

**Ego Threats and Self-Esteem: The Impact of Social Comparisons  
on Relationships**

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As an individual goes through college or works towards a degree of any sort, he or she will invariably experience situations that threaten his or her confidence in his or her academic ability. During a time of life when such occurrences are commonplace and even encouraged, it is important to study the effects of the questioning of academic ability, also called ego threats, on the lives of students. If a student is being tested academically through tests, written compositions, and other projects, there will inevitably be some perceived threats to his or her ego. In other words, the academic success and failure of a student may affect his or her ego. A further question is how these ego threats affect an individual's relationships with friends and/or romantic partners. Answers to this question may help both students and those involved in relationships with students better understand how to cope with relational problems that occur as a result of ego threats.

Research with important implications for this area of study measure the effect of an ego threat on interpersonal interactions. The sociometer theory works to explain the social interactions of individuals after they have been exposed to a threat to their self-esteem. The sociometer theory suggests that those with low self-esteem (LSEs) are worried about being socially accepted, and that an ego threat only heightens this sensitivity, encouraging individuals to become "socially protective," to behave in such a way so that friends and peers will not reject them. Examples of this type of socially protective behavior would be always agreeing with one's friends so as not to appear dissentious, and praising one's friends sycophantically. On the other hand, according to the sociometer theory those persons with high self-esteem (HSEs) are not worried about social rejection and thus are not apt to worry about pleasing others after an ego threat, but

rather, they act to protect their own self-worth (Heatherton & Vohs, 2000). Ways in which HSE individuals might protect their self-worth or self-esteem are by putting down the abilities of others in order to emphasize their own superiority or by focusing on their own positive traits while highlighting the negative traits of others.

Following the findings of Heatherton and Vohs (2000) it is not surprising that further research has demonstrated that LSEs are more likeable after an ego threat than HSEs because of their socially protective behavior (Heatherton & Vohs, 2000). In addition to the 2000 study, Vohs and Heatherton (2004) conducted another study on undergraduate male college students and demonstrated that the level of self-esteem can influence the direction of a social comparison. An upward social comparison is made when individuals praise the other person in the comparison, finding more positive attributes or fewer negative attributes about that other person than about themselves. A downward social comparison works in the opposite way; individuals see themselves as better than the other person (Vohs & Heatherton, 2004). Vohs and Heatherton (2004) found that after an ego threat is induced, LSEs make upward social comparisons toward a research confederate with whom they had a conversation, whereas the HSEs reaffirmed their high self-esteem by making downward social comparisons toward the confederate. A similar finding in a study by Suls, Lemos, and Stewart (2002) found that HSEs rate themselves more positively than their friends on a list of negative attributes, whereas LSEs are more likely to rate themselves harshly on negative attributes while downplaying the negative attributes of their friends. The present research aims to combine these two studies in a way to directly examine the effect that an ego threat would have on a

participant's ratings of himself, his peers, a research confederate, and a close friend on both positive and negative attributes in relation to the participant's level of self-esteem.

The present study was an attempt to replicate the 2004 study of Vohs and Heatherton on the implications of interpersonal perceptions but with the important addition of an added social comparison, that of a close friend. Further demographic information regarding close friendships and romantic relationships was also gathered to see if there was any sort of relationship that might imply a difference in likeability due to self-esteem levels or manner of responding to an ego threat. The study examined core differences in the behavior of LSEs and HSEs. The study further investigated the maintenance of self-esteem in HSEs, which they were hypothesized to maintain by means of inflation of their self-worth, and the maintenance of low self-esteem in LSEs by emphasizing the worth of others. This study went further than other studies have in the past by asking how styles of coping with ego threat correlate with relationships, both friendships and romantic relationships. The hypothesis of the current research was that there would be an interaction between the level of self-esteem, whether or not an ego threat was given, and the direction of social comparison made towards a close friend. An additional hypothesis of the present study was that there would be a correlation between relationship demographics (numbers of friends, the duration of friendships, etc.) and the level of self-esteem of participants who experienced an ego threat.

## Method

### *Participants*

Forty-two male undergraduate students received class credit in exchange for participating in the study. Twenty-one participants were in the control condition and

twenty-one were in the experimental condition. Each participant was randomly assigned to the control or experimental conditions and each participant was tested individually.

