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SELF-AFFIRMATION THEORY AND THE CHANGE OF PERCEPTION OF SELF AND THREATS

ISAAC WICKER

50 Pages

In today's American culture, people experience high rates of distress and depression (Kessler et al., 2005). Self-affirmation theory has been shown to help people reduce stress and defensiveness in the face of a wide variety of stressors. A shortcoming of self-affirmation exercises is that there are barriers to using them in naturalistic settings. One such barrier is that the affirmation content needs to be regulated so that it is not closely related to the salient stressor or else the effects of the affirmation could be counteracted. The current study sought to use a prompt-guided value selection for the self-affirmation exercise in order to bypass the need for researcher intervention in the values selection process. The results of a three-way ANOVA showed that the two prompt-guided self-affirmation conditions were not significantly different that the control condition for any of the measures used. Implications of these findings and suggestions for future research are discussed.

KEYWORDS: Self-affirmation; Coping; Self-perception; Academic Stressors.

SELF-AFFIRMATION THEORY AND THE CHANGE OF PERCEPTION OF SELF AND THREATS

ISAAC WICKER

A Thesis Submitted in Partial
Fulfillment of the Requirements
for the Degree of

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SELF-AFFIRMATION THEORY AND THE CHANGE OF PERCEPTION OF SELF AND THREATS

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I.W.

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CHAPTER I: INTRODUCTION

Self-Affirmation Theory and the Change of Perception of Self and Threats

People in contemporary society exhibit high rates of mental distress and depression (Kessler et al., 2005). One reason for these trends may be that people face innumerable threats to their identity (i.e., self-threats) every day from personal failures to subtle information that suggests they might not be good, moral, or adequate (Cohen & Sherman, 2014; Sherman & Cohen, 2006). Importantly, self-threats can activate the stress system (Sherman, 2013) which, although adaptive in isolated cases of imminent physical threat, can often lead to problematic outcomes when threats are persistent. To cope with the stress brought on by a self-threat, the individual must use cognitive resources that could otherwise be used for improving performance and problem-solving behaviors; compromised performance and problem-solving behaviors caused by stress coping can itself further disrupt performance and elicit additional threats, thus creating a negative cycle (Cohen & Sherman, 2014). Therefore, a negative cycle of self-threats can lead to prolonged stress, which in turn can contribute to or cause a number of physical and psychological problems including heart disease, diabetes, depression, and anxiety (Creswell et al., 2005).

Self-affirmation theory (Sherman & Cohen, 2006) may offer a novel explanation for why people experience self-threats, as well as a novel means for reducing the negative long-term impact of those threats. The theory proposes that people experience self-threats when their global self-integrity, or the sense of oneself as being good, moral, or adequate, is challenged. According to self-affirmation theory, not all coping strategies may be equally effective. Defensive strategies, such as avoiding or denigrating negative self-relevant information, may restore global self-integrity in the short-term, but may also have negative long-term consequences, such as

missing opportunities to improve or grow (Cohen & Sherman, 2014). For example, a student may feel threatened by a bad grade on an exam because the student believes that the grade reflects negatively on the student as a whole. The student may not just conclude "I am a bad student" but "I am a bad person". Blaming the teacher for the grade may reduce the student's belief "I am a bad person", but it could also reduce the belief "I am a bad student". By reducing the belief that the student is a bad student, the student will be less likely to take corrective action such as studying harder for the subsequent exam. In the short-term, the student resolved the internal conflict raised by the bad grade, but in the long-term, the student missed an opportunity for growth. Self-affirmation theory suggests that reflecting on unthreatened aspects of a person's identity (i.e., not one's academic achievement, but one's success in another domain) can both restore global self-integrity and open the person to opportunities to grow (Sherman & Cohen, 2006).

Critcher and Dunning (2015) propose that self-affirmations are effective at both restoring global self-integrity and opening the individual to long-term growth because they broaden the individual's perspective beyond the immediate threat. By introducing a highly positive, yet unrelated life domain into the individual's awareness, self-affirmations can balance the negative self-perceptions that can accompany self-threats. Reflecting on a positive life domain thus restores the individual's global self-integrity without having to distort or reject the threatening information presented in the self-threatening situation. With global self-integrity intact, the individual is able to more openly process the implications of the information presented in the threatening situation. For example, before receiving the bad grade on the exam, the student may first be asked to reflect on the student's friends and family, a highly important and positive topic for this student. With family and friends in mind, the individual will have a clear evidence that

the individual as a whole is not “a bad person”, therefore the individual will be less likely to make the global conclusion “I am a bad person” based on the bad test score. However, the student will still be open to the domain-specific conclusion “I am a bad student”, and if being a good student is important to this student, the student will be motivated to make a personal change to improve. The present study sought to further support and clarify the proposal by Critcher and Dunning (2015) that self-affirmations broaden perspective.

The benefits of self-affirmation range from stress reduction, to increased self-control, to increased prosociality (Howell, 2016); however, much translational work needs to be accomplished to make self-affirmations available as self-administered coping tools. This work is important because many times stressors are unpredictable and can come from many different life domains. One way to make self-affirmation interventions as flexible as the stressors that people face is to teach people how to self-affirm outside of laboratory conditions. One major obstacle to making self-affirmations available as daily coping tools is that interventions are generally tailored for each specific threat. This tailoring is done because if an individual reflects on a value that is closely related to the original stressor, the intervention can become ineffective and can actually increase defensiveness (Blanton, Cooper, & Aronson, 1997). If each intervention needs to be tailored for each stressor, it is unrealistic to think of using self-affirmation interventions in everyday life.

Therefore, this study sought to begin addressing this concern by taking a different approach. Rather than limiting the values available so that the participant cannot reflect on a threat-related value, this study tested the effectiveness of prompt-wording to guide the participant either away from or towards choosing stressor-related values to reflect on. A prompt that guides individuals away from choosing a stressor-related value would more likely allow for

individuals to use their chosen values to compensate for the value threatened by the stressor, whereas, a prompt that guides individuals towards choosing a stressor-related value may have the opposite effect. In this study, one prompt invited participants to choose the value that was most important to the participants' identities, and the other prompt invited participants to choose the value that was most important when dealing with the threat. If one prompt consistently led participants to reflect on stressor-unrelated values, then that prompt may have also led to effective self-affirmations in naturalistic settings.

CHAPTER II: REVIEW OF THE LITERATURE

Self-Threats and Stress

Chronic stress, a prolonged period in which one's perceived demands outweigh one's perceived resources to cope (Lazarus & Folkman, 1984), is linked to both physical and psychological disorders such as heart disease, diabetes, depression, and anxiety (Creswell et al. 2005). To disrupt the negative effects of chronic stress, it is important to understand how people perceive themselves and their situations in the face of stressful information and whether these perceptions can be changed to make the situation less subjectively threatening. Self-affirmation theory (Cohen & Sherman, 2014) may be well-situated to address this issue because it provides a robust theoretical framework for conceptualizing responses to threats, but also proposes a unique way of intervening to disrupt maladaptive responses to stressors. According to self-affirmation theory, even seemingly insignificant information or situations can be subjectively significant and can elicit stress if they represent a sign that the individual is somehow failing to maintain global self-integrity, or a sense of oneself as being good, moral, and adequate (Cohen & Sherman, 2014; Sherman, & Cohen, 2006). Not performing as well as expected in school or at work, admitting to being wrong in a disagreement, or receiving information that one's behavior is unhealthy can all be perceived as threats to global self-integrity. For example, getting a bad grade on a test could challenge one's beliefs that they are adequate, which threatens their overall perception of self-integrity.

Not only are the threatening situations themselves challenging, but additionally the stress and the subsequent coping brought on by the threats can also hinder one's ability to perform a task or process information. For example, women who have been primed with the stereotypical belief that they are worse at math than men often do perform worse than men on a math exam.

However, if they have not been primed with this belief, they perform at a similar level to men on the exam (Martens, Johns, Greenberg, & Schimel, 2006). The women who are trying to both deal with the threatening stereotypical information and trying to complete the exam do worse than the women who are fully concentrated on completing the exam. This happens because both stress and coping use considerable amounts of cognitive and physical resources that could otherwise be marshalled to help solve the challenge at hand. Imagine the stereotype as an alarm bell going off while the women are trying to take their exam. Their focus is split between trying to effectively cope with the alarm and successfully complete their exam. Furthermore, the worse performance resulting from simultaneously trying to cope and trying to complete a challenging task could itself become threatening feedback, thus creating a negative cycle of threat, stress, and poorer performance. To interrupt this negative cycle, it is important to understand why people feel threatened and what can be done to alleviate the sense of threat.

