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GRIT, SELF-CONTROL AND THE FEAR OF FAILURE

By

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Research on self-handicapping, producing barriers to personal success to reduce the meaningfulness of failure, has focused mostly on the short-term benefits of maintaining self-esteem and reducing the crushing emotional blow of failure. Nevertheless, there are long-term costs to self-handicapping. Specifically, self-handicapping interferes with psychological processes such as self-reflection and assessment that accompany the experience of failure and assist in long-term self-regulatory processes. As such, those who choose to self-handicap reduce the likelihood of future improvement. Those interested in long-term success may therefore see less benefit in self-handicapping. Two studies were conducted to test the moderating role of grit (Duckworth, Peterson, Matthews, & Kelley, 2007) and trait self-control (Tangney, Baumeister, & Boone, 2004) on self-handicapping behaviors. A correlational study did find strong negative relationships between reported self-handicapping and both grit and trait self-control. A follow-up study examining actual behavior failed to confirm this finding, however. Although males high in grit appeared to challenge themselves in a non-evaluative situation, there were no differences between those high versus low on these individual differences in their likelihood to engage in self-handicapping behaviors.
INTRODUCTION

Failure is an impending threat in everyone’s life. With every attempt at something new or difficult, there is always the possibility that one will fail. Although failure can be an imminent threat to motivation (Diener & Dweck, 1978, 1980; Hiroto & Seligman, 1975), people seem to have a host of strategies to reduce the impact of failure on the self-concept (Berglas & Jones, 1978; Miller & Ross, 1975). Some of these strategies are more active in the avoidance of failure than others. Self-handicapping is one such strategy through which individuals actively produce barriers to performance so that potential failure is less indicative of low intelligence or skill (Berglas & Jones, 1978; Kolditz & Arkin, 1982). Research has identified a bevy of self-handicapping strategies ranging from minimal preparation and practice (Harris & Snyder, 1986) to alcohol and drug use (Berglas & Jones, 1978; Jones & Berglas; 1978). Although self-handicapping may increase the likelihood of failure, it does so in a way that reduces the threat of failure for the self-concept (Campbell & Sedikides, 1999).

A great deal of research has gone into identifying when individuals will be likely to engage in self-handicapping and the motives that underlie self-handicapping behavior. Self-handicapping appears to be a very useful strategy for dealing with the possibility of both failure (Berglas & Jones, 1978; Campbell & Sedikides, 1999) and success (Tice, 1991). In the event of failure, blame is cast upon the self-handicap. When success is attained, the individual can have just that much more pride in his or her abilities as success was achieved in the face of great, albeit self-imposed, barriers. Thus self-handicapping appears to represent a win-win situation. There are costs of self-handicapping, however. First and foremost, engaging in self-handicapping can increase the likelihood of failure (Tice & Baumeister, 1990). But there are other, potentially more detrimental, costs as well. Specifically, self-handicapping and other self-serving biases divert attention away from the self (Carver, Blaney, & Scheier, 1979; Duval & Wicklund, 1973; Kimble & Hirt, 2005). Although such inattentiveness can help an individual cope with negative emotionality caused by failure, it can also disrupt self-regulatory efforts that can guide future performance efforts (Baumeister, 1997).

Therefore, it is predicted that individuals interested in long-term success and achievement will avoid engaging in self-handicapping strategies. Two individual differences associated with a future-orientation and focus on long-term success and achievement will be examined by the current investigation. Specifically, we examine how grit (Duckworth, Peterson, Matthews, & Kelley, 2007) and Trait Self-Control (TSC; Tangney, Baumeister, & Boone, 2004) influence self-handicapping behaviors. These variables have been previously linked with increases in academic achievement due to increased effort and preparation (Tangney et al., 2004; Duckworth & Seligman, 2005; Duckworth et al., 2007; Mischel, Shoda, & Peake, 1988; Shoda, Mischel, & Peake, 1990). It is expected that individuals scoring high on these traits will more receptive to negative information about the self and as a result will be less likely to engage in self-handicapping behaviors.

The Benefits and Costs of Self-Handicapping

Competing motives are at work when an individual is faced with failure feedback. On the one hand, people have the motive to accurately self-assess their abilities (Trope, 1975). Attending to failure feedback provides direct diagnostic information about one’s abilities, or lack thereof (Ohlsson, 1996). Counter to this, people have the motivation to cast the self in a positive light and to protect and enhance their self-esteem (Baumeister, Tice, & Hutton, 1989; Greenberg, Pyszczynski, & Solomon, 1982). Negative feedback about one’s abilities directly threatens the self-concept, and as such, individuals interested in maintaining a high level of self-worth should
be motivated to cast off and ignore negative self-relevant information. Research by Sedikides (1993) has shown the motive to see the self positively to be stronger than the motivation to see the self accurately. Situations in which an individual is faced with the threat of potential failure are frequently met with attempts to reduce the meaningfulness of the potential failure. Self-handicapping is one of a host of strategies used to avoid the threat of failure.

Failure is often accompanied by an increase in self-awareness (Greenberg & Pyszczynski, 1986) which can intensify affective states (Scheier & Carver, 1977). As such the painful experience of failure will be that much more salient. The human mind seems especially adept at dealing with the experience of failure, however. As a short-term strategy, attributional processes can be used to alleviate the distress and negative emotionality associate with failure. In the case of self-handicapping this is achieved by excusing the failure to external forces, which in turn reduces self-awareness (Duval & Wicklund, 1973; Kimble & Hurt, 2005) and consequently the experience of negative affect (McCrea, 2008). Nevertheless, this strategy is only adaptive in the short-term as reductions in self-awareness come with a high cost to long-term strategies.

