beta = .263$, $p = .010$). Finally, when the emotion variable, BMIS overall, was added to the model, the model still did not statistically significantly predict applicant rating, $F(5, 107) = 1.465$, $p = .207$, $R^2 = .064$. Again, general self-concept predicted applicant rating ($\beta = .247$, $p = .019$).

Applicant Rating Regression Model

Variable	b	Std. Error	β	p	R^2	ΔR^2
Model 1				.992	.001	.001
State Self-Esteem	-.048	.324	-.024	.882		
Social Self-Esteem	.049	.667	.011	.941		
Appearance Self-Esteem	.300	.962	.036	.756		
Model 2				.144	.061	.060
State Self-Esteem	-.176	.319	-.088	.583		
Social Self-Esteem	-.141	.654	-.030	.830		
Appearance Self-Esteem	.331	.938	.039	.725		
General Self-Concept	.972	.370	.263	.010		
Model 3				.207	.064	.003
State Self-Esteem	-.228	.331	-.114	.493		
Social Self-Esteem	-.117	.657	-.025	.858		
Appearance Self-Esteem	.377	.943	.045	.690		
General Self-Concept	.912	.384	.247	.019		
BMIS Overall	.621	1.024	.064	.546		

Table 3. Regression table describing applicant rating predictive strength, significance, and explanatory power of models and individual predictor variables.

Reversing novel predictor variable entry order into the model (entering the mood predictor variable second followed by the self-concept predictor variable) did not significantly change the explanatory power of either model. Regression statistics are presented in Table 4. When BMIS overall was added to the model, the model did not statistically significantly predict applicant rating, $F(4, 108) = .400$, $p = .808$, $R^2 = .015$. No individual predictor variable predicted applicant rating. When general self-concept was added to the model, the model still did not statistically significantly predict applicant rating, $F(5, 107) = 1.465$, $p = .207$, R^2

=.064. However, general self-concept did significantly predict applicant rating (β

= .247, p = .019).

Applicant Rating Regression Model (Reverse Entry)

Variable	b	Std. Error	β	p	R^2	ΔR^2
Model 1				.992	.001	.001
State Self-Esteem	-.048	.324	-.024	.882		
Social Self-Esteem	.049	.667	.011	.941		
Appearance Self-Esteem	.300	.962	.036	.756		
Model 2				.808	.015	.014
State Self-Esteem	-.168	.338	-.084	.619		
Social Self-Esteem	.074	.666	.016	.912		
Appearance Self-Esteem	.396	.963	.047	.682		
BMIS Overall	1.241	1.012	.128	.223		
Model 3				.207	.064	.049
State Self-Esteem	-.228	.331	-.114	.493		
Social Self-Esteem	-.117	.657	-.025	.858		
Appearance Self-Esteem	.377	.943	.045	.690		
BMIS Overall	.621	1.024	.064	.546		
General Self-Concept	.912	.384	.247	.019		

Table 4. Regression table describing applicant rating predictive strength, significance, and explanatory power of models and individual predictor variables with novel predictors entered in reverse order.

Despite the inability for the models to predict applicant rating overall, general self-concept was able to predict applicant rating individually at a significant level in both entry orders. Furthermore, entry of general self-concept into the model increased the predictive power of each overall model significantly (ΔR^2 = .060, ΔF = 6.898, p = .010 and ΔR^2 = .049, ΔF = 5.656, p = .019, respectively). Entry of BMIS overall into the model did not increase the predictive power of each overall model significantly (ΔR^2 = .003, ΔF = .367, p = .546 and

ΔR^2 = .014, ΔF = 1.504, p = .223, respectively). The analysis was repeated

excluding participants data for participant who indicated that they personally

identified with the job applicant, but results were not significantly changed.

The second regression was conducted using applicant suitability as the

dependent variable. Self-esteem variables were entered in the first block of

predictor variables followed by general self-concept in the second block and

BMIS overall in the third block. Regression statistics are presented in Table 5.

The model revealed that the self-esteem model did not statistically significantly

predict applicant suitability, $F(3, 109)$ = .148, p = .931, R^2 =.004 and no individual

predictor variable predicted applicant rating. When general self-concept was

added to the model, the model still did not statistically significantly predict

applicant suitability, $F(4, 108)$ = .910, p = .461, R^2 =.033. However, general self-

concept did marginally predict applicant suitability (β = .181, p = .077). Finally,

when the emotion variable, BMIS overall, was added to the model, the model still

did not statistically significantly predict applicant suitability, $F(5, 107)$ = .745, p =

.591, R^2 =.034. Again, general self-concept marginally predicted applicant

suitability (β = .190, p = .074).

Applicant Suitability Regression Model

Variable	B	Std. Error	β	p	R^2	ΔR^2
Model 1				.931	.004	.004
State Self-Esteem	.000	.096	.000	.998		
Social Self-Esteem	.069	.197	.050	.728		
Appearance Self-Esteem	-.130	.284	-.052	.649		
Model 2				.461	.033	.029
State Self-Esteem	-.026	.096	-.044	.785		
Social Self-Esteem	.030	.196	.022	.880		
Appearance Self-Esteem	-.123	.281	-.050	.662		
General Self-Concept	.198	.111	.181	.077		
Model 3				.591	.034	.001
State Self-Esteem	-.017	.100	-.029	.862		
Social Self-Esteem	.026	.197	.019	.896		
Appearance Self-Esteem	-.131	.283	-.053	.644		
General Self-Concept	.208	.115	.190	.074		
BMIS Overall	-.104	.308	-.036	.736		

Table 5. Regression table describing applicant suitability predictive strength, significance, and explanatory power of models and individual predictor variables.

