EXAMINING THE ROLE OF EGOTISM FOR JUDGMENT AND DECISION-MAKING

BIASES AND RISK-TAKING

by

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(Under the Direction of Adam S. Goodie and W. Keith Campbell)

ABSTRACT

In this research, I sought to examine the extent to which judgment and decision-making biases and excessive risk-taking might characterize narcissistic individuals or those with fragile high self-esteem, especially following threats to the ego. Given the ego-involvement and excessive reactivity of narcissists and those with fragile high self-esteem, I believed that subsequent to ego-threat, in an attempt to bolster their feelings of self-worth these individuals would evidence an especially strong myopic focus on reward in Study 1 as measured by the Iowa Gambling Task (Bechara et al., 1994). Similarly, in Study 2 I predicted that subsequent to ego-threat, these individuals would display especially high levels of overconfidence, risk-willingness, and thereafter objective performance decrements (i.e., earn relatively little money) as measured by the Georgia Gambling Task (Goodie, 2003). Neither of these broad predictions were supported in either study. The manipulation was ineffective in Study 1 at altering individuals' risk-taking decisions, although participants did experience especially negative moods as a function of being in the ego-threatening condition. In Study 2, I found that participants in the control condition earned significantly more money than those in the ego-threat condition as a function of being less overconfident. In fact, participants in the control condition were actually underconfident.

Risk-taking (i.e., bet acceptance) did not differ as a function of experimental condition. Inconsistent effects for narcissism and fragile self-esteem were found across the two studies. The discussion focuses on explaining these inconsistent, and surprising, findings and offers some potential avenues for future research.

INDEX WORDS: EGOTISM, NARCISSISM, FRAGILE SELF-ESTEEM, OVERCONFIDENCE, RISK-TAKING, MYOPIC FOCUS, GEORGIA GAMBLING TASK, IOWA GAMBLING TASK

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CHAPTER 1

Introduction

Individuals often make decisions without thoughtful consideration of alternatives. For example, many individuals cast political votes using cursory appearance-based competence judgments instead of actual knowledge of a candidate's policy-related stances (Todorov, Mandisodza, Goren, & Hall, 2005). Some hunters purchase and use firearms without fully understanding gun safety (Dunning, Johnson, Ehrlinger, & Kruger, 2003). Eyewitnesses often make faulty identifications, even when they hold their opinions with a high degree of certainty (Sporer, Penrod, Read, & Cutler, 1995). Why is it that many individuals exhibit characteristically biased judgments and seemingly irrational decisions?

Decision researchers have grown into an acceptance that rational choice is not constrained by objective expected values assigned to certain outcomes or objects that are consistent across all domains and individuals (e.g., Bernoulli, 1738/1954; Kahneman & Tversky, 1979; Savage, 1954; von Neumann & Morgenstern, 1944). Indeed, individuals often systematically violate utility axioms by using one of a myriad cognitive biases that inhibit rational processing (Tversky & Kahneman, 1986). Thus, individuals sometimes are cognitive misers who ignore judgments of frequency and subjective probabilities and take heuristic-based, minimalist approaches to decision-making. These biases of judgment become especially apparent in decisions made under uncertainty, even when they run the risk of sacrificing accuracy (Fischhoff, Slovic, & Lichtenstein, 1977; Gigerenzer & Goldstein, 1996, 1999; Kahneman & Tversky, 1996; Tversky & Kahneman, 1974, 1981).

While this depiction of human decision-making seems rather bleak, very little research has examined individual differences in judgmental biases and decisional outcomes (Shafir, Simonson, & Tversky, 1993). As such, in this research I sought to examine individual differences that might "preclude a thorough evaluation of options" (Shafir et al., 1993, p. 32). More specifically, I examined the extent to which cognitive biases and subsequent decision-making deficits are associated with narcissism or other models of fragile self-esteem subsequent to an ego-threatening experience. Before explaining the two studies in which I examined this possibility, I will first provide an account of two judgmental biases, myopic focus on reward and overconfidence, and their relations to risk-taking. I will then review research linking self-esteem concerns to decision outcomes, and explicitly give an account of narcissism and models of fragile self-esteem. Finally, I will discuss the possible relations between these self-related individual difference constructs and these two judgment and decision-making biases.

Biases in Judgment and Decision-Making: Myopic Focus on Reward

Often individuals base decisions upon the potential for gain in lieu of an objective recognition of potential negative consequences. In other words, the maximization of reward sometimes precludes behavioral strategies that would minimize loss. Research employing the Iowa Gambling Task (IGT) collectively highlights this judgmental bias and excessive risk-willingness. For example, Bechara, Damasio, Damasio, and Anderson (1994) observed that individuals with damage to their ventromedial prefrontal cortex (VMPFC) continually make maladaptive choices resulting from this sort of myopic focus on reward. Although working memory remains intact, individuals with damage to their VMPFC are unable neurologically to process normative emotions that should arise naturally from aversive outcomes (Bechara, Damasio, Tranel, & Damasio, 1997). Accordingly, whereas lesioned and non-lesioned patients

are similarly sensitive to positive outcomes, lesioned patients are unable to "feel" properly the negative affect from large losses or otherwise negative outcomes (Bechara et al., 1994; Bechara, Damasio, & Damasio, 2000; Bechara, Tranel, & Damasio, 2000). The result is that such physiological abnormalities appear responsible for maladaptive decisions, including decisions contingent upon properly associating emotions with behaviors, such as discerning whether something is good or bad. Thus, lesioned individuals have problems behaving according to normative social conventions or making adaptive decisions about matters of personal importance (Anderson, Bechara, Damasio, Tranel, & Damasio, 1999; Bechara et al., 2000; Bechara, Damasio, Tranel, & Anderson, 1998; Elliott, Rees, & Dolan, 1999).

Ultimately, individuals with such neurological damage evidence a decisional bias whereby winning, or reward, is all-consuming. However, such a judgmental bias is not exclusive to lesioned individuals. In fact, substance addicted individuals show similar behavioral patterns on the IGT to lesioned participants, though their behavior is not a result of faulty somatic feedback. Rather, substance addicted individuals' insensitivity to adverse future consequences results from a bias towards the positive affective consequences linked to a reward. This process is akin to desires for a drug "high," where risky behaviors are enacted for the immediate prospect of reward, even when they ultimately lead to negative consequences (Bechara, 2001; Bechara, & Damasio, 2002; Bechara, Dolan, & Hindes, 2002). A similar indiscriminant focus on reward has been shown among HIV / AIDS patients who contracted the disease through intravenous drug use or risky sexual behaviors, such as unprotected promiscuous sex (Hardy, Hinkin, Levine, Castellon, & Lam, 2006), as well as pathological gamblers (Lakey, Goodie, & Campbell, 2007). This research provides evidence that some individuals may continually opt for reward-inducing choices because of the immediate positive affect they provide. As Epstein (1994) notes, in an

effort to heighten each momentary experience, individuals often engage in behaviors to reproduce positive feelings. It appears that desire to continually seek the positive affect that comes with large wins (even when they are also accompanied by large losses) represents a self-regulatory response that can override individuals' immediate impulses for safer, alternative outcomes (Epstein, 1994; Baumeister, 1997, 2002; Finucane, Alhakami, Slovic, & Johnson, 2000; Metcalfe, & Mischel, 1999).

Biases in Judgment and Decision-Making: Overconfidence and Risk-taking

Other means exist by which individuals display poor decision making resulting from biased judgment. For example, many cognitive biases result from an apparent illusion of control, in which individuals assume that personal skill wields influence even when outcomes are purely due to chance (Langer, 1975). This illusion of control is highlighted in research examining how individuals generally are more confident than they are accurate, a state of poor calibration dubbed overconfidence (Ehrlinger & Dunning, 2003; Fischhoff et al., 1977; Goodie, 2003; Kahneman & Tversky, 1996). Fischhoff et al. (1977), for example, found that even when individuals expressed 100% certainty in an answer, they were only correct 72%-83% of the time, revealing that absolute certainty does not translate into absolute accuracy. In a similar vein, research using the Georgia Gambling Task (GGT; Goodie, 2003) highlights the role that overconfidence ultimately plays in risk-taking. The GGT begins with a confidence calibration task akin to Fischhoff et al. (1977) in which participants answer two-alternative general knowledge questions and then assess their confidence in each answer. Among answers in which a participant expresses 80% confidence, for example, 80 out of every 100 should turn out to be correct. If this state of optimal calibration is achieved, the average confidence over all trials equals the proportion of questions answered correctly. Each participant is subsequently offered a

bet for points on each answer, which has zero expected value if the participant's confidence was well calibrated, a positive expected value if underconfident, and a negative expected value if the participant was overconfident. Using this task, Goodie (2003) replicated Fischhoff et al.'s (1977) findings showing that overconfidence most often prevails among individuals. Goodie also found that individuals were much less willing to accept random gambles as compared to gambles based on personal knowledge in which they maintained an illusion of control. Moreover, Goodie showed that participants are much more likely to accept gambles at high confidence categories, even when the risk associated with these gambles is unduly large.

Importantly, Goodie (2003) highlights how the coupling of extreme certainty, poorly calibrated confidence assessments, and faulty perceptions of control set the stage for risky behaviors, even in situations where rational thought would dictate risk-aversion (Goodie, 2003; Heath & Tversky, 1991; Kahneman & Tversky, 1979). Importantly, overconfidence is minimally related to intelligence (Ehrlinger & Dunning, 2003; Stanovich & West, 1998), yet it can lead to negative outcomes such as gambling pathology (Goodie, 2005; Lakey et al., 2007a). As a pertinent example, Jaccard, Dodge, and Guilamo-Ramos (2005) highlight the role that unfounded confidence plays in unplanned pregnancies. These authors show that in a large sample of female adolescents, the perception of greater knowledge concerning the proper use of birth control predicted greater, not lesser, reported unplanned pregnancies. Moreover, these authors provide evidence that confidence about the perception of knowledge and actual knowledge are only minimally related.

Why does overconfidence happen? Blanton, Pelham, DeHart, and Carvallo (2001) proposed that being more confident than accurate serves as a means of controlling dissonance. That is, the heightened feelings of certainty accompanying overconfidence increase an

individual's perceptions of being capable of exerting influence over the environment. These perceptions help to alleviate negative feelings that, for example, arise with an objective recognition that some events are uncontrollable (cf. Langer, 1975). In fact, threats to perceptions of control often lead individuals to try to gain control in other areas, especially if these efforts have been successful in the past (Pittman & D'Agostino, 1989). Thus, various factors often bolster overconfidence, such as when individuals seek confirmatory and ignore contradictory evidence (Doherty, Mynatt, Tweney, & Schiavo, 1979; Einhorn & Hogarth, 1978; Goodie & Fantino, 1995; Koriat, Lichtenstein, & Fischhoff, 1980) and therefore neglect relevant task-related information such as its structure (Ehrlinger & Dunning, 2003; Gigarenzer, Hoffrage, & Kleinbolting, 1991). In such situations where individuals fail to adapt well to environmental demands, overconfidence triggers inappropriate cognitive strategies that stand directly opposed to more rational logic (Kahneman & Tversky, 1973; Margolis, 1987, 1996).

Linking these Two Judgment and Decision-Making Biases

Both overconfidence and myopic focus on reward represent cognitive biases in judgmental realism that underlie risky behaviors (Bechara, 2001; Goodie, 2005; Hardy et al., 2006; Tversky & Kahneman, 1986). Relatively little research has directly examined the role that individual differences may play in judgmental biases and risk-taking propensities. However, researchers have shown that the individual difference variables of mindfulness (e.g., Brown & Ryan, 2003) and narcissism (e.g., Morf & Rhodewalt, 2001) relate to overconfidence and myopic focus on reward using the GGT and IGT. Specifically, Lakey, Campbell, Brown, and Goodie (2007) found that, when compared to their less-mindful counterparts, mindful individuals display less overconfidence, less myopic focus on reward, and fewer risk-taking propensities. Presumably, this more adaptive decision-making culminates from objective processing of

immediate internal and external information, and increased consonance between behaviors and the affective consequences that coincide with those behaviors. Conversely, Lakey, Rose, Campbell, and Goodie (2007) show that, when compared to individuals low in narcissism, narcissists (i.e., individuals scoring relatively high in trait narcissism) display greater overconfidence, greater myopic focus on reward, and greater risk-taking propensities. These judgmental biases exhibited by narcissists are a function of their self-serving approach motivation that leads to a heightened reward sensitivity and risk-willingness (see also Campbell, Goodie, & Foster, 2004). Taken as a whole, these findings suggest that closer-to-optimal decision-making occurs when individuals evince proper calibration in terms of confidence and accuracy, are not overly self-focused, and objectively process matters of risk in an unbiased and non-distorted manner. Furthermore, their results imply that concerns over self-esteem positivity could inhibit rational decision processes, a possibility to which I now turn.

