

MULTIPLE IDENTITY ACTIVATION AS STEREOTYPE THREAT PROTECTION

by

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B.S. in Psychology, University of Washington, Seattle, 2014

Submitted to the Graduate Faculty of
the Kenneth P. Dietrich School of Arts and Sciences in partial fulfillment
of the requirements for the degree of
Master of Science

University of Pittsburgh

2017

UNIVERSITY OF PITTSBURGH
THE KENNETH P. DIETRICH SCHOOL OF ARTS AND SCIENCES

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People face threats daily –threats to their self-esteem, belonging, and sense of self. The current proposal explored a solution for these threats through utilizing the positive power of social identities. Past work has shown that social identities benefit the individual in a multitude of ways (e.g. increasing self-esteem or sense of belonging). Therefore, I predicted that thinking of multiple social identities important to the self would activate these positive outcomes, which in turn would serve as protection in the face of threat. I first explored the relationship between self-esteem, importance of identities, and number of identities generated, as there is little research investigating the number of identities from which individuals derive benefits. In Study 1, participants were asked to come up with a specific number of identities important to the self, followed by measurements of identity importance, difficulty of listing identities, and self-esteem.

Identity importance tapered off after listing five identities, suggesting the presence of diminishing returns for the self after priming more than five identities. Using these results, Study 2 tested the main hypothesis of multiple identity activation on identity threat protection. In this study, female participants listed no identities, a singular identity, or five identities, followed by a gender stereotype threat (i.e. women underperforming in math), and quantitative task. Results of Study 2 did not support the prediction that generating multiple identities would protect against stereotype threat. Unexpectedly, participants who received the stereotype threat performed better on the math task compared to those who did not receive the threat, contradicting the expected

effect of the threat. Additional moderation analyses and possible reasons for the observed pattern of analyses are discussed.

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1.0 INTRODUCTION

Social identities are defined by the social groups in which we hold membership. The girl on the basketball team identifies as a “basketball player” or an “athlete”. The man in the symphony orchestra identifies as an “orchestra member” or “musician”. These identities help define who we are not only for ourselves but also provide categories for those around us to understand how we fit into the world.

Research has shown that having important social identities is beneficial to the individual, most notably because feeling that one is part of a social group lends itself to an increased sense of belonging, a fundamental human motivation (Baumeister & Leary, 1995). Feeling an increased sense of belonging is related to increases in self-esteem and has been shown to have positive effects on outcomes such as health, academic performance, and general well-being (Baumeister & Leary, 1995; Walton & Cohen, 2011; Williams, 2009). Although research has indicated there is a host of positive and negative outcomes associated with identifying with multiple social groups, surprisingly little work has looked at how to actively wield these benefits to protect the individual. Past research has only examined how switching from one identity to another shields an individual from threat. (Shih, Pittinsky, & Ambady, 1999; Rydell, McConnell, & Beilock 2009, Gresky, Ten Eyck, Lord, & McIntyre, 2005). For example, Shih and colleagues (1999) showed that Asian female participants could activate their Asian identity to score higher on a math task, compared to activating their female identity. The present research examines how

activating multiple social identities at once might protect an individual in the face of threat. To draw an analogy, the idea of multiple identity activation, rather than activating only a single identity, to protect against threat is similar to the idea that a drop in the ocean would have a smaller overall effect than the same drop in a puddle. If an individual only activates one social identity, the threat has the potential to have a larger detriment on the self (i.e. a drop in a puddle), whereas activation of multiple identities dilutes the effect of the threat (i.e. a drop in the ocean).

The current research operates on the idea that social identities important to the self increase self-esteem and sense of belonging, and the additive power of these benefits from activating multiple identities at once can protect the self from threat. Two studies examine this novel solution against threat. Study 1 identifies a number of identities a person can derive benefits from before these benefits plateau or drop off. Study 2 then investigates how these benefits provide protection to help guard individuals against an identity threat.

1.1 SOCIAL IDENTITIES AND STEREOTYPE THREAT

Social identity theory postulates that an individual holds two types of identity—the personal identity and the group identity (Tajfel, 1978). The personal identity is one created through personal attributes and relationships with one other person, whereas the group identity is one defined by membership with multiple others. Although these binary categories have been expanded into more complex differentiations (Brewer & Gardner, 1996; Brewer, 2001), the general idea remains that the self-concept is composed of various identities. When a situation makes a certain group identity salient (e.g. being on the basketball court makes your “basketball player” identity salient, but not necessarily your “chef” identity), the appropriate social identity

is activated, and the individual takes on the norms and behavior related to that identity (i.e. self-categorization theory; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). Thus, when individuals go about their day, they flit in and out of social identities depending on the social context. Although there is a myriad of different identities people can take on, these identities all contribute to common goals of maintaining high self-esteem and sense of belonging.

People are motivated to think of themselves positively and retain a high sense of self-esteem, a motive supported by extensive research (James, 1890; Crocker & Wolfe, 2001; Steele, 1988; Allport, 1955). One avenue for achieving high self-esteem is through feeling that one belongs to a group. Remarkably, research has shown that these groups do not need to be important to the self; rather, the simple act of being in a group with others is significant enough to generate feelings of ‘group-ness’ and belonging. In one study, Tajfel and colleagues (1971) told participants they were either ‘overestimators’ or ‘underestimators’ based on how they performed on a previous task. After receiving this group label, participants were asked to allocate points to either a member of their own group or to a member of the other group. Even though these group categories were based on arbitrary criteria and there were no personal benefits to allotting points a certain way, participants tended to give more points to their own group rather than the other group. This phenomenon is explained by the minimal group paradigm, which suggests that people crave belonging so intensely, they are prompted to favor their own group even when this group is formed on completely meaningless and trivial criteria.