Self-Affirmation Theory and Threat-Responses

Self-affirmation theory (Cohen & Sherman, 2014) proposes that people are motivated to maintain *global* self-integrity (a view of themselves as being good, moral, and adequate as a whole) rather than domain-specific self-integrity (a view of themselves as being good, moral, and adequate within a specific life domain). This view implies that people perceive information as a self-threat, or a threat to one's identity rather than to one's physical safety, when it conveys that the individual as a whole is not good, moral, and adequate. According to self-affirmation theory, there are three ways that people tend to respond to self-threats: accommodation, defensive responding, and self-affirmations (Sherman & Cohen, 2006). Accommodation means that the individual accepts the implications of the threat and uses that information to change both behaviorally and attitudinally. While this form of change opens the individual to opportunities

for long-term change, it does little to protect the individual's global self-integrity against the threat. Instead of accommodating the information, people often opt for preserving their global self-integrity over pursuing long-term growth (Crocker, Niiya, & Mischkowski, 2008); they most often do this through defensive responding. Defensive responding refers to changing the threatening nature of the situation by directly reconstruing the meaning of the information involved in the situation. This can be done by distorting, undermining, or minimizing the information itself, or by seeking to discredit the source of the information.

For example, imagine a father who is a smoker hearing the message that secondhand smoke is bad for his children. Accommodation would entail the father accepting the information that he has been endangering his children which would open him up to change his behavior in the future. Accepting that information could be a "heavy blow" to the father's global self-integrity. If he admits that the information about secondhand smoke is correct, then he has to also admit that he has been harming his children, which would be a sign that he is failing at being a good, moral, and adequate person. Defensive responding would allow him to maintain his global self-integrity by directly disputing the threatening information. The father may dismiss the information as illegitimate saying that many of his friends grew up around smokers and they turned out fine. By convincing himself that the information is illegitimate, the father does not have to admit that his behavior is morally problematic, which means that he is unlikely to change his behavior in the future and thus will continue to put his children at risk.

Strategies of accommodation and defensive responding both have trade-offs. Accommodation provides an opportunity to incorporate threatening information for long-term change at the cost of global self-integrity, and defensive responding provides an opportunity to maintain or restore a sense of global self-integrity at the cost of long-term growth. Self-

affirmation, however, offers a way to both maintain or restore global self-integrity while opening the individual to the long-term growth gained by incorporating the threatening information.

Self-affirming is a process in which individuals reflect on a positive and important aspect of their identity that is unrelated to the threatening situation. For example, a student who feels threatened by an upcoming exam may reflect on his close connection with his family or his natural ability at sports. Self-affirmation bolsters the self in a domain unrelated to the threat (family, sports) to restore the individual's global self-integrity from the potential damage caused by the threatening situation. It is important to keep in mind here that people are motivated to maintain global self-integrity and not domain-specific self-integrity. Therefore, when global self-integrity is bolstered by reflecting on an unrelated domain, the threatening situation is perceived as less of a threat to the self. Even though the threatening situation remains the same, it is subjectively experienced as less personally threatening. Because the situation is experienced as less threatening, the individual is less likely to use defensive responding in the threatening situation and is more likely to be open to accommodating the information.

Continuing with our example of the father, a self-affirming strategy would be to have the father first reflect on an unrelated, yet positive and important aspect of his life, such as his strong faith in God, before presenting him with the information about the negative effects of secondhand smoke. With his faith in mind, the father would be aware of an aspect of himself that is good, moral, and adequate—which would counterbalance the negative information about his smoking behavior. This indirect approach allows the father to evaluate himself in a more positive light without minimizing or distorting the threatening information. This shift in self-perception would relieve the pressure to protect his global self-integrity against the threat and would leave him more open to take seriously and accommodate the negative message about his smoking.

With self-affirmation as the goal, it is important to understand how self-affirmations are elicited from individuals experiencing self-threats.

Values in Self-Affirmation Interventions

Experimental manipulations to elicit self-affirmation take many forms, but one of the most common is values-affirmation, which includes reflecting on an important personal value, which usually involves rank-ordering values and then writing about the top ranked values (McQueen & Klein, 2006). It would therefore be helpful to understand what values are and the relationships between values so self-affirmation interventions could select values that are not conceptually related to threatened domains of identity.

Values—trans-situational goals that both motivate action and serve as standards for evaluation (Schwartz, 1992)—are reflected upon because they are positive, highly relevant to one's identity (Maio, 2017), and help justify global self-integrity (Rokeach, 1973; Sherman & Cohen, 2007). As shown in Figure 1, empirical data from Schwartz and colleagues suggests that there is a set of "universal" values that relate to each other in a circumplex structure (Maio, 2017; Schwartz, 1992; Schwartz et al., 2012). Within this structure, the values that are nearest to one another are those that are most motivationally similar, whereas those that are on opposite sides of the circle, are motivationally opposed. The values relate in such a way that when one value is made salient and important, the values near it would also become more salient and important, whereas those values on the opposing side of the circle would be dampened in salience and importance. Schwartz value theory (1992) also proposes that the values are organized into four higher order categories: self-enhancement, self-transcendence, conservation, and openness to change. The values within the same category are motivationally similar, however, the values within categories opposite each other on the circle are motivationally opposed: self-enhancement

values oppose self-transcendent values, and conservation values oppose openness to change values.

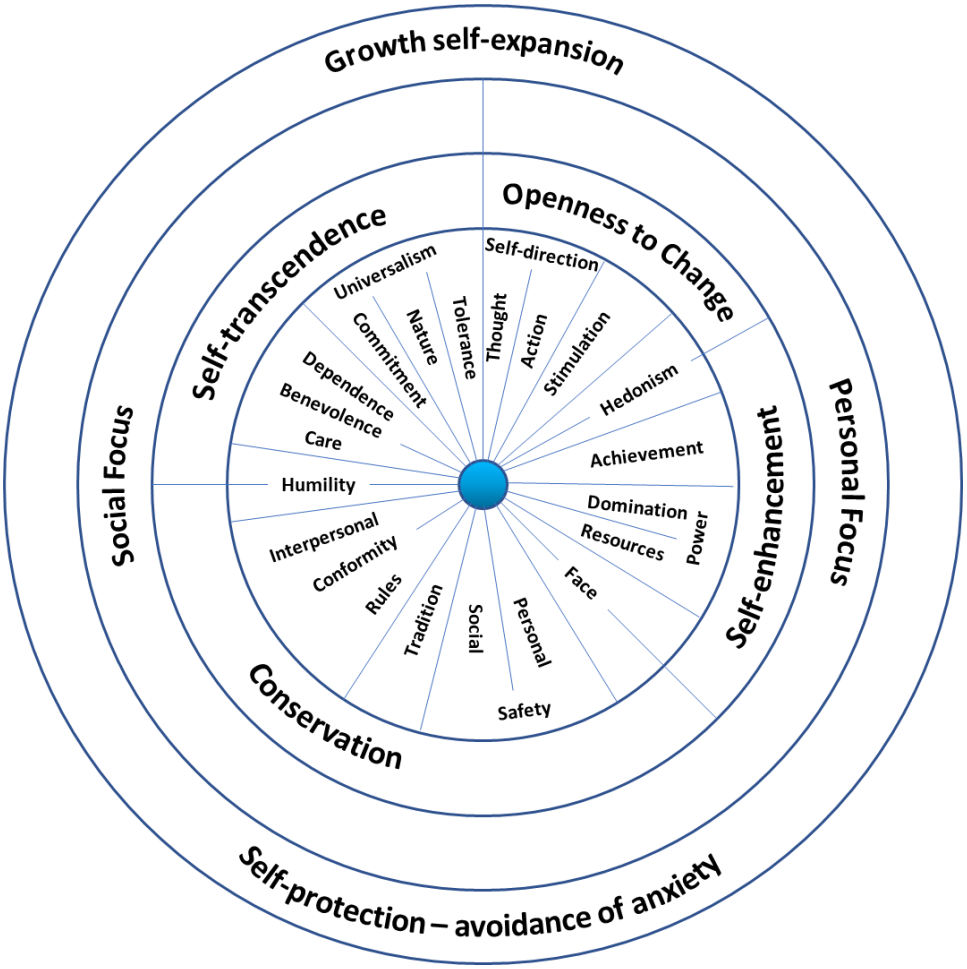

Figure 1. Schwartz Value Circumplex (cf. Schwartz, 2012).