The Role of the Self in Judgment and Decision-Making

The psychological literature is replete with evidence showing that biased judgment ensues from motivations to enhance the positivity and decrease the negativity of self-views (e.g., Baumeister, Tice, & Hutton, 1989; Sedikides & Strube, 1997; Steele, 1988; Tesser, 1986, 1988). For example, when compared to the average person, individuals overestimate their own happiness (Freedman, 1978) and their possession of more positive and less negative attributes (Alicke, 1985). Likewise, individuals make self-serving attributions (Arkes, Wortmann, Saville, & Harkness, 1981; Zuckerman, 1979), maintain beliefs that their strengths are unique while their weaknesses are common (Campbell, 1986), and engage in various self-presentational strategies aimed at bolstering positive self-views (Beauregard & Dunning, 2001; Cialdini & Richardson, 1980; Glenberg, Wilkinson, & Epstein, 1982; Schlenker, 2003). Baumeister (1997) collectively

labeled this process of maintaining positive self-views as egotism, while Sedikides and Strube (1997) argued similarly that these motivational biases fall under the rubric of self-enhancement concerns. Taken together, research that has examined egotism or the self-enhancement motive implies that individuals bias their judgments and decisions strategically, in an effort to maintain feelings of control, certainty, and a positive self-image (Sedikides & Strube, 1997). These biases occur even if efforts to achieve immediate rises in self-esteem following threat run the risk of undermining long-term rewards (e.g., Zhang & Baumeister, 2006).

Some researchers argue that these types of defensive and self-glorifying judgments and behaviors are most apparent among narcissists or others with high self-esteem, and are less apparent among those with low self-esteem (Baumeister, 1997; Baumgardner, Kaufman, & Levy, 1989; Brown & Gallagher, 1992; Campbell et al., 2004; Lakey et al., 2007c; Larrick, 1993; Pelham & Swann, 1994; Sedikides & Strube, 1997; Swann, 1987; Tice, 1991). For example, evidence suggests that high self-esteem entails a certain degree of optimism concerning feelings that goal-directed behaviors will result in desired outcomes (Scheier & Carver, 1985). Evidence also suggests that that following success, both low and high self-esteem individuals experience positive emotions; however, after failure, individuals with low self-esteem experience markedly more negative self-relevant emotions, such as feelings of humiliation (Brown & Dutton, 1995). Therefore, the extent to which individuals can effectively manage the resultant negative consequences from an unmet goal alters individuals' expectations for success and their subsequent risk-willingness (Josephs, Larrick, Steele, & Nisbett, 1992; Larrick, 1993). From this perspective, when compared to those with low self-esteem, individuals with high self-esteem have positive expectations for success that are coupled with resources to manage potential regret over a failed attempt (even if these processes are defensive in nature), which serve to increase

biased judgment (Larrick, 1993; McFarlin & Blascovich, 1981; Metcalfe, 1998; Taylor & Brown, 1988). Baumeister, Heatherton, and Tice (1993) offer further support for these assertions that some judgment and decision-making biases accompany high self-esteem. Specifically, Baumeister et al. (1993) report findings indicating that in the absence of ego-threat, individuals with high self-esteem are more effective at self-regulatory management (e.g., saving money, Study 2) than low self-esteem individuals. However, after experiencing an ego-threat, individuals with high self-esteem set unrealistic goals, take excessive risks, and are prone to personal mismanagement.

In other research, however, self-esteem level per se does not seem to influence decisional outcomes in the face of threat. For example, Zhang and Baumeister (2006) reported that compared to individuals who did not experience an ego-threat, individuals who did experience an ego-threat were more likely to perseverate in a losing financial endeavor. However, the effects of self-esteem were highly inconsistent across studies. Although individuals with high self-esteem lost significantly more money than those with low self-esteem in Studies 1 and 3, no self-esteem differences emerged in Studies 2 or 4. In fact, the trend was such that individuals with low, and not high, self-esteem lost more money in Study 2 following the same ego-threat manipulation as in Study 1, although this effect was nonsignificant ($p < .16$). Importantly, no Ego Threat X Self-esteem interactions emerged in any of these studies. The inconsistent findings from Zhang and Baumeister (2006) make it difficult to discern the role that self-esteem plays in judgment and decision making outcomes. From their perspective, situational induction of threatening self-relevant information affects the decision-making processes among individuals with low or high self-esteem equally. In Zhang and Baumeister's (2006) study, this heightened ego-involvement manifested itself as an unyielding commitment to a decision despite accumulating financial

losses. Moreover, the implication is that, irrespective of self-esteem level, all individuals desire positive feelings of worth and engage in behaviors geared towards the pursuit of high self-esteem (Crocker & Park, 2004).

One possible limitation of this conclusion is that it does not take into account recent evidence that self-esteem may be a multifaceted construct, based upon whether individuals' self-esteem is grandiose and perhaps untenable, as is the case with narcissism (Baumeister & Vohs, 2001) or fragile (Bosson, Swann, & Pennebaker, 2000; Deci & Ryan, 1995; Jordan, Spencer, Zanna, Hoshino-Browne, & Correll, 2003; Kernis, 1993, 2003). For example, narcissists often go to great lengths to bolster their self-views (Morf & Rhodewalt, 2001) and they are highly reactive when their feelings of self-worth are threatened (e.g., Bushman & Baumeister, 1998). In a similar vein, Kernis (2005) notes that individuals with unstable self-esteem (i.e., a type of fragile self-esteem) are also especially concerned about maintaining positive self-views, sensitive to evaluative events, and threatened by egotistic concerns. Given evidence that ego-threats especially affect narcissistic individuals or those with unstable self-esteem, it seems that a more nuanced conclusion may be appropriate with respect to in regards to the relationship of self-esteem to judgment and decision making outcomes following ego-threat (e.g., Zhang & Baumeister, 2006). Namely, perhaps the role of self-esteem is obscured because researchers have failed to take into account the extent to which individuals' self-esteem accompanies high levels of narcissism or is fragile versus secure. I argue that in order to gain a more complete understanding depiction of the role of individuals' self-esteem in judgment and decision-making, researchers must examine narcissism and self-esteem fragility in addition to self-esteem level (i.e., whether it is high or low). I now turn to a fuller discussion of narcissism and the various models of self-esteem fragility.

Narcissism

Narcissism is a trait that describes individuals with an overly positive, indeed grandiose, sense of self who are characterized by traits of vanity, entitlement, superiority, and self-centeredness (Morf & Rhodewalt, 2001). Perhaps not surprisingly, narcissism relates to high self-esteem (e.g., Campbell, Rudich, & Sedikides, 2002; Emmons, 1984; Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004), both explicitly (Brown & Zeigler-Hill, 2004) and implicitly (Campbell, Bosson, Goheen, Lakey, & Kernis, 2007), especially when the self-esteem that is measured reflects traits related to agency such as being powerful and dominant.

Narcissists do not function well interpersonally, as they are prone to derogate others (Morf & Rhodewalt, 1993), to be highly manipulative (Campbell, Foster, & Finkel, 2002) and to exploit others for personal gain (Campbell, Bush, Brunell, & Shelton, 2005). They view themselves as superior to others (John & Robins, 1994) and they boast and exaggerate their positive qualities (Gabriel, Critelli, & Ee, 1994). A number of studies have demonstrated that narcissists rate themselves as more intelligent than others, even when objectively they are not (e.g., Campbell et al., 2004; Gabriel et al., 1994; Paulhus, Harms, Bruce, & Lysy, 2003). These relations have led some theorists to describe the self-esteem of narcissists as having an addictive quality whereby they engage in behaviors to maintain the "high" associated with moments in which they experience especially positive feelings about themselves (Baumeister & Vohs, 2001). Indeed, research has supported that narcissists maintain their positive and inflated self-evaluations by engaging in a number of strategic behaviors, such as aggrandizing successes while blaming external factors for failures (Buss & Chiodo, 1991; Campbell & Sedikides, 1999; Farwell & Wohlwend-Lloyd, 1998), or working especially hard when their efforts are likely to result in public glory (Wallace & Baumeister, 2002). Even their fantasy lives often center

achieving greatness and being heroic (Raskin & Novacek, 1991). As such, all of these traits serve to undermine the extent to which narcissists are liked in the long-term even though they make positive first impressions (Paulhus, 1998; Robins & Beer, 2001).

Under normal conditions, narcissists are especially prone to be enjoy novel and exciting endeavors as a function of being high in sensation seeking and sensitive to immediate reward, whereas non-narcissists are properly risk averse, which curtails their pursuit of potentially dangerous activities (Emmons, 1994; Rose & Campbell, 2004). Unfortunately, narcissists' behaviors are not without cost, as narcissism relates to a number of negative intrapsychic and interpersonal outcomes including pathological gambling (Lakey et al., 2007c), sexual infidelity (Buss & Shackelford, 1997) and promiscuity (Foster, Shrira, & Campbell, 2006), compulsive buying (Rose, 2007), and other externalizing or self-defeating behaviors (Miller et al., 2007). Moreover, given narcissists' tendencies toward self-aggrandizement and other-derogation at a dispositional level, it is perhaps not surprising that they are often highly reactive when their positive feelings about themselves are threatened. For example, narcissists respond to threats by becoming especially angry (Morf & Rhodewalt, 1998) and they are prone to respond to self-threats with criticism (Kernis & Sun, 1994) or with overt aggression towards the perpetrator of the threat (Bushman & Baumeister, 1998). This evidence suggests that excessive ego-involvement and defensiveness accompany high levels of narcissism. Of particular note are findings that link narcissism to judgment and decision-making biases at a dispositional level (Lakey et al., 2007c). Given narcissists' reactivity to ego-threat, it may be the case that subsequent to an ego-threatening experience, narcissists will display especially high levels of myopic focus on reward, overconfidence, and willingness to take risks based on their confidence assessments, and as a means by which they protect and enhance their the self-conceptions.

Fragile Forms of Self-esteem

As depicted by Kernis (2003), individuals with secure high self-esteem have well anchored and genuine feelings of self-worth that are not easily threatened. Individuals with fragile high self-esteem, on the other hand, have tenuously held and therefore very vulnerable positive feelings of self-worth that are highly responsive to evaluative feedback. Kernis (2003) argues that at least three ways exist to determine whether individuals' self-esteem is fragile or secure. Namely, researchers can assess the extent to which an individual's self-esteem is stable, contingent on meeting outcomes or standards, or paired with congruent or discrepant implicit self-esteem. There are conceptual and empirical differences between each of these fragile /secure self-esteem markers, however (Kernis, 2003; Kernis, Lakey, & Heppner, in press). Accordingly, in this section, I discuss each in detail.

Stability of Self-esteem. Stability of self-esteem reflects the extent to which feelings of self-worth exhibit short-term fluctuations. As opposed to a single assessment of an individual's typical level of self-esteem (e.g., Rosenberg, 1965), stability of self-esteem traditionally is assessed by having individuals complete ratings of their current, contextually based feelings of self-worth over multiple occasions. Researchers compute stability of self-esteem as the standard deviation of these reports, such that higher variability reflects greater self-esteem instability (Kernis, 2003, 2005). Importantly, these short-term fluctuations occur despite the relative stability of individuals' typical level of self-esteem (Trzesniewski, Donnellan, & Robbins, 2003). Moreover, the importance of assessing both self-esteem stability and self-esteem level is now well established. For example, research indicates that individuals with unstable self-esteem report less autonomous regulation, clearly defined self-concepts, self-acceptance, and psychological health than do those whose self-esteem is stable (Kernis, Paradise, Whitaker,

Wheatman, & Goldman, 2000; Paradise & Kernis, 2002). Greenier et al. (1999) found that, compared to individuals with stable self-esteem, individuals whose self-esteem was unstable reported greater reactivity to both positive and negative daily events. Additional findings indicated that this heightened reactivity was due to individuals with unstable self-esteem perceiving that their negative events were especially self-esteem relevant or had implications for the extent to which they were socially accepted.

