

PURPOSE IN LIFE AND RESPONSES TO FAILURE

A Thesis

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ABSTRACT

Recent studies have shown that purpose in life promotes quicker emotional recovery from negative experiences and greater self-regulation on boring tasks. In two studies, I investigated the role of purpose in predicting the regulation of emotions, thoughts, and behaviors after experiences of failure. In Study 1, an online survey among adults in the United States revealed significant positive correlations between sense of purpose in life, mood ratings, and indicators of successful coping in response to test failure. No relationship was observed between purpose and persistence on test problems after failure. In Study 2, a laboratory experiment using college students showed that writing about one's purpose prior to failing predicted subsequent levels of positive mood, negative mood, and state self-esteem, and purpose did predicted either persistence on test problems or time spent on an alternative activity after failure. Together, these findings suggest that purpose in life is an important resource for regulating emotional and cognitive responses to failure.

BIOGRAPHICAL SKETCH

Melanie Netter was born and raised in Boston, MA. She received a Bachelors of Science in Human Development at Cornell University in May 2014. She will be pursuing her PhD in Developmental Psychology at the University of Texas at Austin beginning in Fall 2015.

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CHAPTER 1

INTRODUCTION

“Success consists of going failure to failure without loss of enthusiasm.”– Winston Churchill

Failure is an unavoidable aspect of the human experience. In the long-term, failure can lead individuals to experience personal growth and gain wisdom, and it is often a catalyst for success and mastery in the future. However, in the short term, failure can be interpreted as a sign of personal weakness that leads individuals to develop a negative self-view and can inhibit the acquisition of new strengths. Research shows that failure leads to reduced interest and confidence in one’s ability to do well on a task (Campbell & Hackett, 1986) and that non-depressed individuals who fail a test perform as poorly on a second test as depressed individuals who had passed (Klein, Fencil-Morse, & Seligman, 1976). It is crucial to identify what factors can be used to reduce the negative consequences of failure and promote more positive responses. This paper investigates purpose in life as one of these factors and explores the role that it plays in mood, coping, and behavior after experiences of failure.

Purpose in life can be defined as a broad and stable ambition to accomplish goals that are “meaningful to the self and of consequence to the world beyond the self” (Damon, Menon, & Cotton Bronk, 2003, p. 121). Purpose is theorized to be a key factor in psychological wellbeing (Ryff, 1989) and has been consistently shown to enhance mental and physical health in response to stress-inducing experiences, including spousal caregiving (Stetz, 1989) and injury (Smith & Zautra, 2004; Thompson, Coker, Krause, & Henry, 2003). However, no study has ever specifically examined the ways in which this abstract concept influences responses to the stress-inducing experience of failure. It is important, however, that the dynamics of these relationships be understood because purpose development could serve as a useful resource for an organization

seeking to minimize the detrimental effects that failure can have on the attitudes and behaviors of its members. Therefore, this thesis set out to explore purpose in life and its impact on mood, coping, and persistence after failure.

Establishing the relationships between these variables will add to and integrate two important topics in psychology and educational literature: the role of purpose in psychological wellbeing and responses to failure. There exists already a wealth of research on factors that influence emotions, thoughts, and behaviors after failure, including self-compassion (Neff, Ya-Ping, & Dejitterat, 2005), self-esteem (DiPaula & Campbell, 2002), stereotype threat (Nussbaum & Steele, 2007), and even the culture in which one was raised (Heine et al., 2001). However, no study has ever examined whether a sense of purpose in life could also be an important factor for shaping emotional, cognitive, and behavioral responses to failure.

Therefore, in order to address the gaps in current research, the present research will investigate the impact that purpose can have on the way in which individuals react to failure. Drawing inferences from recent studies, which have demonstrated purpose as a predictor of faster emotional recovery from negative experiences (Schaefer et al., 2013) and continued effort on tasks despite boredom (Yeager et al., 2014), I hypothesize that purpose in life will predict greater positive mood, more successful coping, and increased persistence on a task despite failure.

This thesis will proceed as follows:

In Chapter Two, I will review the literature relevant to understanding purpose in life, coping with stress, and persistence after failure. This literature will establish the basis for and motives behind the hypotheses being tested in the present research. I will also seek to explain the contribution that this research is making to the surrounding literature.

Two studies will investigate the hypothesis that purpose in life is related to and predicts emotion, cognitions, and behavior after failure. In Chapter Three, I will present the methods, results, and a discussion of Study 1, which tests the hypothesis that, among a U.S. adult population, having a high dispositional sense of purpose in life will be correlated with more positive mood and successful coping, as well as greater intentions to persist on a task despite failure. In Chapter Four, I will present the methods, results, and discussion of Study 2, which examines a possible causal effect of purpose in life by testing the hypothesis that college students who write about their purpose in life prior to task failure will demonstrate greater positive mood, more successful coping, and reduced persistence on unrelated tasks after failure than those who write about a control topic.

Chapter Five will present a General Discussion, where I will summarize the overall findings of the present research, comment on its contribution to a larger literature and the limitations of its scope, and suggest directions for future research. Finally, Chapter Six will contain a brief Conclusion section where I will discuss the implications of this research for real-world practices.

CHAPTER 2

LITERATURE REVIEW

Failure is a debilitating experience from which it can be difficult to recover. Failing a task has been shown to reduce the likelihood that an individual will be successful on subsequent tasks (Klein, Fencil-Morse, & Seligman, 1976). In addition, individuals who experience failure report significantly higher negative mood and lower self-esteem than those who experience

success (McFarland & Ross, 1982). Thankfully, research has revealed a number of factors that can effectively alter individuals' reactions to failure.