### *Materials*

The Remote Associates Test (RAT) was used to create the ego-threat manipulation; an “easy” version of the RAT was created for the control condition and a “difficult” version for the experimental condition. Remote Associates questions were chosen for the two versions of the test based upon difficulty ratings. Each test consisted of twelve questions and used the same instructions and example question to teach the participants how to complete the test (Gardner, 1980). The questions on each test were presented in the same randomized order for all participants.

A demographic questionnaire was also administered to collect additional information about relationships of the participant. The questionnaire asked a participant’s age, year in school, the number of close friends, whether or not he had a best friend and/or a romantic friend, how close he was to these friends, for how long he has had these specific relationships, how many best friends and romantic friends has he had in the last year, whether or not he makes friends easily, and whether he prefers to have many friends who are less close or a few very close friends.

### *Procedure*

The use and order of questionnaires was conducted in such a way so as to keep the procedure as similar as possible to the Vohs and Heatherton (2004) study. Participants were brought into a room with a table and two chairs. The experimenter introduced herself and the purported reason for her study (the study of intelligence and personality tests) and asked the participants to read over and sign the consent form. Once the consent

form was understood and filled out the participant was asked to complete the Fleming and Courtney Self-Esteem questionnaire (Fleming & Courtney, 1984). This questionnaire was used to measure base self-esteem for each participant against which changes due to the threat manipulation could be examined. When participants finished with the self-esteem questionnaire, the Remote Associates Test (RAT) was administered (Gardner, 1980). Participants in the control group received the easy version of the test and were told to “try it out for a while,” under the guise that the RAT was being pilot tested for use in future experiments. The control group participants were given no time restraints for completing the test. The experimental participants were given the difficult version of the RAT and were told that it was “a reliable and valid intelligence test used world wide by schools and businesses to predict future success and earning potential.” The experimental participants were given a four-minute time limit to complete the test. After four minutes had passed both the control condition and the experimental condition were stopped. The participants in the control condition were told to flip the RAT over so that it was face down and to begin filling out the next questionnaire. But in contrast, participants in the experimental condition were told to stop and it was emphasized that they had run out of time. The correct answers written on another copy of the test in red ink were placed next to the participants’ tests, and they were asked to correct the test form with a red pen. Once participants had corrected the RAT, the experimenter informed them of the national college average, which was supposedly 9 correct answers out of a possible 12.

Next, both groups filled out the SSES (Heatherton & Polivy, 1991) to measure any change in self-esteem and the PANAS scales (Watson, Clark, & Tellegen, 1988) to measure positive or negative affect after the ego threat. After the questionnaires were

finished, participants were introduced to the research confederate with whom they would be having a ten-minute conversation. They believed the confederate to be another participant in the study. The conversation was guided by a list of questions designed to create increasing levels of intimacy between two people (Miller, Turnbull, & McFarland, 1988). There was a time limit on each section of intimacy questions to ensure that all levels were discussed for a certain amount of time. The confederate kept his answers to each question the same for each conversation. Participants were told that the reason for the conversation was to remember their partners' responses on a memory test that would be given afterward. When the conversation was over, the confederate left the room and the participant was brought more questionnaires.

Participants in both conditions filled out a series of four more questionnaires before being debriefed. First were the social comparison questionnaires designed to measure direction of social comparison and any differential ratings on positive or negative traits. The participants were asked to rate people in general, themselves, a close friend, and the research confederate (the order of these was randomly selected and maintained across participants) on 16 different attributes using a 9-point scale. The attributes were presented in a randomized order and consisted of four negative-ambiguous traits, four negative-nonambiguous traits, four positive-ambiguous traits and four positive-nonambiguous traits. The next questionnaire was a second SSES questionnaire to judge if there had been any further changes in the participants' self-esteem (Heatherton & Polivy, 1991). Then participants filled out a memory questionnaire of the conversation they had had with the research confederate, which consisted of two questions randomly selected from each of the three intimacy levels for a total of six

memory questions. Participants then filled out the last questionnaire, which was the demographic questionnaire.