First, heightened self-awareness is associated with an increase in self-evaluation (Ickes, Wicklund, & Ferris, 1973). This increased propensity to engage in self-evaluation is especially important after a failure experience. Failure is more directly diagnostic of one’s skills and abilities than success (Ohlsson, 1996). When an individual succeeds at a task, he or she only learns one way to achieve that task. The decisions that were made may not have been the optimal strategy to reach the end-goal. Through error, however, people learn the decisions to be avoided and knowledge about the procedure or task becomes more specific. For example, one can take any number of routes to make his or her way from one location to another and succeed. Yet there is likely to be one way that is faster than the others. On the other hand, if the individual turns down a dead end street, and has therefore failed to reach the desired destination, he or she now has direct information about the inadequacy of that route to reach his or her final destination. Successive errors, and the correction of those errors, increase the specificity of knowledge and the degree of expertise. Being able to diagnose one’s abilities and specifically focus practice at areas in which one falls short has been suggested to be the main attribute shared by expert performers (Ericsson, Krampe & Tesch-Romer, 1993). Because self-handicapping reduces self-evaluation, this potentially crucial process is thwarted, which could inhibit learning. Second, just as heightened self-awareness increases the experience of affective states, decreased self-awareness will lessen the experience. This is quite consequential as cognitive reevaluation appears to increase motivation and future effort only when accompanied by negative affect (Markman, McMullen, & Elizaga, 2008; McCrea, 2008). Decreasing self-awareness therefore leaves the self-handicapper at a motivational impasse – he or she lacks knowledge about what needs to be improved, and even if such knowledge is available the lack of negative affect gives little reason to change things.

Although beneficial for maintaining a positive sense of self, there is a great cost to the self-handicapper. Some individuals, however, may see the long-term benefit of acknowledging failure and attempting to learn from it. Specifically, we suggest and test the hypothesis that individuals interested in long-term success will be more interested in assessing their skills and abilities by attending to failure rather than seeking the affective benefits of self-handicapping. Among these individuals, the motive to assess the self accurately should “win out” against the motive to see the self in a positive light.
Although ability and motivation have long been implicated in the prediction of achievement, a greater amount of research has focused on the benefits of ability for predicting achievement than motivation (see Duckworth & Seligman, 2005 for review). Recently, however, Duckworth and colleagues (Duckworth & Seligman, 2005; 2006; Duckworth et al., 2007) have conducted several studies that highlight the importance of long-term persistence and passion in the prediction of academic achievement. This research has shown that indices of trait self-control (Duckworth & Seligman, 2005; 2006), as well as passion and perseverance toward long-term goals (grit; Duckworth et al., 2007) add incremental predictive validity of achievement above that which can be accounted for by measures used to index ability (e.g. SAT, IQ test scores).

One might question why self-control and grit provide such benefits to achievement outcomes. A potential answer to this question is that those who have higher levels of grit and self-control work more diligently toward achieving their goals. In several of the studies of Duckworth and colleagues, grit and self-control were also related to increases in study and practice time. Seemingly, individuals who score higher on measures of grit and self-control outdo those who score lower on these measures by engaging in increased study and practice time. Nevertheless, the conclusion that the increases in achievement of these highly self-disciplined and gritty individuals are due simply to increased time practicing is not consistent with previous research on the effect of practice on performance. Research has consistently shown that the amount of time an individual engages in practice is not related to performance (see Plant, Ericsson, Hill, & Asberg, 2005 for review). Rather it seems that the quality of practice is much more important than the quantity of practice. Ericsson, et al. (1993) suggest that the true route to expertise and achievement in any given domain is dependent not only on natural ability or sheer amount of practice, but rather engagement in specific and directed practice. Essentially, at any given level of ability, performance will not improve if that individual is unaware of those skills and abilities that need improvement. For example, someone failing at geometry would not benefit much by studying multiplication tables. Rather, an individual needs to engage in what Ericsson, et al. (1993) call “deliberate practice” – focused and directed practice of skills and abilities that need to be improved. Yet for the individual to engage in deliberate practice, he or she needs to know what skills and abilities need to be improved.

Where can the individual get an appraisal of his or her abilities? One potential source is from success and failure feedback. Such feedback provides an individual with direct information about his or her abilities. As stated previously, failure feedback is much more telling than success feedback (Ohlsson, 1996). Given that failure provides a more direct route to the assessment of one’s skills and abilities, and the corresponding short-comings in those domains of skill, it could be suggested that high levels of performance, and eventual expertise or mastery, are dependent upon attending to and readily accepting the diagnosticity of failure and attempting to learn from it. An individual would be hard-pressed to improve a skill that he or she is lacking in if that individual is unaware of where his or her deficits lie. Therefore, individuals who are interested in improving performance in the future should be less likely to direct attention away from the self and blame external sources than those interested in the affective or short-term motivational benefits of self-handicapping. Rather, those with a long term focus should accept the failure and learn from it to avoid future failures, as these individuals would benefit from the diagnostic information they receive from failure feedback.
Accepting (And Learning From) Failure.

Given that self-handicapping decreases focus on the self and consequently impairs learning from and deriving motivation from failure, it is expected that those with a long-term focus will avoid self-handicapping behaviors. The current study will explore two potential individual differences – grit (extreme ambition and perseverance; Duckworth et al., 2007) and trait self-control (Tangney et al., 2004) – and their association with self-handicapping strategies. It should be noted that although we expect grit and self-control to relate similarly to self-handicapping, we consider them independent constructs. Whereas self-control refers to a more general ability to take control of one’s short-term desires in favor of long-term goals (Tangney et al., 2004), grit is more akin to the ability to persist toward the attainment of a specific and desired but hard to obtain outcome (Duckworth et al., 2007). The main defining feature of both traits, however, is persistence toward long-term goals, which is the main focus of the current investigation.

There are several reasons to believe that individuals high in trait self-control and grit will avoid self-handicapping. First, attempts to place blame for failure on external factors are partly a result of poor self-control. People may engage in self-handicapping behavior to provide a temporary source of relief from the negative implications of failure feedback. Rather than accepting failure and learning from it, the self-handicapper directs attention away from the self to external causal factors. At the same time self-handicapping does little to serve long-term goals. Self-handicapping renders failure feedback ambiguous, which would likely reduce the ability of an individual to assess his or her skills and/or abilities. As such, self-handicapping represents a strategy aimed at short-term stress relief, rather than long-term success (Tice & Baumeister, 1997; Tice, Bratslavsky, & Baumeister, 2001). Individuals high in trait self-control have a greater tendency to focus on long-term benefits rather than short-term benefits (Mischel et al., 1988; Shoda et al., 1990; Tangney et al., 2004). Similarly, what distinguishes grit from other personality constructs associated with achievement (e.g. conscientiousness, need for achievement) is that gritty individuals’ achievement goals are focused on long-term rather than short-term successes (Duckworth et al., 2007). Therefore individuals high in grit are similar to individuals with high levels of trait self-control in that they are focused on long-term achievement goals.