Reversing novel predictor variable entry order into the model (entering the mood predictor variable second followed by the self-concept predictor variable) did not significantly change the explanatory power of either model. Regression statistics are presented in Table 6. When BMIS overall was added to the model, the model did not statistically significantly predict applicant suitability, $F(4, 108) = .114$, $p = .977$, $R^2 = .004$. No individual predictor variable predicted applicant suitability. When general self-concept was added to the model, the model still did not statistically significantly predict applicant suitability, $F(5, 107) = .745$, $p =$

.591, R^2 =.034. However, general self-concept did marginally predict applicant

suitability (β = .190, p = .074).

Applicant Suitability Regression Model (Reverse Entry)

Variable	B	Std. Error	β	p	R^2	$ΔR^2$
Model 1				.931	.004	.004
State Self-Esteem	.000	.096	.000	.998		
Social Self-Esteem	.069	.197	.050	.728		
Appearance Self-Esteem	-.130	.284	-.052	.649		
Model 2				.977	.004	.000
State Self-Esteem	-.004	.100	-.006	.970		
Social Self-Esteem	.069	.198	.050	.727		
Appearance Self-Esteem	-.127	.286	-.051	.659		
BMIS Overall	.038	.301	.013	.901		
Model 3				.591	.034	.029
State Self-Esteem	-.017	.100	-.029	.862		
Social Self-Esteem	.026	.197	019	.896		
Appearance Self-Esteem	-.131	.283	-.053	.644		
BMIS Overall	-.104	.308	-.036	.736		
General Self-Concept	.208	.115	.190	.074		

Table 6. Regression table describing applicant suitability predictive strength, significance, and explanatory power of models and individual predictor variables with novel predictors entered in reverse order.

Despite the inability for the models to predict applicant suitability overall,

general self-concept was able to predict applicant rating individually at a marginal

level in both entry orders. Furthermore, entry of general self-concept into the

model increased the predictive power of each overall model marginally ($ΔR^2$ =

.029, $ΔF$ = 3.188, p = .077 and $ΔR^2$ = .029, $ΔF$ = 3.260, p = .074, respectively).

Entry of BMIS overall into the model did not increase the predictive power of

each overall model significantly (ΔR^2 = .001, ΔF = .114, p = .736 and ΔR^2 = .000,

ΔF = .016, p = .901, respectively). The analysis was repeated excluding

participants data for participant who indicated that they personally identified with

the job applicant, but results were not significantly changed.

DISCUSSION

Failure of Manipulation

A failure to manipulate occurred in terms of changes to scores in all measures except for subscales relating to general self-concept and BMIS overall. Any other changes in scores for other measure subscales were either not significantly different across conditions or did not change significantly. According to GSR data collected, participants in every feedback condition showed an increase in skin conductivity, indicative of an increase in arousal. Participants were all aroused and/or affected by the false-intelligence test, but the extent of arousal did not differ between feedback groups, including the neutral feedback group who were told not to attempt to accurately answer questions. It is possible that overall, participants disliked the task and it affected them negatively in terms of self-esteem, mood, and self-concept. However, significance in changes according to feedback in the general self-concept and BMIS overall showed that participants in the positive feedback conditions underwent significantly less change from pretest to posttest in their respective scales. In this case, a possible explanation is that after all groups were negatively affected by the task, the positive feedback group was returned to near baseline levels, indicating a restorative effect of the positive feedback after a negative change inducing task.

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A lack of salience to the feedback manipulation may have diminished any potential effect from the applicant social group presentation. Participants may have all viewed the false intelligence test as simply a difficult test without interpreting the differing meaning of the percentile scores presented to them. While the social group presentation was fairly obvious to participants in the form of a picture with large logos on a shirt, the large amount of details regarding the applicant may have overshadowed the pertinent detail. The full application material set consisted of a job description and three pages of information regarding the applicant before the final, potentially overlooked picture. Furthermore, the salience of social groups used may have been lower than the salience of social groups used by Fein and Spencer. Although pilot data are unavailable regarding campus perception of the Japanese American Princess social group, it was implied that the group was very well known to students and that very strong beliefs about the group existed (Fein & Spencer, 1997). The fraternity group used in the present study as the stereotyped social group, while indicated in pilot testing as saliently prejudiced against, may have not presented as strong of a reaction in participants as in the original study. This would be necessary to investigate for any study wishing to construct similar comparative social groups but was forced to be estimated for the present study.

The ability of the feedback condition and the applicant social group to manipulate changes in general self-concept and BMIS overall call for an analysis

of their differentiating characteristics from other subscales. General self-concept

is operationally described for the SDQ-III as measuring one's own clarity of their

self. A strong general self-concept indicates that an individual has a clear sense

of their overall self-concept, the traits and characteristics that define them. This

subscale may be treated as separate from and uncorrelated with subscales such

as math self-concept or problem-solving self-concept (Marsh & O'Neill, 1984).