Despite the benefits associated with social identities and belonging, there are instances in which identification with groups leads to negative outcomes, such as when the individual encounters identity threat. One well-known type of identity threat is stereotype threat, where a social identity deemed as important to the self is threatened (Steele, 1997). This phenomenon is

one in which an individual is afraid of conforming to a negative stereotype associated with one social identity s/he holds, such as a negative gender stereotype. For example, women must contend with the stereotype that their gender performs poorly on math tasks compared to the performance of men (Spencer, Steele, & Quinn, 1999; Jacob & Eccles, 1985). Thus, when women need to accomplish a quantitative task, many are threatened by this gender stereotype attributed to one of their important social identities. Consequently, these women perform poorly on the task, perpetuating the stereotype threat (Spencer, Steele, & Quinn, 1999). These stereotypes are still as pervasive in today's society, illustrated by recent controversies at Google, and Uber, where comments regarding gender biases and discrimination in STEM-related fields have surfaced (Wakabayashi, 2017). Other instances of stereotype threat illustrate how it negatively impacts a variety of other social groups in academic contexts, such as African-American students (Steele & Aronson, 1995), children of lower socioeconomic status (Croizet & Claire, 1998), and Latino/a school children. (Gonzales, Blanton, & Williams, 2002).

Work conducted by Beilock, Rydell, and McConnell (2007) has demonstrated that one possible explanation for this decrement in performance is due to stereotype threat's effect on working memory. In their study, female participants were either assigned to a control or a stereotype threat condition. After completing a set of math questions utilizing working memory, those in the stereotype threat condition read a prompt stating that the research was being conducted to investigate why men were better at math than women, while those in the control read a prompt stating that the research was being conducted to investigate why certain people performed better at math than others. A second block of math questions that similarly-taxed working memory followed this prompt. Results indicated that participants in the stereotype threat condition performed significantly worse on the math questions, suggesting that the threat had a

detrimental effect on working memory capacity. The anxiety that resulted in trying to not conform to the threat taxed cognitive resources, resulting in decreased performance (Schmader & Johns, 2003; Ashcraft & Kirk, 2001).

Although there is some research concerning the activation of identity to buffer against stereotype threat, this research only focuses on activating a singular identity, rather than attempting to harness the collective power of multiple social identities. For instance, Shih, Pittinsky, and Ambady (1999) conducted an experiment showing that having a positively-stereotyped identity protected one's performance when another negatively-stereotyped identity was threatened. They primed Asian female participants on either their Asian or female identity and had them complete a math task. These two identities are attributed to positive and negative math stereotypes, respectively (Steen, 1987; Hedges & Nowell, 1995), and results indicated that priming a certain identity led to stereotype-consistent results. That is, priming participants' Asian identity led to increased scores on the subsequent quantitative task; conversely, priming the female identity led to decreased scores on the same task. This suggests that Asian females could activate either of these identities while taking a math test, which would result in widely-contrasting outcomes. While this study did address the possibility of activating a social identity to combat against identity threat, it has a narrow focus in that it only activated a single social identity; it does not speak to the potential of activating multiple identities.

Rydell, McConnell, and Beilock (2009) also investigated how exposing female college students to stereotypes attributed to both their gender and academic identities affected math performance. Participants were either told of the positive stereotype attributed to college students in math, the negative stereotype attributed to females in math, or both stereotypes. Results showed that participants in this third condition performed similarly to those who were only

exposed to the positive stereotype. While this study provides evidence that activating a positive identity can buffer against stereotype threat, it is limited in that the methods can only be applied to individuals who have a specific dual-valenced identity. In other words, negating the stereotype threat was only possible when the individual could identify with an identity that had a positive stereotype within the same domain as the threatened identity (in this case, a college identity to buffer against the female identity). What if one does not have an identity with a stereotype that contrasts the identity being threatened? Similar to the Shih et al. (1999) study, this study also does not speak to the possibility of activating positive identities generally. Rather, it only focuses on the positive aspects of the singular college identity in the face of threat.

More parallel to the current research, Gresky and colleagues (2005) had participants draw a self-concept map with few or many nodes (e.g. school, friends, family) after being exposed to stereotype threat. The researchers either gave students an example self-concept map with few or many nodes to aid in the creation of the students' maps. After showing all participants a prompt to activate stereotype threat, researchers found that female participants who drew a map with many nodes scored similarly to male participants on a subsequent math task, and female participants who drew a map with few nodes performed worse than the male participants. Although the nodes in the study represented categories of identities rather than identities themselves, this study speaks to the idea that activation of multiple facets of the self, specifically facets related to identity, might protect individuals from stereotype threat.

The current work explores how social identities, in general, might help protect against identity threat, drawing from the idea that social identities positively influence self-esteem and belonging. I focused on the activation of multiple social identities, rather than focusing on single identities tied to specific stereotypes. Although research has not yet examined the protective

element of activating the social identities that comprise the self-concept, two lines of research—that of multiracial individuals and self-affirmation theory—speak to this potential.

1.2 HOLDING MULTIPLE SOCIAL IDENTITIES

Research on multiracial individuals illustrates more generally the positive and negative outcomes associated with having multiple identities. Studies executed in this realm highlight how having footholds in multiple social groups can increase sense of belonging. As mentioned previously, sense of belonging is a fundamental human motivation and is linked to a host of positive outcomes, such as higher levels of happiness, self-esteem, and well-being (McAdams & Bryant, 1987), decreased anxiety and depression (Tambor & Leary, 1993), and even improved physiological health (Kiecolt-Glaser et al., 1987). For example, Binning and colleagues (2009) found that individuals who held identities in multiple racial domains reported better outcomes (e.g. higher social engagement and psychological well-being) if they identified as multiracial or biracial, rather than favoring one of these domains. Their study indicated that a White and African-American individual, for instance, showed better outcomes if s/he identified as biracial or multiracial rather than identifying as White or as African-American. The authors suggest that one possible explanation for this result could be that having a multiracial identity allows these individuals to feel belonging in multiple groups, rather than one racial group.

These positive aspects of having a multiracial identity are also illustrated in a meta-analysis conducted by Shih and Sanchez (2005). They found that multiracial individuals had better peer relationships compared to both monoracial majority and minority peers and hypothesized that this may be due to multiracial individuals having a better understanding of the

perspectives of both groups that comprise their racial identity. While these findings suggest that holding multiple identities could potentially lead to positive outcomes, and consequently shield the self from threat, the multiracial literature also reveals numerous negative outcomes associated with being multiracial. For instance, Shih and Sanchez found that having a multiracial status was related to higher delinquent behavior and increased levels of depression, and numerous other researchers have found that multiracial individuals are more likely to experience low self-esteem and other negative psychological outcomes, compared to monoracial individuals (Gibbs, 1998; McRoy & Freeman, 1986).