There is also more direct evidence that suggests individuals high in grit will avoid self-handicapping behaviors. Previous research has shown that dispositional self-control is negatively correlated with the self-handicapping behavior of procrastination (Flett, Hewitt, & Martin, 1995). Duckworth and Seligman (2005) found that individuals high in trait self-control were less likely to engage in potentially self-defeating, self-handicapping behaviors such as watching TV rather than studying. Duckworth et al. (2007) also found that individuals scoring high on grit were less likely to be absent from school than those lower on grit. Although never completely confirmed through experimental research, an increased incidence in the report of physical symptomology has been implicated as a self-handicapping strategy (Rhodewalt, Saltzman, & Wittmer, 1984). Another study from the Duckworth et al. (2007) article found that the link between grit and performance among participants in the National Spelling Bee was mediated by both study time and experience. Although this evidence is indirect and inconclusive, it is suggestive that gritty individuals succeed by learning from experience and using that experience (possibly including past failures) to cater future practice attempts.
STUDY 1

To examine preferences for diagnostic information of those scoring high and low on measures of grit and self-discipline, we will examine self-handicapping strategies. We expect that those who score high, rather than low, on measures of grit and trait self-control will have developed better strategies for dealing with failure and will avoid engaging in self-handicapping. Toward this end study 1 will examine the correlative link between grit, self-control and Rhodewalt’s (1990) Self-Handicapping Scale (SHS) which measures the degree to which individuals utilize self-handicapping strategies in every day life. Additionally, a more general measure of coping with negative life events (Garnefski, Kraaij & Spinhoven, 2001) was included to examine the degree to which individuals who score high on indices of self-control and grit engage in emotion-focused versus problem-focused coping strategies. Similar to self-handicapping, emotion-focused coping strategies are aimed at reducing stress indirectly by engaging in satisfying and pleasurable activities. Such strategies do little to eliminate the problem and rather allow the individual to feel good momentarily. Problem-focused coping strategies, on the other hand, are focused at dealing with the stress directly to alleviate long-term concerns. As such, problem-focused coping strategies are expected to be the desired strategy of those scoring high on grit and self-control. Individuals low in grit and trait self-control should utilize more emotion-focused coping strategies, however, as they should prefer coping strategies that provide short-term affective boosts. Study 2 will attempt to replicate the findings of study one by using a behavioral measure of self-handicapping. Following a procedure utilized by Tice (1990), participants will be given the opportunity to self-handicap by listening to distracting music during a performance evaluation. We will also manipulate the motivation to engage in self-handicapping by varying the amount of feedback participants will receive about their performance.

METHOD

Participants and Procedure

Participants were 143 (57.3% female) undergraduate students enrolled in introductory psychology courses at a Florida State University. Participants filled out a battery of scales during one of their classes. Each participant worked through the survey at his or her own pace. All participants received course credit for participation.

Measures

Grit (Duckworth et al., 2007). The grit scale (α = .67) is a 27-item measure assessing grittiness along four dimensions: 1) Ambition – setting high but achievable goals, 2) Consistency of Interest – staying fast to those goals that you set, 3) Perseverance – Persisting in the face of failure and 4) Deliberate Practice – self-directed practice to improve on domains in which one is lacking. The current study will focus on the general construct of grit and no specific hypotheses will be tested pertaining to the individual subscales. Participants indicate the degree to which they feel each item on the grit scale corresponds to their behavior on a 1-5 scale (1 – not at all like me; 5 – very much like me). Higher scores on this scale indicate higher grit.

Trait Self-Control (TSC; Tangney et al., 2004). The 13-item Trait Self-Control inventory (α = .85) indexes a person’s ability to control their impulses and opt for later larger rewards over immediate gratification. Participants indicate the degree to which they feel each item on the TSC inventory corresponds to their behavior on a 1-5 scale (1 – not at all like me; 5 – very much like me). Higher scores on this scale indicate greater self-control.

Self-Handicapping Scale (SHS; Rhodewalt, 1990). The 25 item SHS (α = .74) identifies the prevalence of self-handicapping behaviors in the participant’s daily life. Participants indicate
on a 0 (disagree very much) to 5 (agree very much) scale how much they feel each of the statements corresponds to their behavior. This scale has been shown to be reliable in predicting actual self-handicapping behaviors (Rhodewalt, Saltzman, & Whittmer, 1984).

**Cognitive Emotional Regulation Questionnaire** (Garnefski et al., 2001). This 36-item scale assesses the degree to which individuals use different coping strategies to deal with negative events. There are nine subscales including: acceptance (e.g. “I think I must learn to live with it”; $\alpha = .64$), rumination (e.g. “I dwell upon the feelings the situation has evoked in me”; $\alpha = .59$), positive refocusing (e.g. “I think of nicer things than what I have experienced”; $\alpha = .75$), refocus on planning (e.g. “I think about how to change the situation”; $\alpha = .60$), positive reappraisal (e.g. “I think I can learn something from the situation”; $\alpha = .63$), putting into perspective (e.g. “I tell myself that there are worse things in life”; $\alpha = .64$), self-blame (e.g. “I feel that I am the one to blame for it”; $\alpha = .70$), blaming others (e.g. “I feel that others are to blame for it”; $\alpha = .72$), and catastrophizing (e.g. “I continually think how horrible the situation has been”; $\alpha = .73$). Of the above strategies, several represent more emotion focused coping (rumination, positive refocusing, putting into perspective, self-blame, blaming others, and catastrophizing), whereas others represent a more problem-focused coping response (refocus on planning, positive reappraisal).

**Rosenberg Self-Esteem Scale** (RSE; Rosenberg, 1965). The RSE scale ($\alpha = .81$) is one of the most widely used indexes of global self-esteem. Participants are asked to indicate the degree to which they agree with the 10 statements on a 1 to 5 scale (1 – strongly disagree; 5 – strongly agree).