Reactions to Failure

Nussbaum and Steele (2007) examined the effect that evaluative testing has on coping and persistence after failure among African American students, for whom negative stereotypes exist regarding their performance on standardized tests. Results showed that students who failed a test that they believed was diagnostic of their intelligence were more likely than White students, and their peers who were told the test was not diagnostic, to detach their sense of self-worth from test performance. Additionally, it was discovered that this disengagement of self-esteem completely mediated the relationship between race and desires to persist on additional test problems, with African American students in the diagnostic condition who were high in disengagement requesting to complete more additional test problems than any other group. While this study was effective at revealing the complex relationships that can exist between predictor and outcome variables in reactions to failure, there were a lot of reactions that were not assessed, namely a wider range of emotional and coping responses, which may also have influenced the observed relationship between race and persistence.

Additionally, Nussbaum and Steele (2007) assessed persistence through self-report, and the number of problems that participants could request was limited by the total number of problems on the test. In an investigation of how culture affects persistence after test failure, Heine et al. (2001) discretely timed how long Japanese and American participants actually spent solving test problems, versus problems from an alternative activity, for up to 20 minutes. The authors discovered that after failing the test, American participants, whose culture reinforces the notion that ability is innate, persisted for less on test problems after failure than Japan

participants, whose culture emphasizes self-improvement. In a similar study using Chinese participants, Hong, Chiu, Dweck, Lin, and Wan (1999) found that participants who were manipulated to endorse a mindset that intelligence is a fixed trait were significantly less likely to persist on a remedial task after failure than those who endorsed a mindset that intelligence could be developed. While these two studies assessed persistence in purer form than Nussbaum and Steele (2007), they also failed to assess the way in which persistence was related to emotional and cognitive reactions to failure.

Di Paula and Campbell (2002) gathered some data on mood and coping as part of an investigation into whether self-esteem (which has significant positive correlations with a sense of purpose in life, Lyubomirsky, Tkach, & DiMatteo, 2006) could be used to predict persistence on a task after failure. The authors found that, while all participants experienced increases in negative mood following failure, this effect was stronger among low self-esteem participants, who also reported more negative thoughts than high self-esteem participants (Di Paula & Campbell, 2002). Additionally, high self-esteem participants persisted for longer on test problems than low self-esteem participants; while forty percent of low self-esteem participants opted not to complete any additional problems after failure, all high-self esteem participants completed at least one additional problem. Lastly, of importance is the authors' finding that none of the effects observed above could be explained by participants' negative mood, their initial performance expectations, the degree to which they reported thoughts after failure, or the extent to which they valued the skills assessed by the test (Di Paula & Campbell, 2002).

Together, these aforementioned studies reveal that jeopardizing an individual's self-efficacy, or their confidence in their ability to experience success in a given situation, by weakening their belief in their potential to improve, significantly reduces persistence after

failure. Inversely, increasing self-efficacy by making individuals feel capable of achieving success promotes persistence after failure. Since purpose has a strong positive relationship with self-efficacy (DeWitz, Woolsey, & Walsh, 2009), it might be expected that individuals with strong sense of purpose in life would be more likely to endorse self-efficacious beliefs, even after failure, than those with a weaker sense of purpose. Also, since self-efficacious beliefs have been shown to positively influence persistence after failure, one could expect that purpose would also be associated with enhanced persistence after failure. However, prior to the present research, no study has ever examined the role of purpose in responses to failure. Still, some research exists that implicates purpose with less stress and greater persistence in response to unpleasant experiences.

Purpose

Ryff (1979) identified purpose in life, defined as a sense of direction in life and the pursuit of meaningful goals, as one of six core dimensions that contribute to psychological well-being. The definition of purpose has since been expanded to be a central motive that “stimulates goals, manages behaviors, and provides a sense of meaning” (McKnight & Kashdan, 2009, p. 242). Some examples of what an individual might cite as their purpose in life include intentions to learn as much about the world as possible, to help those less fortunate than themselves, or to make their family proud. People who engage with their purpose seek out and accomplish goals that are meaningful to themselves and, often, consequential to the world around them (Damon, Menon, & Cotton Bronk, 2003). In order to fully understand the construct as it is operationalized, purpose in life must be distinguished from two other concepts with which it is often used interchangeably.

First, it is important to note that the concept of purpose in life is not the same as that of meaning in life. Meaning in life has been defined in a number of ways in the literature; however, it can be broadly summarized as the subjective understanding that one's life matters on a grander scale (King, Hicks, Krull, & Del Gaiso, 2006). While some authors would argue that purpose in life is a necessary derivative of a sense of meaning in life (Baumeister, 1991), it is universally understood that the concepts measure discrete ideas. For one, whereas meaning assesses a sense that one's life has value, purpose assesses a commitment to engaging in activities from which one derives a sense of value. Additionally, whereas a sense of meaning in life usually helps individuals make sense of their past and present circumstances, purpose is more future-oriented in that it drives individuals to pursue goals that align with their sense of meaning.

With this in mind, it should be noted that the concept of purpose in life is distinguishable from goals. A goal can be defined as 'the end toward which effort is directed' (Webster, 2). Purpose, however, is a motivational force and not itself an outcome (McKnight & Kashdan, 2009). A person may state that their purpose in life is 'to become a famous musician' or 'to win a Nobel prize'. However, these are not examples of purpose, but of goals since, in the end, they yield a final outcome after which there is no more. Purpose is a higher-order objective that drives the generation of personally meaningful, low-level goals; once one goal is met, it is purpose that motivates individuals to pursue another.