One possible reason for the inconsistencies in the multiracial literature could be due to the fact that certain racial groups have negative stereotypes attributed to them. Research has shown that having to contend with negative stereotypes is linked to a wide number of detrimental outcomes, such as depression, low sense of belonging, anxiety, and psychological distress (Hwang & Goto, 2008; Moradi & Risco, 2006). This potential explanation for why multiracial identities are not always beneficial is, in a way, explained through the work on self-affirmation. Self-affirmations serve to affirm the self-integrity of a person (Sherman & Cohen, 2006) and remind them of their self-worth (Steele, 1988). Often, these affirmations are delivered as a values-affirmation (VA) intervention wherein the individual reflects on and writes about important personal values, such as family and friends, arts, or religion (McQueen & Klein, 2006). Studies show that middle school and university students who received a values-affirmation intervention, especially underrepresented students who were more likely to face situations where their academic identity was threatened, received higher grades at the end of the year compared to students who did not receive the intervention (Cohen, Garcia, Apfel, & Master, 2006; Martens et al., 2006; Sherman et al., 2013). Studies have also shown that after receiving a

VA, people were more likely to accept risky health information that potentially threatened the self (Sherman, Nelson, & Steele, 2000), and were able to reduce their psychological threat and stress (Martens, Johns, Greenberg, & Schimel, 2006).

The procedure for VA interventions distinguishes it from the multiracial literature in that individuals are able to generate their own content and why this content is valuable to them, rather than activating a part of the self-concept that may not be regarded as integral to the self. VA interventions allow for activation of values that are important solely to the individual, in a sense controlling for potential conflicts or negative aspects of values that would impede on the protective element of affirmations. Because values are hypothesized to make-up part of the self (Crocker & Wolfe, 2001) in a similar way to how social identities comprise the self-concept, it is not a far reach to view affirmations as a proxy for activating multiple parts of the self. This literature illustrates how individuals can utilize their own self-resources to protect against threat.

Aside from values having an analogous role in the self-concept as social identities, they also operate similarly on the variable of social belonging. As mentioned before, membership in social groups (i.e. having social identities) contributes positively to belonging, which was identified to be a key ingredient contributing to the effectiveness of VA. A finding by Shnabel and colleagues (2013) showed that social belonging mediated the relationship between VA and improved academic performance in students who faced identity threat. When middle-school students participated in a VA task, students who faced the most identity threat (e.g. Black students) listed values related to social belonging more so than non-threatened students. More importantly, writing about social belonging mediated the effect of VA on GPA for Black students. A second study manipulated belonging within VA. Researchers asked students to write either why their chosen value was important to them (the standard VA procedure) or how this

value made them feel connected to others (belonging-affirmation), among other conditions, followed by a math performance task. In the control condition (where no VA was delivered), men performed significantly better than women on the math task. However, this gender gap was eliminated in the standard VA condition and reversed in the belonging-affirmation condition.

The similarities between social identities and values, both in how they contribute to the self-concept and affect social belonging, raise the question of whether asking individuals to generate and reflect on important social identities would have the same effect as VA in threat protection. One reason the present work focuses on identities specifically, not the values attached to them, is due to the fact that a modal value reflected on in VA work—family/friends—is a ‘social’ value, as well as the finding that social belonging significantly contributed to the efficacy of VA. These findings hint at the potential of the social components of the self-concept in being especially helpful in bolstering the self against threat. This study also investigates the idea that social identities may remain influential even when not activated. As mentioned before, self-categorization theory argues that only one social identity can be activated at a time in response to situational or environmental cues. The current study operates on the idea that social identities may remain active at a more subconscious level; even if the situation does not activate the identity, the beneficial properties of that identity, and others that were previously activated, might still have an effect of some kind. Because social identities are constantly made salient throughout the day, it is likely that there is some residual effect of this activation.

1.3 RELATEDNESS OF IDENTITIES

In addition to the overall objective of understanding the protective power of collective social identities, I also explore how the relatedness of identities moderates the relationship between identity activation and performance. Social identities interact with each other in varying degrees, and it is possible that the degree to which these identities relate to each other could impact how effective they are in protecting the self from identity threat. Imagine social identities are the legs of a stool, providing a base for stability. Is the stool more stable when the multiple legs are bundled together (i.e. when identities overlap), or when the legs are more spread out around the perimeter of the stool (i.e. when identities are separate from each other)? While multiple legs provide the stool with stability by equally spreading out weight, a sturdy, concentrated base could also provide stability.

No studies have yet examined how the relationship between identities contributes to their effectiveness in protecting the self; consequently, I hold competing hypotheses for the relatedness moderator. It is possible that when identities are orthogonal and compartmentalized from each other, activating them might decrease their benefits to self-esteem or belonging because it is too difficult to think of how they would collectively contribute to either variable. However, it also possible that there might be an additive effect of the positive benefits associated with the activation of each particular identity. Activating multiple identities that are completely distinct from each other might also give the individual more sources of esteem and belonging—sources of stability—to draw upon when faced with threat. I argue this additive effect could also occur with merged identities, when identities completely overlap. Activation of one identity may implicitly activate the other. In this case, the activation might increase the protective effect on self-esteem and/or belonging.

1.4 THE PRESENT RESEARCH

The present work seeks to understand potential mechanisms and boundary conditions of the effect of activating multiple identities to protect the self from identity threat. I am interested in the question of how many identities can psychologically-protect and benefit an individual. On one hand, it might seem that activating as many social identities important to the self as possible would be beneficial. On the other hand, it is possible that there may be a point wherein thinking of more identities has no additional benefits to the self. Work conducted by Walton and Cohen (2007) showed that when students were told to think of two or ten friends, those who were instructed to list ten friends felt lower belonging. This was attributed to the fact that it might have been too difficult for the students to generate these ten names (versus two names), and the difficulty of the task was indicative to them of the fact that they did not have much belonging within their social group. This work suggests there may be a limit to the number of identities that are central or important to the self. Perhaps there is a certain point where pushing people to generate social identities would not yield any additional benefits. It is possible the positive impacts of social identities may have a tipping point—but where does this tipping point exist? At how many identities do the positive contributions of multiple social identities start to diminish?