Moreover, the effects of self-esteem instability are not limited to individuals with low self-esteem; rather, marked differences exist among individuals with high self-esteem based on whether their self-esteem is stable or unstable. For example, when compared to individuals with stable high self-esteem, those with unstable high self-esteem tend to link their feelings of worth to specific evaluative dimensions (e.g., competence). As such, individuals with unstable high self-esteem react highly favorably to positive evaluative information, yet they are inclined to externalize fault when presented with negative evaluative information (Kernis, Cornell, Sun, Berry, & Harlow, 1993). Kernis, Granneman, and Barclay (1992) also provide evidence that compared to individuals with stable high self-esteem, those with unstable high self-esteem exhibit greater excuse making following success. The authors argue that such excuse-making following success may serve as a means of self-esteem bolstering because it enhances the positive implications of success. Taken together, research that has examined the stability of self-esteem suggests that possessing unstable high self-esteem may set the stage for high reactivity, unrealistic self-appraisals, and overconfidence, especially following ego-threat. In contrast, individuals with stable high self-esteem, who have firmly planted and secure positive feelings of self-worth, should experience an especially low degree of reactivity following ego-threat, and should be less susceptible to threat undermining their judgment and decision-making.

Contingent Self-esteem. Contingent self-esteem reflects feelings of self-worth that are dependent upon meeting certain outcomes or standards, which can be either internally or externally imposed (Deci & Ryan, 1995). Importantly, the maintenance of these feelings of self-worth requires continual bolstering and validation, or declines result. Therefore, even if contingent self-esteem is high, it is inherently fragile, because information that stands opposed to contingently positive self-appraisals will undermine feelings of self-worth (Crocker & Park, 2004; Deci & Ryan, 1995; Kernis, 2000, 2003). Accordingly, individuals with contingent self-esteem are often highly ego-involved. This ego-involvement can take shape in certain domains, such as approval from others or academic performance (Crocker & Park, 2004; Crocker, Sommers, & Luhtanen, 2002; Crocker & Wolfe, 2001; Park & Crocker, 2005), or it may transcend a specific domain such that feelings of self-worth are more or less contingent overall (Deci & Ryan, 1995; Kernis, 2000). In this context, research has shown that highly contingent self-esteem can promote high anger and hostility (Kernis & Goldman, 2006). Furthermore, Neighbors, Larimer, Geisner, and Knee (2004) report findings indicating that individuals with contingent self-esteem possess a more controlled orientation, which is indicative of less autonomy over one's behaviors. In a sample of college students who drank alcohol, Neighbors et al. (2004) demonstrated that individuals with highly contingent self-esteem reported deciding to use alcohol for reasons having to do with external pressures, as a means of coping with stressors, and to regulate affect. These individuals also reported drinking more overall and having a greater number of drinking-related problems.

Individuals with highly contingent self-esteem also exhibit a greater reactivity to self-esteem threatening information or events than do individuals with low contingent self-esteem. For example, Patrick, Neighbors, and Knee (2004) found that women with highly contingent

self-esteem exhibited significant decreases in positive affect and marked declines in their body-esteem subsequent to appearance related social comparisons (Study 1), and experienced a relatively high degree of emotional distress following naturally occurring social comparisons (Study 2). Most important for the present concerns, some research also suggests that contingent self-esteem may alter individuals' judgments. For example, Davis (2006) had participants complete measures of self-esteem level and contingent self-esteem. Participants then completed a self-assessment task, which afforded a measure of individuals' actual performance versus their own subjective judgment of their performance on the task. Davis found that among individuals with high self-esteem, the more their self-esteem was contingent, the more they overestimated their performance. This poor calibration between actual performance and subjective estimation of performance suggests that these individuals have a self-enhancing judgmental bias. Broadly, this theory and research suggests that individuals with relatively high and non-contingent self-esteem are not very susceptible to ego-threats, whereas those with feelings of self-worth linked to performance standards or external appraisals (i.e., is highly contingent) will display judgment and decision-making obscured directly by self-esteem concerns.

Implicit Self-esteem. Whereas self-esteem as traditionally measured is explicit and available for conscious and verbal evaluation, implicit self-esteem represents the underlying pre- or non-conscious associations linked to the self that generally are inaccessible to introspection (Epstein, 1990, 2006; Epstein & Morling, 1995; Hetts & Pelham, 2001). One means of garnering implicit self-esteem is through repeated exposure to self-relevant information. That is, individuals automatically imbue positivity or negativity into those objects that in some way signify a unique self-aspect and thus are central to the self (Hetts & Pelham, 2001; Hetts, Sakuma, & Pelham, 1999; Jones, Pelham, Mirenberg, & Hetts, 2001; Kitayama & Karasawa,

1997; Paulhus, Graf, & Van Selst, 1989). This connectivity process also provides one means of assessing implicit self-esteem, as researchers can measure individuals' ratings of these self-relevant aspects (e.g., individuals' initials, Nuttin, 1987). Implicit processes exert considerable impact on individuals' emotions, thoughts, and behaviors, especially those that are habitual, nonverbal, and automatic (Bargh & Chartrand, 1999; Greenwald & Banaji, 1995; Hetts & Pelham, 2001; Spalding & Hardin, 1999). Moreover, research shows that implicit self-esteem uniquely predicts some aspects of task persistence (Jordan et al., 2002), mood (Bosson et al., 2000), and nervous behaviors (Spalding & Hardin, 1999), all of which are relatively intuitive, uncontrolled and nonconscious responses to immediate situations or circumstances. These and other research findings imply that implicit and explicit self-esteem are relatively independent (Epstein, 1990).

In other research, compared to individuals with congruent high implicit and explicit self-esteem, individuals with high explicit and low implicit self-esteem display greater ethnic discrimination (Jordan, Spencer, & Zanna, 2005) and greater self-enhancement tendencies, including unrealistic expectations for the future (Bosson, Brown, Zeigler-Hill, & Swann, 2003). Discordant high explicit and low implicit self-esteem also relates to self-regulation failure following ego-threat (Lambird & Mann, 2006). Moreover, when faced with threats of uncertainty in self-relevant domains, individuals with high explicit and low implicit self-esteem counteract the threat by becoming zealous in their conviction for other personally held, albeit non-related, beliefs (McGregor & Marigold, 2003). The evidence from research that has examined implicit self-esteem suggests that discordant high explicit and low implicit self-esteem reflects feelings of self-worth that are inherently fragile (Kernis, 2003). As such, those with high explicit and low implicit self-esteem will experience especially high ego threat when negative information

counteracts their generally positive explicit self-views. In these moments of threat, presumably these individuals consciously experience what is generally pre- or non-conscious (i.e., negative self-information; Jordan et al., 2003). It may be the case that in an effort to regain the positivity of their explicit self-worth, they are more likely than those with congruent high explicit and implicit self-esteem to report biased judgments and exhibit relatively poor decisional outcomes.

The Proposed Role of Narcissism and Fragile Self-esteem for Judgment and Decision Making

Building on previous work, my goal is to establish support for a motivational account of biases in judgment and decision-making based upon the extent to which individuals' self-esteem is narcissistic or is fragile. The research just reviewed suggests that the subjective experience of narcissistic individuals or those with fragile high self-esteem following threat will promote motivations to restore positivity to their feelings of self-worth, which sometimes may stand at odds with rational logic. To the extent that this is true, cognitive biases, risk-taking, and observable performance decrements may be likely to emerge among these individuals.

Recent research and theory suggest that two mental systems exist that influence individuals' judgments (Epstein, 1990; Kahneman, 2003; Simmons & Nelson, 2006; Stanovich & West, 2002). The first system involves cognitive processes that guide analytical and logic-based reasoning. Active consideration of environmental demands and contingencies, as well as personal experiences and memories, breed rational decisions that reflect this system. Accordingly, rational judgments are highly proficient in bringing about optimal outcomes (Doherty et al., 1979; Gigerenzer & Goldstein, 1996, 1999; Klayman & Ha, 1987; McKenzie, 1994; Simmons & Nelson, 2006). In contrast, the second system is essentially experiential in nature, is based in immediate experience, and it guides intuition. Since individuals bring intuitive judgments to mind with ease, they can thus use them as the basis for many decisions. While

intuition may be more efficient than analytical processing (Bargh, 1997; Bargh & Chartrand, 1999; Finucane et al., 2000), individuals often hold intuitive judgments with such confidence that individuals rely on them even in the presence of more valid, but nonintuitive options (Ehrlinger, & Dunning, 2003). Moreover, intuition works in conjunction with heuristic processes, such as biases to seek confirmatory evidence and ignore contradictory evidence, and does not serve effectively unless there are obvious relations between two things (Koriat, Lichtenstein, & Fischhoff, 1980). Thus, failing to address immediate situational factors represents an instance where intuition stands opposed to rational logic and, consequently, may be maladaptive.

Drawing from past research and theory, I argue that when faced with threatening self-relevant information, narcissistic individuals or those with fragile high self-esteem will become highly ego-involved in the task outcome. In turn, this heightened self-concern will interfere with the extent to which they are sensitive to objective task-specific information, and instead, they will rely more on their biased intuition. I believe that oftentimes, this will occur much to their detriment. In other words, the adverse reaction to an ego-threat will serve to inhibit rational processing and consideration of objective conditional factors, which will ultimately compromise the use of optimal decision strategies. At the same time, and somewhat paradoxically, I propose that narcissistic individuals or those with fragile high self-esteem will interpret the tasks as especially self-relevant, feel that more skill is involved in the risk-taking situations presented, and try especially hard to perform well. In short, I am proposing that for these individuals, rather than utilizing rational decision-making strategies following ego-threats, they will display both

biased judgment and greater risk-willingness in an attempt to repair their damaged self-esteem. If this is the case, then when compared to their less narcissistic or secure high self-esteem counterparts, individuals high in narcissism or those with fragile high self-esteem should exhibit a greater myopic focus on reward as measured with the IGT (Study 1) and likewise display heightened overconfidence and greater willingness to accept risky bets as measured with the GGT (Study 2), especially following ego-threat.

CHAPTER 2

Study 1

The purpose of Study 1 was to provide support for the theory that narcissists or individuals with fragile high self-esteem would employ maladaptive decision-making strategies in an attempt to restore positive feelings of self-worth subsequent to an ego-threatening experience. Toward this end, participants completed measures designed to assess these individual difference traits followed by a ego-threatening task in which half were told that they performed especially poorly. Next, they completed a mood questionnaire and finally, they completed the IGT, which provides a behavioral assessment concerning the extent to which their decisions were guided by the prospect of attaining large, immediate rewards even when such a behavioral pattern would engender long-term losses.

Method: Participants, Measures, and Procedure

Seventy-one participants completed this study for partial fulfillment of their course research requirements. However, one participant did not follow instructions on the ego-threat task, two participant's data did not store, and six participants (8.4%) explicitly expressed suspicion about the validity of the manipulation. Thus, the final sample included 62 people, all of whom were included in all analyses. Seven males and 23 females were in the ego-threat condition, while eight males and 24 females were in the control (i.e., positive feedback).

After providing informed consent, all participants completed computer administered versions of a basic demographic form followed by measures of narcissism, self-esteem level, and measures designed to assess the extent to which their self-esteem was fragile (versus secure).

Narcissism was assessed via the 40-item ipsative version of the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988), a well-validated measure of individual differences in narcissism. Scores to the 40 items were summed so that higher scores reflect greater narcissism ($M = 15.92$, $SD = 6.27$, $\alpha = .82$). A copy of this measure is in Appendix A.

To assess trait self-esteem, participants completed the Rosenberg (1965) Self-Esteem Scale (RSE). This measure is a reliable and valid measure of one's overall global feelings of self-worth (Blascovich & Tomaka, 1991). Responses to questions (e.g. *I feel like I am a person of worth, at least on an equal plane with others*.) were made on a 5-point Likert scale (1 = strongly agree, 5 = strongly disagree) and summed so that higher scores reflect higher global self-esteem ($M = 39.71$, $SD = 6.19$, $\alpha = .86$). A copy of this measure is in Appendix B.

Participants also completed Paradise and Kernis' (1999) Contingent Self-esteem (CSE) Scale. This 15-item measure assesses the extent to which individuals' feelings of self-worth are dependent upon meeting outcomes or standards (e.g., *When my actions do not live up to my expectations, it makes me feel dissatisfied with myself.*). Kernis and Goldman (2006) report adequate reliability for this measure and a number of studies attest to its validity (e.g., Neighbors et al., 2004; Patrick et al., 2004). Responses were made using a 5-point Likert scale (1 = not at all like me, 5 = very much like me) and summed so that higher scores reflect greater contingent self-esteem ($M = 50.50$, $SD = 11.22$, $\alpha = .90$). A copy of this measure is in Appendix C.