Similarly, BMIS overall is a subscale measuring overall mood using a single-item

measured on a different scale from other items (21 options vs. four options)

(Mayer & Gaschke, 1988). While the independent nature of these subscales

would help to explain why these two subscales were able to be manipulated

independently from other subscales, little insight is offered into why these general

self descriptors would alter differently across feedback groups while academic

subscales related more directly to the task did not significantly change at all. It is

possible that although the more specific subscales were not affected enough to

generate significant movement in scores, the more general subscales may have

been affected by the insignificant changes in several smaller subscales with an

additive effect to create an overall significant change. In fact, correlations

collected showed that prior to any potential manipulation general self-concept

correlated positively and significantly with state self-esteem and all three

subscales, indicating that as general self-concept increased, so too did self-

esteem. Furthermore, general self-concept was significantly positively correlated

with problem solving self-concept and emotion self-concept (see Table 2). BMIS

overall correlated significantly positively with the BMIS pleasant-unpleasant scale as well. These correlations indicate that perhaps the subscales are not as independent from other subscales as previously believed. Another possibility is that participants have greater accuracy in assessing a global measure as opposed to more specific inquires of their own set of characteristics or their emotional state. Participants can more accurately estimate general characteristics and moods describing themselves than they can for more specific characteristics and moods, reducing measurement error.

<div align="center">Failure to Replicate</div>

The manipulation check indicated that negative feedback and no feedback (neutral) both showed decreases in self-concept (general self-concept) and in mood (BMIS overall). However, neither self-concept nor mood change altered applicant ratings of personality or job suitability. Differences between the present study and the original may provide explanations for the inability to replicate previous findings. The false-intelligence test and job application were designed to closely resemble Fein and Spencer's assemblies, but exact replicas were difficult to construct. For the feedback groups, percentile scores for positive and negative groups (90th and 30th, respectively) were different than those used by Fein and Spencer (93rd and 47th, respectively) (Fein & Spencer, 1997). The most obvious difference between the original and present study lies within the social groups used as targets for derogation. The locally stereotyped group in Fein and

Spencer's original study was a Jewish American Princess population salient stereotyped at their campus. Pilot information was referenced to justify this group selection (Fein & Spencer, 1997). In order to identify a similar group locally, pilot testing was conducted prior to the present study which identified strong, primarily negative beliefs about fraternity members in general at Stephen F. Austin State University and in addition, students indicated a willingness to discuss the negatives for fraternal groups. The fraternity social group was determined to exist primarily along social divisions amongst students although economic class and ethnicity cannot be ruled out as additional factors that affected perceptions or group identity. While Fein and Spencer used a group defined at least partially by religion, the present study did not, which may have affected salience of stereotypes. For the locally nonstereotyped group, local marching band members were used as a comparative to Italian Americans used by Fein and Spencer (1997). Again, characteristics of groups used by Fein and Spencer may not be entirely comparable to those used in the present study due to the lack of ethnic group identification. However, applicant social groups were defined in the present study based on salient stereotypes help by participants in line with criteria for groups outlined by Fein & Spencer (1997).

<div align="center">Predictors of Derogatory Behavior</div>

Based on the present analysis, both the original measure used by Fein and Spencer (State Self-Esteem Scale and subscales) as well as the emotion

variables proposed for the current study (BMIS and subscales and GSR) were poor predictors of derogatory behavior. Models constructed using these variables failed to show overall significance. Individually, these variables also failed to show significant predictive power for applicant rating or applicant suitability. However, general self-concept scores did significantly predict applicant rating when considered individually, apart from the overall model. General self-concept also marginally predicted applicant suitability when considered individually, apart from the overall model. While entry of general self-concept into models failed to produce overall significance for the models, doing so did increase the predictive power for models of applicant rating by a significant degree and applicant suitability by a marginal degree.

The nature of general self-concept may provide insight into its predictive quality for evaluations of others. Clarity, or a degree of certainty, of one's own perception of self-concept implies that as the general self-concept increases in strength, an individual may be "more sure of themselves" and comfortable or confident in the stability of their own self. This may give an individual greater confidence to evaluate someone else and to do so in a more positive light. When the judge feels certain of who they are and are comfortable accepting that self, they evaluate others with positive regard. Those who are "unsure of themselves" and do not have a clear self-concept may evaluate others negatively due to that

uncertainty. For example, a teenager or middle-aged adult going through an identity crisis may have trouble evaluating others accurately in this sense.

Implications

The failure to replicate presents one of two possibilities. The failure may be due to a lack of true effect. Effects seen by Fein & Spencer may have been attributable to local factors unrepresentative of other populations including the present locale, and not generalizable to other samples. Perhaps, their sample was particularly affected in the negative feedback condition, contrary to the current sample. The second possibility is that the present replication was too dissimilar to the original and improperly replicated the original study. Multiple differences between the present study and the original study have been identified such as different percentile scores for the feedback conditions and different applicant social groups. These changes may have worked additively to create a significantly different design which could not reproduce Fein & Spencer's effect. However, this would demonstrate a lack of robustness of the effect which would cause it to exhibit little in vivo applicability.