The studies presented serve two main objectives. One objective was to investigate the relationship between multiple identity activation and self-esteem to determine an appropriate number of social identities to be employed in Study 2 to bolster people against threat. The second main objective was to analyze how activation of multiple other social identities plays a role in buffering against stereotype threat, by providing a barrier of self-esteem and social belonging. I also explore how a novel moderator—the relatedness between identities—influences the protective abilities of multiple identities. More generally, I posit that social identities may

unconsciously influence behavior or thoughts even if the situation does not make them salient. It is possible that when one identity becomes activated, the remaining identities may become dampened but still have unconscious effects on behavior.

2.0 METHODS AND RESULTS

In the following two studies, I examined 1) how many social identities positively contribute to self-esteem, and 2) whether these multiple social identities could help protect against stereotype threat through increasing self-esteem and social belonging.

In the first study, I manipulated the number of social identities, measured participants' state and state self-esteem and importance of each identity, and examined a possible moderator of relatedness of identities. Although this first study was more exploratory in nature, I hypothesized that self-esteem would increase linearly to a certain point, wherein they would start to taper off. However, there was no clear hypothesis for the number of identities a participant would have to generate before this diminishing effect appeared. Additionally, I planned to explore the relationship between interrelatedness of identities and self-esteem, and whether interrelatedness was positively or negatively associated with identity importance.

The second study explored whether thinking of multiple identities would help buffer against a threat to identity. For this study, I experimentally-manipulated the number of identities activated by the participant (creating three different identity conditions) and whether the participant received a stereotype threat. Participants were instructed to complete a math test, and then filled out measures of self-esteem and math ability. I predicted that participants who generated the most number of identities would have greater self-esteem compared to the other two conditions in both threat and no-threat conditions. In a similar fashion, I hypothesized that

for participants who received the stereotype threat, those who activated the highest number of identities would perform better on the math test compared to those who activated the lower number of identities.

2.1 STUDY 1

The first study allowed for an exploration of how many social identities an individual could generate before a diminishing effect on identity importance and/or self-esteem occurred.

2.1.1 Participants

Participants were 161 adults (87 male, 73 female, 1 did not report) living in the United States, recruited online via Amazon's Mechanical Turk (www.mturk.com). They completed the study in exchange for monetary payment. Participants were randomly-assigned to one of the four identity conditions (one-, three-, five-, or seven-identities).

2.1.2 Procedure

After providing consent, participants read a statement describing how identities are linked to social group memberships and were then instructed to think of important identities (see Appendix for identity statement). After thinking about an identity important to them, participants were asked to choose from a list of 15 categories which one best encapsulated the identity; following this, participants listed the actual identity and rated the importance of that identity to

the self. This process was repeated for the number of identities appropriate to the identity condition (e.g. participants in the five-identities condition listed five identities). After listing all identities, participants completed measures of state and trait self-esteem, mood, and overall difficulty with listing identities. Participants in the three-, five-, and seven-identities conditions were then asked to rate the overlap between all pairs of the identities they listed.

2.1.3 Measures

Measures are described in the order in which they were administered.

Identity categories. Participants chose from the following 15 categories the one to which their identity best belonged: family, military, sports, sexual orientation, friends, hobby, religion, arts, school, athletics, music, occupation, politics, organization, and pets. These categories were created based on data from a previous pilot study where mTurk participants were asked to list five identities important to them.

Identity importance. Participants completed a four-item measure (adapted from Luhtanen & Crocker, 1992) of how much each individual identity they listed contributed to their overall self-identity (e.g. “The identity I belong to is an important reflection of who I am”) (1 = *Strongly disagree*; 7 = *Strongly agree*).

Difficulty to list identities. A one-item measure asked the following: “Overall, how difficult was it to list (n) identities?” (1 = *Extremely easy*; 7 = *Extremely difficult*).

Trait self-esteem. To measure trait self-esteem, participants completed the single-item self-esteem scale (Robins, Hendin, & Trzesniewski, 2001), which asked “Generally, I have high self-esteem” (1 = *Not very true of me*; 7 = *Very true of me*).

State self-esteem. State self-esteem was measured with a single-item measure asking “How do you feel about yourself?” (1 = *Poorly*; 9 = *Extremely positively*).

Mood. A single-item scale asked participants to indicate from 1 (*Extremely bad mood*) to 9 (*Extremely good mood*) how they would describe their mood in the moment.

Interrelatedness. To assess how related each pair of identities were, participants were shown a figure displaying three Venn diagrams of varying overlap (adapted from the “Inclusion of Other in the Self” scale; Aron, Aron, & Smollan, 1992). Participants were asked to reference the figure and assess how related their identities were on a scale from 1 (*Extremely interrelated*) to 5 (*Completely separate*) (see Figure 1).

2.1.4 Results

Data from one participant was excluded because the participant failed to complete the majority of the survey. Final analyses used data from 160 participants (6.9% Black/African-American, 8.8% Hispanic/Latino/a, 73.1% White, 11.3% Asian/Asian-American, 0.6% American-Indian/Alaskan Native, 0% Native Hawaiian/Other Pacific Islander). Majority of participants were between 25-34 years of age and had completed a 4-year college degree (43.1%), with 35% having attained a GED or high school diploma, or completed some college.

For all outcomes below, I conducted a one-way analysis of variance (ANOVA) with identity condition as the independent variable, followed by a test of linear contrasts (-2: one-identity; -1: three-identities; 1: five-identities; 2: seven-identities) to determine if there were any significant differences between the different identity conditions. If one or both of these tests were significant, I conducted a post-hoc Tukey test to determine which pairwise comparisons significantly differed from each other. Due to the exploratory nature of this study, I also

conducted an analysis of covariance (ANCOVA) to control for age, gender, education level and race/ethnicity (all control variables were mean-centered). Results from the ANOVA are reported first, followed by ANCOVA results. Descriptive statistics for all variables are featured in Table 1, and correlations between these variables are reported in Table 2.