To assess implicit self-esteem (ISE), participants completed the Name-Letter Task (Nuttin, 1987). Using a 9-point Likert scale (1 = not at all beautiful, 9 = extremely beautiful), participants rated the extent to which they find each letter of the alphabet aesthetically pleasing. I calculated total scores by taking the composite mean score of the individual's first and last initials and subtracted the composite of the sample mean rating for those letters (which did not include participants' ratings of their own initials). Thus, higher scores reflect higher implicit self-esteem ($M = 1.31$, $SD = 1.48$, $\alpha = .52$). A copy of this measure is in Appendix D.

To assess stability of self-esteem, participants completed two modified versions of the RSES. The first version asked participants to think about the last week, and report their feelings of self-worth on their "best" day ($M = 43.23$, $SD = 5.99$, $\alpha = .91$). The second version again asked participants to think about the previous week, and to answer questions regarding their "worst" day ($M = 29.89$, $SD = 9.01$, $\alpha = .90$). I computed self-esteem stability as the standard deviation of each individual's total scores across these two assessments ($M = 9.50$, $SD = 5.87$, $\alpha = .59$). Copies of these measures are found in Appendix E and Appendix F.

Subsequent to the completion of these measures, I quasi-randomly assigned participants to one of two conditions – an ego-threat condition or control – trying to maintain a relative gender balance across the experimental conditions. I employed a modified version of an ego-threat manipulation used successfully by other researchers (Baumeister et al., 1993; Lambird & Mann, 2006; Zhang & Baumeister, 2006). Initially, participants were told a cover story about the next computer task they would complete, which was ostensibly billed as a test of "Creativity IQ." Specifically, research assistants pointed to the computer screen and participants were told:

This next task you're going to do today is in response to the increasing SAT scores and GPA of incoming students. Since scores keep getting higher, we want to take a closer look at any other increases in higher-order thought processes that coincide. The task you're going to do is called the "Stanford-Monet Creativity IQ Test." By the way, pretty much everything I'm telling you is what's in the box there on the screen. Now, this isn't a test of "artistic ability." Rather, it tests more analytical, abstract, problem-solving skills…kind of how well you "think on your feet" and "think outside of the box." Basically, it tests intuitive things that can't really be taught during job training or school. Career Centers even use this test when they help people choose what careers or professions they should go into.

The cool thing is that since you'll be given your score today for free, you'll be able to gauge your own personal potential. A ton of research has been done with this test, and it's a really good predictor of all sorts of positive outcomes in peoples' lives, like how many promotions you'll get, how healthy you'll be later in life, and even the quality of close relationships you'll have. I guess because people high in creativity are able to solve problems and respond to novel situations better than non-creative people. Do you have any questions?

In the absence of questions, the participant was told:

All right, let's get going. The test is fairly straight-forward, so I don't think you'll have any trouble. Real quick, your score will take into account the number of responses you gave, their plausibility, and their conceptual uniqueness. There are two parts, both pretty similar, and both timed. Go ahead and make sure that is your correct ID number. Take a second if you want to read the stuff in the box, and when you're done, click "I understand."

At this point, the program moved to the next screen where the first question is listed. The participant was then told:

Okay, the first thing you're going to do is brainstorm about all the ways that you can use a brick. Make sure that you don't hit "enter" after each answer. Just use the mouse or the tab key to move between answer blocks. I'll be right over here, and I'll tell you when you have one minute left and when times up. You've got 4 minutes for this part. Are you ready? You may begin.

When three (of the four) minutes had passed, the participant was told:

> You have 1 minute left.

When all four minutes passed, the participant was told:

> Time's up. Go ahead and click the continue button. As you see, this time, you're
> going to list all of the problems that might arise if people could fly. You've got 6
> minutes for this section. Ready? You may begin.

The participant was again told when one minute remained and when time was up. When all six minutes had passed, the participant was told:

> Go ahead and click "submit" and it will score your test. Like I said earlier, your
> score will take into account the number of responses you gave, their plausibility,
> and their conceptual uniqueness. It will give you your percentile rank based on
> where you stand next to others who have taken the test.

A screen appeared for 32.5 seconds, which stated that the computer was tabulating the results. For participants in the ego-threat condition, the research assistant made a subtle "uggh" sound in a somewhat disgusted tone when the score appeared, and the screen depicted a standard normal curve under which an arrow pointed to the point at which the 34th percentile score would reside. Moreover, the screen contained rather poignant feedback intending to convey that the participant seemed to be particularly weak in higher-order creative thought. This feedback stated:

Your age-adjusted creativity quotient places you in the 34th percentile. Your C-IQ

score is below average. This score suggests that while you may be able to perform

rote academic endeavors or other tasks, you do not evidence a high degree of

analytical reasoning ability, and possibly respond to novel situations in a

maladaptive manner.

For participants in the control condition, the research assistant made a subtle "hmm" sound, in a somewhat positive tone, and the screen depicted a standard normal curve under which an arrow pointed to the point at which the 91st percentile score would reside. Moreover, the screen contained feedback, which stated:

Your age-adjusted creativity quotient places you in the 91st percentile. Your C-IQ

score is above average. This score suggests that you have a high degree if

analytical reasoning ability, and respond to novel situations in innovative ways.

At this point, the research assistant handed a mood questionnaire to the participant and stated:

I need to load the next segment of the study on the computer. It'll just take

second. Let's switch places again. Go ahead and fill this out for me while I load

the next task.

The research assistant loaded the IGT onto the computer, while the participants completed a paper-and-pencil version of the Positive Affect Negative Affect Scale (PANAS; Watson, Clark, & Tellegen, 1988). This measure was included to assess whether any effects that emerged were possibly mediated by mood. The PANAS instructions stated that participants were

to complete the questionnaire based on how they felt at that moment. Drawing from past research in which self-esteem differences following failure emerged only on self-relevant emotions (Brown & Dutton, 1995), I added the terms "humiliated" and "pleased" to the PANAS. Finally, building on the work of Bushman and Baumeister (1998), I also amended the PANAS to include the words "threatened" and "secure" to assess the possible mediation by participants' perceived threat. For analyses, I computed the difference between the summed positive and negative emotions from the PANAS such that higher scores reflect more negative affect (M = -13.03, SD = 10.40, α = .85). I also computed separately a score for self-relevant emotions (i.e., proud, pleased, ashamed, and humiliated) by subtracting the summed positive from the summed negative self-relevant emotions so that higher scores reflect greater negative self-relevant emotions (M = 2.58, SD = 1.37, α = .76). Finally, I computed the total "threat" score by subtracting the value assigned to secure from the value assigned to the threat term, where higher scores will reflect greater perceived threat (M = -2.21, SD = 1.53, α = .56). This measure is found in Appendix G.

Subsequent to the completion of the PANAS, participants completed the computer administered IGT (Bechara et al., 1994), which assesses risk willingness through individuals' focus on potential gain to the exclusion of the enactment of behaviors designed to minimize potential loss. The IGT is a contingency card-sorting task in which participants choose from among four simulated decks of cards while attempting to maximize the amount of "money" won over an initial "loan" of $2000. The four decks offer various schedules of reward and punishment. Two decks (Decks A and B) have a negative expected value, which results from large gains that are intermittently coupled with even larger losses. The other two decks (Decks C and D) have a positive expected value, and are considered safer, and more advantageous. That is,

while these latter decks provide smaller gains than either of the two risky decks, they are coupled with even smaller losses. The IGT consists of 100 trials, broken into five blocks of 20. Performance on this task is contingent upon learning these patterns and enacting behaviors that maximize long-term payout. Typically, all individuals choose the bad decks to a considerable degree in early blocks (i.e., Blocks 1 and 2), as these are considered learning stages. Differences emerge to the extent that individuals continually choose from the risky decks, or learn to predominantly avoid them and opt for the safer decks. The interpretation of perseveration among non-lesioned-PFC populations is that they are biased towards the positive feelings linked with the large payout among the risky decks (Bechara, 2001; Bechara, & Damasio, 2002; Bechara et al., 2002). Thus, they opt for the risky choice, overriding the negative responses that accompany the large losses. As the early trials of the IGT are considered learning stages, I examined the total number of selections from the risky decks in the final three blocks of 20 trials (i.e., Blocks 3, 4 and 5) as the primary variable of interest. However, given that the aggregation of suboptimal decisions can compound to yield adverse effects among individuals (Bechara, 2001), I also examined the total number of times participants choose from the risky decks in all blocks as a secondary measure of performance on this task. Before beginning the IGT, participants were told:

> This second task has nothing to do with Creativity IQ. It's a computer task that
> assesses the way people make decisions. There are going to be four decks of cards
> to choose from. You're going to get a loan from the "bank" of 2,000 dollars. The
> goal is to maximize the amount of money you win and minimize the amount of
> money you lose when you pick cards.

Subsequent to the completion of this measure, all participants underwent a process debriefing, which included verbal questions designed to assess suspicion, and they were thanked for their participation.

Results and Brief Discussion

Was the ego-threat manipulation effective? I hypothesized that there would be observable performance decrements in each of the IGT performance variables (i.e., risky decks chosen in Block 3, Block 4, Block 5, and in Total) as a function of undergoing ego-threat. To examine this possibility, I assessed the extent to which individuals in the ego-threat condition evidenced significantly more myopic focus on reward (and thereby a higher degree risk-taking) than those in the control condition. Toward this end, I examined the correlations between each of the IGT performance variables and a dummy coded variable capturing the experimental condition. This latter variable was coded such that 0 = ego-threat condition and 1 = control condition, and this analysis is functionally equivalent to a t-test analysis of between-group differences (Cohen, Cohen, West, & Aiken, 2003). As seen in Table 1, in no case was the relation between condition and IGT risk-taking significant (all rs between -.11 - .09, all ps > .38).

Next, I assessed the extent to which mood related to IGT performance as a function of condition. Specifically, I examined the difference between general negative affect and positive affect, as measured by the PANAS (Watson et al., 1988), self-relevant emotions (Brown & Dutton, 1995) and threat emotions (threat, secure; Bushman & Baumeister, 1998). The relations among condition and the various mood measures all were statistically significant. Specifically, when compared to those in the ego-threat condition, individuals in the control condition experienced significantly less negative affect (all rs > -.27, all ps <.05). Importantly, however, no IGT performance measure significantly correlated with any mood measure.

Table 1. Correlations among Study 1 Variables. *Note*: Condition coded such that 0 = Ego-threat and 1 = Control Condition; IGT Block 3 = total risky decks chosen in the third block of twenty trials; IGT Block 4 = total risky decks chosen in fourth block of twenty trials; IGT Block 5 = total risky decks chosen in the fifth block of twenty trials; IGT Total = total IGT risky decks chosen over 100 trials; NPI = narcissism; RSE = explicit self-esteem level; CSE = contingent self-esteem; Stability = self-esteem stability, where higher scores reflect greater instability; ISE = implicit self-esteem; PANAS = general affect. Self-Relevant = self-relevant affect; Threat = threat related affect. Values in bold are significant at $p < .05$. Values in bold and italics are significant at $p < .01$.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Condition	---												
2. IGT Block 3	.09	---											
3. IGT Block 4	.09	*.52*	---										
4. IGT Block 5	-.11	**.30**	*.49*	---									
5. IGT Total	.07	*.81*	*.78*	*.66*	---								
6. NPI	-.03	.24	.14	.04	.20	---							
7. RSE	-.24	.00	-.11	-.11	-.10	*.36*	---						
8. CSE	*.38*	.00	.19	-.09	.02	-.16	*-.53*	---					
9. Stability	.24	.19	.24	-.08	.12	-.10	*-.34*	*.42*	---				
10. ISE	.10	**.30**	**.31**	.19	*.34*	.22	.19	-.14	-.23	---			
11. PANAS	*.52*	-.14	.03	.11	-.03	-.08	-.10	-.07	-.10	-.14	---		
12. Self-Relevant	*-.27*	-.14	-.09	.09	-.10	.06	-.01	-.09	.00	-.11	*.55*	---	
13. Threat	*-.33*	-.15	.11	.16	.01	-.09	-.16	.02	.02	-.10	*.73*	*.62*	---

Taken together, the ego-threat manipulation was successful at altering participants' moods. However, the ego-threat manipulation was not associated with any performance differences as assessed with the IGT.