A lack of the relevant effect, derogation driven by self-image threat, potentially removes self-concept from derogation and prejudice theories. Derogation seen by Fein and Spencer may have resulted from unknown variables such as existing prejudices or other factors. For example, participants in the original study exhibited knowledge and comfort discussing many

prejudices regarding a Jewish subpopulation (Fein & Spencer, 1997). While the pilot study for the present study indicated that many stereotypes existed for fraternity members, the prejudices exhibited towards members of fraternities locally may not have matched the strength of prejudices within participants in Fein and Spencer's study.

Although Fein and Spencer presented findings demonstrating that changes in self-esteem were indicative of prejudiced applicant evaluations, present findings showed that this was not the case for this sample. Furthermore, mood and arousal were also not indicative of prejudiced applicant evaluations. Fein and Spencer's research insists that a novel self-image maintenance process exists to protect threatened self-concept. The self-image maintenance process in this case is derogation of others, specifically, prejudice of stereotyped groups (Fein & Spencer, 1997). The derogation of such groups was believed to restore self-concept to the previous status. However, though the manipulations were able to affect general self-concept and overall mood, the effect is best seen as the positive group showing improvement in these measures. The negative group was indistinguishable from the neutral group. Given derogation is an essential precursor to the process proposed by Fein and Spencer, seeing no effect of the negative manipulation is likely a strong reason there was no derogation. As mentioned, a stronger manipulation may be able to reproduce the effect.

Due to general self-concept's strength in predictive power for measures of applicant rating and suitability, it may allow for clarification of previous findings by Fein and Spencer (1997). Their original hypothesis stated that self-image threat could lead to derogation of others. In the current study, it was demonstrated that self-image threat, if it occurred, did not create significant changes in evaluations of job applicants. Furthermore, Fein and Spencer's use of self-esteem may be a potentially inappropriate analog to self-concept based on literature discussing the objective and subjective natures of self-concept and self-esteem, respectively. The current evaluation of the potential misuse of self-esteem was strengthened not only by the failure to replicate previous findings but also by the inability to show significant predictive strength of self-esteem models for applicant evaluations. However, self-concept did show predictive strength in this regard. While Fein and Spencer may have created a problem by proposing that self-concept was indicative of evaluations of others and then using self-esteem to measure a separate concept, the underlying hypothesis may still hold some truth. In the present study, general self-concept was predictive of evaluations of others, significantly for applicant rating and marginally for applicant suitability. Fein and Spencer's exact effect of self-image threat leading to derogation proved to not be replicable in the present study. However, the underlying idea of self-concept affecting evaluations of others holds predictive significance. Therefore, the present study may offer clarification of previous findings, that changes in self-concept are predictive of evaluations of others. While self-image threat may not

lead to derogation of others based on group stereotypes, it may be predictive of social evaluations in general.

Despite initial research showing that self-esteem and self-concept exist as separate theoretical constructs, present research shows that they may be more similar than previously believed (Epstein, 1973). State self-esteem correlated positively with general self-concept, generally speaking, and other subscales from each construct intercorrelated. Such correlations may show that while self-concept and self-esteem are theoretically different in terms of objectivity versus subjectivity, respectively, the two may be operationally very similar for study or broad application.

Limitations

Aside from construct limitations, physical limitations hampered the present study. For example, planned sample sizes had to be readjusted to meet new expectations based on participants not attending scheduled sessions. While final sample size was deemed to be acceptable as it was higher than Fein and Spencer's (1997), it failed to meet proposed expectations based on power estimates to estimate sample size. If effect sizes were generally smaller than anticipated, it is possible the current study was underpowered.

Future Directions

Further research should be conducted to better separate self-esteem from self-concept. While literature delineates them based upon subjective versus

objective views, respectively, the results presented here indicate that self-concept and self-esteem may be operationally similar or even identical based upon correlations found between subscales of both constructs as well as the inability to manipulate either in most subscales. During baseline measurement, state self-esteem was highly, positively correlated with general self-concept ($r =$ .761, $p < .01$) as well as several other subscales for self-concept. Likewise, every self-concept subscale significantly and positively correlated with performance self-esteem as well as most subscales with social self-esteem and appearance self-esteem. Greater clarity should be sought to help reshape operational definitions for other researchers or to unify the concepts.

Present data also indicate that although negative feedback did not produce derogation of applicants in stereotyped social groups, negative feedback caused changes in general self-concept which was predictive of social evaluations in general. Further study into broad effects of self-concept on social evaluations may yield significant findings not only in terms of negative changes to self-concept, but also in positive changes.

Conclusion

Results indicate that individuals did not engage in derogatory behavior in response to self-image threat. Derogation due to social group differences may not have been found in the present study either due to a lack of influence of negative feedback or a lack of awareness of the stereotyped social group

member. However, without any significant evidence of derogation in the present study, any causes for potential derogation, including the proposed emotional/mood-based model, cannot be properly evaluated. However, evidence that general self-concept may be predictive of social evaluations supports previous research suggesting that negative changes to self-concept could cause negative social evaluations (Fein & Spencer, 1997). Further research is warranted to uncover the causes of derogation as well as influences on self-concept, self-esteem, and evaluations of others.

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APPENDICES

Appendix A – Brief Mood Introspections Scale (BMIS)

INSTRUCTIONS: Click the response on the scale below that indicates how well each adjective or phrase describes your present mood.