From the identity categories provided, ‘Family’ was chosen most frequently, followed by ‘Hobby’ and ‘Occupation’. Across all identity conditions, the first identity chosen usually belonged to the ‘Family’ category. In the five- and seven-identities conditions, a ‘Family’ identity comprised 20% of all identities listed; in the one- and three-identities conditions, a ‘Family’ identity comprised 30-40% of all identities listed. This finding was a bit surprising, considering how Family is one of the most frequently-listed values in VA. It is possible that as participants were asked to list more identities, they were more likely to stray from the usual ‘Family’ or ‘Occupation’ category.

I hypothesized that listing more identities would be perceived as more difficult, take longer to complete, and decrease participants’ mood. Results supported the hypotheses relating to difficulty and time. ANOVA results revealed that difficulty differed significantly across the identity conditions, $F(3, 156) = 6.57, p < .001$. This effect held even when controlling for participant race, age, gender, and education, $F(3, 156) = 6.46, p < .001$. The linear contrast revealed that difficulty increased as number of identities listed increased, $t(156) = 4.42, p < .001$. The length of time it took to list each identity (measured in seconds) similarly differed across conditions, $F(3, 156) = 18.05, p < .001$, even with control variables in the model, $F(3, 156) = 16.60, p < .001$. Time also increased linearly as number of identities increased, both without control variables, $F(3, 156) = 18.05, p < .001$, and with control variables, $F(3, 156) = 16.60, p < .001$. However, analyses of mood did not exhibit the patterns seen above. Mood did not differ

significantly across groups, $F(3, 156) = 1.75, p > .10$, and controlling for participant demographics showed similar null results, $F(3, 156) = 1.95, p > .10$. The contrast test also revealed there was no linear relationship between mood and number of identities listed. All results from the Tukey test are shown in Table 3. Generally, the post-hoc results show that the one-identity condition differed significantly from the five- and seven-identities conditions; these latter two conditions did not differ from each other, except for the variable measuring time.

2.1.4.1 Identity importance I proceeded to examine how the importance of identities differed by condition. The following results examine the average identity importance across all identities listed by the participant. ANOVA results indicated a significant difference in identity importance across conditions, $F(3, 153) = 4.73, p < .01$; a similar result was seen when control variables were added into the model, $F(3, 153) = 4.92, p < .01$. The linear contrast test indicated there was a decreasing linear effect of importance as the number of identities increased, $t(153) = -3.54, p = .001$, indicating that when more identities were listed, the less important they became.

Analyses of the final identity's importance—the importance of the last identity generated in each condition—yielded similar results. Identity conditions significantly differed from each other, both with and without control variables entered in, $F(3, 155) = 7.24, p < .001$; $F(3, 153) = 7.74, p < .001$. Final identity importance was also revealed to decrease linearly as identities increased, $t(155) = -4.57, p < .001$. Additionally, one-sample t-tests indicated that the importance of the final identity listed in the one-, three-, and five-identities conditions differed significantly from the scale median of 4, while the importance of the last identity in the seven-identities condition did not significantly differ from the median of the scale (1-ID: $t(45) = 9.91, p < .001$; 3-ID: $t(43) = 6.66, p < .001$; 5-ID: $t(34) = 3.10, p < .01$; 7-ID: $t(33) = 1.24, p > .10$). Table 3 features the pairwise comparisons from the Tukey post-hoc test, which shows that the one-

identity condition differed significantly from the five- and seven-identities conditions for both the measure of average identity importance and the measure of final identity importance.

2.1.4.2 Self-esteem State and trait self-esteem were found to correlate highly, $r(160) = .83, p < .01$. Because of this, the two variables were standardized and then combined to create a composite self-esteem score. Results from the ANOVA revealed that self-esteem did not differ significantly across conditions, $F(3, 156) = 1.60, p > .10$. However, when participant demographics were controlled for, there was a marginal effect of identity condition on esteem, $F(3, 156) = 2.16, p < .10$. A null result was found for the linear contrast test, $t(156) = 1.10, p > .10$, indicating there was no linear relationship between self-esteem and identity conditions. However, mean scores of self-esteem across conditions did reveal a drop in scores occurring between five- to seven-identities conditions ($M_s = 5.13_{1-ID}, 5.69_{3-ID}, 5.94_{5-ID}, 5.49_{7-ID}$). There were no significant effects of identity relatedness or identity importance on esteem, $p_s > .10$.

2.1.4.3 Relatedness of identities Analyses involving relatedness of identities were only conducted for participants in the three-, five-, and seven-identities conditions, as the relatedness measure was only delivered to participants who listed enough identities to create pairs. The ANOVA examining how condition affected the relatedness of these identities revealed a marginal main effect of condition, $F(2, 104) = 2.47, p < .10$, where participants who listed more identities rated these identities as more unrelated from each other. When race, age, gender, and education were controlled for, a more significant effect was revealed between relatedness and condition, $F(2, 104) = 2.76, p = .07$. ($M_s = 3.265_{3-ID}, 3.63_{5-ID}, 3.76_{7-ID}$). As Table 3 reveals, the

average relatedness of identities in the three-identities condition was marginally different compared to the relatedness of identities in the seven-identities condition, $p < .10$.

2.1.5 Discussion

The results of Study 1 revealed several results of interest. Results indicated that for participants in the seven-identities condition, the final identity did not significantly differ from the median of the scale, signifying that this last identity did not significantly contribute to the self-concept to the same degree as the other six identities. Additionally, overall identity importance decreased when participants were asked to list increasingly more identities, suggesting that as people name more identities, these identities become further removed from and contribute less to the self-concept. The post-hoc tests also revealed that while the five- and seven-identities conditions differed from the one-identity condition, they did not differ significantly from each other for measures of identity importance and difficulty in listing identities. This suggests that after listing five identities, the importance of identities and difficulty in generating identities plateau. Consistent with this finding, self-esteem scores decreased from listing five to seven identities (although not statistically significant).

Additionally, analyses on relatedness of identities showed that when participants listed more identities, these identities were perceived to be more separate from each other. It is possible that the identities generated first are those which are most closely related to each other and the self, contributing most to a sense of belonging.