Did narcissism interact with condition to predict risk-taking? I anticipated that narcissism would interact with condition such that performance decrements would be especially pronounced among narcissists in the ego-threat condition. To test this two-way interaction possibility, I computed Condition X Narcissism interaction term. Next, I hierarchically regressed IGT Block 3 performance (i.e., the block of 20 trials in which differences begin to emerge) onto the condition and narcissism main effect terms and subsequently the Condition X Narcissism

interaction term. While the main effect of condition was not statistically significant ($\beta = .10$, $t = .76$, $p > .44$), the narcissism effect approached significance ($\beta = .25$, $t = 1.96$, $p < .056$). Contrary to predictions, the interaction term was not statistically significant ($\beta = .53$, $t = 1.46$, $p > .14$). Thus, narcissists in the ego-threat condition were no more likely than those in the control condition to evidence myopic focus on reward; rather, regardless of condition, narcissists tended to make riskier choices in this block of IGT trials.

I followed this same procedure using IGT Block 4, Block 5, and Total risky deck choices as the dependent variable (again computed in separate hierarchical regression equations). In all cases, neither the condition (all βs $< .11$, all ts $< .88$, all ps $> .37$) nor narcissism effects (all βs $< -.20$, all ts < 1.55, all ps $> .12$) were significant. Likewise, in no instance was the interaction term statistically significant (all βs $< .06$, all ts $= -.31$, all ps $> .75$).

Did self-esteem level and self-esteem stability interact with condition in predicting IGT performance decrements? I predicted that self-esteem stability would moderate the effect of self-esteem level and that these effects will vary by condition. Specifically, I predicted that there would be a significant three-way interaction involving Condition X Self-esteem Stability X Self-esteem Level. In other words, I predicted that, among individuals with high self-esteem, the more unstable their self-esteem, the more I believed that they would exhibit cognitive biases, risk taking propensities, and poorer performance on the IGT, especially following ego-threat. To test this possibility, I conducted a series of hierarchical regression analyses involving condition, self-esteem level and self-esteem stability. To test for the interactive effect of self-esteem stability with self-esteem level, I centered these variables and entered them as main effects and as part of a product term, the latter to reflect their interaction (Cohen et al., 2003).

In no case did any main effect, Self-esteem X Self-esteem Stability, Self-esteem Stability X Condition, or the three-way interaction term approach significance in predicting IGT Block 3, Block 4, Block 5, or Total performance variable (all βs < .39, all ts < 1.59, all ps > .11). Likewise, the Condition X Self-esteem interaction did not predict IGT risk-taking in Block 4 or Block 5 (both βs < .30, both ts < 1.48, both ps > .14). However, this interaction did significantly predict IGT performance in Block 3 (β = .57, t = 2.95, p < .01). Predicted values indicated that, among individuals with high self-esteem, those who received ego-threatening feedback chose 9.08 times, on average, from the IGT risky decks in Block 3, whereas those who received positive feedback chose 11.34 times from the risky decks. The scores for individuals with low self-esteem fell within the two extremes. Specifically, among those with low self-esteem, individuals who received ego-threatening feedback chose 10.72 times from the risky, disadvantageous decks, whereas those who received positive feedback chose only 9.52 times from the risky decks. Simple slopes tests revealed that this interaction effect is a function of individuals with high (β = .38, t = 2.09, p < .05) but not low (β = -.20, t = -1.10, p > .27) self-esteem. Thus, among individuals with high self-esteem, experiencing ego-threat appears to have brought forth relatively few risky choices, whereas experiencing positive feedback elicited propensities to take risks.

As a preliminary step to examine if this effect is mediated by mood, I regressed IGT Block 3 performance onto the main effect and two-way interaction terms as well as each of the mood measures (in separate regression equations). In no case did mood significantly predict IGT performance (all βs < .15, all ts < 1.14, all ps > .26), whereas the Condition X Self-esteem interaction remained significant. These results negate the possibility that mood serves as a mediator of this relation.

Similarly, the Condition X Self-esteem interaction approached significance in predicting Total IGT performance ($\beta = .41$, $t = 1.99$, $p < .06$). However, although the pattern of predicted values mirrored those in Block 3, tests of simple slopes revealed that neither the effect of individuals with high ($\beta = .25$, $t = 1.35$, $p > .17$) nor low ($\beta = -.16$, $t = -.86$, $p > .39$) self-esteem was statistically significant. As before, I regressed IGT Total performance onto the main effect and two-way interaction terms as well as each of the mood measures (in separate regression equations) to examine if these mood variables accounted for this (marginal) effect. As before, in no case did mood significantly predict IGT total performance (all βs $< .13$, all ts $< .85$, all ps $> .39$), whereas the Condition X Self-esteem interaction remained (at least marginally) significant (all βs $> .39$, all ts > 1.89, all ps $< .065$). These results rule out mood as a mediator.

Did self-esteem level and contingent self-esteem interact with condition in predicting IGT performance decrements? I predicted that contingent self-esteem would moderate the effect of self-esteem level and that these effects will vary by condition. Specifically, I predicted that there would be a significant three-way interaction involving Condition X Contingent Self-esteem X Self-esteem Level. In other words, I predicted that, among individuals with high self-esteem, the more contingent their self-esteem, the more I believed that they would exhibit cognitive biases, risk taking propensities, and poorer performance on the IGT, especially following ego-threat. To test this possibility, I conducted a congruent series of hierarchical regression analyses involving condition, self-esteem level and contingent self-esteem in the same manner as reported earlier. In all of these analyses, only the two-way Self-esteem X Condition interaction was significant in predicting IGT Block 3 and IGT Total performance (the latter effect was again marginal). Because this interaction was discussed in the previous section, I will not discuss it further.

Did (explicit) self-esteem level and implicit self-esteem interact with condition in predicting IGT performance decrements? I predicted that implicit self-esteem would moderate the effect of explicit self-esteem and that these effects will vary by condition. Specifically, I predicted that there would be a significant three-way interaction involving Condition X Implicit Self-esteem X Explicit Self-esteem. In other words, I predicted that, among individuals with high explicit self-esteem, the lower their implicit self-esteem, the more they would exhibit cognitive biases, risk taking propensities, and poorer performance on the IGT, especially following ego-threat. To test this possibility, I conducted a congruent series of hierarchical regression analyses involving condition, explicit self-esteem and implicit self-esteem in the same manner as reported earlier. In all of these analyses, only the main effect of implicit self-esteem emerged as a significant predictor of performance difference on the IGT. (The Condition X Explicit Self-esteem interaction discussed earlier was not significant.) More specifically, implicit self-esteem related to more risky IGT performance in Block 3 ($\beta = .30$, $t = 2.36$, $p < .03$), Block 4 ($\beta = .31$, $t = 2.49$, $p < .02$), and Total ($\beta = .34$, $t = 2.79$, $p < .01$). The effect of implicit self-esteem also approached marginal significance in Block 5 ($\beta = .21$, $t = 1.67$, $p < .11$). To examine if this effect might be mediated by mood, I added each of the mood variables into the regression equations (in separate analyses). In no case did any of the various mood measures significantly predict IGT performance (all βs $< .16$, all ts < 1.16, all ps $> .25$), whereas implicit self-esteem remained significant in all cases (all βs $> .32$, all ts > 2.49, all ps $< .02$). Thus, contrary to expectations, individuals with high implicit self-esteem were more risk-taking than their low implicit self-esteem counterparts. This effect was not accounted for by mood differences, and occurred regardless of their explicit self-esteem and regardless of whether they were in the ego-threat or control condition.

CHAPTER 3

Study 2

A number of important considerations arise from the result of Study 1. These results suggest that the ego-threat manipulation was effective at altering participants' mood states. However, the experience of ego-threat did not systematically relate to higher levels of judgment and decision-making biases (in this case, myopic focus on reward). The absence of the narcissism main effect, and especially the lack of the Condition X Narcissism interaction, is surprising in light of previous research that has demonstrated the especially strong reward sensitivity found among narcissistic individuals (Lakey et al., 2007c; Rose & Campbell, 2004) and their tendencies towards especially strong reactivity following an ego-threatening experience (e.g., Bushman & Baumeister, 1998). The null relations concerning the expected three-way Condition X Self-esteem X Fragile self-esteem marker were also surprising in light of previous research that has noted the especially strong reactivity among those with fragile high self-esteem (Kernis et al., 1993; Patrick et al., 2004). Part of the reason for the lack of a stability of self-esteem effect may have been due to the relatively imprecise measure of self-esteem stability employed for this study. Moreover, the fact that higher implicit self-esteem related to higher levels of myopic focus on reward, and thereby risk-taking, while provocative, certainly requires replication. Indeed, this effect stands opposed to previous research in which there was a null relation between NLT-measured implicit self-esteem and IGT performance (Goodie, Campbell, Miller, Unsworth, Young, & Lakey, 2006), and I am aware of no other existing research or theory that would have predicted such a relation.

Although the IGT assesses a judgment and decision-making bias that underlies risk-taking across a number of important domains (e.g., Bechara et al., 2002; Hardy et al., 2006; Lakey et al., 2007a), it may be the case that this measure, and the tendency to seek large, immediate it assesses, is not a short-term means by which individuals attempt to bolster their feelings of self-worth. Another issue with these results might be one of statistical power, as the effects may have become apparent with more participants. Finally, it may be the case that the presence of a tangible reward (i.e., real money) might heighten the extent to which individuals evidence biases in judgment and a willingness to take risks. Study 2 addresses these issues. In Study 2, I included multiple phases in order to collect stability of self-esteem in a more traditional manner, and I recruited a larger number of participants than in Study 1. In Study 2, participants completed a different judgment and decision-making task (i.e., the GGT; Goodie, 2003) that assesses the overconfidence bias and also individuals' willingness to accept risky gambles based on their confidence. Finally, participants in this study were offered real money for their performance on the GGT.

Method: Participants, Measures, and Procedure

One hundred and eleven participants completed this study for partial fulfillment of their course research requirements. However, one participant did no correctly do the second phase of the study (i.e., the stability of self-esteem phase), two participants did not follow instructions on the ego-threat task, and six participants explicitly expressed suspicion about the validity of the manipulation. Thus, the final sample included 102 people, all of whom were included in all analyses. Thirteen males and 37 females were in the ego-threat condition, while 13 males and 39 females were in the control (i.e., positive feedback) condition.

In order to measure self-esteem stability as traditionally measured, this studied encompassed multiple phases. In phase one, participants again completed a basic demographic questionnaire and I collected the same measures of narcissism ($M = 16.03$, $SD = 6.71$, $\alpha = .82$), self-esteem level ($M = 40.39$, $SD = 5.79$, $\alpha = .87$), contingent self-esteem ($M = 51.37$, $SD = 9.96$, $\alpha = .87$), and implicit self-esteem ($M = 1.51$, $SD = 1.68$, $\alpha = .58$). These sessions occurred in small group settings of no more than ten participants. I also used this time to provide an overview of the study to participants.

Over the next week, I assessed self-esteem stability. To complete this phase of the study, participants returned to the lab the following Monday to receive a packet of five modified Rosenberg (1965) Self-esteem Scales. I instructed participants to complete one measure at 10:00 PM Monday night, another at 10:00 AM and PM on Tuesday, and again at 10:00 AM on Wednesday. (The fifth measure was added in case a participant lost one.) On Wednesday afternoon, all participants returned these measures and I gave them another packet of five to complete using a similar schedule through Friday morning. Participants returned these on Friday afternoon. To discriminate between the self-esteem level questionnaires, and to assess their current feelings of self-worth, the instructions on each questionnaire read *at this moment* instead of *typically or generally*. In addition, instead of providing a 5-point Likert scale, 10 dots with the anchors *Strongly Disagree* and *Strongly Agree* separated the responses to the different questions. Each measure required the participant to note also the time and date of completion. Following past research, I included in analyses only participants who completed at least six of eight possible stability assessments. I computed self-esteem stability as the standard deviation of each individual's total scores across the multiple assessments ($M = 6.46$, $SD = 5.61$). A copy of this measure is in Appendix H.

Over the next four weeks, participants returned individually to undergo the experimental manipulation to complete the final phase of the study. As before, I quasi-randomly assigned participants to either the ego- threat or control condition (again, trying to maintain a relative balance of males and females between the two conditions). All descriptions of the Creativity IQ task and instructions were congruent with those reported in Study 1.