**RESULTS AND DISCUSSION**

To examine our hypotheses we examined the bivariate correlations for the measures collected. Means, standard deviations and intercorrelations between all items measured are presented in Table 1. As predicted, there was a negative association between grit and self-handicapping ($r = -.55$, $p < .001$) and TSC and self-handicapping ($r = -.57$, $p < .001$). Previous research has found that both gender and self-esteem influence the likelihood that an individual will engage in self-handicapping (Kimble & Hirt, 2005; Tice & Baumeister, 1990). Additionally, we found that both grit and TSC were highly correlated ($r = .57$, $p < .001$). Therefore, hierarchical regression analyses were used to identify the amount of variance accounted for by grit (Table 2) and TSC (Table 3) independent of gender, self-esteem, and each other. For the first model, which examined the independent contribution of grit, self-handicapping scores were regressed upon gender and self-esteem in the first step. TSC was then entered in the second step, followed by grit in the third step of the regression equation. The full model accounted for 42.7% of the variance in self-handicapping scores, $F(4, 138) = 27.47, p < .001$ (adj. $R^2 = .427$). Each step in the regression analysis was significant at the $p < .001$ level. Each step therefore increased the incremental validity in the prediction of self-handicapping scores. Gender and self-esteem accounted for 17.1 % of the variance. Controlling for gender and self-esteem, TSC accounted for an additional 22.4% of the variance. Finally controlling for gender, self-esteem and TSC, grit accounted for an additional 3.2% of the variance in self-handicapping scores. A second regression analysis was conducted regressing self-handicapping scores on gender and self-esteem in the first step, grit in the second step and TSC in the third step. Again, the full model accounted for 42.7% of the variance in self-handicapping scores, $F(4, 138) = 27.47, p < .001$ (adj. $R^2 = .427$) with all steps in this regression analysis being significant at the $p < .001$ level. After controlling for gender and self-esteem, grit accounted for 7.3 % of the variance in reported self-handicapping. TSC accounted for an additional 8.2% of the variance in self-handicapping scores.
above that accounted for by gender, self-esteem, and grit. Grit and TSC, therefore appear to independently predict self-reported self-handicapping, as indexed by the SHS, above and beyond that which can be attributable to gender and self-esteem.

We also found that grit and TSC positively related to the endorsement of problem-focused coping strategies and negatively correlated with emotion-focused coping strategies on the CERQ. Both grit and TSC negatively predicted three of the cognitive emotion regulation strategies aimed at managing one’s emotions in the short-term (grit and TSC respectively; acceptance, $r = -.26, -.20$; Catastrophizing, $r = -.24, -.24$; and Blaming others, $r = -.23, -.26$; all values significant at $p < .05$). TSC also negatively predicted Self-Blame ($r = -.17$, $p < .05$) which could be important for remaining positive in the face of failure. Grit and TSC were positively correlated with the endorsement of several emotion regulation strategies that are focused on the long-term (Refocus on Planning $r = .28, .19$; and Positive Reappraisal $r = .43, .18$; grit and TSC respectively; all significant at $p < .05$) and have been shown to result in better outcomes than the aforementioned short-term strategies (Garnefski et al., 2001). Seemingly, not only do individuals scoring high on measures of grit and TSC avoid blaming external factors for failure, as indexed by a negative correlation between these variables and SHS scores and the Blaming Others subscale of the CERQ, their overall pattern of cognitive emotion regulation strategies suggests a more long-term focus for dealing with negative life events than that utilized by those scoring low on these measures.

STUDY 2

Study 1 found that individuals high in grit and TSC tend to show a decreased likelihood to report using self-handicapping strategies. Additionally, those scoring high on measures of grit and TSC appear to deal with negative life events in a more adaptive manner by utilizing problem-focused, rather than emotion-focused, coping strategies. These findings relied entirely on self-report measures, however, and therefore may have be due to a tendency for participants to rate themselves positively on the different surveys used. Additionally, many items of Rhodewalt’s (1990) self-handicapping inventory are behaviors that those high in TSC may be less likely to exhibit on a general basis absent of any reason to self-handicap (e.g., I overindulge in food and drink more often than I should) and are not necessarily indicative of actual self-handicapping behaviors. Additionally, several items seem to be consistent across all three measures (e.g. I prefer small pleasures in the present to larger pleasures in the distant future). Therefore the relationships between TSC, grit, and self-handicapping may be because these measures are in effect measuring similar constructs. More objective, behavioral measures of self-handicapping may therefore reflect a different pattern of relationships with TSC and grit. Therefore to validate the findings of study 1, study 2 utilized a behavioral index of self-handicapping that should not be subject to respondent biases.
METHOD

Participants
Participants were 121 students enrolled in introductory psychology courses (54.5% female) who participated for partial course credit.

Procedure
Upon entering the lab participants were seated in front of a computer with a pair of headphones in clear sight. Participants were told that the study involved investigating the validity of a new measure of nonverbal intelligence test that measures constructs similar to those measured by verbal intelligence tests, like the SAT. Participants were informed that the main purpose of this experiment was to test the effect of music on performance on this new measure of nonverbal intelligence. Participants were informed that previous research had shown that the well known “Mozart Effect,” the idea that listening to certain types of music can improve performance, was actually bidirectional such that some music can enhance performance whereas other music can impair performance. To increase the likelihood of self-handicapping as well as to lead participants to expect failure, participants were also informed that as both the test and the music are nonverbal, it was expected that the music may have a greater effect on this test than has been shown on more traditional verbal intelligence tests, such as the SAT. Participants were told that after they filled out a battery of questionnaires they would complete the intelligence test while listening to music. Participants were informed that as we still needed participants in all conditions, they would be given the opportunity to select the music they would listen to during the test.

At this point the experimenter gave participants the manipulation that would serve to alter the advantageousness of self-handicapping. In the low diagnostic condition (LD) participants were given no information about whether or not they would receive diagnostic feedback and were simply read the following statement:

“You can start the program now. You will first be asked to fill out some self-report measures. You will then make your music selection. After your selection, the nonverbal intelligence test will begin.”

Although participants in this condition might expect that their performance would be evaluated eventually; the threat to the self is markedly lower than in the other two conditions. First, they would not receive feedback about their performance, and hence would not know whether they performed poorly or not. Second, participants are informed at the beginning of the experiment that their participation is completely anonymous. Therefore, it would be highly unlikely that anyone else would be aware of their level of performance. It is therefore expected that participants will select musical tracks that will either enhance or have no effect on their performance regardless of their level of grit and/or TSC.

Participants in the medium diagnostic condition (MD) were given the following instructions as well as the instructions to start the program that were given to the LD condition:

“After you complete the test, you will get feedback about your performance. This feedback will be in regard to how well you did relative to all other people who have taken this test. Unfortunately we won’t be able to give you information relative to how well you did in comparison to others that listened to the same music as you.”