Self-Affirmation Interventions Operate by Broadening Perspective

Self-affirmation theory (Cohen & Sherman, 2014) proposes that threats to specific domains can become tied into one's global self-concept and thus impact one's global self-integrity. Threats to one aspect of one's identity can be generalized as threats to global self-integrity by impacting our working self-concept. People's views of themselves are determined by their working self-concepts, or the information about themselves that is currently prevalent in

working memory (Markus & Wurf, 1987). The breadth of self-relevant information available to a person fluctuates based on the individual's circumstances and current mood state (Koole, Smeets, van Knippenberg, & Dijksterhuis, 1999). People experiencing high-intensity moods - either positive or negative - tend to narrow their perspectives, while low-intensity mood states tend to broaden their perspectives (Gable & Harmon-Jones, 2010). When a person is faced with self-threatening information, this generally leads to a state of high, negative, emotional intensity which focuses the individual's attention and narrows the individual's self-concept to the threatening situation. As the individual's working self-concept becomes increasingly defined by the threatening situation, the individual can believe in the moment that the self-relevant information in the situation is a definition of who they are as a whole person. In short, the situation-specific information can be used to define an individual's global self-concept and thus, their global self-integrity. Although people are motivated to protect their global self-integrity (Sherman, 2013), a negative, emotionally intense situation can create the illusion that one's global self-integrity is threatened, thus motivating people to defend their global self-integrity within the domain-specific situation.

Critcher and Dunning (2015) propose that self-affirmations are effective at reducing subjective threat because they decouple the domain-specific threat from one's global self-integrity by expanding one's perspective beyond the threat. For example, a lower-than-expected grade on an exam may spur not just the domain-specific conclusion "I am a bad student", but it may also spur a more global conclusion "I am a bad person". Introducing a positive, important domain unrelated to academics will provide evidence that counters the global conclusion "I am a bad person" without altering the domain-specific conclusion "I am a bad student". Critcher and Dunning (2015) argue that self-affirmations are effective because they broaden the individual's

perspective beyond the threatening situation. Broadening perspective helps the individual expand their working self-concept to include self-relevant information outside that present in the threatening situation. While the threatening information may still be a salient part of the global self-concept, it is less of a defining factor (see Figure 2).

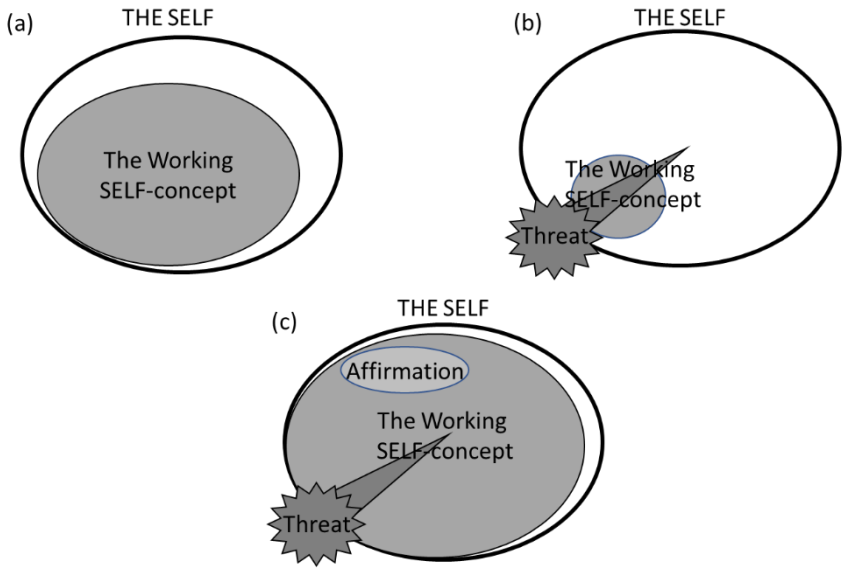

Figure 2. How threats and affirmations affect the self-concept. Based on Figure 2 in Critcher and Dunning (2015).

Critcher and Dunning (2015) tested the hypothesis that self-affirmations broaden perspective using three separate studies. In their first study, participants completed a dispositional self-esteem measure modified by Rosenberg (1965) at least 24 hours before coming into the lab. When in lab, participants in the self-affirmation condition ranked a list of eight values and wrote about them. All participants then completed a challenging test purported to be a measure of creative thinking and future career success, after which the participants all completed a measure of current feelings of self-worth. They found that those in the self-affirmation condition had greater correspondence between current self-worth and dispositional self-worth

whereas the self-worth of those in the control condition seemed based more on the threatening self-assessment. These findings suggest that a change in the working self-concept took place which influenced the participant's perception of self-worth. The working self-concept of those in the control condition appears to have been narrowed to be more heavily influenced by the self-relevant information from the threatening self-assessment. The self-concept of those in the self-affirmation condition, however, appear to be expanded to align more with the participants' non-threatened sense of self-worth.

In their second study, Critcher and Dunning (2015) found that participants in the self-affirmation condition again rank-ordered values and wrote about their top ranked value, whereas those in the control condition rated jelly bean flavors and candle scents. Next, all participants were given the same positive and negative feedback which they believed to be based on an inventory, the DIBE, they had taken earlier. Defensiveness was measured by how much time the participants spent looking at the negative feedback compared to the positive feedback with less time indicating higher defensiveness. They also assessed perspective and trivialization using two Likert scaled questions. Perspective was measured using the question, "if one received negative feedback on the DIBE, are these behaviors specific enough that other aspects of a person could overcome these limitations?". Trivialization was measured with the question, "How important are the domains covered by the DIBE?" They found that affirmed participants showed less defensiveness and had greater perspective than the control condition and that affirmed participants were not more likely to trivialize the threat. Not only did the self-affirmation condition have greater perspective than the control condition, but the increased perspective also fully mediated the impact of the self-affirmation on reducing defensiveness.

The third study by Critcher and Dunning (2015) more explicitly tested the role of perspective in self-affirmation. In preparation, the researchers first identified four important elements inherent in the common affirmation writing activity: affirmations (1) offer perspective on threat, (2) prompt people to spend time writing about a valuable identity, (3) selectively focus people on a highly valued, positive domain, and (4) encourage people to search for meaning and worth in positive identities. They then designed a perspective exercise that only offers perspective on the threat without doing the other three affirmation processes. Critcher and Dunning (2015) did this by having participants fill in a self-identity pie-chart which included the participants' college major, their 1st ranked value, and their 8th ranked value. The participants would adjust the size of the pie to correspond with the importance of that topic in their lives.

During the study, threat was induced at the beginning by having participants recall a time when their academic performance did not live up to their standards. Then those in the self-affirmation condition wrote about their number one ranked value and those in the control condition wrote about their number eight ranked value. All participants next completed both the perspective exercise developed for this study and the defensive measure, but they varied in which order they completed them. For some, the perspective exercise was completed before the defensive measure so that it could influence defensiveness, and for others the perspective exercise came afterwards so that it could not influence defensiveness. Critcher and Dunning (2015) found that the perspective activity, the affirmation activity, and the perspective and affirmation activity all reduced defensiveness to the same degree. These results indicate that increasing the perspective of the participants was not only just as effective as the standard affirmation activity, but also that the standard affirmation activity did not add any benefit when

paired with the perspective exercise. These results, coupled with their mediation results from Study 2, suggest that perspective is the active ingredient in self-affirmation activities.

The findings from Critcher and Dunning (2015) suggest not only that self-affirmations expand an individual's perspective beyond the threat, but also that the shift in perspective is what makes the self-affirmations effective at reducing defensiveness. If their hypothesis is correct, then self-affirmations should be effective to the degree to which they broaden perspective beyond the threat. The present study seeks to both further support the proposal by Critcher and Dunning (2015) that self-affirmations change the perspective of the individuals and to clarify which element of perspective is changed: perspective on the threat, perspective on the self, or perspective on the relationship between the self and the stressor.