Once participants were finished with the Creativity IQ task, they again completed a modified mood measure (i.e., the PANAS). However, in this study, the words "humiliated" and "pleased" were left off the measure (accidentally). Because these terms are required to assess self-relevant emotions experienced by participants (Brown & Dutton, 1995), analyses will be limited to the general emotions assessed by the PANAS ($M = -14.13$, $SD = 10.70$, $\alpha = .80$) and the extent to which participants experienced threat ($M = -2.27$, $SD = 1.09$, $\alpha = .55$).

After participants completed this measure, they immediately began the GGT (Goodie, 2003), which was administered via computer. The GGT includes a confidence calibration task (Fischhoff et al., 1977), in which participants answer 100 two-alternative general knowledge questions. After answering each question, participants assessed their confidence in each answer on a scale from 50% to 100% using seven discrete confidence categories. In the next phase of the GGT, participants either accepted or rejected a bet on each answer that is designed to be fair (i.e., having zero average value) if the participant's confidence was well calibrated (i.e., confidence equal to accuracy), negatively valued if they were overconfident (i.e., confidence greater than accuracy), and positively valued if they were underconfident (i.e., confidence less than accuracy). For example, if a participant chose the 98-100% confidence category for a given answer, the participant could accept the bet and win 100 points if correct, or lose 9900 points if incorrect (determined using the category mid-point). If the person was well calibrated at the 99%

confidence level, 99 answers would be correct and one would not be correct over 100 questions. As such, this individual would win 9900 points from the correct answers and lose the same amount from the one loss, resulting in a net gain of 0 points. Overconfidence, however, most often prevails, so that more betting generally leads to fewer points won. Moreover, because individuals are usually underconfident at low levels of confidence and overconfident at high levels of confidence, the average value of bets usually decreases as confidence increases. Paradoxically, though, almost all individuals bet more often as confidence increases, even as the value of the bet decreases and the choice to bet carries an unduly large risk of loss (Goodie, 2003). Thus, because participants are overconfident, especially at high confidence categories, they systematically lose more point-earning value when they accept more bets. In summary, both overconfidence (the judgmental bias) and bet acceptance (the risk-taking decision) contribute to worse point totals in the GGT.

As stated earlier, and to increase the ecological validity of this task, I converted point totals into real money. As such, participants were told that their monetary reward was contingent upon their performance with an average expected value of $20. Specifically, immediately before beginning the confidence calibration portion of the GGT, participants were told:

> This second task you're going to do is part of a separate study – it has nothing to
> do with creativity IQ. It's a computer task that assesses the way people make
> decisions. It has two parts, and the instructions are there on the screen for the first
> part. Let me know if you have any questions. When the screen pops up that says
> you're finished with the first part, let me know so that I can give you instructions
> for the second part.

When this confidence calibration potion of the GGT was complete, participants were told:

> In the next part of this task, you'll actually play out bets for points, which
> translate into real money. You're starting with 30000 points and you'll get 10¢ for
> every 100 points you make. The average person makes about $20, and the worst
> you can do is not win anything. Go ahead and start.

In an effort to maintain an average payout of $20, I computed money earned as (Points + 30,000) X .001. As noted in the above instructions, in the case of exceptionally poor performance (i.e., the participant loses more than 30,000 points), the participant neither lost nor gained money; that is, under no circumstance did the participant owe money subsequent to the completion of the task.

I obtained three primary performance measures from the GGT: money earned (again, computed directly from total points earned), and the two GGT components that contribute to the amount of money eared, namely, overconfidence (computed as the difference between average confidence and average accuracy over all trials) and bet acceptance (the proportion of times the individual accepted bets based on his or her confidence).

At the completion of the study, each participant's points were calculated, and they signed a form to receive payment via check. Next, each person underwent extensive questioning about the validity of their stability of self-esteem questionnaires, questioning concerning the believability of the manipulation, and a full process debriefing.

Results and Brief Discussion

     Was the ego-threat manipulation effective? I hypothesized that there would be observable performance decrements in each of the GGT performance variables (i.e., money earned, overconfidence, and bet acceptance) as a function of undergoing ego-threat. To examine this possibility, I examined the correlations between each of these GGT performance variables and a dummy coded variable capturing the experimental condition. As in Study 1, this latter variable was coded such that 0 = ego-threat condition and 1 = control condition, and this analysis is functionally equivalent to a t-test analysis (Cohen et al., 2003). As seen in Table 2, in this study, the condition in which subjects participated did relate to performance. Specifically, those in the control condition ($M = 29.46$, $SD = 8.05$) earned significantly more money ($r = .24$, $p < .03$) than individuals in the ego-threat condition ($M = 24.92$, $SD = 19.04$). Those in the control condition ($M = 73.34$, $SD = 15.64$) were not significantly less likely to accept bets based on their confidence ($r = -.11$, $p > .29$) than those in the ego-threat condition ($M = 76.32$, $SD = 12.65$). However, individuals in the control condition ($M = -2.68\%$, $SD = 9.58$) were significantly less overconfident ($r = -.23$, $p < .03$) than their ego-threatened counterparts ($M = 1.86\%$, $SD = 10.10$). Recall that the relative contributions of accuracy and average confidence to overconfidence can be assessed. The nature of these relationships shows that those in the control condition tended to be more accurate ($M = 76.94\%$, $SD = 6.65$) and to espouse less average confidence ($M = 74.27\%$, $SD = 8.29$) than those in the ego-threat condition (M accuracy $= 74.80\%$, $SD = 7.43$; M confidence $= 76.66\%$, $SD = 9.07$). Importantly, however, neither the relation between condition and accuracy ($r = .15$, $p > .12$) nor the relation between condition and average confidence ($r = -.14$, $p > .16$) was statistically significant.

Table 2. Correlations among Study 2 Variables. *Note*: Condition coded such that 0 = Ego-threat and 1 = Control Condition; GGT Bet Acc. = GGT Bet Acceptance; GGT Overconfdc. = GGT Overconfidence; NPI = narcissism; RSE = explicit self-esteem level; CSE = contingent self-esteem; Stability = self-esteem stability, where higher scores reflect greater instability; ISE = implicit self-esteem; PANAS = general affect; Threat = threat related affect. Values in bold are significant at *p* < .05. Values in bold and italics are significant at *p* < .01.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Condition	---												
2. GGT Money	**.24**	---											
3. GGT Bet Acc.	-.10	.05	---										
4. GGT Overconfdc.	**-.23**	***-.66***	.00	---									
5. GGT Confidence	-.14	***-.52***	.18	***.72***	---								
6. GGT Accuracy	.15	***.30***	.22	***-.53***	.21	---							
7. NPI	.04	**-.20**	-.06	.07	.11	.04	---						
8. RSE	.17	.00	-.08	.08	.04	-.06	***.27***	---					
9. CSE	-.11	***-.28***	-.06	.08	**.19**	.13	***.26***	***-.31***	---				
10. Stability	-.04	.12	.06	-.04	.02	.08	-.11	***-.31***	.18	---			
11. ISE	.07	***-.28***	.10	.12	.09	-.06	.16	.04	-.08	-.06	---		
12. PANAS	***-.48***	-.04	-.07	-.09	-.12	-.02	-.10	***-.26***	.21	.15	-.10	---	
13. Threat	***-.39***	-.09	.06	-.02	.05	.08	-.06	***-.31***	.24	.15	.00	***.62***	---

Next, I assessed the extent to which mood related to GGT performance as a function of condition. Like Study 1, participants in the control condition experienced significantly less general negative affect ($r = -.48$, $p < .01$) and less threat ($r = -.39$, $p < .01$) than those in the ego-threat condition. However, neither mood measure related to any GGT performance parameter (all rs < .13, all ps > .22).

Taken together, the ego-threat manipulation was successful at altering participants' moods. However, in this study, the ego-threat manipulation was significantly associated with performance decrements on the GGT as a function of participants' overconfidence. The absence of significant relations between mood and any GGT performance parameter, however, precludes mood as a potential mediator of this relation.

Did narcissism interact with condition to predict GGT judgment and decision-making biases? I anticipated that narcissism would interact with condition such that GGT performance decrements would be especially pronounced among narcissists in the ego-threat condition. To test this two-way interaction possibility, I computed a Condition X Narcissism interaction term. Next, I hierarchically regressed GGT money earned onto the condition and narcissism main effect terms and subsequently the Condition X Narcissism interaction term. Both the main effects of condition (β = .23, t = 2.40, p < .02) and narcissism (β = -.21, t = -2.25, p < .03) were statistically significant. Contrary to predictions, the interaction term was not statistically significant (β = -.05, t = -.41, p > .68). I followed this same procedure using GGT bet acceptance. Neither the main effect of condition (β = -.10, t = 1.03, p > .31) nor narcissism (β = .06, t = .55, p > .58) were statistically significant. Again, the interaction term was not statistically significant (β = -.18, t = -1.33, p > .18). GGT overconfidence was significantly predicted by condition (β = -.23, t = -2.35, p < .03). The main effect of narcissism (β = .07, t = .76, p > .44) and the condition X narcissism interaction (β = .06, t = .48, p > .63) were not statistically significant. Thus, narcissists and non-narcissists were not significantly different in their confidence calibration or bet acceptance, although narcissists made less money than non-narcissists.

Did self-esteem stability and self-esteem level interact with condition in predicting GGT performance decrements? I predicted that self-esteem stability would moderate the effect of self-esteem level and that these effects will vary by condition. Specifically, I predicted that there would be a significant three-way interaction involving Condition X Self-esteem Stability X Self-esteem Level. In other words, I predicted that, among individuals with high self-esteem, the more unstable their self-esteem, the more they would be overconfident, take risks based on their confidence assessments, and thus earn lesser amounts of money, especially following ego-threat.

To test this possibility, I conducted a series of hierarchical regression analyses involving condition, self-esteem level and self-esteem stability. To test for the interactive effect of self-esteem stability with self-esteem level, I centered these variables and entered them as main effects and as part of a product term, the latter to reflect their interaction (Cohen et al., 2003).

First, I examined this possibility using GGT money as the dependent variable. Only the main effect of condition was statistically significant ($\beta = .22$, $t = 2.19$, $p < .04$). None of the other main effects, two-way interactions, or the three-way interaction were significant (all βs < .14, all ts < 1.35, all ps > .18).

Next I regressed GGT bet acceptance onto these terms. In no case did any main effect, Self-esteem X Self-esteem Stability, Condition X Self-esteem, or the three-way interaction term approach significance in predicting GGT bet acceptance (all βs < -.10, all ts < -.93, all ps > .35). However, the Condition X Self-esteem Stability interaction did significantly predict GGT bet acceptance ($\beta = .33$, $t = 2.73$, $p < .01$). Predicted values indicated that, among individuals in the control condition, those with unstable self-esteem accepted 82.95% of their bets, whereas those with stable self-esteem accepted 61.41% of their bets. The rates of bet acceptance for those who received ego-threatening feedback fell within these two extremes; specifically, those with unstable self-esteem accepted 75.05% of their bets, while those with stable self-esteem accepted 77.69% of their bets. Simple slopes tests revealed that the effect is attributable to those with stable ($\beta = -.47$, $t = -3.10$, $p < .01$), rather than unstable ($\beta = .28$, $t = 1.80$, $p > .07$) self-esteem. Bet acceptance did not differ as a function of self-esteem stability among those in the ego-threat condition. Rather, the positive feedback in the control condition led to especially high rates of GGT bet acceptance for those with unstable self-esteem and particularly low rates of bet acceptance for those with stable self-esteem. These effects, however, were independent of

participants' levels of self-esteem. As a preliminary step to examine if this effect is mediated by mood, I regressed GGT bet acceptance onto the main effect and two-way interaction terms as well as both of the mood measures (in separate regression equations). In neither case did mood significantly predict GGT bet acceptance (both βs < .15, both ts < 1.23, both ps > .22), whereas the Condition X Self-esteem Stability interaction remained significant. These results negate the possibility that mood serves as a mediator of this relation.

Finally, I examined the extent to which GGT overconfidence varied as a function of condition, self-esteem level, and self-esteem stability by hierarchically regressing GGT overconfidence onto each of the main effect, two-way interaction, and the three-way interaction terms. Only the main effect of condition was significant (β = -.25, t = -2.48, p < .02). Contrary to expectations, no other main effect or interaction term was predictive of GGT overconfidence (all βs < .13, all ts < 1.06, all ps > .29).