Taken together, the results of Study 1 indicate there could exist a point in where listing social identities might no longer have added benefits to the self. It is possible there is no infinitely-beneficial relationship between social identities and the benefits they provide; rather,

there is a certain point where thinking of multiple identities becomes cumbersome and is no longer as beneficial to the individual. These findings informed the identity manipulation used in the following study.

2.2 STUDY 2

The following study examined how multiple social identities might protect the self before receiving an identity threat. Female participants listed either zero, one or five social identities, followed by a threat to their female identity (e.g. “women are not good at math”). They then completed a quantitative task to examine the protective effects of identity activation on performance after being exposed to threat.

2.2.1 Participants

A total of 302 participants were recruited through mTurk and screened so only those registered as “Female” in the marketplace were allowed to access the survey. All received compensation for completing the study. Participants were randomly-assigned to one of the conditions in the 2 (stereotype threat: threat, no threat) x 3 (identity: control, one-identity, five-identities) between-subjects study.

2.2.2 Procedure

After completing the consent form, participants completed measures of state self-esteem, mood, and trait self-esteem. Following this, participants in the one-identity condition were asked to think of an identity important to their self-concept, choose a category this identity belonged to (from a list of 15 categories shown to the participant), and then write down the actual identity they had thought of. They then filled out a measure assessing how important this identity is to their general self-concept. Participants in the five-identities condition completed this procedure for each of the five identities they were asked to list. After listing identities, participants in these two identity conditions were asked to assess the difficulty of listing the number of identities appropriate to their condition. Those in the control condition did not list any identities nor assess difficulty.

Following this, participants in stereotype threat condition were shown the following statement that declared research has shown there are significant differences in the quantitative abilities of men and women (adapted from Spencer, Steele, & Quinn, 1999): *“Recent controversial research has shown that there is a growing gap in the quantitative abilities and performance between men and women. Studies indicate that overall, men possess better math skills than women, and this difference in skills can appear as early as elementary school. At most schools, men outnumber the women in math majors and majors with math as a prerequisite. Additionally, men tend to score consistently higher than women on the math portions of standardized tests. The current study you are participating in will help identify if men are better at math generally, or if there are only specific types of questions men tend to perform better on.”* All participants were then told that they would complete quantitative questions and were asked to

agree to not use the internet to look up answers. The quantitative task comprised of 12 questions pulled from Graduate Record Exam (GRE) practice tests, with one serving as an attention-check.

After completing the math questions, participants were asked if they had used the internet to solve any problems. They then completed a measure of gender self-esteem, used as a manipulation check to assess whether the stereotype threat had its intended effect, and measures of state and trait self-esteem, mood, and belonging. They also completed questions measuring educational level and math ability, which were used to control for prior math ability. Those in the five-identities condition were then asked to rate the interrelatedness of all possible pairs of the identities they listed (using the Venn diagram figure employed in Study 1). At the end of the survey, participants completed demographic measures (e.g. race, age) and were then shown the correct answers to all math questions.

2.2.3 Measures

Measures of state and trait self-esteem, mood, identity importance, identity difficulty, and interrelatedness were the same as those used in Study 1.

Gender self-esteem. I adapted the Collective Self-Esteem Scale to evaluate the importance of gender in the self-concept. Participants indicated from 1 (*Strongly disagree*) to 7 (*Strongly agree*) their stance on questions such as “In general, belonging to my gender is an important part of my self-image.” A composite gender self-esteem score was created by averaging the four items on this scale ($\alpha = .88$).

Belonging. Social belonging was assessed with four questions (e.g. “I feel like I belong in my community”) which participants rated on a scale from 1 (*Strongly Disagree*) to 6 (*Strongly Agree*). Scores were averaged across the four items to create a belonging score ($\alpha = .89$).

Math ability. From a list of 10 math topics (e.g. pre-algebra, multivariable calculus), participants were asked to select which ones they felt most comfortable with solving problems.

2.2.4 Results

From the original 301 participants, 18 were excluded because they did not pass the attention check, and 3 were excluded because they admitted to using the internet to solve the math questions. Data from an additional 4 participants were excluded because they did not self-identify as “Female” in the survey, which countered against the stereotype threat prime used. The final analyses used data from 276 participants (7.6% Black/African-American, 5.1% Hispanic/Latino/a, 89.5% White/Caucasian, 3.3% Asian/Asian-American, 2.5% American-Indian, 0% Native-Hawaiian).

For all dependent variables, I tested for main effects of the identity condition (control $n = 95$; one-identity $n = 93$; five-identities $n = 88$) and threat condition (no threat $n = 139$; threat $n = 137$), as well as for effects of the Identity X Threat interaction term. I created two orthogonal contrast codes for the identity condition to 1) test the hypothesis that listing multiple identities (i.e. five identities) would be most powerful overall compared to one-identity and control conditions (contrast 1: -1 = control; -1 = 1 identity; 2 = 5-identities), and 2) test for differences between the control and one-identity conditions (contrast 2: -1 = control; 1 = 1 identity; 0 = 5 identities). Unless otherwise noted, I conducted a multiple linear regression to predict for the dependent variables listed below with dummy-coded threat condition (0 = no threat; 1 = threat) and each identity condition contrast (Block 1), and their interactions (Block 2) (Cohen, Cohen, West, & Aiken, 2013). I also controlled for education, number of math courses taken, age, and race by entering them in Block 1 (all control variables were mean-centered).

When analyzing self-esteem as a moderator for outcome variables, I added mean-centered prior self-esteem (as a control variable) into Block 1 with the identity and threat codes, Identity X Esteem and Threat X Esteem interactions into Block 2 along with the Identity X Threat interaction, and the 3-way Identity X Threat X Esteem interaction in Block 3.

Interrelatedness of identities was also hypothesized to be a possible moderator. When conducting this moderation analysis, mean-centered interrelatedness was entered into Block 1, and the Threat X Interrelatedness interaction was entered into Block 2. Moderation analysis was only conducted for participants in the five-identities condition, as they were the only ones to complete the interrelatedness measure.