Important Considerations for Experimental Manipulations of Self-Affirmation

Most self-affirmation experiments share in common a paradigm marked by four criteria (Cohen & Sherman, 2014): (1) the person must be under threat which is self-relevant, (2) the affirmation must be done before another defensive response has occurred, (3) the content of the affirmation must be highly important and positive, and (4) the content of the affirmation must be unrelated to the threat.

Self-affirmation interventions are effective at reducing the negative effects of threat, however, they do not provide the individual with any special abilities beyond what they already possess. Thus, for the affirmation to have an effect, the individual has to experience some level of psychological threat. This means that for a self-affirmation intervention to have an effect, the individual must feel personally invested in the threatening situation. Sherman et al. (2009) found that after taking a threatening math exam, self-affirmed participants did better than non-affirmed participants on a subsequent, easier math exam, however, these condition differences only

appeared for those who highly identified with math. Those who did not highly identify with math presumably did not feel threatened by the first math exam, thus it did not affect their performance whether they self-affirmed or not.

If timed correctly, self-affirmations can prevent defensive responding in the face of threats, however, there is no evidence that they can undo defensive responding if it has already occurred. Self-affirmations present an alternative to defensiveness as a way of dealing with self-threats, however, self-affirmations do not undo or correct defensive responding. Although defensive responses may have negative long-term consequences by limiting information processing, they are generally effective at reducing the sense of threat. If the sense of threat is eliminated, self-affirmation (a process that works by reducing the effects of threat) will become ineffectual. This hypothesis was tested by Critcher, Dunning, and Armor (2010) in a series of studies which used a foreshadowing paradigm to induce a defensive response before the self-affirmation occurred. The foreshadowing paradigm involved informing participants before the self-affirmation exercise that defensiveness would be measured in a follow-up questionnaire. All participants completed a self-affirmation exercise, however, those who were in the foreshadowing condition were significantly more defensive than those in the standard, no-foreshadowing condition.

For self-affirmations to be effective, not only does the timing need to take place before defensive responding occurs, but the content of the self-affirmation must also represent a significant part of the participant's life. In fact, the differentiating factor between the control condition and the self-affirmation condition is usually just a matter of the ranked importance of the value used (McQueen & Klein, 2006); top ranked values are used for self-affirmations and middle or bottom ranked values are used for the control condition. For example, in the study by

Creswell et al. (2005) those in the self-affirmation condition wrote about their number one ranked value whereas those in the control condition wrote about their number five ranked value. Although both groups of participants wrote about values, those in the self-affirmation condition had significantly lower cortisol levels in response to a stress task than those in the control condition.

Finally, no matter how important and positive the self-affirmation topic is, it may be ineffective or even counterproductive if the affirmation is performed in the same values domain as the threat. For example, if you have participants reflect on all the ways that health is an important and positive aspect of their lives, and then confront them about their negative health behavior of smoking, they may be even more defensive. By highlighting the importance of the life domain being threatened, the threat can actually be perceived and reacted to as more threatening rather than less threatening. Blanton, et al. (1997) demonstrated the importance of domain irrelevant affirmations using a cognitive dissonance paradigm. After writing a counter-attitudinal essay about cutting funding for handicapped students at the university, participants were given non-threat domain feedback about their creativity or threat domain feedback about compassion. Those who affirmed with non-threat domain feedback (creativity) showed significantly lower defensive attitude change to match their stance in the counter-attitudinal essay, whereas those who were affirmed using threat domain feedback (compassion) showed a higher degree of defensive attitude change. For this reason, many values-affirmation researchers selectively remove value options from their study design that are too conceptually related to the threatening stimulus.

Schwartz's values circumplex may help predict which values would be effective for specific self-affirmation strategies. The same value used for a self-affirmation manipulation

could effectively reduce defensiveness for one type of threat, but exacerbate defensiveness for another type. For example, reflecting on the value of achievement might reduce defensiveness for a person who's sense of moral adequacy is threatened (i.e., "I may not be good, but at least I'm successful"), but reflecting on achievement may not be effective for a person who's sense of competence is threatened because the value is too close to the threatened domain (e.g., "I may not be competent, but at least I'm successful."). Indeed, "I may not be competent, but at least I am successful" appears to be an incoherent sentence, and unlike to be an effective compensation strategy. This study seeks to guide the selection of values not by removing values that are conceptually related to the threat but by wording the prompt in a way that either promotes threat-related or threat-unrelated value selection.

Self-Affirmations as a Self-Administered Coping Tool

Applying principles of self-affirmation theory to address stress in naturalistic settings requires additional research. While these four conditions of threat to self-relevance, timing, highly important and positive affirmation content, and threat-unrelated affirmation content, can be easily controlled under tightly managed laboratory conditions involving planned stressors, it is less clear how well naturalistic settings can meet these conditions. An important question for translating principles of self-affirmation theory into practical interventions is how to time interventions so that they occur when they will have the most positive impact (Cohen & Sherman, 2014). Timing is difficult because self-affirmation interventions are usually performed under closely controlled conditions for one specific threat, whereas in life, threats can be unpredictable, be reoccurring, and come from a variety of sources.

One way to make self-affirmation interventions flexible enough to match the demands of life's threats is to teach people how to use the intervention on their own as a deliberate coping

tool. However, an obstacle relates to one's awareness of the self-affirmation activity itself. Sherman et al. (2009) suggest that the greater awareness a participant has of the purpose of the self-affirmation, the less effective it is. In fact, when participants were explicitly told that the self-affirmation was meant to lower their defensiveness, the self-affirmation intervention effects were eliminated. In contrast, other research (Silverman, Logel, & Cohen, 2012) indicated that if people are made aware of the effects of self-affirmations and given the choice about whether or not to do the affirmation, the results are similar to participants who did the self-affirmation unaware of its effects. This suggests that people can be educated about self-affirmation interventions and then make the choice to use them effectively in their lives.

Another obstacle to self-administered self-affirmation interventions is that each intervention needs to be tailored so that the value the individual reflects on is not in the same value-domain as the threat as this may exacerbate the defensive response rather than allaying it. If each intervention needs to be tailored for each threat, it would be extremely tedious for individuals to spontaneously use self-affirmation interventions in their own lives. This study sought to address this latter obstacle by directing participant's value prioritization not by tailoring what values are ranked, but how the values are ranked. This study used two different prompts with different prioritization criteria that guided how the values should be ranked. One prompt specifically instructed the participants to rank values based on their relation to an academic stressor, whereas, the other prompt specifically instructed participants to rank values based on their relation to the participants' identities. The aim of doing this was to find a prompt that would be effective at directing value prioritization across a diverse set of threats and thus eliminate the need to tailor the values options for the specific situation. This study represented an

important step in testing the utility of self-affirmation interventions as self-administered coping tools.

The Present Study

The aim of this present study was to confirm and clarify the conclusions reached by Critcher and Dunning (2015) that self-affirmations lead individuals to see a broader view of their life and thus to see the threat as playing a comparatively smaller part in that life. In other words, instead of the threat being the main element in a person's life, it is seen as just one element among others. Critcher and Dunning (2015) based their conclusion that self-affirmation broadens perspective on the similar results obtained by a standard self-affirmation exercise with a perspective broadening exercise. In this study, we sought to directly measure the effects of a values-affirmation on the participants' perspectives about (a) the perceived "size" of a threat, (b) the relative "sizes" of threat and self and (c) the perceived "size" of one's self, and (d) self-reported appraisals pertinent to the stressor, such as appraisals of threat and controllability-by-self.

The study utilized a three-group between-subjects online experimental design with random assignment to conditions. Self-affirmation manipulations were chosen to represent analogues to clinical activities that might explore important aspects of a person's identity. In the identity-value condition, participants rank-ordered values and reflected on the one that was most important to their identity; in the stressor-values condition participants rank-ordered values and reflected on the one that was most important for "dealing" with their stressor; the control condition rank-ordered foods based on how frequently they eat them.

Hypothesis

It was hypothesized that the identity-value condition participants would perceive the "size" of the threat as smaller, the "size" of one's self as bigger, and the relative "size" of the self as bigger than the relative "size" of the threat compared to both the stressor-values condition participants and the control condition participants. It was hypothesized that the identity-value condition participants would also rate the threat as less threatening and more controllable by self on the Stress Appraisal Measure (SAM) subscales Controllable-by-self and Threat compared to both the stressor-values condition participants and the control condition participants.