Did self-esteem level and contingent self-esteem interact with condition in predicting IGT performance decrements? I predicted that contingent self-esteem would moderate the effect of self-esteem level and that these effects will vary by condition. Specifically, I predicted that there would be a significant three-way interaction involving Condition X Contingent Self-esteem X Self-esteem Level such that among individuals with high self-esteem, the more contingent their self-esteem, the more I believed that they would exhibit overconfidence, risk-taking propensities, and poorer performance on the GGT, especially following ego-threat. To test this possibility, I conducted a congruent series of hierarchical regression analyses involving condition, self-esteem level and contingent self-esteem in the same manner as reported earlier. In all of these analyses, only the main effects of condition on GGT money (β = .21, t = 2.11, p < .04) and GGT overconfidence (β = -.24, t = -2.43, p < .02) were statistically significant.

Did (explicit) self-esteem level and implicit self-esteem interact with condition in predicting GGT performance decrements? I predicted that implicit self-esteem would moderate the effect of explicit self-esteem and that these effects will vary by condition. Specifically, I predicted that there would be a significant three-way interaction involving Ego Threat X Implicit Self-esteem X Explicit Self-esteem. In other words, I predicted that, among individuals with high self-esteem, the lower their implicit self-esteem, the more I believed that they would exhibit overconfidence, risk-taking propensities, and poorer performance on the GGT, especially following ego-threat. To test this possibility, I conducted a congruent series of hierarchical regression analyses involving condition, explicit self-esteem and implicit self-esteem in the same manner as reported earlier.

First, I examined if these variables predicted GGT money. The main effect of explicit self-esteem, the two-way Condition X Explicit Self-esteem and Explicit Self-esteem X Implicit Self-esteem interactions, and the three-way interaction were not significant (all βs < .06, all ts < .55, all ps > .58). In contrast, both condition (β = .27, t = 2.80, p < .01) and implicit self-esteem (β = -.30, t = -3.18, p < .01) revealed significant main effects such that those in the control condition scored more than those in the ego-threat condition and those with higher implicit self-esteem scored less than their lower implicit self-esteem counterparts. However, these main effects were qualified by a statistically significant Condition X Implicit Self-esteem interaction (β = .30, t = 2.36, p < .03). Predicted values indicated that, among individuals in the control condition, those with low implicit self-esteem earned $30.14, whereas those with high implicit self-esteem earned $28.86. Among those in the ego-threat condition, those with low implicit self-esteem earned $29.29, whereas individuals with high implicit self-esteem earned $19.91. Simple slopes tests revealed that the interaction effect is attributable to those with high (β = .47, t = 3.67,

p < .01), but not low implicit self-esteem (β = .05, *t* = .35, *p* > .72). To examine if this effect might be mediated by mood, I added each of the mood variables into the regression equations (in separate analyses). In no case did mood significantly predict GGT money (both βs < -.12, all *t*s < 1.06, all *p*s > .29), whereas the Condition X Implicit Self-esteem interaction remained significant in both cases. Thus, individuals with low implicit self-esteem earned relatively high amounts of money regardless of condition and explicit self-esteem. In contrast, those with high implicit self-esteem earned especially low amounts of money in the ego-threat condition, regardless of their explicit self-esteem.

I followed this same procedure using GGT bet acceptance as the dependent variable. Notably, no main effect, two-way interaction, or three-way interaction significantly predicted GGT bet acceptance; in fact, implicit self-esteem was the most strongly related of these variables (β = .11, *t* =1.06, *p* > .29). Finally, I hierarchically regressed GGT overconfidence onto the same set of variables. Only the main effect of condition was statistically significant (β = -.25, *t* = 2.59, *p* < .02); in fact, implicit self-esteem was the most strongly related of the remaining variables (β = .13, *t* =1.38, *p* > .17).

CHAPTER 4

General Discussion

Kahneman and Tversky's (1979) noted that, "a person who has not made peace with his losses is likely to accept gambles that would be unacceptable to him otherwise" (p. 287). Building from this perspective, in this research I sought to examine the extent to which judgment and decision-making biases and excessive risk-taking might characterize narcissistic individuals or those with fragile high self-esteem, especially following threats to the ego. Given the ego-involvement and excessive reactivity of narcissists (e.g., Bushman & Baumeister, 1998) and those with fragile high self-esteem (e.g., Lambird & Mann, 2006), I believed that these individuals would evidence a myopic focus on reward in Study 1, and would display especially marked levels of overconfidence, risk-willingness, and thereafter objective performance decrements in Study 2, especially following ego-threat. Neither of these broad predictions were supported in either study.

In Study 1, I employed the use of the IGT, a behavioral judgment and decision-making measure designed to assess the extent to which individuals' decisions are guided by the prospect of obtaining a large, immediate reward, even when such a strategy may bring forth long-term losses. Unfortunately, the ego-threat manipulation affected mood (in the direction of negative feedback bringing forth more negative mood), but it did not bring about differences in myopic focus on reward. I found that narcissists tended to be more reward focused, whether or not they had just experienced an ego-threat, in the third block of twenty trials on the IGT. This is the point at which discriminations between high and low risk-takers begin to emerge. However, this effect

was not found at either of the subsequent blocks of twenty trials, nor was there a difference in the overall total of risky deck choices. These results do not cohere with other theory and research that has documented narcissists' general reward sensitivity (Lakey et al., 2007c; Miller et al., 2007; Rose & Campbell, 2004). They are also surprising in light of research that has documented the strong reactivity often displayed by narcissists subsequent to ego-threat (e.g., Bushman & Baumeister, 1998). In a similar manner, I found none of the expected Fragile Self-esteem X Self-esteem Level X Condition interactions. Indeed, there were no main effects or interactions found concerning either self-esteem stability or contingent self-esteem. However, self-esteem level did interact with condition such that among those with high self-esteem, ego-threat brought forth relatively safe choices in the third block of IGT trials and overall (although this latter effect was marginal). In contrast, those with high self-esteem were risk-taking (i.e., reward focused) in the third block and in total subsequent to receiving the positive feedback inherent to the control condition. One interpretation of this finding might be that the positive feedback primed individuals' perceptions that they could take risks (i.e., choose from the decks with the large wins that intermittently are coupled with even larger losses). However, these results do not cohere with other research and theory concerning judgmental biases among those with high self-esteem following ego-threat. For example, Baumeister et al. (1993) demonstrated that those with high self-esteem were especially prone take excessive risks subsequent to an ego-threatening experience. In other research, Zhang and Baumeister (2006) found no condition X self-esteem interactions; rather, they found that commitment to losing financial endeavors occurred subsequent to ego-threat, regardless of an individual's level of self-esteem. Notably, the Study 1 condition X self-esteem level effect was not significant in the set of analyses in which implicit self-esteem was included. Given the deep-seated positive associations about the self that coincide

with high implicit self-esteem, the finding that those with high implicit self-esteem were more risk-taking was unexpected. I will return to this point shortly.

Study 2 extended the first study in a number of ways, including using a different task that allows for discrete measures of the overconfidence bias (the judgment) and the extent to which individuals make decisions (accept bets) based on their confidence. Moreover, the fact that participants received real money stands as a strength of this second study. Importantly, I found a significant difference in total money earned as a function of the ego-threat manipulation. This difference in money earned was a function of differences in overconfidence, rather than bet acceptance. In fact, a closer inspection of the means reveals that participants in the control condition were actually *underconfident*. This finding brings to bear a number of important considerations. Previous research has shown the overconfidence bias to be a rather consistent, and in many cases robust, finding (for a review, see Budescu, Wallsten, & Au, 1997). However, the average overconfidence among ego-threat participants was entirely in line with (or less than) the average overconfidence found in other studies, even in the absence of ego-threat (e.g., Campbell et al., 2004; Goodie, 2003). In other words, it may be the case that the ego-threat manipulation was not effective as an actual threat to individuals' self-esteem. Rather, it may be the case that the differences in overconfidence found in this study are the result of the positive feedback altering individuals' judgments. Although the IGT risky deck selection and the GGT bet acceptance parameters assess discrete forms of risk-taking (e.g., Lakey et al., 2007a), the finding that the experimental manipulation did not systematically relate to propensities to take risks in either study points to this positive feedback possibility. Thus, as intimated earlier, the surprising finding in Study 2 may be that individuals who were in the control condition (i.e., those who received positive feedback) were underconfident.

Why might such an effect occur? There are at least two possible reasons. First, it may be some sort of manifestation of social desirability concern. That is, performing well on one task (i.e., the Creativity IQ), in front of another person (i.e., the research assistant), may have created desires to not "mess up" or perform poorly on the subsequent task. In other words, positive public feedback may have brought forth a desire to maintain the positive impression created, which may have altered the manner in which participants went about the confidence calibration component of the GGT. Alternatively, it may be the case that positive feedback was affirming to participants and, as a result, they actually put forth greater effort towards their GGT performance. This greater effort may have taken the form of a decreased reliance on intuition and thereby an increased reliance on rational processing of the general knowledge questions. In other words, maybe they thought more deeply about the questions and about their subjective confidence assessments for each question. The signs of the correlations suggest that, relative to participants in the ego-threat condition, those in the control condition tended to be less confident and more accurate in their answers, although importantly neither effect was statistically significant. As such, both of these possibilities are conjecture at this point, as no data are available to confirm either of them.

In contrast to Study 1, I did find that narcissists earned significantly less than non-narcissists in Study 2. However, this effect was not attributable to either of the parameters that contribute to point totals (and thereby money) on the GGT, namely, bet acceptance and overconfidence. That is, neither the relation between narcissism and overconfidence nor the relation between narcissism and bet acceptance was statistically significant. As in Study 1, these effects did not vary by condition, which is, again, surprising in light of narcissists' general reactivity to ego-threatening experiences. The absence of a significant main effect for narcissism

stands in contrast to other demonstrations of the overconfidence bias and tendency to accept bets based on confidence among narcissistic individuals (e.g., Campbell et al., 2004; Goodie et al., 2006).

In Study 2, I did find a condition X self-esteem stability effect predicting risk-taking (i.e., bet acceptance) that did not emerge in Study 1. As noted earlier, this may be attributable to the relatively imprecise manner in which the stability of self-esteem data were collected in Study 1. Nonetheless, subsequent to positive feedback, those with stable self-esteem accepted relatively few bets, whereas those with unstable self-esteem were especially risk-taking (although the test of the simple slope for this group was only marginally significant). I am unsure as to the manner in which positive feedback might curtail risk-taking among those with stable self-esteem. On the other hand, Kernis et al. (1993) showed that individuals with unstable high self-esteem react particularly favorably to positive evaluative information. It is possible that those with unstable self-esteem were especially responsive to the positive feedback, which gave rise to especially high rates of risk-taking in the GGT. However, unlike Kernis et al. (1993), the (marginal) stability of self-esteem effect found in Study 2 occurred for all individuals with unstable self-esteem, without regard for their level of self-esteem. Moreover, given that such risk-taking did not occur in Study 1, this would require replication.

Finally, I also found that those with high implicit self-esteem lost more money than their low implicit self-esteem counterparts in Study 2. However, this finding was not individually attributable to either the overconfidence or bet acceptance parameters. Rather, like the narcissism effect, those with high implicit self-esteem tended to be more overconfident and they tended to have higher rates of bet acceptance, although neither relation was statistically significant. This main effect of implicit self-esteem on money eared was qualified by a significant condition X

implicit self-esteem interaction. From these results, those with high, rather than low, implicit self-esteem appeared especially affected by the ego-threatening feedback, and subsequently, they earned especially low amounts of money on the GGT. While I am aware of no theory or research that directly speaks to why such an implicit self-esteem effect might occur, Larrick (1993) argued that those with low self-esteem were less likely than those with high self-esteem to take risks as a function of having the personal resources to manage the consequence that might arise if the risky endeavor was unsuccessful. Given these effects of implicit self-esteem, coupled with the fact that explicit self-esteem did not relate to risk-taking in either study, a modification of Larrick's proposition might be in order. Specifically, it may be the case that those with high *implicit* self-esteem are the ones who have the resources to manage failure, and are thereby prone to engage in risky endeavors.

Another possibility concerning the interpretation of these results arises from a recent series of studies by Jordan, Whitfield, and Zeigler-Hill (2007), who found that the reliance on intuition was a feature of those with congruent high implicit and explicit self-esteem. It is possible that, when compared to those with low implicit self-esteem, individuals with high implicit self-esteem are more reliant on their intuition, especially in the face of threats to the ego. Importantly, however, this possibility would rely upon an establishment of a bivariate relation between implicit self-esteem and the use of intuition. Jordan et al. (2007) demonstrated that the tendency to be guided by intuition was, again, predicted by the pairing of high implicit and explicit self-esteem. The limited and inconsistent support offered by the current studies suggests that this may be an important avenue for future research.