In this condition, participants are under an evaluative threat. Failure, in comparison to other participants, suggests something about the individual’s level of intelligence. Nevertheless, an individual in this condition can engage in self-handicapping behavior by selecting the music track that would be detrimental to performance. When given information regarding how well one
has done compared to others, it is self-protective to provide an external source that could be to
blame for one’s failure. An individual interested in an accurate assessment of his or her skills
should not, however, engage in such self-handicapping behavior. It is therefore expected that
those scoring low in grit and TSC in this condition will be more likely to engage in self-
handicapping behavior, by selecting the performance impairing musical track, than those scoring
high in grit and TSC.

Lastly, participants in the high diagnostic condition (HD) were read the following
statement as well as the instructions to start the program that were given to the LD condition:

“After you complete the test, you will get feedback about your performance on the test.
This feedback will be in regard to how well you did relative to all other people who have
taken this test, as well as your score relative to other people who listened to the same
music as you.”

In this condition self-handicapping becomes a less beneficial strategy as individuals who choose
to self-handicap could still compare their performance to other individuals who listened to the
same music as them, and hence faced the same situational constraints on performance. Therefore
failure remains diagnostic of performance and cannot be attributed to situational factors easily. It
is expected that participants will select a musical track that is either helpful to performance or
that will not influence their performance, regardless of their level of grit and/or TSC.

At this point participants turned to the computer screen and began the experiment.

Participants first completed several individual difference measures utilized in study one,
including the TSC (Tangney et al., 2004), grit (Duckworth et al., 2007), and RSE (Rosenberg,
1965) on a computer using Medialab software. Upon completion of the individual difference
scales, participants were prompted with a screen that informed them that the nonverbal
intelligence test was about to begin. At this point participants were to select one of five music
tracks to listen to during the nonverbal intelligence test that were labeled as follows; highly
enhancing (++), moderately enhancing (+), Neutral (0), moderately impairing (-), and highly
impairing (--) Selecting the track labeled either moderately or highly impairing is considered
self-handicapping behavior, as this music would likely impede performance on the test. Once
participants made their selection the computer program informed them that the study had
completed and to notify the experimenter. At this point the experimenter returned, probed for
suspicion, debriefed the participant, and assigned credit. Participants never actually took the
intelligence test or listened to the music.

Near the end of the experiment (after about 90 participants had been run) the research
assistants in charge of running participants expressed concern that some of the participants did
not understand the instructions pertaining to the type of feedback they would receive about their
performance. As a result an additional manipulation check was added at the end of the
experiment that questioned participants about the type of feedback they would receive about
their performance. Specifically, participants were asked by the experimenter what type of
feedback they would receive: did not expect to receive feedback, test scores would be compared
to everyone who took the test, test scores would be compared to everyone who took the test as
well as those participants in the same music condition as them.
RESULTS

Manipulation Check

Although the majority of participants in the LD and MD condition were able to accurately recall the type of feedback they would receive (only one participant in the LD condition said that they would receive feedback that would compare them to everyone who took the test), participants in the HD condition seemed less able to do so. The majority of participants in this condition who responded to the manipulation check (7 of 11) said that they would receive feedback compared to everyone who took the test, but not to others who listened to the same music track that they did. Therefore, any findings pertaining to the HD group should be considered with caution as participants did not seem to understand the directions given to them.

Main Analyses

To test the effect of grit and TSC on self-handicapping we conducted two separate hierarchical multiple regressions. The first regression tested the interactive relationship between gender, diagnosticity condition (LD vs. MD vs. HD), and grit on self-handicapping behavior as indexed by the participant’s music selection. Study 1 found that grit, TSC and self-esteem were highly correlated. Therefore to control for the potentially confounding effects of TSC and self-esteem, participant’s scores on these variables were entered in the first step of the regression equation. This was then followed by the main effects of grit, Gender, and the diagnostic condition. As the diagnosticity condition was a categorical variable, it was necessary to dummy code this variable so that it could be used in a regression analysis. To do so, two additional variables were generated, C1 and C2. The relevant comparison group for this study is the MD condition. Therefore participants in this condition were assigned values of C1 = 0 and C2 = 0. Participants in the LD condition were assigned values of C1 = 1 and C2 = 0. Participants in the HD condition were assigned values of C1 = 0 and C2 = 1. After the main effects were entered in step 2 of the regression, step three consistent of all two-way interactions between grit, Gender, and Diagnosticity condition. In the fourth and final step of the regression equation the three-way interaction terms were entered in. Results revealed a main effect of gender, ($\beta$ = .393), $t(107) = 2.418, p < .05$, as well as a two-way interaction between the comparison of the LD vs. MD conditions and grit, ($\beta$ = -.421), $t(107) = -2.249, p < .05$. These effects were qualified however, by a significant three-way interaction between grit, gender, and the comparison of the LD vs. MD conditions, ($\beta$ = .327), $t(107) = 2.126, p < .05$.

To further explore the nature of this interaction, we plotted the three-way interaction into two separate graphs, one for male subjects (Figure 1) and the other for female subjects (Figure 2). These graphs suggested that although grit interacted with diagnosticity condition to predict self-handicapping scores among males, the same relationship did not exist for female participants. We therefore further probed the interaction between diagnosticity condition and grit for male participants. First, analyses were run to see if grit did indeed interact with condition to predict self-handicapping scores among males. This was achieved by restricting the analyses to male subjects only and regressing self-handicapping scores on the self-esteem and TSC in the first step of the regression equation, followed by the main effects of the centered grit scores and the dummy coded categorical variable of diagnosticity condition in the second step. The third step in the regression equation included the interaction of the centered grit scores and the dummy coded categorical variable. The two way interaction between grit and the dummy variable comparing the LD and MD conditions was marginally significant, $t(47) = -1.958, p = .056$. A similar regression analysis for women revealed no significant effects.
Second, to decompose the relationship between grit and male subjects’ self-handicapping behavior, analyses were run to look at the effect of condition on self-handicapping scores by both high and low grit individuals. To do so we tested the simple effect of the diagnosticity (LD vs. MD) at relatively high vs. low levels of grit (+/- 1 SD above and below the mean; Aiken & West, 1991). The values obtained through these analyses indicate the significance of the slope of the line for the high and low grit individuals and indicated the degree of self-handicapping behavior for high and low grit individuals under different levels of evaluative threat. Among high grit subjects, being in an evaluatively threatening situation (MD condition), compared to a condition with a lower level of evaluative threat (LD condition), resulted in a nonsignificant shift from selecting the detrimental music to the neutral/enhancing music ($\beta = .270$), $t(47) = 1.221$, $p = .23$. Among low grit participants, being in an evaluatively threatening situation (MD condition), compared to a condition with a lower level of evaluative threat (LD condition), resulted in a marginally significant shift from selecting enhancing music to neutral/detracting music, ($\beta = -.479$), $t(47) = -1.743$, $p = .088$. Seemingly, neither the low nor high grit individuals individually accounted for this interaction. Rather it was the combination of the effect of evaluative shift on both high and low grit participants’ responses. The greater significance of the test of low grit individuals does, however, suggest that changes in their behavior across diagnosticity conditions accounted for the interaction more than high grit individuals. This seems to confirm part of the original hypothesis, showing that those low in grit will become more likely to self-handicap under evaluative threat.