I predicted the above hypotheses would happen because doing a self-affirmation activity, according to Critcher and Dunning (2015), broadens one's perspective of oneself beyond that of the threat. This implies that the threat takes up a smaller proportion of one's self-concept thus creating a dynamic in which the relative "size" of the self is perceived as bigger compared to the relative "size" of the threat. This relative size difference can be accounted for either by a change in the perception of oneself or by a change in the perception of the stressor. The self can be perceived as bigger or the threat can be perceived as smaller.

Although the stressor-value condition participants also performed a self-affirmation exercise that involved reflecting on values, I predicted that the same change in perception of the size of self and threat was unlikely to occur. I predicted this because, according to Blanton, Cooper, and Aronson (1997), a self-affirmation done in the same values domain as the stressor negates the effects of the self-affirmation exercise. I predicted that the identity-values condition participants were less likely to choose values unrelated to the stressor and the stressor-value condition participants were more likely to choose values related to the stressor. Thus, it was

hyposthesized the identity-values condition participants would experience the effects of the self-affirmation while the stressor-value condition participants would not.

CHAPTER III: METHODOLOGY

Participants

Recruiting

Participants for the current study were recruited using SONA, the Psychology Online Participant System for students currently enrolled in undergraduate psychology courses interested in receiving credit for participating in the study. Participation in this study and any study through SONA was optional for all participants. No further recruitment of participants was conducted for the current study.

Participant Characteristics

A total of 550 participants signed up for the study for class credit through a department of psychology at a large midwestern university. Participants were therefore all college students seeking post-secondary degrees. Of the 550 participants, 50 were excluded because they did not fully complete the study. For each of the remaining 500 participants, qualitative analysis was completed in regards to the stressor that the participant identified as the biggest academic stressor to determine the degree to which participants followed directions: six participants wrote about interpersonal stressors, two participants wrote about financial stressors, twelve participants wrote about mental health stressors, twenty participants wrote about time management stressors, five wrote about work related stressors, nine did not clearly identify a stressor, and the remaining participants wrote about academic stressors. The nine who did not clearly identify a stressor were eliminated from further data analysis. Furthermore, 47 students were also excluded who took over eighteen minutes to complete the study indicating inattention to the study. This left 444 participant data set left in the final analyses for the study. Of the 444 participants analyzed, the mean age in years was 20.04 (SD = 2.36); with ages ranging from 18 years to 46 years in age.

When asked about their gender identity, 81.80% of the participants responded as being female, 17.10% responded as being male, 0.70% reported a self-identity, and 0.50% did not to respond to this question. When asked to identify their race, 339 (76.40%) identified as Caucasian, 44 (9.90%) identified as Hispanic/Latino, 32 (7.20%) identified as African American/Black, 16 (3.60%) identified as Asian, 10 (2.30%) identified as Multiracial, 1 (0.20%) self-identified, and 2 (0.40%) did not to respond to this question.

Design

The study utilized a three-group between-subjects experimental design with random assignment, conducted online. There were three conditions manipulating the independent variable of type of values-affirmation used. The 137 participants randomly assigned to the *identity-value condition* were asked to reflect on what values were most important to their identity. The 158 participants randomly assigned to the *threat-value condition* were asked to reflect on what values were most important to dealing with the identified academic stressor. The 149 participants randomly assigned to the *control condition* were asked to reflect on what foods they eat most frequently.

The dependent variables were the perceived "size" of self, perceived "size" of stressor, the perceived relative "size" of the self compared to the stressor, and stress appraisal. The perceived size of self, stressor, and self relative to the stressor was measured using visual representations of the self and the stressor of ascending size (see Figures 3, 4, and 5). Stress appraisal was measured using the Stress Appraisal Measure subscales controllable-by-self and threat (SAM; Peacock, & Wong, 1990).

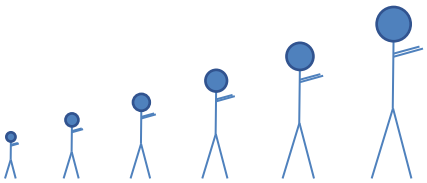

Figure 3. Perceived size of self.

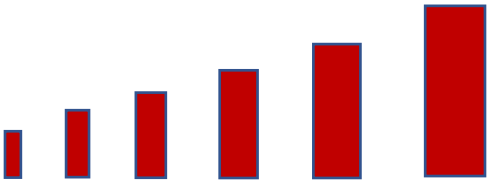

Figure 4. Perceived size of stressor.

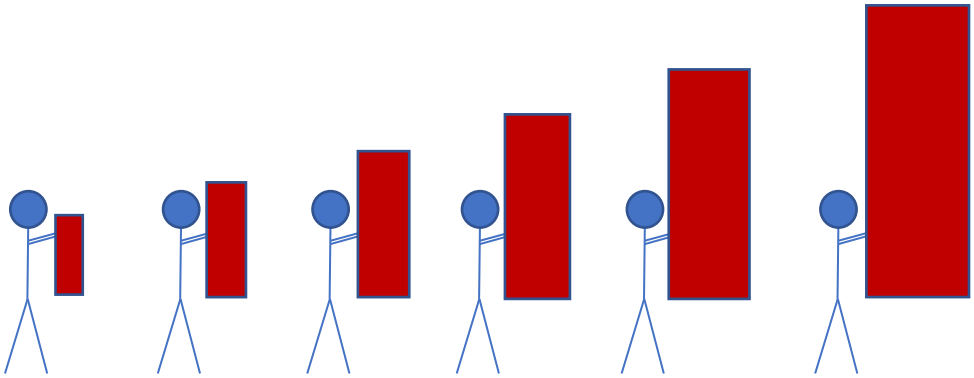

Figure 5. Perceived size of self relative to the perceived size of stressor.

Measures

Stress Appraisal

The Stress Appraisal Measure (SAM; Peacock, & Wong, 1990) assesses various aspects of how a stressful situation can be perceived based on six different subscales: controllable-by-self, threat, centrality, uncontrollable, controllable-by-others, and challenge. The subscales used in this study—controllable-by-self and threat—were used to measure the degree to which the participants viewed an academic stressor in their lives as controllable by themselves and as threatening. Only these two subscales were used because they are the two subscales that appear to be most relevant to the current study. The two subscales together are 8 items including items

like “How threatening is this situation?” The items are rated on a 5-point Likert scale from 1 (*not at all*) to 5 (*a great amount*). Higher scores on the controllable-by-self subscale indicate that the participants view the stressor as more controllable by self. Higher scores on the threat subscale indicate that the participant views the stressor as more threatening. The Cronbach alpha for these subscales have ranged from 0.65-0.87 (Peacock, & Wong, 1990). For this study the Cronbach alpha for the Threat subscale was 0.79 and for the Controllable-by-Self subscale it was 0.89. These two subscales of a Stress Appraisal Measure will be used to measure stress appraisal.

Self and Threat Size

A new measure, depicted in Figures 3, 4, and 5, was used to measure how participants felt about their capability of handling threats. This measure is in line with the Self-Assessment Manikin (SAM; Bradley & Lang, 1994) which uses progressively larger manikin shapes to rate one’s feeling of dominance with the larger manikin representing greater dominance. By identifying oneself as smaller on the scale, it represents that one feels less capable in front of life events. By identifying the threat as smaller on the scale, it represents that the threat seems more manageable. By identifying the threat as smaller compared to the self, it represents the self as being more capable of handling the threat.

Procedure

Before research was started, all study procedures were approved by the University’s IRB. Once participants accessed this study online using the Qualtrics survey software, they were presented with an informed consent which they electronically signed. After signing the informed consent, survey software invited participants to “call to mind the biggest academic stressor you expect to face this semester.” Then participants were told to, “Now describe the academic stressor in one or two sentences.” They were also asked four questions concerning the stressor

using a Likert scale from 1 (*not at all important*) to 5 (*extremely important*): “how important is this academic stressor to you personally?”; “how upsetting is this academic stressor to you personally?”; “how committed are you to this academic stressor?”; and “how stressed are you about this academic stressor?”. Next, participants completed separate tasks depending on the condition that Qualtrics software randomly assigned them to: the identity-value condition, the threat-value condition, or the control condition.

Those assigned to the identity-value condition were presented with a list of values selected from Schwartz’s (2012) values theory to be representative of the four higher order value domains: Self-transcendence, Self-enhancement, Conservation, and Openness to Change. The participants rank ordered the values based on the following instructions:

> Rank order the following values so that the number one ranked value represents the value that is most important to your identity and the last ranked value is the value that is least important to your identity. You can change your answers during the ranking process, but you will not be able to change your answers after the rank ordering is submitted.