Purpose and Emotion

Purpose is theorized to enhance psychological flexibility in that it promotes quicker recovery from and adaptation to negative experiences. Research across a number of domains has confirmed the benefits of having a sense of purpose in life in moments of distress (Burrow, Sumner, & Ong, 2014) and personal anxiety (Burrow, Stanley, Sumner, & Hill, 2014; Deeks &

McCabe, 2004). Recently, one study investigated the role of purpose in emotional recovery from negative information (Schaefer et al., 2013). Participants, who had completed a purpose in life assessment two years prior, were shown ninety pleasant, unpleasant, and neutral images. For each image, participants' eyeblink reflexes (EBR) were tracked in response to startling noises played through headphones at two time points: a few seconds after the image was first presented on-screen (assessing emotional reactivity) and a second after it was removed (assessing emotional recovery). Results showed that purpose predicted quicker emotional recovery from negative images, even after controlling for emotional reactivity, supporting the theory that purpose promotes psychological resilience in response to negative experiences, here, viewing unpleasant images. The present research further tests this theory by exploring whether purpose can promote psychological resilience in response to experiencing failure. Additionally, it seeks to determine how purpose might manifest itself in behavioral responses to negative experiences, specifically whether purpose promotes persistence after failure.

Purpose and Persistence

I operationalize persistence as the sustained allocation of time and effort directed towards a personally challenging or difficult task. The task used in the present research is intellectual in nature; however, persistence could be applied to other domains as well, including social or professional challenges. High levels of persistence are characterized by a determination to solve a problem or master a skill that is minimally influenced by how difficult the problem or mastery may be. Persistence at first glance has close conceptual resemblance to the notion of grit, which is broadly defined as the maintenance of interest and effort towards long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007). However, significant differences exist between the two concepts. For one, grit is often used as a *predictor* variable

that was until recently only assessed by self-report (Robertson-Kraft & Duckworth, in press). Persistence, however, is an *outcome* variable with behaviors that can be explicitly and objectively measured. A second way in which grit and persistence differ is that persistence need not be inherently long-term. The grit measure adapted by Duckworth et al. (2007) contains a number of items that address perseverance over a period of months or years. Persistence, however, is simply about the refusal to give up on tasks that are difficult and would still qualify as persistence even if they only spanned a few hours. Conversely, whereas time and effort must be exerted in difficult contexts in order to qualify as persistence, grit can qualify as the application of time and effort in contexts that are difficult, tedious, lengthy, etc.

Despite these differences, grit and persistence still have at least one fundamental similarity, in that both measure prolonged time and effort on tasks. Von Culin, Tsukayama, and Duckworth (2014) investigated the ways in which grit correlates with different approaches to achieving happiness, one of which includes the pursuit of goals that serve a greater purpose. The authors discovered that, among a large sample of adults in the U.S., purpose had a strong positive relationship with the items on the grit scale that assessed the prolongation of effort (Von Culin et al., 2014). However, since grit was assessed via self-report and the authors used correlation analyses to examine its relationship with purpose, this study does not provide any indication of whether purpose would predict prolonged effort assessed via more objective means.

Yeager et al. (2014) examined the role of purpose in effort on boring tasks. A sample of high school seniors was asked about their motives for going to college and presented with an opportunity to solve a series of simple, yet tedious single-digit math problems that could help them in their future careers, or to watch videos and play games. Correlation analyses

revealed that, despite the option of a more enjoyable activity, students who reported having motives for learning that were rooted in a desire to contribute to the world beyond themselves solved significantly more math problems than their peers who reported less self-transcendent motives. In a follow-up experiment, the authors found that participants who had been assigned to read and write about a self-transcendent motive for learning solved significantly more math problems and had smaller declines in effort over time than those who wrote about a control topic.

The way in which Yeager et al. (2014) operationalize self-transcendent motives is nearly identical to the Damon et al. (2003) definition of purpose in life as a general intention to accomplish goals that are consequential to the world beyond the self. I argue therefore that espousing a self-transcendent motive for learning is another way of expressing one's purpose in life confined to an academic context. Taken together, the findings from Yeager et al. (2014) provide evidence that purpose in life predicts prolonged effort toward, and minimal distraction from, tasks that are boring but believed to be important. These findings support the theory that purpose fosters efficient resource allocation, in that it should regulate the distribution of limited personal resources, such as energy and time, to given tasks (Cichon, 1997; McKnight & Kashdan, 2009). According to the theory, since purpose stimulates the creation of personally important goals, being reminded one's purpose in life (in this case, by writing about it) should have the effect that participants devoted very little time and energy to less important tasks, which is exactly the effect that Yeager et al. (2014) observed. However, whether purpose would predict the devotion of time and energy on an important task after failure is yet to be explored.

Present Research

The present research seeks to both address the gaps in and unify the literature on purpose in life and reactions to failure by exploring the relationship between purpose and emotion, coping, and persistence after failure in two studies. Study 1 tests the hypothesis that having a high dispositional sense of purpose in life will be positively correlated with indicators of positive mood and successful coping in response to failure, as well as greater persistence on a task despite failure. Study 2 tests the hypothesis that writing about one's purpose in life will be a significant predictor of positive mood and successful coping, and will predict reduced persistence on an unrelated task after failure.

CHAPTER 3

STUDY 1

Given that having a high dispositional sense of purpose in life has been shown to be associated with faster emotional recovery from negative stimuli (Schaefer et al., 2014) and self-reports of prolonged effort on tasks over time (Von Culin et al., 2014), Study 1 tested the hypothesis that purpose would have a positive relationship with self-reported mood, successful coping, and persistence after the negative experience of failure.

Methods

Participants

Participants were a convenience sample of 404 adults in the U.S. recruited through Amazon.com's Mechanical Turk (MTurk) site, which connects participants (referred to as workers in MTurk) across the world with research surveys. Although the sample was not perfectly representative of the U.S. population, MTurk samples have been found in many cases to be more demographically diverse than samples collected by other convenience

sampling methods and the test-retest reliability of their data is comparable to that reported using more traditional methods of psychology research (Buhrmester, Kwang, & Gosling, 2011). For this study, participants were restricted to workers with IP addresses based in the United States and who had their work approved by previous researchers at a rate of 90% or higher.