2.2.4.1 Manipulation check The measure of gender-esteem served as a manipulation check for the effectiveness of the stereotype threat. I expected that participants who received the threat would have lower gender-esteem, considering how the stereotype threat explicitly threatened the female identity. Analysis revealed no main effect of stereotype threat on gender-esteem; additionally, neither the main effect of identity condition nor the Identity X Threat interaction emerged as significant predictors, all $ts < .70$. These results suggest that the stereotype threat may not have altered performance on the following quantitative task as much as hypothesized.

2.2.4.2 Self-esteem I predicted that thinking of five identities would increase self-esteem, compared to thinking of one or no identity. For this analysis, state and trait self-esteem were separately entered as the outcome. Analyses revealed no significant predictors of identity or threat on trait self-esteem. For state self-esteem, although results indicated no main effect of identity or threat, an Identity X Threat interaction did appear for identity contrast 2, the

comparison between the control and one-identity conditions, $\beta = -.31$, $SE = .15$, $t(264) = -2.05$, $p < .05$. As shown in Figure 2, simple effects analyses revealed that when participants did not receive a threat, participants who did not list an identity did not differ in their state self-esteem ($M = 6.12$, $SE = .14$) compared to those who listed one identity ($M = 6.34$, $SE = .17$), $p > .10$. However, for participants who did receive the stereotype threat prime, participants who listed one identity had significantly lower state self-esteem ($M = 6.00$, $SE = .14$) when compared to participants in the control condition ($M = 6.41$, $SE = .14$), $p = .052$. Within each identity condition, there were no significant differences on state self-esteem between the two threat conditions, $p > .10$. These findings, along with the analyses on gender-esteem, suggest that both the multiple identity activation and threat priming did not have the predicted effects on esteem.

Interrelatedness. There were no main effects of threat and interrelatedness, nor a Threat X Interrelatedness interaction, $t < 1.60$.

2.2.4.3 Belonging Similar to self-esteem, I hypothesized that participants in the five-identity condition would feel higher belonging than participants in the control and one-identity conditions. Results indicated no main effects or Identity X Threat interaction effect on sense of belonging, all $ts < 1.50$. Despite these null results, I continued to explore if any of the following variables in the study contributed to sense of belonging: self-esteem, identity importance, and interrelatedness of identities.

Esteem. State self-esteem was revealed to have a main effect on sense of belonging, $\beta = .32$, $SE = .03$, $t(266) = 10.43$, $p < .001$. Participants who felt better about themselves (e.g. higher state self-esteem score) prior to the study indicated greater belonging at the end of the study compared to the belonging felt by participants with lower-self-esteem. There were no

interactions of state self-esteem with the identity or threat conditions, $t_s < 1.0$. Results indicated that trait self-esteem did not significantly predict belonging, $t_s < 1.5$.

Identity Importance. There was no main effect of identity importance on belonging, nor significant 2-way and 3-way interactions with threat and identity, all $t < 1.60$.

Interrelatedness. Regression analysis with threat and interrelatedness entered into the model revealed a marginally significant Threat x Interrelatedness interaction on belonging, $\beta = -.41$, $SE = .23$, $t(81) = -1.79$, $p < .10$. Simple effects analyses revealed there were no significant simple slopes. That is, for both threat conditions, the degree of interrelatedness between identities did not influence belonging; similarly, for measures of relatedness one standard deviation above and below the mean, the threat condition did not predict belonging. Although these results indicate that neither threat nor interrelatedness slopes differed from 0, the marginally-significant interaction term reveals the slopes do differ from each other (Figure 3).

2.2.4.4 Math performance I predicted that participants in the five-identity condition would score highest on the math task across both threat conditions, compared to the one-identity and control conditions. Results revealed that there were no differences for either of the identity condition comparisons; similarly, there was no Identity X Threat interaction, all $t_s < .10$ (Figure 4). However, examination of Block 1 indicated that the threat condition had a significant effect, $\beta = .65$, $SE = .22$, $t(268) = 3.00$, $p < .01$. Surprisingly, this effect was not in the direction expected. Participants who received the stereotype threat scored higher on the math task ($M = 4.58$, $SD = 2.09$) compared to participants who did not receive the stereotype threat ($M = 3.94$, $SD = 2.02$), regardless of identity condition. These findings are discussed below in more detail.

Esteem. To further explore the finding that participants under threat scored higher on the

math task, I examined the effect of trait and state self-esteem on math performance; perhaps participants scored higher under threat because they felt more confident in their abilities, which buffered against the threat. For state self-esteem, there was no evidence of 2-way or 3-way interactions. However, there was a main effect of state self-esteem, $\beta = -.16$, $SE = .13$, $t(267) = -2.68$, $p < .01$; for every one-point increase in state self-esteem, the score on math questions decreased .30 points. Thus, participants who felt better about themselves in the moment scored lower on the math task. Analyses of trait self-esteem showed similar patterns. There were no 2-way or 3-way interactions, yet there was a main effect of global self-esteem on math score, $\beta = -.08$, $SE = .06$, $t(267) = -2.52$, $p < .05$. For every one-point increase in trait self-esteem, there was a .08-point decrease in math score.

Interrelatedness. Considering how self-esteem had a significant, positive relationship with belonging, and belonging was similarly affected by identity relatedness, I analyzed the relationship between the interrelatedness of identities and math performance. There was no concrete hypothesis for how interrelatedness would affect math scores. Although the Threat X Interrelatedness interaction did not emerge, $t < .01$, Block 1 showed that the main effect for interrelatedness was marginal, $\beta = .38$, $SE = .19$, $t(81) = 1.08$, $p < .10$. Participants who rated their identities as more separate (+1 SD) scored approximately .39 points higher on the math task, compared to participants who rated their identities as more overlapping (-1 SD).