Given the limitations already noted that may have contributed to these inconsistent and somewhat surprising findings, there are a number of other important avenues for future research. First, although the "Creativity IQ" manipulation has been used successfully by other researchers (Baumeister et al., 1993; Lambird & Mann, 2006; Zhang & Baumeister, 2006), it may be the case that using "Creativity IQ" does not stand as a potent source of ego-threat that affects either of the judgment and decision-making biases assessed by the IGT or GGT. Another source of threat, such as threat directed towards participants' general intelligence or their sense of belongingness, might be more poignant and thereby increase the extent to which individual's evidence these judgment and decision-making biases. Second, given the underconfidence evidenced by those who received positive feedback, it will be important for future investigations to examine a more neutral feedback (i.e., feedback relatively in the middle of the positive and negative feedback poles) to determine the manner in which such feedback bears on confidence calibration. Also, given the aforementioned conjecture about the nature of the underconfidence effect being contingent upon the public presence of the research assistant, future research should replicate this finding by examining the extent to which the positive feedback elicits underconfidence in the absence of an audience (i.e., in relative privacy).

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Appendix A
NPI

In each of the following pairs of attributes, choose the one that you **MOST AGREE** with. Mark your answer by writing **EITHER A or B** in the space provided. Only mark **ONE ANSWER** for each attitude pair, and please DO NOT skip any items.

_____ 1.   A   I have a natural talent for influencing people.
         B   I am not good at influencing people.

_____ 2.   A   Modesty doesn't become me.
         B   I am essentially a modest person.

_____ 3.   A   I would do almost anything on a dare.
         B   I tend to be a fairly cautious person.

_____ 4.   A   When people compliment me I get embarrassed.
         B   I know that I am a good person because everybody keeps telling me so.

_____ 5.   A   The thought of ruling the world frightens the hell out of me.
         B   If I ruled the world it would be a better place.

_____ 6.   A   I can usually talk my way out of anything.
         B   I try to accept the consequences of my behavior.

_____ 7.   A   I prefer to blend in with the crowd.
         B   I like to be the center of attention.

_____ 8.   A   I will be a success.
         B   I am not too concerned about success.

_____ 9.   A   I am no better or no worse than most people.
         B   I think I am a special person.

_____ 10.   A   I am not sure if I would make a good leader.
         B   I see myself as a good leader.

_____ 11.   A   I am assertive.
         B   I wish I were more assertive.

_____ 12.   A   I like having authority over other people.
         B   I don't mind following orders.

_____ 13.   A   I find it easy to manipulate people.
         B   I don't like it when I find myself manipulating people.

_____ 14.   A   I insist upon getting the respect that is due me.
         B   I usually get the respect I deserve.

_____ 15.   A   I don't particularly like to show off my body.
         B   I like to show off my body.

_____ 16.   A   I can read people like a book.
         B   People are sometimes hard to understand.

_____ 17.   A   If I feel competent I am willing to take responsibility for making decisions.
         B   I like to take responsibility for making decisions.

_____ 18.   A   I just want to be reasonably happy.
         B   I want to amount to something in the eyes of the world.

_____ 19.   A   My body is nothing special.
         B   I like to look at my body.

NPI, cont.

____ 20. A I try not to be a show off.
          B I will usually show off if I get the chance.

____ 21. A I always know what I am doing.
          B Sometimes I am not sure what I am doing.

____ 22. A I sometimes depend on people to get things done.
          B I rarely depend on anyone else to get things done.

____ 23. A Sometimes I tell good stories.
          B Everybody likes to hear my stories.

____ 24. A I expect a great deal from other people.
          B I like to do things for other people.

____ 25. A I will never be satisfied until I get all that I deserve.
          B I will take my satisfactions as they come.

____ 26. A Compliments embarrass me.
          B I like to be complimented.

____ 27. A I have a strong will to power.
          B Power for its own sake doesn't interest me.

____ 28. A I don't care about new fads and fashion.
          B I like to start new fads and fashion.

____ 29. A I like to look at myself in the mirror.
          B I am not particularly interested in looking at myself in the mirror.

____ 30. A I really like to be the center of attention.
          B It makes me uncomfortable to be the center of attention.

____ 31. A I can live my life anyway I want to.
          B People can't always live their lives in terms of what they want.

____ 32. A Being in authority doesn't mean much to me.
          B People always seem to recognize my authority.

____ 33. A I would prefer to be a leader.
          B It makes little difference to me whether I am leader or not.

____ 34. A I am going to be a great person.
          B I hope I am going to be successful.

____ 35. A People sometimes believe what I tell them.
          B I can make anyone believe anything I want them to.

____ 36. A I am a born leader.
          B Leadership is a quality that takes a long time to develop.

____ 37. A I wish someone would someday write my biography.
          B I don't like people to pry into my life for any reason.

____ 38. A I get upset when people don't notice how I look when I go out in public.
          B I don't mind blending into the crowd when I go out in public.

____ 39. A I am more capable than other people.
          B There is a lot I can learn from other people.

____ 40. A I am much like everybody else.
          B I am an extraordinary person.

Appendix B
RSE

Listed below are a number of statements concerning personal attitudes and characteristics. Please read each statement and consider the extent to which you **TYPICALLY OR GENERALLY** agree or disagree with it. Please be sure to respond to each statement by circling one number on the scale below each statement. All responses will be kept confidential, so please answer as honestly as possible.

1. I feel that I am a person of worth, at least on an equal plane with others.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

2. I feel like a person who has a number of good qualities.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

3. All in all, I am inclined to feel like a failure.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

4. I feel as if I am able to do things as well as most other people.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

5. I feel as if I do not have much to be proud of.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

6. I take a positive attitude toward myself.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

7. On the whole, I am satisfied with myself.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

8. I wish that I could have more respect for myself.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

9. At times I think that I am no good at all.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

10. I certainly feel useless at times.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

Appendix C
CSES

Listed below are a number of statements concerning personal attitudes and characteristics. Please read each statement carefully and consider the extent to which you think it is like you. Select one number on the scale below each statement that best reflects your answer. There are not right or wrong answers, so please answer as honestly as you can.

1--------------- 2 --------------- 3 --------------- 4 --------------- 5
Not At All   Neutral   Very Much
Like Me   Like Me

_____ 1. An important measure of my worth is how competently I perform.

_____ 2. Even in the face of failure, my feelings of self-worth remain unaffected.

_____ 3. A big determinant of how much I like myself is how well I perform up to the standards that I have set for myself.

_____ 4. My overall feelings about myself are heavily influenced by how much other people like and accept me.

_____ 5. If I get along well with someone, I feel better about myself overall.

_____ 6. An important measure of my worth is how physically attractive I am.

_____ 7. My overall feelings about myself are heavily influenced by what I believe other people are saying or thinking about me.

_____ 8. If I am told I look good, I feel better about myself in general.

_____ 9. My feelings of self-worth are basically unaffected when other people treat me badly.

_____ 10. An important measure of my worth is how well I perform up to the standards that other people have set for me.

_____ 11. If I know that someone likes me, I do not let it affect how I feel about myself.

_____ 12. When my actions do not live up to my expectations, it makes me feel dissatisfied with myself.

_____ 13. Even on a day when I don't look my best, my feelings of self-worth remain unaffected.

_____ 14. My overall feelings about myself are heavily influenced by how good I look.

_____ 15. Even in the face of rejection, my feelings of self-worth remain unaffected.

Appendix D
NLT

This measure is concerned with people's aesthetic judgments of simple stimuli, namely letters of the alphabet. We understand that you may not be accustomed to evaluating letters, but previous research has shown that these kinds of judgments can lead to a better understanding of certain emotions. There are not right or wrong answers. Please rely on your first, intuitive reactions toward the letters. Use the following scale in making your ratings.

1	2	3	4	5	6	7	8	9
Not at all Beautiful				Neutral				Extremely Beautiful

1. _____ M

2. _____ Z

3. _____ B

4. _____ P

5. _____ A

6. _____ F

7. _____ L

8. _____ Y

9. _____ T

10. _____ H

11. _____ X

12. _____ N

13. _____ S

14. _____ I

15. _____ R

16. _____ E

17. _____ W

18. _____ K

19. _____ O

20. _____ C

21. _____ D

22. _____ G

23. _____ J

24. _____ Q

25. _____ U

26. _____ V

Appendix E
RSE - Best

Think about the past week, and the day that you would consider your BEST day. Read each statement below, and respond with how you felt on this day that you consider the BEST. Respond to each statement by circling one number on the scale below each statement.

1. I felt that I was a person of worth, at least on an equal plane with others.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

2. I felt like a person who had a number of good qualities.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

3. All in all, I was inclined to feel like a failure.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

4. I felt as if I was able to do things as well as most other people.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

5. I felt as if I did not have much to be proud of.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

6. I took a positive attitude toward myself.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

7. On the whole, I was satisfied with myself.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

8. I wish that I could have had more respect for myself.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

9. I thought that I was no good at all.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

10. I certainly felt useless at times.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

Appendix F
RSE - Worst

Think about the past week, and the day that you would consider your WORST day. Read each statement below, and respond with how you felt on this day that you consider the WORST. Respond to each statement by circling one number on the scale below each statement.

1. I felt that I was a person of worth, at least on an equal plane with others.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

2. I felt like a person who had a number of good qualities.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

3. All in all, I was inclined to feel like a failure.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

4. I felt as if I was able to do things as well as most other people.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

5. I felt as if I did not have much to be proud of.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

6. I took a positive attitude toward myself.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

7. On the whole, I was satisfied with myself.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

8. I wish that I could have had more respect for myself.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

9. I thought that I was no good at all.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

10. I certainly felt useless at times.

1	2	3	4	5
Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree

Appendix G
PANAS (modified)

This scale consists of a number of words that describe different feelings and emotions. Read each item and then mark the appropriate answer in the space next to the word. Indicate to what extent you feel this way *RIGHT NOW* (that is, at this present moment). Use the following scale to record your answers.

1 ---------------- 2 --------------- 3 --------------- 4 ---------------- 5
Very Slightly or   A Little   Moderately   Quite A Bit   Extremely
    Not At All

1. _____ interested

2. _____ distressed

3. _____ excited

4. _____ upset

5. _____ strong

6. _____ guilty

7. _____ scared

8. _____ hostile

9. _____ enthusiastic

10. _____ proud*

11. _____ humiliated*

12. _____ secure*

13. _____ irritable

14. _____ alert

15. _____ ashamed*

16. _____ inspired

17. _____ nervous

18. _____ determined

19. _____ attentive

20. _____ jittery

21. _____ active

22. _____ afraid

23. _____ pleased*

24. _____ threatened*

Appendix H
Stability of Self-esteem Scale
Date _____ Time of Completion _____ ID# _____

Listed below are a number of statements concerning personal attitudes and characteristics. Please read each statement and consider the extent to which you agree or disagree with it **AT THIS MOMENT**. Then respond to the statement as accurately as possible by CIRCLING THE DOT that best reflects how much you agree with it **RIGHT NOW.**

1. I feel that I am a person of worth, at least on an equal plane with others.
Strongly •   •   •   •   •   •   •   •   •   • Strongly
Disagree   Agree

2. I feel like a person who has a number of good qualities.
Strongly •   •   •   •   •   •   •   •   •   • Strongly
Disagree   Agree

3. All in all, I am inclined to feel like a failure
Strongly •   •   •   •   •   •   •   •   •   • Strongly
Disagree   Agree

4. I feel as if I am able to do things as well as most other people.
Strongly •   •   •   •   •   •   •   •   •   • Strongly
Disagree   Agree

5. I feel as if I do not have much to be proud of.
Strongly •   •   •   •   •   •   •   •   •   • Strongly
Disagree   Agree

6. I take a positive attitude toward myself.
Strongly •   •   •   •   •   •   •   •   •   • Strongly
Disagree   Agree

7. On the whole, I am satisfied with myself.
Strongly •   •   •   •   •   •   •   •   •   • Strongly
Disagree   Agree

8. I wish that I could have more respect for myself.
Strongly •   •   •   •   •   •   •   •   •   • Strongly
Disagree   Agree

9. At times I think that I am no good at all.
Strongly •   •   •   •   •   •   •   •   •   • Strongly
Disagree   Agree

10. I certainly feel useless at times.
Strongly •   •   •   •   •   •   •   •   •   • Strongly
Disagree   Agree