Participants were recruited on a first come, first serve basis, where the first 404 eligible participants to accept and submit the survey had their responses recorded in Qualtrics and received compensation (\$0.80). The cap in the number of participants recruited was determined based on the financial constraints of the researchers involved. Some participants did not provide data on some measures, so degrees of freedom varied across analyses. Additionally, participants were excluded from analyses if they checked a box on the survey consent form indicating that they did not desire to participate in the study, if they checked a box on the debrief page indicating that did not want to include their data in our study, or if they achieved a score of five or higher on the academic test. This left a final sample of 374 participants.

Demographically, the final sample was 62% female and the mean age was 36.3 years old ($SD = 12.2$ years) with a range from 18-79 years old. Additionally, about 83% of our sample was White, with 9% Black, 6% Asian, 2% American Indian, and about 6% Hispanic/Latino. 90% of our sample reported an annual income of less than \$100,000, with 43% earning between \$20,000 and \$60,000, and 27% earning less than \$20,000 per year.

Procedure

Participants were directed to an online survey, beginning with an informed consent form, which gave a general description of the study as an investigation of how sense of self relates to the way that individuals engage with and solve problems in everyday life. Participants

were told that the survey would take 25 minutes to complete. At the end of the survey, participants were debriefed on the true purpose of the study and assured that their performance on the test was not a fair measure of their true abilities. Data was later analyzed in IBM SPSS Version 22.

Measures

Independent measures. The following measures were assessed prior to the failure manipulation.

Grit. This 8-item scale assesses an individual's diligence in terms of sustained effort and interest when completing long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007). Example items included "I often set a goal but later choose to pursue a different one," "New ideas and project sometimes distract me from previous ones," and "I finish whatever I begin." Participants were asked to indicate the extent to which they agreed or disagreed with each item on a 5-point fully labeled scale (from 1=Not at All Like Me to 5=Very Much Like Me). Grit scores were calculated by taking the average of their responses to the eight items (some items were reverse-scored), with higher scores indicating higher levels of diligence towards long-term goals ($D=0.82$).

Mindset. This 3-item scale assesses individuals' implicit theories about the fixedness of intelligence, also known as mindset (Dweck, 2006). A sample item was "You have a certain amount of intelligence and you really can't do much too change it." Participants responded to the items on a 5-point scale (from 1=Strongly Disagree to 5=Strongly Agree). Mindset scores were calculated by taking the average of their responses to the three items with higher scores indicating an implicit theory that intelligence is malleable, also called a growth mindset, and

lower scores indicating a theory that intelligence is fixed, also known as a fixed mindset (D=0.93).

Purpose in Life. Sense of purpose in life was assessed using two measures. The first, the 9-item Purpose in Life subscale from the Ryff Scales of Psychological Well-Being, was used to examine the extent to which an individual has a sense of direction in life “that contributes to the feeling that life is meaningful” (Ryff, 1989, p. 1071). Sample items were, “Some people wander aimlessly through life but I am not one of them,” “I enjoy making plans for the future and working to make them a reality,” and “My daily activities often seem trivial and unimportant to me.” Participants were asked to indicate the extent to which they agreed or disagreed with each item on a 6-point scale (from 1=Strongly Disagree to 6=Strongly Agree). Purpose in Life scores were calculated by taking the average of their responses to the nine items (some items were reverse-scored), with higher scores indicating a greater endorsement of the belief that one has a reason for living ($\alpha=0.86$). The second scale used to assess sense of purpose in life was the 6-item Life Engagement Test, which examines “the extent to which a person considers his or her activities to be valuable and important” (Scheier et al., 2006, p. 292). The LET differs from the Ryff Purpose in Life scale in that, while the Ryff items ask individuals about their past and present sense of purpose in life, the LET focuses solely on individuals’ current sense of purpose in life, which makes it easier to assess changes over time. Some examples of the items contained within the scale include “To me the things I do are all worthwhile” and “I have lots of reasons for living.” Participants were asked to indicate the extent to which they agreed or disagreed with each item on a 5-point scale (from 1=Strongly Disagree to 5=Strongly Agree). LET scores were calculated by taking the sum of their responses to the six

items (some items were reverse-scored), with higher scores indicating a greater endorsement of the belief that one's activities are personally-meaningful and valuable ($D=0.88$).

Goal Relevance Manipulation. This measure was designed to manipulate participants' judgments of how important the skills assessed by the academic test were to their lifelong goals or purpose. Through Qualtrics, participants were randomly assigned to one of two conditions. In the treatment group, participants were asked to write about the ways in which good problem-solving skills were important to their lifelong objectives. In the control group, participants were asked to define what good problem-solving skills are. In this way, all participants were writing about good problem-solving skills, but only half of them were asked to reflect on how good problem-solving skills would be relevant to their purpose in life.

Dependent measures. The following dependent variables were assessed after the failure manipulation.

Mood. Participants completed the 20-item Positive and Negative Affect Schedule (PANAS), which assesses two dimensions of emotional affect: positive affect, characterized as feeling heightened states of positive emotion, and negative affect, characterized as feeling heightened states of negative emotion (Watson, Clark, L. & Tellegan, 1988). Some examples of the items that were used to assess positive affect include "Inspired" and "Determined", while those used to assess negative affect include "Ashamed" and "Irritable". Participants were asked to indicate the extent to which they were experiencing each item at the present moment on a 5-point fully labeled scale (from 1=*Not at All* to 5=*Extremely*). Mood scores were calculated by taking the average of the ten items that categorized either dimension (no items were reverse-scored), with higher scores indicating a higher level of that emotional state (positive affect: $a=0.91$; negative affect: $a=0.91$).