Although there was a shift in self-handicapping behaviors for both the low grit and high grit individuals, the previous analyses do not allow an interpretation of the difference between high and low grit individuals’ levels of self-handicapping behavior. To examine this effect, additional regression analyses were conducted to look at the influence of the difference between high grit and low grit male participants in the LD and MD conditions individually. Results showed a marginally significant relationship between grit and Self-handicapping behavior in the LD condition $t(16) = -2.096$, $p = .052$ When not expecting feedback about their performance, high grit participants tended to put themselves in a more difficult situation than those low in grit by selecting music that would be likely to detract from their performance. There was not a significant difference in the MD condition, however, $t(13) = .315$, $p = .758$. Therefore, it cannot be asserted that high grit individuals are less likely to engage in self-handicapping behaviors when under an evaluative threat. Rather it appears that when there is no threat of failure, individuals high in grit challenge themselves more than individuals low in grit.

It was also expected that individuals in the HD condition would avoid self-handicapping behaviors, regardless of their level of grit and TSC. Nonetheless, this group did not differ significantly from the MD group. This may have resulted from the misunderstanding of the instructions by participants in the HD group as indicated by the manipulation check. Seemingly, many participants in the HD group did not expect to receive feedback about their performance compared to others in their condition. Thus participants in this condition were under a similar level of evaluative threat to those in the MD condition.

Similar multiple regressions were conducted to examine the influence of TSC on self-handicapping behavior. Again, to control for the potentially confounding effects of grit and self-esteem, participant’s scores on these variables were entered in the first step of the regression equation. This was then followed by the main effects of TSC, Gender, and the diagnostic condition dummy coded variable in the second step of the regression equation. After the main effects were entered in step 2 of the regression, step three consisted of all two-way interactions
between TSC, Gender, and Diagnosticity condition. In the fourth and final step of the regression equation the three-way interaction terms were entered in. Counter to the expected results that high, compared to low, TSC would result in less self-handicapping behavior when participants were under an evaluatively threatening, but escapable, diagnosticity condition, TSC did not seem to have an effect. The regression analysis merely revealed the main effect of Gender \( \beta = .382, p < .05 \). No other significant relationships were found. There was a trend toward significance of the three-way interaction of gender, TSC and a comparison of those in the LD group to the MD group, \((\beta = .366), t(107) = 1.551, p = .12\). The pattern of findings obtained for grit and TSC were similar (See figure 3 and 4). Nevertheless, as the results pertaining to TSC did not obtain full significance, any interpretation of the results should be cautioned.

**GENERAL DISCUSSION**

Two studies were conducted to examine the preference of those scoring high on measures of grit and trait self-control for evaluative information. It was expected that individuals scoring high on grit and/or TSC would see less value in the short-term benefits of self-handicapping. Although study 1 showed that individuals scoring high on measures of grit and self-control reported that they avoided self-handicapping strategies, a second study using a behavioral measure of self-handicapping failed to confirm these findings. Study 2 did find that males low in grit became more likely to pick the performance impairing tape under evaluative threat compared to the low threat condition. Nevertheless, there was little evidence showing that those high in grit inhibited their self-handicapping behavior. Surprisingly, males who scored high in grit tended to select performance impairing music during a practice situation when there was no evaluative threat. This behavior could be considered similar to a marathon runner who ties weights to his or her legs when practicing to make the run during the actual race more effortless. It appears that one strategy of those high in grit is to seek challenge during practice situations in order to better prepare for a variety of circumstances that might befall them when they are under evaluation. Nevertheless, when participants had the opportunity to self-handicap, there were no differences based on participants’ level of grit. Additionally, the results of study two pertaining to TSC suggest that this individual difference does not play a role in predicting actual self-handicapping behavior.

There are several possible explanations why we did not obtain the expected decrease in self-handicapping for those high in grit. First our manipulation of threat may not have been adequate enough to elicit self-handicapping behaviors. Self-handicapping behaviors are often done in the interest of self-presentational motives (Tice & Baumeister, 1990). The self-handicapping behavior in this study, music track selection, was done anonymously and therefore would not be influenced by self-presentational motives. Only in the HD condition was it even implied that anyone else would be aware of the participants choice – as participants in this condition would be supplied feedback about their performance by the experimenter based on their music selection. Nevertheless, the manipulation check suggests that many participants in this condition were unaware that they would receive such feedback. Therefore, the failure to detect a difference in self-handicapping behaviors may have resulted from the anonymity of the participant’s music selection.

Future studies on this issue should make a greater effort to ensure that participant’s behavior will be influenced by self-presentational concerns. At the very least, participants should feel that the experimenter will be aware of their performance on the test and whether or not they decide to self-handicap. Additionally, manipulation checks should be employed to ensure that participants are actually experiencing distress over the evaluation. Specifically, measures assessing the participant’s level of confidence and/or likelihood of failure as well as their current
mood may give more insight into as to why participants varying in levels of grit and/or trait self-control might respond with self-handicapping behaviors. Those high in grit may have selected the detrimental tape for reasons other than those of their low grit counterparts.