Lastly, participants were debriefed. All participants were told what the real purpose of the study was: to discover connections between self-esteem and interpersonal interactions and relationships. Those participants in the control condition were told that the RAT was a filler activity and that it would not be scored in anyway. Experimental participants were told that the RAT, in the form they had been given, was not a reliable or valid intelligence test and that the national average was not 9 out of 12, but “would probably be closer to 0 or 1 correct out of 12.” Participants were told that they did very well, regardless of their scores. Both conditions were told that the person they had had a conversation with was really a research confederate, and their responses to the intimacy questions would be kept confidential as they were not a part of the study but rather a way to get to know someone in a controlled setting. Both groups were asked if there were any further doubts or questions before they were free to go.

## Results

The purpose of the analysis was to find the effects of a manipulation of self-esteem on the social comparisons of others, including a close friend. This replication study predicted an effect of ego manipulation through a change in self-esteem when comparing scores from before and after the manipulation. It was hypothesized that HSEs would rate themselves positively and would rate others, including a close friend, more negatively on various aspects of personality in order to make themselves feel superior. It was also hypothesized that the opposite would be true of LSEs, who would be expected



to rate themselves poorly on various aspects of personality while rating others and their close friend as “better” than themselves, keeping their self-esteem consistently at a low level.

Out of 42 participants 21 were randomly assigned to the control condition and the other 21 were assigned to the experimental condition. The Fleming and Courtney self-esteem inventory was given first to determine the participants’ base levels of self-esteem against which to check later manipulations. The Fleming and Courtney scales were median-scored; those scoring above the median were labeled as having low self-esteem (LSEs), and those scoring below the median were labeled as having high self-esteem (HSEs). In the control condition there were 12 LSEs and 9 HSEs. In the experimental condition there were 9 LSEs and 12 HSEs.

Performance on the RAT between experimental and control conditions was as expected. Participants in the experimental condition, which received the difficult version of the RAT, solved significantly fewer anagrams. The mean number of RAT questions correct (with standard deviations) was: 4.40 (2.46); and 2.14 (2.29) in the control and the experimental conditions respectively. An independent groups *t* test showed that the means differed significantly between the conditions at an alpha level of .05,  $t(39) = 3.05$ ,  $p < .004$  (2-tailed). Because the means were significantly different, the control condition’s RAT was indeed easier than the experimental condition’s RAT, successfully replicating this aspect of the original study by Vohs and Heatherton (2004).

However, there were no significant changes in levels of self-esteem in the post-manipulation measures. Independent samples *t*-tests were conducted to find relationships between the participants’ condition and the changes in self-esteem variables, the

demographic information, and the social comparisons. Independent samples t-tests were also conducted to find the relationships between self-esteem levels and the aforementioned variables. A one-way ANOVA showed no significant interactions between self-esteem, condition, social comparisons, and other demographic variables tested. A between-subjects multivariate test was conducted to look for a difference between the Fleming and Courtney self-esteem scores and the scores of the SSES questionnaire to see if self-esteem had changed in anyway or in any direction. This test also failed to be significant. The manipulation was not adequately recreated in this study, and therefore the hypothesized effects could not be tested.

### Discussion

The lack of significance in the results of the study is worth discussing. This study used the same procedure and materials as those that were used in the Vohs and Heatherton (2004) study, even the difficulty of the RAT across conditions was significant, yet proof of a manipulation of self-esteem failed to materialize. The ego threat used in the study was ecologically sound in that it was a word association test, the Remote Associates Test, which the participants believed to be a reliable and valid intelligence test. The test-taking environment in the threat condition was much like what a student would experience in a higher-education setting. There are many possible explanations for the unexpected lack of results, most of which have to do with the participants and their reactions to the manipulation. Some aspect of how the participants in the study reacted to the manipulation and the materials used caused a change in the anticipated results.

One potential reason for the difference between the results of the present study and the original has to do with the gender of the experimenter. It is possible that having a female experimenter, instead of a male experimenter as in the original Vohs and Heatherton (2004) study, somehow influenced the results. Perhaps male participants were less likely to feel vulnerable or threatened by a female experimenter. The experimenter identified herself as the person conducting the study, and despite understanding the consent form the participants might have believed that the experimenter would have been able to identify specific scores and associate the scores with the participants' names. Another possible influence that the gender of the experimenter might have had has to do with whether or not a male participant would feel a genuine threat to his ego when a test is administered by a female peer. In this situation both age (undergraduate student) and gender might have worked against the experimenter. The original study was done at a larger university where graduate students may have been the ones conducting the research. Thus, a male graduate student as an experimenter would have seemed older and more like an authority figure that would and could be giving ego threats to freshmen psychology students.