Coping. To assess individual differences in thoughts and attitudes following failure, I adapted a measure commonly used in research on coping with stressors, the COPE Inventory (Carver, Scheier, & Weintraub, 1989). The standard COPE asks participants to indicate the ways in which they deal with stress and consists of 60 statements that assess 15 different emotional, attitudinal, and behavioral coping responses individuals could have when under a lot of stress. For the present research, we thought the following responses would be most relevant for coping with failure on an academic task: positive reinterpretation and growth, mental disengagement, behavioral disengagement, active coping, planning, and use of instrumental support. A 6-item version of the COPE was created (one item for each coping response); the wording of the items was changed such that, instead of talking about a reaction to general stressors, participants were explicitly asked to indicate their attitudes given their performance on the test. The six items were: “I’m trying to take my mind off of how poorly I did” (mental disengagement); “I have a strategy for how I would do better on the test next time” (planning); “I am going to look up how to solve these problems later” (use of instrumental support); “I feel that I have learned something from this experience” (positive reinterpretation and growth); “I am more motivated to devote time and energy toward this study” (behavioral disengagement, reverse coded); “I want to do something to improve my problem-solving skills” (active coping). Participants were asked to indicate the extent to which they agreed or disagreed with each item on a 7-point fully labeled scale (from 1=*Strongly Disagree* to 7=*Strongly Agree*).

Other items. Finally, five additional items were interspersed with the coping and intellectual engagement items in order to provide a more complete understanding of how participants rationalized their poor performance. First, borrowing inspiration from the Coffee, Rees, and Alexander Haslam (2009) findings on the effect that beliefs about the controllability

and stability of poor performance have on persistence after failure in the domain of sports, I created the following items: “I think that my performance on the test was due to factors well-within my control” and “I think that my performance on this test is due to factors that are unlikely to change.” Second, based on findings that attributing poor performance to lack of effort leads to greater persistence after failure than attributions to ability (Hong, Chiu, Dweck, Lin, & Wan, 1999), I created the following items: “I feel like I'm just not good at solving these types of problems.” and “I think that if I had worked harder, I could have done better.” Lastly, to see if I could replicate the findings of Kreibig, Gendolla, and Scherer (2012) and, thereby, demonstrate that goal relevance does not influence persistence, I created the following item: “Good problem-solving skills are important to my life objectives.”

Persistence. At the end of the survey, participants were told that the last ten minutes of the study would be dedicated to a practice problem-solving session, the design of which was modeled after the Academic Diligence Task (Galla et al., 2014). Participants were told that they could choose between completing practice Concept Connections problems (of the same difficulty as those on the academic test) or watching brief, entertaining videos. To make the practice problems seem more worthwhile to complete, participants read the following: “Research has consistently shown that the more you practice basic skills like the ones assessed by the Concept Connections test, the more you can enhance your overall problem-solving abilities.” However, participants were also told that they could work on whichever task they preferred during the ten minute session.

Because research shows that survey participation rates decreases the longer the survey is (Buhrmester et al., 2011), and due to limitations in the Qualtrics interface that make navigate between two different activities on the same screen, we did not ask participants to actually

complete the ten-minute behavioral persistence task. Instead, we told participants that they would have the opportunity to customize aspects of the practice session to meet their needs. First, we asked them to indicate how much time (out of ten minutes) they wanted to spend working on the Concept Connections problems, with the understanding that the remainder of the time would be spent watching viral videos. Second, we asked them how many practice Concept Connections problems they wanted to attempt to solve during their practice session. In this way, we gathered data on participants' self-reported persistence while they still believed that they would have to complete the practice session.

After they had inputted this information, participants were asked to indicate what they thought the study was about and taken to the debrief page where they were informed that they would not have to complete the practice session and told the true purpose of the study.

Failure Induction. Participants were informed that, as part of an investigation of problem-solving skills among U.S. adults, they would have 3 minutes to complete the “Concept Connections” test, which consisted of 10 very difficult compound remote associates problems (Bowden & Jung-Beeman, 2003). Participants received instructions that, for each problem, they would have to come up with a single word which, when combined with three target words, would create three common compound words or phrases. (e.g., top is the solution for tank/hill/secret). To increase the stakes of their performance on the test, and induce stronger feelings of failure afterwards, participants were told that successful completion of the test problems was highly correlated with an above average IQ, as well as high practical and creative intelligence.

An invisible timer had been set up in Qualtrics such that, after 3 minutes had passed, the survey automatically advanced itself to the next page where participants were shown their test

scores. The average score achieved by the sample was 1.12 out of 10 problems solved correctly ($SD=1.55$). Directly below their results was a chart that displayed the distribution of scores among a large, fictitious sample of MTurk workers, skewed in such a way that the vast majority of participants learned that they had scored well below their peers.

Results

Concurrent Measures

Table 1 provides a look at the zero-order correlations between the baseline measures assessed prior to test failure. A high dispositional sense of purpose, as measured by the Life Engagement Test and the Ryff Purpose in Life scale, had moderate positive associations with grit and mindset. Additionally, purpose was determined to have positive associations with personalities high in extraversion, agreeableness, conscientiousness, and imagination, and a negative association with personalities high in neuroticism.

The motives for learning measure that we created was determined to correlate well with the previously validated measures used in this study, and had different associations with different variables. Motives for living that were self-transcendent and intrinsic self-oriented were determined to have positive relationships with purpose, grit, mindset, extraversion, agreeableness, conscientiousness, and imagination, while motives for living that were extrinsic self-oriented had positive relationships with purpose, grit, extraversion, and conscientiousness only. All three motives for living were determined to have a negative relationship with neuroticism.

Purpose, Mood, and Coping

As shown in Table 2, in most instances, the self-transcendent and intrinsic self-oriented motives for living measures that were created for this study were largely comparable

to the LET and Ryff Purpose in Life measures in terms of correlations with coping and mood outcomes. Since the latter measures have been previously validated in the literature, only the correlations that they share with the outcomes of interest will be discussed in detail below.