	(definitely do not feel)	(do not feel)	(slightly feel)	(definitely feel)
	XX	X	V	VV

Lively	XX	X	V	VV
Happy	XX	X	V	VV
Sad	XX	X	V	VV
Tired	XX	X	V	VV
Caring	XX	X	V	VV
Content	XX	X	V	VV
Gloomy	XX	X	V	VV
Jittery	XX	X	V	VV
Drowsy	XX	X	V	VV
Grouchy	XX	X	V	VV
Peppy	XX	X	V	VV
Nervous	XX	X	V	VV
Calm	XX	X	V	VV
Loving	XX	X	V	VV
Fed Up	XX	X	V	VV
Active	XX	X	V	VV

Overall, my mood is:

Very Unpleasant   Very Pleasant

-10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10

Appendix B - Self-Description Questionnaire III (SDQ-III)

1.   I find many mathematical problems interesting and challenging.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

2.   Overall, I have a lot of respect for myself.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

3.   I have trouble expressing myself when trying to write something.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

4.   I am usually pretty calm and relaxed.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

5.   I enjoy doing work for most academic subjects.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

6.   I am never able to think up answers to problems that haven't already been figured out.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

7.   I have hesitated to take courses that involve mathematics.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

8. Overall, I lack self-confidence.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

9. I can write effectively.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

10. I worry a lot.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

11. I hate studying for many academic subjects.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

12. I am good at combining ideas in ways that others have not tried.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

13. I have generally done better in mathematics courses than other courses.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

14. Overall, I am pretty accepting of myself.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

15. I have a poor vocabulary.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

16.   I am happy most of the time.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

17.   I like most academic subjects.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

18.   I wish I had more imagination and originality.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

19.   Mathematics makes me feel inadequate.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

20.   Overall, I don't have much respect for myself.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

21.   I am an avid reader.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

22.   I am anxious much of the time.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

23.   I have trouble with most academic subjects.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

24.   I enjoy working out new ways of solving problems.

      1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

25.   I am quite good at mathematics.

      1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

26.   Overall, I have a lot of self-confidence.

      1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

27.   I do not do well on tests that require a lot of verbal reasoning ability.

      1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

28.   I hardly ever feel depressed.

      1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

29.   I'm good at most academic subjects.

      1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

30.   I'm not much good at problem solving.

      1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

31.   I have trouble understanding anything that is based upon mathematics.

      1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

32.   Overall, I have a very good self-concept.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

33.   Relative to most people, my verbal skills are quite good.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

34.   I tend to be high-strung, tense, and restless.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

35.   I'm not particularly interested in most academic subjects.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

36.   I have a lot of intellectual curiosity.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

37.   I have always done well in mathematics classes.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

38.   Overall, nothing that I do is very important.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

39.   I often have to read things several times before I understand them.

1   2   3   4   5   6

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

40. I do not spend a lot of time worrying about things.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

41. I learn quickly in most academic subjects.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

42. I am not very original in my ideas, thoughts, and actions.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

43. I never do well on tests that require mathematical reasoning.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

44. Overall, I have pretty positive feelings about myself.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

45. I am good at expressing myself.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

46. I am often depressed.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

47. I hate most academic subjects.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

48.　　I am an imaginative person.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

49.　　At school, my friends always came to me for help in mathematics.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

50.　　Overall, I have a very poor self-concept.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

51.　　In school I had more trouble learning to read than most other students.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

52.　　I am inclined towards being an optimist.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

53.　　I get good marks in most academic subjects.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

54.　　I would have no interest in being an inventor.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

55.　　I have never been very excited about mathematics.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

56. Overall, I have pretty negative feelings about myself.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

57. I have good reading comprehension.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

58. I tend to be a very nervous person.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

59. I could never achieve academic honours, even if I worked harder.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

60. I can often see better ways of doing routine tasks.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

61. Overall, I do lots of things that are important.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

62. Overall, I am not very accepting of myself.

| 1 | 2 | 3 | 4 | 5 | 6 |

Completely False / Mostly False / Somewhat False / Somewhat True / Mostly True / Completely True

Appendix C - State Self-Esteem Scale

This is a questionnaire designed to measure what you are thinking at this moment. There is of course, no right answer for any statement. The best answer is what you feel is true of yourself at the moment. Be sure to answer all of the items, even if you are not certain of the best answer.

Again, answer these questions as they are true for you RIGHT NOW.

1. I feel confident about my abilities.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

2. I am worried about whether I am regarded as a success or failure.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

3. I feel satisfied with the way my body looks right now.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

4. I feel frustrated or rattled about my performance.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

5. I feel that I am having trouble understanding things that I read.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

6. I feel that others respect and admire me.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

7. I am dissatisfied with my weight.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

8. I feel self-conscious.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

9. I feel as smart as others.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

10. I feel displeased with myself.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

11. I feel good about myself.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

12. I am pleased with my appearance right now.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

13. I am worried about what other people think of me.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

14. I feel confident that I understand things.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

15. I feel inferior to others at this moment.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

16. I feel unattractive.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

17. I feel concerned about the impression I am making.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

18. I feel that I have less scholastic ability right now than others.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

19. I feel like I'm not doing well.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

20. I am worried about looking foolish.

1	2	3	4	5
Not At All	A Little Bit	Somewhat	Very Much	Extremely

Appendix D - The Reasoning and Verbal Acuity Battery

The following is a new form of an intelligence test to be administered on a computer. It measures both verbal and reasoning abilities. This test has been validated in numerous studies throughout the United States and Canada. This test consists of four sections, each tapping a different set of intellectual skills. Research shows that assessment of these intellectual skills provides an ideal, valid snapshot of an individual's general intelligence.