After the participants had finished rank ordering their values, they were asked to write three to five sentences answering the following prompt: “please explain in three to five sentences why you chose your top ranked value as being most important to your identity.” This procedure follows the most common values-affirmation procedure (McQueen, & Klein, 2006).

Those assigned to the threat-value condition were presented with the same list of values as the identity-value condition, however, the participants rank ordered the values based on the following instructions:

> Rank order the following values so that the number one ranked value represents the value that is most important for dealing with the academic stressor you identified, and the last

> ranked value is the value that is least important for dealing with the academic stressor you identified. You can change your answers during the ranking process, but you will not be able to change your answers after the rank ordering is submitted.

After the participants had finished rank ordering their values, they were asked to write three to five sentences answering the following prompt: "please explain in three to five sentences why you chose your top ranked value as being most important for dealing with the academic stressor you identified".

Those assigned to the control condition were presented with a list of foods with the same number of items as the values list. The participants rank ordered the foods based on the following instructions:

> Rank order the following foods so that the number one ranked food represents the food that you eat the most and the last ranked food is the food that you eat the least. You can change your answers during the ranking process, but you will not be able to change your answers after the rank ordering is submitted.

After the participants has finished rank ordering their foods, they were asked to write three to five sentences answering the following prompt: "please explain in three to five sentences why you eat your top ranked food the most" (Critcher, Dunning, & Armor, 2010).

After the participants had rank ordered and written about their values, a manipulation check was performed to ensure there was a difference between the identity-value condition and the threat-value condition. The manipulation check was two questions using a five-point Likert scale (1 = *not at all*, 5 = *extremely*), that asked "how connected is the value you picked to the stressor you identified?" and "how connected is the value you picked to your identity?"

Once the manipulation check had been completed, participants from each condition were presented with visual representations of themselves of ascending sizes (see Figure 3). The participants were then given the following instructions: “From the pictures below, pick the one that best represents how big you feel.” After they had made their choice, they were further prompted to explain their choice in one or two sentences: “In one or two sentences, please explain why you made the choice you did”

They were then presented with visual representations of their academic stressor of ascending sizes (see Figure 4). The participants were then given the following instructions “From the pictures below, pick the one that best represents how big your stressor feels”. After they had made their choice, they were further prompted to explain their choice in one or two sentences: “In one or two sentences, please explain why you made the choice you did”

They were then presented with visual representations of themselves holding their academic stressor in which the academic stressor was ascending in size (see Figure 5). The participants were then given the following instructions “From the pictures below, pick the one that best represents how big your stressor feels in comparison to how big you feel”. After they had made their choice, they were further prompted to explain their choice in one or two sentences: “In one or two sentences, please explain why you made the choice you did”

Afterward, all the participants completed the Stress Appraisal Measure (SAM). Finally, participants read a debriefing statement and were thanked for participating in the study.

Analytic Plan

Power Analysis

An analogous experimental study was conducted (Critcher & Dunning, 2015; experiment 3b), which also used an academic stressor as the threatening stimulus and sought to test the

relationship between self-affirmation and broadening perspective. In experiment 3b, the authors reported an effect size $\delta = 0.42$, which corresponds to an effect size $f = 0.21$. The power analysis utilized G-Power 3.0.10 software, and specified *F*-test analyses for ANOVA: Fixed effects, special, main effects, and interactions, with *a priori* analysis that computes required sample size, given α, power, and effect size. For the analyses, we specified $f = 0.21$, α error probability equal to .05, power equal to .80, numerator degrees of freedom equal to 1, and number of groups equal to 3. Approximately 222 participants (74 per group) were required to achieve a critical *F* value of 3.04, with an actual power equal to .80. However, given that the proposed study was conducted online, it would benefit from accounting for the detection of random responders and additional error variance due to the variability of survey environments, suggesting that an optimal sampling target was approximately 300, with 100 per group.

CHAPTER IV: RESULTS

Descriptive Statistics

Immediately after participants identified their biggest academic stressor, they were asked four different questions regarding how the stressor affected them using a Likert scale from 1 (*not at all important*) to 5 (*extremely important*). The results of these questions are as follows: the mean score for the question "how important is this academic stressor to you personally?" was 4.38 (*SD* = 0.74) and ranging from one to five; the mean score for the question "how upsetting is this academic stressor to you personally?" was 3.46 (*SD* = 1.07) and ranging from one to five; the mean score for the question "how committed are you to this academic stressor?" was 4.09 (*SD* = 0.80) and ranging from one to five; the mean score for the question "how stressed are you about this academic stressor?" was 4.01 (*SD* = 0.89) and ranging from one to five.

After the questions about the stressor, participants in the identity-values condition and the threat-value condition rank orders values and wrote about their number one ranked value. The top ranked values by condition are shown in the Table 1 below. In the identity-values condition, five (3.62%) participants ranked "power" as their most important value, 53 (38.41%) participants ranked "achievement" as their most important value, 14 (10.14%) participants ranked "hedonism" as their most important value, two (1.45%) participants ranked "stimulation" as their most important value, 17 (12.32%) participants ranked "self-direction" as their most important value, three (2.17%) participants ranked "universalism" as their most important value, 18 (13.04%) participants ranked "benevolence" as their most important value, no (0.00%) participants ranked "tradition" as their most important value, one (0.72%) participant ranked "conformity" as their most important value, and 24 (17.39%) participants ranked "security" as their most important value. In the threat-values condition, nine (5.70%) participants ranked

“power” as their most important value, 67 (42.41%) participants ranked “achievement” as their most important value, 10 (6.33%) participants ranked “hedonism” as their most important value, two (1.27%) participants ranked “stimulation” as their most important value, 14 (8.86%) participants ranked “self-direction” as their most important value, six (3.80%) participants ranked “universalism” as their most important value, 13 (8.23%) participants ranked “benevolence” as their most important value, no (0.00%) participants ranked “tradition” as their most important value, two (1.27%) participant ranked “conformity” as their most important value, and 35 (22.15%) participants ranked “security” as their most important value.

Table 1
Top Ranked Values by Condition

Value	Identity-Values Condition	Threat-Values Condition	Total
Power	5 (3.62%)	9 (5.70%)	14 (4.75%)
Achievement	53 (38.41%)	67 (42.41%)	120 (40.68%)
Hedonism	14 (10.14%)	10 (6.33%)	24 (8.14%)
Stimulation	2 (1.45%)	2 (1.27%)	4 (1.34%)
Self-direction	17 (12.32%)	14 (8.86%)	31 (10.51%)
Universalism	3 (2.17%)	6 (3.80%)	9 (3.05%)
Benevolence	18 (13.04%)	13 (8.23%)	31 (10.51%)
Tradition	0 (0.00%)	0 (0.00%)	0 (0.00%)
Conformity	1 (0.72%)	2 (1.27%)	3 (1.02%)
Security	24 (17.39%)	35 (22.15%)	59 (20.00%)
Total	137 (100%)	158 (100%)	295 (100%)

This study had five different measures to test how the condition of the study affected the participants. Size of self, size of stressor, and relative size of self compared to stressor were all measured using figures of various sizes (see Figure 3, Figure 4, and Figure 5). These figures were then given numerical values from one through six, with six being assigned to the largest picture and one being assigned to the smallest picture. The results of these three outcome

variables (See Table 2) showed that out of 444 participants, the average size of self was 3.57 (SD = 1.12), out of 443 participants, the average size of stressor was 4.52 (*SD* = 1.24), and out of 443 participants, the average relative size of self compared to stressor was 4.04 (*SD* = 1.52).

Second, sense of threat was measured using the SAM subscale (Peacock, & Wong, 1990) of threat stress appraisal which is measured using a five-point Likert scale with "1" meaning "not at all" and "5" meaning "extremely". Four distinct questions were asked to participants to measure this sense of threat outcome variable. The results of this outcome variable are presented in Table 2. The mean of the subscale for threat was 2.84 (*SD* = 0.91).

Finally, how much the stressor was perceived to be controlled by the participant was measured using the SAM subscale (Peacock, & Wong, 1990) of controllable-by-self, which is measured using a five-point Likert scale with "1" meaning "not at all" and "5" meaning "extremely." Again, this SAM subscale was comprised of four distinct questions to measure this outcome variable. The results of this outcome variable are presented in Table 2. The mean of the subscale for controllable-by-self was 3.99 (*SD* = 0.77). Correlations table of these outcome variables are presented in Table 2.