Purpose was positively associated with positive affect and negatively associated with negative affect. Both the LET and the Ryff were determined to have significant positive relationships with the following coping responses: use of instrumental support, positive reinterpretation, beliefs that performance was controllable, attributions of performance to effort, and the importance of the skills assessed by the test to one's life goals. They were found to have negative relationships with coping responses that included loss of motivation to persist with the study and attributions of performance to ability. The LET also had significant positive correlations with planning, active coping, and disengagement of self-esteem from performance feedback, and negative correlations with beliefs that performance was stable.

Purpose and Persistence

Also shown in Table 2 are the correlations that the LET and Ryff purpose measures had with the persistence variables. Contrary to the proposed hypothesis, neither the LET nor the Ryff scale were found to have any significant relationships with the amount of time participants requested to spend on Concept Connections practice problems or the number of problems they wanted to attempt during that time. Participants' motives for living were also unrelated to these variables. As shown in Table 3, the amount of time that participants wanted to persist on the CC problems was significantly correlated with coping responses that included planning, positive reinterpretation, instrumental support, and effort attributions, while the number of CC problems that participants wanted to attempt was positively associated with positive reinterpretation,

effort attributions, and goal importance. Both variables had significant negative relationships with stability and ability attributions.

Goal Relevancy

The goal relevancy manipulation did not predict any outcomes other than the extent to which participants believed that good problem-solving skills were important to their life goals, $t(371) = -3.56$, $SE = .13$, $p < .000$.

Discussion

While the MTurk sample does not perfectly mimic the demographics of the U.S. population, research has demonstrated that MTurk samples are often more representative of the U.S. population than samples collected through traditional convenience sampling methods (Buhrmester et al., 2011). Therefore, the results from Study 1 may be highly generalizable to the entire U.S. population.

The current study was the first to explore the relationship between purpose, mood, coping, and persistence after failure. Contrary to my hypothesis, purpose was not associated with increased persistence on a task after failure. These results reflect a similar pattern that was observed in Di Paula and Campbell (2002), which revealed that when no alternative activity was provided, high and low self-esteem participants did not differ in persistence on the original test problems. Instead, results demonstrated that having a strong sense of purpose in life was associated with a more positive and less negative emotional state after failure. Additionally, high purpose individuals were less likely to attribute their poor performance to internal, uncontrollable, or stable factors, replicating the negative relationship between purpose and pessimistic explanatory style observed in Augusto-Landa, Pulido-Martos, & Lopez-Zafra (2011), and were more likely to express an intention to address their performance. Several of the

coping indicators that were associated with purpose were determined to have significant associations with persistence after failure.

It should be noted that the aforementioned relationships were not affected by whether participants had been given an opportunity prior to failing to reflect on how the skills assessed by the test were important to their lifelong goals, replicating the findings of Kreibig, Gendolla, and Scherer (2012) that goal relevance does not influence emotional reactions to failure feedback. While the results from Study 1 lend support to my hypotheses regarding the relationship between purpose, mood, and coping with failure, correlational analyses do not allow for an understanding of to what extent purpose actually predicted the mood and coping outcomes that were observed. Additionally, while Study 1 determined that purpose had no relationship with persistence on a task that one has just failed, it did not explore the relationship that purpose would have with persistence on alternative tasks, as previous studies of persistence after failure have done (Heine et al., 2001; Nussbaum & Steele, 2007; Yeager et al., 2001).

CHAPTER 4

STUDY 2

Study 2 addresses the shortcomings of Study 1 by first establishing whether any causal relationships exists between purpose, mood, coping, and persistence. Based on the findings of Study 1, it was hypothesized that writing about one's purpose in life prior to failing would predict more positive mood and successful coping than writing about a control topic. Second, Study 2 explores the relationship that purpose has with persistence on test problems after failure when an alternative activity is also made available. Recent research has demonstrated that writing about one's purpose predicts greater self-regulation on tasks despite the presence of a

distracting alternative task (Yeager et al., 2014). Since Study 1 found that purpose was unrelated to persistence on a failed task, it was instead predicted that writing about one's purpose would be predictive of reduced time spent on an alternative activity after failure.

Methods

Participants

Participants were 75 college students attending a selective university in the United States. They were recruited via a psychology experiment sign-up system and offered one extra credit point as compensation for completing the study.

Some participants did not provide data on some measures, so degrees of freedom varied across analyses. Additionally, 18 participants were excluded from analyses because of errors in experimentation, leaving a final sample of 57 students. This sample was 72% female and the mean age was 19.88 years old ($SD = 1.24$) with a range from 18-22 years old. Additionally, about 56% of our sample was White, with 10.5% Black, 33% Asian, and 12% Hispanic/Latino. 10.5% of participants reported their parents' combined annual income as being less than \$60,000 per year, while 66% reported a family income over \$100,000. The average GPA reported was $M = 3.37$ units ($SD = 0.40$) with a range from 2.5 to 4.0 units.

Procedure

The survey used in this study was created in Qualtrics Research Suite. Participants came into the lab individually and were run through the survey by one of seven experimenters. At the end of the survey, participants were debriefed on the true purpose of the study and assured that their performance on the test was not a fair measure of their true abilities. Data was later analyzed in IBM SPSS.

Measures

Independent variables. Prior to the failure manipulation, participants completed the same grit ($D=0.75$) and mindset ($D=0.91$) measures from Study 1, in addition to the following measures:

Self-Esteem. This 10-item scale assessed the extent to which an individual generally holds positive and negative beliefs about themselves (Rosenberg, 1965). Sample items include “I certainly feel useless at times” and “I feel that I have a number of good qualities.” Participants were asked to indicate the extent to which they agreed or disagreed with each item on a 7-point fully labeled scale (from 1=*Strongly Disagree* to 7=*Strongly Agree*). Self-esteem scores were calculated by taking the sum of their responses to the ten items (some items were reverse-scored), with higher scores indicating higher global self-worth ($D=0.91$).