You will have limited time to answer each of the following items. Please mark each answer on the computer and proceed until you are told to stop.

Analogies

1. LUCID : OBSCURITY ::

    a. ambiguous : doubt

    b. provident : planning

    c. furtive : legality

    d. economical : extravagance

    e. secure : violence

2. ATTENTIVE : RAPT ::

    a. loyal : unscrupulous

    b. critical : derisive

    c. inventive : innovative

    d. jealous : envious

    e. kind : considerate

3. CLEAVER : BUTCHER ::

    a. palette : artist

    b. stage : dancer

    c. dictionary : poet

    d. lock : burglar

    e. chisel : sculptor

4. LITER : VOLUME ::

   a. bottle : can

   b. knob : radio

   c. scale : height

   d. gram : weight

   e. juice : vitamin

5. HANGAR : AIRCRAFT ::

   a. orchestra : music

   b. vault : money

   c. hand : fingers

   d. farm : trees

   e. ecosystem : insect

Antonyms

1. SCABROUS:

   a. thorny

   b. unblemished

   c. perplexing

   d. blank

   e. examined

2. TRAIL:

   a. age

   b. depress

   c. rule

   d. wander

   e. precede

3. AMIABLE:

    a. faithful

    b. insulted

    c. distasteful

    d. indecent

    e. unfriendly

4. ACUTE:

    a. conspicuous

    b. relevant

    c. aloof

    d. dull

    e. distant

5. RECANT:

    a. affirm

    b. rectify

    c. offend

    d. ignore

    e. withdraw

Sentence Completion

1. Although she earned her fame for her striking murals, the artist felt that her sculpture merited greater _____.

    a. disdain

    b. acclaim

    c. deliberation

    d. viewing

    e. publicity

2. Because Gould's theory has been neither completely rejected nor completely accepted by the scientific community, its status remains _____.

    a. repudiated

    b. sanctioned

    c. quizzical

    d. preferable

    e. debatable

3. The increasing acceptance of the notion that the news media is not a(n) _____ commentator upon events, but rather, a mouthpiece for the vested interests of its powerful owners, demonstrates the public's growing _____ large corporations.

    a. disinterested … mistrust of

    b. meddlesome … suspicion of

    c. official … apprehension

    d. impartial … satisfaction with

    e. manipulative … confusion with

4. We will face the idea of old age with _____ as long as we believe that it invariably brings poverty, isolation, and illness.

    a. regret

    b. apprehension

    c. enlightenment

    d. veneration

    e. reverence

5. Despite much informed _____, the relationship between sunspot cycles and the earth's weather remains _____.

    a. argument … decisive

    b. confusion … tenuous

    c. conjecture … ambiguous

    d. evidence … clear

    e. analysis … systematic

6. As a consequence of the Antarctic's _____ climate, the only forms of plant life to be found in the continent's interior are a few _____ lichens and mosses that cling to the frozen rocks.

    a. rigid … hardy

    b. extreme … mysterious

    c. harsh … luxuriant

    d. freezing … complex

    e. changing … tiny

7. Conflict between generations may be a problem that has persisted for centuries, but the nature and intensity of the conflict obviously _____ in response to changes in social and economic conditions.

    a. increases

    b. disappears

    c. declines

    d. varies

    e. wanes

Syllogisms

1. Situation: Someone living in a cold climate buys a winter coat that is stylish but not warm in order to appear sophisticated.

   Analysis: People are sometimes willing to sacrifice sensual comfort or pleasure for the sake of appearances.

   The analysis provided for the situation above is most appropriate for which one of the following situations?

(A) A person buys an automobile to commute to work even though public transportation is quick and reliable.
(B) A parent buys a car seat for a young child because it is more colorful and more comfortable for the child than the other car seats on the market, though no safer.
(C) A couple buys a particular wine even though their favorite wine is less expensive and better tasting because they think it will impress their dinner guests.
(D) A person sets her thermostat at a low temperature during the winter because she is concerned about the environmental damage caused by using fossil fuels to heat her home.
(E) An acrobat convinces the circus that employs him to purchase an expensive outfit for him so that he can wear it during his act to impress the audience.

2. After replacing his old gas water heater with a new, pilotless, gas water heater that is rated as highly efficient, Jimmy's gas bills increased.

   Each of the following, if true, contributes to an explanation of the increase mentioned above EXCEPT:

(A) The new water heater uses a smaller percentage of the gas used by Jimmy's household than did the old one.
(B) Shortly after the new water heater was installed, Jimmy's uncle came to live with him, doubling the size of the household.
(C) After having done his laundry at a laundromat, Jimmy bought and started using a gas dryer when he replaced his water heater.
(D) Jimmy's utility company raised the rates for gas consumption following installation of the new water heater.
(E) Unusually cold weather following installation of the new water heater resulted in heavy gas usage.

3. Carolyn: The artist Marc Quinn has displayed, behind a glass plate, biologically replicated fragments of Sir John Sulston's DNA, calling it a "conceptual portrait" of Sulston. But to be a portrait, something must bear a recognizable resemblance to its subject.