An additional possibility as to why the anticipated outcomes were not achieved may be due to the differences between the academic institutions of Dartmouth College (the site of the original study) and Gustavus Adolphus College. Dartmouth is a four-year private college, much like Gustavus; however, it has a student body of 4,100 undergraduate and 1,600 graduate students, large when compared to Gustavus' total student body of 2,500 undergraduates. Dartmouth also has a more rigorous academic reputation, as it is affiliated with the Ivy League schools. Even more important to the

outcome of the study are the attitudes of students toward academic ego threats. Students attending Dartmouth College are probably expecting different things, academically, than the average Gustavus student. The ego threat manipulation may be more effective for the Dartmouth students for several reasons. The first possibility is that Gustavus students, when given a hard task such as the RAT (a purportedly reliable intelligence test), believe that they will perform adequately, yet not necessarily above average. The Dartmouth students conversely expect to perform at an above-average level, if not simply because they go to an Ivy League institution, then for a variety of other reasons related to their own self-perceptions. The blow of performing at a sub-average level may be more devastating to the Dartmouth students and on the other hand not so humiliating or disheartening to the Gustavus students. From another perspective, Gustavus students may not expect to be as challenged by the tests or curriculum of their college courses, whereas Dartmouth students expect to be challenged academically. Thus Dartmouth students would be more likely to believe that the RAT was a reliable test, and Gustavus students would not believe that the test would be so hard that they could perform that poorly on it.

Related to the last theory presented, a recent study has shown that narcissism levels have been increasing steadily in college students nationwide and that this finding could have wide-reaching side effects. According to the study, in 2006 over two-thirds of the students tested had above-average scores on the standardized narcissism inventory, the NPI (“Study,” 2007). One of the effects of this rise in vanity among college students may be that when a narcissistic student receives a poor grade on a test the immediate conclusion drawn is that the *test* is faulty, not the student’s logic or intellect. Observed reactions to the test and during the debriefing sessions indicated that Gustavus students

tested were unable to believe that the test they took could actually be a measure of intelligence because they performed so poorly on it. With the rates of narcissism increasing drastically from 1982 to 2006 (“Study,” 2007), a change in student attitudes in a study completed before 2004 and a replication done in 2007 might be reflecting significantly different narcissism rates in incoming freshman classes that make up the bulk of the students tested in the experiments in question.

Ideas for further research would involve either changing the procedure in order to more accurately replicate the Vohs and Heatherton (2004) study, or investigating some of the alternative explanations for the lack of findings in the present study. In order to better replicate the original study, more intensive pre-testing of the Remote Associates Test should be done so that participants in both conditions get higher scores, yet still score consistently below the invented national average. In the present study the national average quoted was 9 correct out of 12 and the average of correct responses was between 4 and 5 for the control group and about 2 for the experimental group. Being so far below the invented national average may have made the test seem spurious for both conditions. If the control and experimental conditions were getting 8 and 5 questions correct respectively, or numbers similar to these, participants may show more of the desired effect. Also, more time given to complete the RAT may result in higher and more believable scores without changing the significant difference between the two conditions. A male experimenter that appears to be older and very intelligent might serve as a better way to deliver ego-threat manipulations; further pre-testing would be needed to see if the appearance of the experimenter would have the desired effect. Another factor that may help to induce an ego-threat would be not to excessively warn students about possible

deceit that may occur during studies; reading the consent form may be enough to ethically warn students of possible manipulations, whereas added warnings and exposure to possible research methods may give participants the ability to over-analyze the studies they participate in.

Outside of simply replicating the original study, further research could be conducted on the effect of narcissism and response to test scores and how the reactions of students are interrelated with self-esteem levels. It would also be interesting to see if the effect of a study like Vohs and Heatherton (2004) has different effects (or lack of effects) depending on the academic rigor and reputation of the institution where it is conducted. It would also be interesting to do studies like this longitudinally to see if coping with ego-threat changes across the time spent in a higher education institution. In conclusion, it was disappointing to be unable to replicate the original study as desired; however, the possible explanations for the lack of results became almost as interesting as replicating the results of the original study.

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