Purpose Manipulation. The salience of one’s sense of purpose in life was manipulated by randomly assigning half of participants to write about their purpose in life, while the other half wrote about a control topic.

Dependent variables. After being exposed to the failure manipulation, participants completed the same mood (positive affect: $D=0.89$; negative affect: $D=0.84$) and coping measures from Study 1, in addition to the following measures:

State Performance Self-Esteem. This 7-item scale assessed global self-worth by examining the extent to which an individual holds positive and negative beliefs about their ability to do well in academic contexts in the moment (Rosenberg, 1965). Sample items include “I feel frustrated about my performance” and “I feel as smart as others.” Participants were asked to indicate the extent to which they agreed or disagreed with each item on a 7-point fully labeled scale (from 1=*Strongly Disagree* to 7=*Strongly Agree*). Performance self-esteem scores

were calculated by taking the sum of their responses to the ten items (some items were reverse-scored), with higher scores indicating higher state performance self-worth ($D=0.82$).

Persistence. Once participants reached the end of the survey, the experimenter acted surprised that they had finished so soon and explained that the lab had a policy against letting participants go early. As they waited for their study window to pass, participants were offered two sets of practice problems to complete: one from the Concept Connections test that they had just failed and one from a pilot study on grammar that the lab was said to be conducting. However, participants were explicitly informed that, since neither activity was part of the original study, it did not matter whether they completed either. As they worked, the experimenter discretely tracked and recorded how long they spent on either problem set using a lap timer. Experimenters were instructed to stop timing participants if they a) asked to leave early for any reason, b) stopped persisting on either activity for more than 90 seconds, or c) persisted on both activities for a total of 10 minutes. At this point, participants completed a deception check and were debriefed by the experimenter.

Failure Induction. Participants were induced to experience failure in the same manner similar to the one used in Study 1, except this time participants were given 12 Concept Connections (remote associates) problems to complete with pen and paper so that the experimenter could grade their test in front of them. Again, examining a fictitious distribution of test scores achieved by previous test takers, the majority of participants learned that they had performed significantly worse on the test than their peers. To solidify the poor performance in their minds, participants were then asked to write their score at the top of the test sheet and place it inside a manila envelope that contained forged tests from students who had earned scores ranging from 7 to 11 on the test.

Results

Correlations and Primary Predictions

Writing about purpose significantly predicted greater positive mood, $b = .31$, $t(56) = 2.36$, $p = .02$, and less negative mood, $b = -.28$, $t(56) = -2.19$, $p = .03$, after failure. Additionally, writing about purpose significantly predicted greater performance self-esteem after failure, $b = .28$, $t(52) = 2.14$, $p < .04$. No other relationship was observed between writing condition and the coping variables assessed.

Writing about purpose was again not predictive of persistence on test problems after failure and, contrary to expectations, it was also not predictive of the amount of time participants spent on the alternative grammar activity after failure. Instead, persistence on the test problems after failure had marginal negative associations with behavioral disengagement, $r = -.27$, $p = .06$, and significant positive associations with positive mood, $r = .31$, $p = .02$. Time spent on the alternative grammar activity was negatively associated with income, $r = -.36$, $p < 0.01$, positive mood, $r = -.35$, $p = .01$, and global self-esteem, $r(53) = -.29$, $p = 0.03$. Mindset and grit did not predict either persistence variable, nor did writing condition did not moderate any of the relationships between these outcome variables.

Discussion

Study 2 was helpful in demonstrating the casual effect that purpose has on reactions to failure. Specifically, writing about purpose was shown to predict greater performance-related self-esteem after failure. Additionally, Study 2 demonstrated that writing about one's purpose prior to failing was predictive of enhanced positive mood and reduced negative mood, providing causal evidence for the correlational effects that were observed in Study 1. Study 2 replicated the findings of Study 1 by demonstrating that purpose has no relationship

with persistence on a failed task; however, Study 2 also demonstrated that purpose does not predict the amount of time spent on the alternative activity after failure.

CHAPTER 5

GENERAL DISCUSSION

Failure is an unavoidable experience that negatively impacts individuals' thoughts, emotions, and behaviors. The present research found evidence to suggest that having purpose in life is beneficial for minimizing the negative impact of failure on thoughts and emotions, but not on behaviors. Study 1 demonstrated that having a stronger sense of purpose in life was associated with greater positive mood and less negative mood after failure, as well as coping responses that minimized attributions of failure to internal and stable causes and supported a desire to improve performance. Study 2 provided causal evidence for some of the relationships observed in Study 1 by showing that, relative to writing about a control topic, writing about one's purpose in life was predictive of greater positive mood, less negative mood, and enhanced performance self-esteem after failure. However, across both studies it was demonstrated that purpose in life was not related to persistence on an activity that one had just failed, and Study 2 showed that it was also unrelated to the amount of time spent on an alternative activity after failure.

Contributions to Literature

This study was the first to empirically examine whether purpose could successfully influence emotional, cognitive, and behavioral responses to failure, thus bridging the gap in the literature on purpose, coping with failure, and persistence after failure.

Whereas previous research has identified purpose as a regulator of time spent on boring tasks even in the presence of a more fun, unrelated activity (Yeager et al., 2014), the present

research could not find evidence that purpose also regulates time spent on failed tasks, regardless of whether an unrelated alternative activity was made available or not. Therefore, the present research also could not find evidence to support the McKnight and Kashdan (2009) theory that purpose fosters efficient allocation of personal resources (such as time) to given tasks, at least not in the face of failure.