   Arnold: I disagree. Quinn's conceptual portrait is a maximally realistic portrait, for it holds actual instructions according to which Sulston was created.

   The dialogue provides most support for the claim that Carolyn and Arnold disagree over whether the object described by Quinn as a conceptual portrait of Sir John Sulston

(A) should be considered to be art
(B) should be considered to be Quinn's work
(C) bears a recognizable resemblance to Sulston
(D) contains instructions according to which Sulston was created
(E) is actually a portrait of Sulston

4. Many corporations have begun decorating their halls with motivational posters in hopes of boosting their employees' motivation to work productively. However, almost all employees at these corporations are already motivated to work productively. So these corporations' use of motivational posters is unlikely to achieve its intended purpose.

The reasoning in the argument is most vulnerable to criticism on the grounds that the argument

(A) fails to consider whether corporations that do not currently use motivational posters would increase their employees' motivation to work productively if they began using the posters

(B) takes for granted that, with respect to their employees' motivation to work productively, corporations that decorate their halls with motivational posters are representative of corporations in general

(C) fails to consider that even if motivational posters do not have one particular beneficial effect for corporations, they may have similar effects that are equally beneficial

(D) does not adequately address the possibility that employee productivity is strongly affected by factors other than employees' motivation to work productively

(E) fails to consider that even if employees are already motivated to work productively, motivational posters may increase that motivation

5. Atrens: An early entomologist observed ants carrying particles to neighboring ant colonies and inferred that the ants were bringing food to their neighbors. Further research, however, revealed that the ants were emptying their own colony's dumping site. Thus, the early entomologist was wrong.

   Atrens's conclusion follows logically if which one of the following is assumed?

(A) Ant societies do not interact in all the same ways that human societies interact.
(B) There is only weak evidence for the view that ants have the capacity to make use of objects as gifts.
(C) Ant dumping sites do not contain particles that could be used as food.
(D) The ants to whom the particles were brought never carried the particles into their own colonies.
(E) The entomologist cited retracted his conclusion when it was determined that the particles the ants carried came from their dumping site.

6. Jablonski, who owns a car dealership, has donated cars to driver education programs at area schools for over five years. She found the statistics on car accidents to be disturbing, and she wanted to do something to encourage better driving in young drivers. Some members of the community have shown their support for this action by purchasing cars from Jablonski's dealership.

   Which one of the following propositions is best illustrated by the passage?

(A) The only way to reduce traffic accidents is through driver education programs.
(B) Altruistic actions sometimes have positive consequences for those who perform them.
(C) Young drivers are the group most likely to benefit from driver education programs.
(D) It is usually in one's best interest to perform actions that benefit others.
(E) An action must have broad community support if it is to be successful.

7. Antonio: One can live a life of moderation by never deviating from the middle course. But then one loses the joy of spontaneity and misses the opportunities that come to those who are occasionally willing to take great chances, or to go too far.

   Marla: But one who, in the interests of moderation, never risks going too far is actually failing to live a life of moderation: one must be moderate even in one's moderation.

   Antonio and Marla disagree over

(A) whether it is desirable for people occasionally to take great chances in life
(B) what a life of moderation requires of a person
(C) whether it is possible for a person to embrace other virtues along with moderation
(D) how often a person ought to deviate from the middle course in life
(E) whether it is desirable for people to be moderately spontaneous

8. Advertisement: Fabric-Soft leaves clothes soft and fluffy, and its fresh scent is a delight. We conducted a test using over 100 consumers to prove Fabric-Soft is best. Each consumer was given one towel washed with Fabric-Soft and one towel washed without it. Ninety-nine percent of the consumers preferred the Fabric-Soft towel. So Fabric-Soft is the most effective fabric softener available.

   The advertisement's reasoning is most vulnerable to criticism on the grounds that it fails to consider whether

(A) any of the consumers tested are allergic to fabric softeners
(B) Fabric-Soft is more or less harmful to the environment than other fabric softeners
(C) Fabric-Soft is much cheaper or more expensive than other fabric softeners
(D) the consumers tested find the benefits of using fabric softeners worth the expense
(E) the consumers tested had the opportunity to evaluate fabric softeners other than Fabric-Soft

<u>Job Flyer</u>

Sapling Networks™

Position Open for Finance Manager

We are a growing team of network specialists with the goal of

assisting companies and private individuals with network needs. We are

currently looking for a finance manager to add to our team to help manage

sales, company assets and expenditures. This is a great opportunity for

experienced financial managers to help our company continue to grow and

bring network services to East Texas.

Requirements:

- Bachelor's Degree in a related field (Finance, Accounting, Business, etc.)

- Two (2) years of experience in a managerial position

- 40-hr work week minimum

- Experience using related computer software (Word, Excel, etc.)

- A valid driver's license

- Ability to work efficiently in a fast-paced environment

- Desire to succeed and advance

- Team Player Mentality

Application

Application For Employment

Personal Information

Name

Liam Smith

Address		City	State	Zip
3500 Raguet St.		Nacogdoches	TX	75961

Phone Number	Mobile Number	Email Address	
(202)555-0118	(202)555-0166	liam...smith@gmail.net	

Are You A U.S. Citizen?	Have You Ever Been Convicted Of A Felony?
Yes ☒　　　　No ☐	Yes ☐　　　　No ☒

If Selected For Employment Are You Willing To Submit to a Pre-Employment Drug Screening Test?