A second possibility is that the findings of study one were the result of a self-report bias toward socially desirable responding. It is entirely plausible that individuals who are interested in making a good impression would want others to perceive them as people who are highly motivated and dedicated and take responsibility for their failures. The behavioral measure of self-handicapping is not as susceptible to such biases as participants were unaware of the implications of their music selection. The inconsistencies between the measures of self-handicapping in these studies therefore implicate a social desirability bias. This suggestion is contradicted, however, by the finding in study two that those high in grit tended to select impairing music in the evaluatively non-threatening condition. There is little reason to believe that individuals who simply want others to see them positively would select music that would impair their performance; especially considering that this choice was made anonymously. Rather, selection of the impairing music in this condition is more indicative of a desire to challenge the self’s abilities rather than to bolster other people’s opinions of oneself. Future studies may benefit, however, by including a measure of social desirability to further reduce concerns about this issue.

In a similar vein, it may be the case that the disparity between the findings of study 1 and study 2 is not due to social desirability and a deception of others but rather self-deception. It is unlikely that any individual engaging in self-handicapping would be fully aware of when he or she is implementing such a strategy. To be sure, those who self-handicap in the interest of self-presentation (e.g. Tice & Baumeister, 1990) may be somewhat aware of their deception as it is directed at impressing others rather than maintaining the self-image. Yet, being fully aware of self-handicapping would likely counteract any affective benefit self-handicapping would provide to the self. In fact, the act of self-handicapping is supposed to exonerate oneself from the blame for failure and place that blame on extraneous circumstances (Berglas & Jones, 1978). Those high in grit and/or TSC see themselves as hard-workers. To admit to the self and to others that one self-handicaps would completely contradict that self-perception. Those who are high in TSC and especially those high in grit might use self-handicapping as much as everyone else but are just less aware of when they are doing it. Or, alternatively, those who score lower on these individual differences may be more willing to accept that they use such strategic behaviors.

Third, a not entirely unexpected effect of gender significantly reduced the power of study 2 to detect effects within conditions. Gender differences are quite pervasive in the literature on self-handicapping behavior (Kimble & Hirt, 2005; McCrea et al., 2008; Rhodewalt, 1990). To counteract this, and to increase the generalizability of the current research, we selected a method that had previously shown self-handicapping behavior in both men and women (Tice, 1990). Nevertheless, it appears that even this method is not immune to gender differences as there was a significant main effect of gender in the current study. Even with low power, however, it should be noted that a marginally significant effect did emerge for males in the ND condition. As such had we obtained a sample large enough to detect an effect in the MD condition, where the motivation to self-handicap is high, it would pale in comparison to the effect in the ND condition when participants lack an evaluative threat. Future studies may be better served by examining self-serving behaviors that are less susceptible to gender differences. Although men are more likely to engage in such self-serving strategies women do still use them, just less frequently (Cambpell & Sedikides, 1999). For example, more direct methods utilized to assess an
individual’s preference for self-enhancing vs. self-assessing information (e.g. Sedikides, 1993) could be employed.

A fourth reason that study 2 failed to show differences in self-handicapping may be that those scoring high in grit and TSC favor specific types of self-handicapping, while avoiding others. Study 2 did find that male participants who scored high on grit were more likely than males scoring low on grit to challenge themselves in a practice-like situation when there was no evaluative threat. Seemingly, those high in grit go to great lengths to avoid the self-handicapping strategy of engaging in minimal preparation and practice (Flett et al., 1995). Not only do they spend more time practicing than those low in grit (Duckworth et al., 2008), the current study found that they may strategically make practice situations harder than what they would face in evaluative situations.

Additionally, given that gritty individuals seem to be successful due to practice (Duckworth et al., 2008) it could be suggested that the lack of a difference in self-handicapping between low and high grit males in the MD conditions was due to the fact that these participants did not have the opportunity to practice. Not having the opportunity to practice might be a very disconcerting situation for individuals who normally spend a great deal of time preparing for assessment situations. Lacking the ability to practice may have increased the high grit participant’s uncertainty and concerns about failure, which would increase the likelihood to self-handicap (Campbell & Sedikides, 1999). As such, future research may want to investigate whether or not individuals high in grit will engage in more practice if given the opportunity, and if so, will that reduce their likelihood of self-handicapping.

In conclusion, the current studies confirm the previous finding that those high in grit make a greater effort to engage in practice (e.g. Duckworth et al., 2007). Although those high in grit and trait self-control reported a decreased desire to self-handicap (study 1) when placed in circumstances beyond their personal control those high in grit maintained the motive to protect the self-concept and did not differ form those low in grit in their self-handicapping behavior (study 2). This is not all too surprising. The appeal of self-handicapping and the escape from self-awareness that it provides is quite tantalizing. Finally, it is likely that the threat of failure is even more damaging to those high in grit and TSC. Those who fail for lack of effort can simply tell themselves that they’ll try harder next time. Those who fail even after a great deal of effort and practice are now faced with the very real conclusion that little can be done to improve in the future. When faced with such a prospect, it is no wonder that even the most diligent continue to self-handicap.
APPENDIX A

TABLES

Table 1: Means and standard deviations for, and intercorrelations between, all measures in study 1

<table>
<thead>
<tr>
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<th>1</th>
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<th>6</th>
<th>7</th>
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<td></td>
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<tr>
<td>2. TSC</td>
<td>.63**</td>
<td>--</td>
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<td>-.57**</td>
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</tr>
<tr>
<td>5. Acceptance</td>
<td>-.26*</td>
<td>-.19*</td>
<td>.26**</td>
<td>-.14</td>
<td>--</td>
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<td>6. Rumination</td>
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<td>-.14</td>
<td>.24**</td>
<td>-.16</td>
<td>.44**</td>
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<td>7. Positive Refocusing</td>
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<td>.04</td>
<td>.04</td>
<td>.12</td>
<td>-.20</td>
<td>.16</td>
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<td>8. Refocusing on Planning</td>
<td>.28**</td>
<td>.19**</td>
<td>-.19*</td>
<td>.18*</td>
<td>.14</td>
<td>.32**</td>
<td>.42**</td>
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<td>9. Positive Reappraisal</td>
<td>.43**</td>
<td>.18**</td>
<td>-.28*</td>
<td>.36**</td>
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<td>.22**</td>
<td>.39**</td>
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<td>10. Perspective</td>
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<td>-.24**</td>
<td>.39**</td>
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<td>.14</td>
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<td>-.09</td>
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<td>.19*</td>
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<td>.19*</td>
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<td>.37**</td>
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<td>.13</td>
<td>.08</td>
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MEAN  3.18  3.22  69.63  3.79  3.36  3.38  2.90  3.39  3.54
SD    0.49  0.67  13.19  0.62  0.80  0.77  0.95  0.77  0.89