The present research extends previous findings that purpose promotes faster emotional recovery and reduces negative mood after negative experiences (Schaefer et al, 2014; Burrow, Sumner, & Ong, 2014), by demonstrating that purpose enhances indicators of positive emotion and reduces those of negative emotion after the negative experience of failing a test.

Additionally, whereas much of research on purpose and coping with stressors has focused on the relationship between purpose and mental health in response to stressors related to morbidity and mortality (aging, Nygren et al, 2005; injury, Smith & Zautra, 2004; violence, Durant, Getts, Cadenhead, Emans, and Wood, 1995; and death, Stevens, Pfof, & Wessels, 1987), the present research makes a unique contribution to this literature by demonstrates the significant relationship between purpose and mental health in response to the negative psychological consequences of failure. Specifically, whereas failure has been shown to decrease performance self-esteem (Heatherton & Polivy, 1991), the present research revealed that purpose in life promotes greater confidence in one's performance abilities despite failure.

Limitations and Future Directions

However, despite these contributions to the current literature, there are limitations in the present research that need to be addressed. For one, this investigation failed to replicate previous research that revealed concepts like mindset and global self-esteem as reliable predictors of persistence on tasks after failure (Hong, Chiu, Dweck, Lin, and Wan, 1999; DiPaula &

Campbell, 2002). This failure to replicate could be due to the sample sizes in the present research that were quite small relative to both the populations that they were trying to represent and the studies they were trying to mimic. Since small sample sizes reduce statistical power and prevent the observation of weaker yet significant relationships that exist between variables, any iterations of this research should use samples that are at least twice as large as those used in the present research.

Secondly, an improvement could be made in the way which persistence was measured in both studies. In Study 1, participants did not complete the actual persistence activity due to concerns about reduced participation rates for lengthy online studies (Buhrmester et al., 2011) and the limitations of the Qualtrics interface. As a result, Study 1 persistence was assessed through self-reports, which could have differed a lot from a more objective measure of persistence. Study 2 sought to address this issue by discreetly timing participants' persistence in the laboratory. However, the total length of the study restricted the duration of the persistence session. Approximately 66% of participants worked for the full 10 minutes on either task before they were told to stop, so we do not know how long they would have continued before finally giving up like the other 34% of participants. Additionally, despite the experimenter stating that the persistence activity was not a part of the original study, many participants expressed doubt about this statement at the end of the study. It is possible that the variability that was observed in persistence could be explained in part by social desirability bias, or the extent to which participants believed that persistence on either task was desired by the experimenter, who sat in the room as they worked due to the restraints in the laboratory space. Since no measures of social desirability bias were included in the present research, it is unknown to what extent this phenomenon influenced participant's responses.

Lastly, this study demonstrated the effect of writing about purpose on immediate responses to failure; however, it is still unknown how far into the future these effects last. One solution to all of these problems would be a) to carry out a longitudinal version of this research on a large sample in a more naturalistic setting, such as a school study hall, where time would be less restricted, b) to use software that could assess persistence after failure more objectively without suspicion of it being an expected behavior, and c) to assess whether participants who wrote about their purpose would differ from those who wrote about a control topic in future responses to failure.

CHAPTER 6

CONCLUSION

A recent Civic Enterprises report conducted on behalf of the Bill and Melinda Gates Foundation (as cited in Azzam, 2007) revealed that 35% of youth who drop out of school report doing so because they were repeatedly failing their classes and 38% reported not having enough direction and order in their daily lives. Having a sense of purpose in life is just as important to one's chances at graduating as doing well in classes. The present research was the first to demonstrate purpose a promoter of positive mood and coping thoughts after experiences of failure. Future research should explore whether purpose development can serve as an effective tool for reducing dropout rates among high school youth by means of improving their mental health and responses to failure.

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Table 1. Bivariate Correlations Among Baseline Measures in Study 1.

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. LET	-											
2. Ryff Purpose	.74**	-										
3. Self-Transcendent Motives	.50**	.43**	-									
4. Intrinsic Motives	.47**	.52**	.60**	-								
5. Extrinsic Motives	.31**	.20**	.46**	.35**	-							
6. Grit	.54**	.61**	.28**	.31**	.14**	-						
7. Mindset	.21**	.19**	.18**	.14**	.01	.13*	-					
8. Extraversion	.30**	.30**	.29**	.25**	.23**	.27**	0.06	-				
9. Agreeableness	.32**	.25**	.45**	.22**	.08	.22**	.17**	.24**	-			
10. Conscientiousness	.42**	.47**	.26**	.30**	.22**	.57**	.12*	.13*	.15**	-		
11. Neuroticism	-.44**	-.48**	-.26**	-.23**	-.10**	-.47**	-.12*	-.19**	-.20**	-.35**	-	
12. Imagination	.22**	.22**	.18**	.32**	-.08	.18**	.15**	.14**	.27**	0.55	-.09	-

Notes: * $p < .05$., ** $p < .01$.

Table 2. Bivariate Correlations Between Purpose, Writing Condition, and Outcome Variables in Study 1.

Variable	LET	Ryff	Writing Condition
1. Positive Affect	.35**	.26**	.01
2. Negative Affect	-.19**	-.26**	-.02
3. Mental Disengagement	-.02	-.08	-.05
4. Planning	.15**	.09	-.02
5. Instrumental Support	.12*	.16**	-.00
6. Positive Interpretation	.21**	.19**	-.06
7. Active Coping	.11*	.10	-.03
8. Behavioral Disengagement	-.16**	-.13*	.06
9. Controllability	.11*	.14*	-.01
10. Stability	-.18**	-.14	-.01
11. Ability Attribution	-.30**	-.26**	-.06
12. Effort Attribution	.29**	.24**	-.04
13. Goal Importance	.32**	.35**	.18**
14. Time on CC Problems	.04	-.03	.03
15. Number of CC Problems	.07	.03	-.02

Note: * $p < .05$., ** $p < .01$.