Yes ☒　　　　No ☐

Position

Position You Are Applying For	Available Start Date	Desired Pay
Manager	03/30/2018	$20/hr

Employment Desired

☒ Full Time　　　　☐ Part Time　　　　☐ Seasonal/Temporary

Education

School Name	Location	Years Attended	Degree Received	Major
Stephen F. Austin State University	Nacogdoches, TX	4	Bachelor's	Business Economics
Nacogdoches High School	Nacogdoches, TX	4	Diploma	Math

References

Name	Title	Company	Phone
Jesse Magogh	Financial Officer	First Bank of Nacogdoches	(202)555-0146
Cody Heart	Assistant Manager	Nacogdoches Networking	(202)555-0139
Sebastian Friere	Manager	Computer City	(202)555-0132
Blaine Derrick	Manager	Jimmy's Burger Barn	(2020)555-0169

Employment History

Employer (1)	Job Title		Dates Employed
First Bank of Nacogdoches	Financial Officer		12/14/15 – 12/23/17
Work Phone	Starting Pay Rate		Ending Pay Rate
(202)555-0146	$45,000/yr		$55,000/yr
Address	City	State	Zip
1400 Wildwood St	Nacogdoches	TX	75961
Employer (2)	Job Title		Dates Employed
Nacogdoches Networking	Assistant Manager		06/19/12 – 11/30/15
Work Phone	Starting Pay Rate		Ending Pay Rate
(202)555-0139	$12/hr		$15/hr
Address	City	State	Zip
1692 Pine Rd	Nacogdoches	TX	75961
Employer (3)	Job Title		Dates Employed
Computer City	Floor Salesman		02/21/10 – 04/13/12
Work Phone	Starting Pay Rate		Ending Pay Rate
(202)555-0132	$8/hr		$9/hr
Address	City	State	Zip
9000 Main Street	Lufkin	TX	75901
Employer (4)	Job Title		Dates Employed
Jimmy's Burger Barn	Server		06/15/09 – 02/13/10
Work Phone	Starting Pay Rate		Ending Pay Rate
(202)555-0169	$2.13/hr		$2.13/hr
Address	City	State	Zip
1699 Spring Branch Rd	Lufkin	TX	75901
Employer (5)	Job Title		Dates Employed
Work Phone	Starting Pay Rate		Ending Pay Rate
Address	City	State	Zip

Signature Disclaimer

I certify that my answers are true and complete to the best of my knowledge.
If this application leads to employment, I understand that false or misleading information in my application or interview may result in my release.

Name (Please Print)	Signature
Liam Smith	*Liam Smith*
Date	
01/15/18	

Please answer the following questions accurately.

1. What are your strengths and weaknesses?

   I am a dedicated worker. I always give my best effort on any task and am eager to take on responsibilities. My weakness is that I often take on too much work. My eagerness to work often results in me taking on too many projects and completing them more slowly than if I were to limit myself.

2. Where do you see yourself in five years?

   I would like to be a financial manager working for a strong company with good benefits. I would like to have a comfortable life with a secure job, ideally working as a chief financial officer to properly utilize the skills I learned through my education.

3. What is your leadership style?

   I like to divide work even throughout any work hierarchy. I expect employees to stay on task but to also help each other when needed.   I try to make myself available to other team members but have my own expectations about boundaries.

4. Why do you want this job?

   I really like your relatively new company and want to be a part of your team to utilize my skills and find a career rather than simply a job. I believe I have a lot to offer you and that this position will help me to find success and satisfaction to my professional life.

Appendix F - Applicant Pictures

Marching Band Member

Fraternity Member

Appendix G - Evaluation Task

Job Applicant Evaluation

Please rate the applicant in terms of the extent to which you agree that each of

the following traits describes the applicant accurately:

Intelligent

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Insensitive

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Trustworthy

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Arrogant

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Sincere

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Inconsiderate

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Friendly

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Self-Centered

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Down-to-Earth

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Rude

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Creative

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Materialistic

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Motivated

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Cliquish

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Ambitious

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Conceited

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Happy

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Vain

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Warm

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Superficial

1	2	3	4	5	6	7

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

Please rate the applicant in terms of the extent to which you agree with the following statements:

I feel this person would make an excellent candidate for the position in question.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

I would likely give this person serious consideration for the position in question.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

I would guess that this person is in the top 20% of people interviewed.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

I felt favorably toward this person.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Strongly Disagree / Disagree / Disagree Somewhat / Undecided / Agree Somewhat / Agree / Strongly Agree

VITA

After completing his work at The Woodlands High School, The Woodlands,

Texas in 2010, Andrew Schwarzkopf went on to study biology and psychology at

Lyon College in Batesville, Arkansas. He earned his bachelor's degree of

Science in Biology in May 2014. Andrew then went on to study at Stephen F.

Austin State University in August 2016 where he received his master's degree of

Arts in Psychology in May 2018. During his two years at Stephen F. Austin State

University, Andrew was employed as a graduate assistant and lab manager in

the Canine Cognition Lab, *Drosophila* Lab, and Rodent Lab.

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　　　　　　　　　　　　The Woodlands, TX 77382

Publication Manual of the American Psychological Association (Sixth Edition)

This thesis was typed by Andrew Thomas Schwarzkopf