*- significant at the $p < .05$ level
**- significant at the $p < .01$ level
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* - significant at the $p < .05$ level
** - significant at the $p < .01$ level
Table 2: Hierarchical regression predicting self-handicapping scores (grit)

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<th>Source</th>
<th>df</th>
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<th>$\Delta$ adj. $R^2$</th>
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<td>.171</td>
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</tr>
<tr>
<td></td>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>TSC</td>
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<td>.224</td>
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<tr>
<td>3</td>
<td>Grit</td>
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<td>27.49**</td>
<td>.427</td>
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** - significant at $p < .001$
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<td>27.49**</td>
<td>.427</td>
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** - significant at $p < .001$
Figure 1: *Self-handicapping scores as a result of grit and condition (Males)*
Figure 2: Self-handicapping scores as a result of grit and condition (Females)
Figure 3: Self-handicapping scores as a result of TSC and condition (Males)
Figure 4: Self-handicapping scores as a result of TSC and condition (Females)
APPENDIX C

HUMAN SUBJECTS (IRB) APPROVAL LETTERS
APPROVAL MEMORANDUM

Date: 6/8/2006

To: Seth Gitter
MC 1270

From: Thomas L. Jacobson, Chair

Re: Use of Human Subjects in Research
Perseverance in the face of failure

The forms that you submitted to this office in regard to the use of human subjects in the proposal referenced above have been reviewed by the Human Subjects Committee at its meeting on 5/19/2006. Your project was approved by the Committee.

The Human Subjects Committee has not evaluated your proposal for scientific merit, except to weigh the risk to the human participants and the aspects of the proposal related to potential risk and benefit. This approval does not replace any departmental or other approvals which may be required.

If the project has not been completed by 5/9/2007 you must request renewed approval for continuation of the project.

You are advised that any change in protocol in this project must be approved by resubmission of the project to the Committee for approval. The principal investigator must promptly report, in writing, any unexpected problems causing risks to research subjects or others.

By copy of this memorandum, the chairman of your department and/or your major professor is reminded that he/she is responsible for being informed concerning research projects involving human subjects in the department, and should review protocols of such investigations as often as needed to insure that the project is being conducted in compliance with our institution and with DHHS regulations.

This institution has an Assurance on file with the Office for Protection from Research Risks. The Assurance Number is IRB00000446.

cc: Roy Baumeister, Dianne Tice
HSC No. 2006.0333
Attachment A3
Informed Consent (Study 3)

I freely and voluntarily and without element of force or coercion, consent to be a participant in the research project entitled "Music and Performance". This research is being conducted by Seth Gitter, a graduate student at Florida State University. I understand the purpose of this research project is to better understand how listening to music affects performance in specific domains. I understand that if I participate in the project I will be asked to fill out several survey questionnaires and to perform a cognitive abilities task while listening to music.

I understand my participation is totally voluntary and I may stop participation at anytime. The total time commitment would be about 30 min. for the entire project. I will be compensated by receiving $2 credit toward by General Psychology class. If I decide to stop participation, I will still be entitled to the $2 credit. All my answers to the questions will be kept confidential and identified by a subject code number. My name will not appear on any of the results. No individual responses will be reported. Only group findings will be reported. Consent forms will be stored in a locked file cabinet in the office of the graduate student in charge of the research and destroyed on or before May 15, 2010. All information will remain confidential to the fullest extent allowed by law. All information collected from participants will remain in a locked file-cabinet in the office of the graduate student conducting this research.

I understand that I must be at least 18 years of age in order to participate. I understand there is a possibility of a minimal level of risk involved if I agree to participate in this study. The research assistant will be available to talk with me about any emotional discomfort I any experience while participating. I am also able to stop my participation at any time I wish.

I understand that this consent may be withdrawn at any time without prejudice, penalty or loss of benefits to which I am otherwise entitled. I have been given the right to ask and have answered any inquiry concerning the study. Questions, if any, have been answered to my satisfaction.

I understand that I may contact Seth Gitter, Florida State University, Department of Psychology; 405 Psychology Bldg., 645 – 2238, or Dr. Dianne Tice; 112 Psychology Bldg., 644-2897, for answers to questions about this research or my rights. Group results will be sent to me upon my request. If I have questions about my rights as a subject/participant in this research, or if I feel I have been placed at risk, I can contact the Chair of the Human Subjects Committee, Institutional Review Board, through the Office of the Vice President for Research, at (850) 644-8633

I have read and understand this consent form.

________________________________________  ________________________________________
(Signature)  (Date)
REFERENCES


BIOGRAPHICAL SKETCH
Curriculum Vitae

Personal Data
Name: Seth A. Gitter
Date & Place of Birth: January 16, 1982; Stevens Point, WI

Work History
August 2008 – present: Research Assistant, Florida State University
January 2006 – July 2008: Teaching Assistant, Florida State University
August 2005 – December 2005: Research Assistant, Florida State University
August 2004 – July 2005: Departmental Assistant, Florida State University
August 2002 – May 2004: Research Assistant, The University of Minnesota: Twin Cities

Education
2008 – present: Florida State University, Doctoral student
   Major field: Social Psychology
   Major Professor: Dianne M. Tice, Ph.D.

2004 – 2008: Florida State University, M.S.
   Major field: Social Psychology
   Major Professor: Dianne M. Tice, Ph.D.

   Major field: Psychology
   Minor field: Studies in Cinema and Media Communication

Publications

Book Chapters


Journal articles


Posters Presented


Teaching Experience

Instructor, Social Psychology, Florida State University (lecture course)
Spring, 2006 (1 section, 75 students)
Summer, 2006 (1 section, 60 students)
Fall, 2006 (2 sections, 220 students / 60 students)
Spring, 2007 (1 section, 100 students)
Summer, 2007 (1 section, 75 students)
Fall, 2007 (1 section, 100 students)
Spring, 2008 (2 sections, 100 students each)
Summer, 2008 (1 section, 85 students)

Supervisor, Directed Individual Study (undergraduate research), Florida State University, Fall 2004 – present (45 students).

Professional Affiliations and Memberships

Society for Personality and Social Psychology (student affiliate)
American Psychological Society (student affiliate)