Table 2
Correlation Matrix of Outcome Variable

Variable	1	2	3	4	5
1. Size of Self	__				
2. Size of Stressor	-.19***	__			
3. Relative Size of Self Compared to Stressor	-.30***	.74***	__		
4. SAM Threat	-.28***	.49***	.52***	__	
5. SAM Controllable by Self	.22***	-.16***	-.22***	-.38***	__
M (*SD*)	3.57 (1.12)	4.52 (1.24)	4.04 (1.52)	2.84 (0.91)	3.99 (0.77)

*Note: *** indicates significance of p < .001*

Main Analyses

It was hypothesized that the identity-value condition participants would perceive the size of the threat as smaller, the size of the self as bigger, and the relative size of the self as bigger than the relative size of the threat when compared with the stressor-value condition and the control condition. Furthermore, the hypothesis stated that the identity-value condition participants would rate the threat as less threatening and more controllable by self on the Stress Appraisal Measure (SAM) subscales Controllable-by-self and Threat compared to both the stressor-values condition participants and the control condition participants.

To test this hypothesis, a three-way ANOVA was conducted for each dependent variable which were the three measures of size (size of stressor, size of self, and size of stressor compared to size of self) as well as the two SAM measures (threat and controllable by self). The independent variables were the experimental conditions the participants were assigned to: identity values, threat values, or control group. The results of these ANOVAs can be seen in the tables below. Results did not support the hypothesis, with a non-significant effect of how big the stressor feels ($F[2, 443] = 0.99$, $p = .371$), a non-significant effect of how big a person feels right now ($F[2, 444] = 0.56$, $p = .564$), a non-significant effect of how big the stressor feels in comparison to how big the person feels ($F[2, 443] = .47$, $p = .626$), a non-significant effect of threat ($F[2, 443] = .35$, $p = .705$), and a non-significant effect of controllable by self ($F[2, 443] = 1.69$, $p = .186$).

Table 3

One-Way Analysis of Variance of Stressor Size

Source	*Df*	*SS*	*MS*	*F*	*p*
Between groups	2	3.11	1.55	0.99	.37
Within groups	440	687.52	1.56		
Total	442	690.63			

Table 4

One-Way Analysis of Variance of Size of Self

Source	*Df*	*SS*	*MS*	*F*	*p*
Between groups	2	1.35	0.67	0.56	.57
Within groups	441	526.92	1.20		
Total	443	528.27			

Table 5

One-Way Analysis of Variance of Stressor Size Compared with Size of Self

Source	*Df*	*SS*	*MS*	*F*	*p*
Between groups	2	2.16	1.08	0.47	.63
Within groups	440	1012.75	2.30		
Total	442	1014.91			

Table 6

One-Way Analysis of Variance of Threat

Source	*Df*	*SS*	*MS*	*F*	*p*
Between groups	2	0.58	0.29	0.35	.70
Within groups	440	366.43	0.83		
Total	442	367.01			

Table 7

One-Way Analysis of Variance of Controllable-by-Self

Source	*Df*	*SS*	*MS*	*F*	*p*
Between groups	2	2.00	1.00	1.69	.19
Within groups	440	259.87	0.59		
Total	442	261.87			

Analysis was also conducted on the questions used as the manipulation check for the conditions which were rated on a five-point Likert scale (1 = *not at all*, 5 = *extremely*): "how connected is the value you picked to the stressor you identified?" and "how connected is the value you picked to your identity?". An ANOVA was conducted for each of the manipulation questions with the three study conditions as the independent variables. The results of these ANOVAs can be seen in the tables below. The results indicate that at least one of the study conditions was significantly different from the other conditions on both questions: manipulation check question one, "how connected is the value you picked to the stressor you identified?" ($F[2, 443] = 26.63$, $p < .001$), and manipulation check question two, "how connected is the value you picked to your identity?" ($F[2, 443] = 77.42$, $p < .001$). When looking at the descriptive statistics for these questions, it appears that the control group was driving the significant ANOVA results. For the question "how connected is the value you picked to the stressor you identified?", the mean response for the identity-values condition was 3.33 ($SD = 1.37$), the mean response for the threat-values condition was 3.64 ($SD = 1.10$), and mean response for the control condition was 2.62 ($SD = 1.29$). For the question "how connected is the value you picked to your identity?", the mean response for the identity-values condition was 4.24 ($SD = 0.87$), the mean response for the threat-values condition was 4.28 ($SD = 0.84$), and mean response for the control condition was 3.07 ($SD = 1.14$).

Table 8
One-Way Analysis of Variance of Manipulation Check Question 1

Source	*Df*	*SS*	*MS*	*F*	*p*
Between groups	2	83.31	41.65	26.63	< .001
Within groups	441	689.85	1.56		
Total	443	773.16			

Table 9

One-Way Analysis of Variance of Manipulation Check Question 2

Source	*Df*	*SS*	*MS*	*F*	*p*
Between groups	2	142.06	71.03	77.42	< .001
Within groups	441	404.56	.092		
Total	443	546.62			

CHAPTER V: DISCUSSION

Self-affirmation theory proposes that people experience information as threatening when it impacts their global self-integrity, which is the overall belief of oneself as being good, moral, and adequate. Negative domain specific information then becomes threatening when it is translated into a global belief about one's overall adequacy. Based on this understanding of threat, interventions have been developed to separate the negative domain specific information from the negative global belief. These interventions are done in order to decrease defensive responding which often distorts or minimizes potentially beneficial information so as to preserve global self-integrity. These interventions are called self-affirmation exercises. The most common self-affirmation exercise involves reflecting on one's most important value and its impact on one's life. The values that are available for the individual to reflect on are generally controlled by a researcher and depend on the content of the threatening information. This curating of the available values is important because if an individual reflects on a value that is too closely related to the negative domain specific information, then it can negate any positive benefits the self-affirmation exercise could have on one's global self-integrity and in some cases, can even lead to a more adverse effect. One shortcoming of having self-affirmation exercise values controlled by a researcher is that it makes self-affirmation exercises impossible to perform in naturalistic settings which is where people are experiencing the vast majority of the negative information in their lives.

The main purpose of this current research was to determine whether self-affirmation exercises can be used in a naturalistic setting by having prompt-guided value selection rather than researcher-guided value selection. For this current research there were three study conditions: the identity-value condition—which used a prompt-guided self-affirmation exercise that instructed participants to reflect on a value most important to their identity, the threat-value condition—which used a prompt-guided self-affirmation exercise that instructed participants to reflect on a value most important for dealing with the stressor they identified, and the control condition—which used a rank ordering exercise that instructed participants to rank order the frequency with which they eat a given list of food items. The results of the study were obtained using two measures: first, two subscales of the Stress Appraisal Measure (SAM; Peacock, & Wong, 1990)—the controllable-by-self subscale and the threat subscale, and second, a new measure used to determine the perceived size of the self and the stressor. I hypothesized that those in the identity-values condition would rate the academic stressor that they identified as significantly less threatening and significantly more controllable by self than either the threat-values condition or the control condition. I also hypothesized that those in the identity-values condition would perceive themselves as significantly bigger, the stressor as significantly smaller, and the stressor as significantly smaller compared with themselves than either the threat-values condition or the control condition. I further hypothesized that the threat-values condition would not be significantly different from the control condition. I made these hypotheses based on the belief that the participants in the identity-values condition would focus on values that were unrelated to their academic stressor and thus perform an effective self-affirmation exercise. I also assumed that those in the threat-value condition would focus on values related to the academic stressor and thus the effects of the self-affirmation exercise would be negated.

The results of the study did not support my first two hypotheses as there was no significant difference between any of the conditions on any of the measures. There are many possible explanations for why these hypotheses were not supported. Cohen and Sherman (2014) state that interventions are most effective when they are done immediately surrounding the stressor and when used on the most threatened group. The timing of the self-affirmation in relation to the stressor is important because self-affirmations are only effective if defensiveness has not already been activated (Critcher, Dunning, & Armor, 2010). It is possible in this study that defensive responding had already taken place before the self-affirmation intervention took place. In this study it is impossible to say for sure whether defensiveness took place before the affirmation exercise because there were no measures for defensiveness in this study. A defensive response negating the effects of the self-affirmation is unlikely, however, given that the self-affirmation intervention took place immediately after the stressor was recalled. Performing the self-affirmation exercise immediately after recalling an academic stressor follows the example in experiment 3b of Critcher and Dunning (2015) which showed that doing activities in that order actually reduced the participants defensiveness.

If the timing of the intervention did not lead to the insignificant results, then it is possible that the characteristics of the participants played a major role in this study's findings. Cohen and Sherman (2014) state that the most threatened subgroup is often the group that benefits the most from self-affirmation interventions. In a college setting, these most threatened subgroups include racial minorities (Cook et al, 2012 study 1), first generation college students (Harackiewicz et al., 2014), and female students in science courses (Miyake et al., 2010). Cohen and Sherman (2014) further explain that those experiencing social identity threat, those who feel insecure in their relationships, and those with low self-esteem would benefit particularly from self-affirmations.

It is possible that the participants in this study were for the most part not members of a most threatened subgroup so they were less affected by the self-affirmation intervention. One reason that less-threatened groups may be affected less by structured self-affirmation activities is that they spontaneously self-affirm (Cohen & Sherman, 2014). For example, people with high self-esteem spontaneously self-affirm in romantic relationships which reduces the benefit they receive from structured self-affirmations (Marigold et al. 2007). An important way that self-affirmation continues to be effective is that it changes the spontaneous response of participants to stressful situations to be more self-affirming (Brady et al., 2016) which could explain why booster self-affirmation exercises do not increase the benefit of the original affirmation exercise (Cohen et al., 2009). If the study participants were already self-affirming in the face of their academic stressor, then the structured self-affirmation exercise would have little effect. Cohen and Sherman (2014), however, speculate that self-affirmations are generally effective because most people do not spontaneously self-affirm at the moment of the stressor.

Thus far we have considered the timing of the self-affirmation intervention and the characteristics of the participants as factors influencing why the self-affirmation condition was not significantly different than the control condition. Another dimension to consider is the structure of self-affirmation activity. Critcher and Dunning (2015) argue that stressors tend to dominate one's self-image by narrowing an individual's attention to the threatening stimuli. In this current study, participants were first asked to focus on an academic stressor which may have narrowed the participant's attention to their particular academic struggle. This narrowing of their attention may subsequently have affected the value that they chose to focus on as important resulting in a self-affirmation done in the same values domain as the academic stressor which would nullify the positive effects of the self-affirmation (Blanton, Cooper, & Aronson, 1997). If

this is the case, then it is possible that having people pick their most important value before being introduced to the stressor may allow for a more effective self-affirmation exercise. Keough and Markus (1998) explained an experiment where this was the case. Before students went on break, the self-affirmation condition participants were instructed to pick their most important value, then throughout the break they were told to write about stressful situations from the perspective of that value. It was found that the self-affirmation condition was healthier and less stressed at the end of break. In the study described by Keough and Markus (1998), it appears that the value the participants chose affected the way they interpreted stressors rather than the stressors affecting which values they focused on. The approach described by Keough and Markus (1998) is an important example of a self-affirmation exercise used successfully in a naturalistic setting, however, a key element of the study was that the value was chosen before the participants faced the stressor. This type of exercise would be less useful for people seeking to cope with a stressor that has already occurred. A way around this dilemma would be to teach people to use self-affirmations as a deliberate coping strategy as demonstrated by Silverman, Logel, & Cohen (2012). In this way people can be educated to deliberately avoid picking values that are closely related with the stressor they are dealing with.

The final explanation to explore for why the results of this current study did not support the hypotheses is the medium through which the study was conducted. The study was conducted online rather than in a laboratory setting. Conducting the study online was important because it more closely represented a naturalistic setting which fit well with the main research question of the study: whether or not self-affirmation interventions can work in a naturalistic setting. The challenge that an online study poses, however, is that the activities of the participants are not closely monitored, meaning that while they are completing the study, their attention may be

elsewhere which could make the interventions less effective. It is possible that participants were either distracted or in a rush and did not receive the full benefit of the affirmation activity. That said, Sherman et al. (2009) demonstrated that even a small affirmation intervention, a word unscramble using an affirming work, which participants were unaware of has the power to differentiate affirmation participants from control participants. Alongside attention, the online format of the study could have affected the results by leaving the timing of the study unmonitored. As mentioned earlier, the timing of the self-affirmation intervention is key to the success of the intervention. The self-affirmation activity needs to be done in close proximity to the stressor recall. By doing the study online, participants had the flexibility to start the study, leave, and come back to the study later which could greatly disfigure the results of the study.

There are many possible reasons why the hypotheses for this current study were not supported. These results could have been affected by the timing of the interventions, the characteristics of the participants, the structure of the self-affirmation activity, and the online medium through which the study was conducted. All of these factors will be important to consider when trying to broaden the usefulness of self-affirmation exercises in naturalistic settings.

Limitations

There are several limitations to the current study. One of the major limitations for this study is related to the instrument used to collect data, namely an online survey tool. Because it was conducted online, there is potential for measurement error, as it is not clear whether or not the participants were paying attention to the study as they completed it. Therefore, the instrument used may be unable to consistently measure what it claims to measure. Further, it is also possible that many participants had questions about the study, but they were unable to ask them because

the study was not conducted in-person. Therefore, the instrument used to operationalize the construct in the current study may not be reliable in that it may lack consistency in measuring the reported variables.

Regarding the recruitment of participants, a convenient, non-representative sample was used to collect and analyze data. The current sample was not randomly drawn from the population at large, and instead, the primary researcher used the psychology online participant system in place by one large, midwestern university's department of psychology to recruit participants and collect data. Given the participant recruitment methods used, individuals not currently studying in an undergraduate psychology course may be underrepresented in the current study. The sample may further be more representative of individuals interested in psychology because participants were all recruited from undergraduate psychology courses, and the salience of interest in the field may be stronger in these students than the population in general. Therefore, generalizability of results may be limited to the convenience sample of university students with potentially higher interest in the field of psychology.

Relatedly, a selection bias may be a further limitation of the current study, given the potential interest in the field of psychology by the participants. However, measures were taken to prevent selection bias by the primary researcher. These included adapting the title of the study displayed to potential participants to disguise the content and purpose of the research.

A final limitation to the current study is that of potential biased or inaccurate responding by participants. While measures were taken to increase the likelihood of honest and objective responses such as explicit statements of participant anonymity provided before beginning the study, there remain multiple reasons participants may not give accurate self-reports. Previous research has shown that individuals generally have limited access to information about

themselves (e.g. Funder, 1995; Swann, 2010). There was no selection or measurement of self-awareness involved in the sample pool or recruitment of participants, and it therefore remains possible that participants in this study were unable to give objective judgments about themselves. Further, participants are always free to lie for whatever reason, which was certainly true for participants in this study. While the removed, anonymous instrument used in the current study may have reduced the risk of impression management interfering with unbiased and accurate responses, participants may still have given overly positive self-reports as a form of unconscious self-enhancement

Future research should explore whether doing an affirmation activity online is less effective than doing an affirmation activity offline. Gathering this information would help researchers better understand the best conditions for doing affirmation activities which would advance efforts to recreate those effective conditions in people's personal lives. Future studies should also consider using other groups of participants that are more representative of the general population. Having a more representative population would help to expand to applicability of self-affirmation activities. Finally, future research should involve objective, non-self-report measures so that results would not solely be dependent on participant self-report.

Conclusion

In a society in which people experience high rates of mental distress and depression (Kessler et al., 2005) it is important to find and use tools to improve well-being and reduce the negative impact of stressful events. Self-affirmation exercises have been shown to have benefits ranging from greater self-control, increased prosociality, and reduced stress (Howell, 2016) which have been demonstrated across numerous studies (Cohen & Sherman, 2014; Sherman & Cohen, 2006; Sherman, 2013). Now that the benefits of self-affirmation are clearly established,

an important next step is to broaden the accessibility of self-affirmation exercises. One major hold-up is that the values available when performing a self-affirmation exercise need to be carefully regulated because if participants pick values too closely related to their stressor the effects of the self-affirmation exercise can be nullified and in some cases the adverse effects of the stressor can be increased. This current study took one step in trying to determine a way to bypass the need for third party values regulation, and make self-affirmation exercises more readily available in naturalistic settings.

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