2.2.4.5 Exploratory Due to the unexpected effect of stereotype threat on math performance, I decided to further explore the dataset to investigate if this effect only held for specific populations. I first categorized participants by education (0 = did not complete college; 1 = completed college) and conducted the same regression analyses used to determine the effect of

threat and identity on math score (excluding education level as a control variable). Results indicated that the effect of threat on math performance was more significant for participants who attended college, $\beta = .71$, $SE = .33$, $t(129) = 2.14$, $p < .05$, compared to those who did not attend college, $\beta = .56$, $SE = .30$, $t(133) = 1.89$, $p < .10$. A similar pattern appeared when math experience was entered as a moderator. I created a dichotomous variable and separated participants into two groups based on the number of math courses in which they indicated proficiency. Participants who did not take as many courses (below the mean of 4) were not influenced by the stereotype threat prime, $\beta = .47$, $SE = .29$, $t(156) = 1.66$, $p < .10$; rather, participants who indicated they were more comfortable with different math courses (above the mean of 4) performed significantly better on the math task after being subjected to a threat. $\beta = .92$, $SE = .37$, $t(108) = 2.50$, $p < .05$.

2.2.5 Discussion

The main hypothesis of multiple identity activation buffering against stereotype threat was not supported by the results. This may have been due to the finding that participants in the threat condition score higher on the math task compared to those in the no-threat condition. Further analyses revealed that this effect was strongest for participants who had higher education, or greater perceived ability with math problems. These findings suggest that participants who highly identify with math or academics perceived the task to be more of a challenge than a threat. When a situation is viewed as threatening, it is likely due to the fact that the individual has low confidence in the ability to cope with the situation (Bandura, 1997; Lazarus & Folkman, 1984). Conversely, when a situation is challenging, it is likely due to the individual feeling confident in his or her ability to overcome it (Lazarus, et al., 1980). In the current study, the stereotype threat

may not have been threatening enough for participants' confidence in their math abilities; rather, it caused the following math task to be perceived as a challenge that participants could overcome due to their high ability. However, this is contrasted with the finding that an increase in state self-esteem was associated with a decrease in math score (but only between participants in the control and one-identity conditions). In this case, it may be that the one identity generated—usually “Family”—activated participants' gender identity, which became threatened with the stereotype threat prompt. However, since there was no significant result from those in the five-identities condition, this finding may require investigation through future studies.

Although the identity conditions did not seem to have a significant impact on the dependent variables in the current study, there was an interesting result respective to the interrelatedness of identities. When participants were not under threat, listing identities perceived to be more separate increased sense of belonging, whereas listing identities perceived to be more overlapping was more influential on sense of belonging when under threat. This seems to suggest that the relationships between social identities differentially benefit the individual depending on the situation. Because the stereotype threat in the study did not seem to have its intended effect, I cannot conclude whether identities that are more separate or more overlapping are more protective in the face of threat.

3.0 GENERAL DISCUSSION

Individuals encounter identity threats almost daily, threats that jeopardize sense of belonging, esteem, and ability. This is especially true for individuals who have been marginalized or historically underrepresented in society. Given the pervasiveness of identity threat, it is imperative that researchers create solutions to combat the deleterious outcomes with it. Although existing research has examined how to buffer against stereotype threat, none have looked at how to wield the collective power of an individual's social identities. This paper examined the role of multiple social identities in protecting the self from an identity threat, operating on the mechanism that social identities have been shown to increase self-esteem and feelings of belonging. Study 1 revealed initial evidence that listing many identities may not have infinitely-beneficial effects. Results suggest that after listing five identities, there are diminishing returns on these benefits, as there were no significant differences between activating five and seven identities on a host of outcomes. Utilizing this finding, Study 2 sought to examine how activating multiple (in this case, five) identities could protect the individual from identity threat. In this second study, I expected that when participants were under stereotype threat, activating multiple identities would help protect the individual against the threat and buffer against any decrement to performance on a math task. Results did not support this hypothesis; in fact, participants who received the threat performed significantly better on the math task compared to those who did

not receive the threat. In the following, I explore possible reasons for this effect, as well as other findings that speak to the positive power of activating multiple identities.

Findings from Study 1 revealed that after listing five identities, there were diminishing returns on identity importance and difficulty of listing identities. Results indicated after listing five identities, the importance of following identities tapered off, as evidenced by the post-hoc Tukey test. Similarly, the final identity of the seven-identities condition did not significantly differ from the median of the scale. The difficulty of listing identities also followed a linear pattern, in that listing more identities was perceived to be more difficult. The Tukey test showed that for the difficulty variable, the five-identities condition again did not differ from the seven-identities condition. Taken together, these results suggest that after listing five social identities, identities do not become more or less important, and it is not increasingly difficult to list more.

Although there were no significant results on self-esteem, the pattern of results shows a trend of decreasing self-esteem after listing five identities. However, it may be that no significant result appeared due to the methods used in this study. In this study procedure, participants were required to list the number of identities appropriate to their condition and were only instructed to write down the identity, nothing more. Perhaps self-esteem was not made salient because the participants were not asked to reflect on why these identities were important to them. Self-affirmation work directs participants to reflect on why certain values are important to them—it is possible that this missing reflection piece is what was needed for the multiple identity activation to increase self-esteem. Additionally, different results may appear if participants were asked to generate identities important to them without constraints or choose from a checklist of identities. It should also be noted that when I asked participants to list identities, they were limited by the categories provided for them. I took special care not to include in gender or race, groups

commonly stereotyped to perform a certain way on quantitative exams. Since Study 1 initially served as a pilot for Study 2, I did not want these stereotypes activated prior to stereotype threat induction in the second study.

Although results of Study 1 hinted towards there being benefits to activating five identities, these benefits were not seen to help buffer the individual against stereotype threat in Study 2. This may have been due to the finding that participants who received the stereotype threat performed significantly better on the math task than those in the no-threat condition, which ran counter to the expected effects of threat. It is possible that presentation of the stereotype threat via mTurk was not threatening enough to the participants. In this online setting, participants could have interpreted the math task as a challenge and not a threat because there were no concrete consequences of failing the math task. Conversely, conducting a similar study in a domain where academic or math performance is more salient—such as in a college lab with university students—may help in drawing out the expected effects of stereotype threat. For example, if this study were conducted with female, college participants who were taking a math course, it is possible that they would feel there were actual consequences to not performing well on a math task. As a result, they would feel pressure to score higher, and the stereotype threat prime would have its intended effect. This effect has been noted by multiple researchers: a stereotype threat in a certain domain is especially detrimental if the individual identifies strongly with that domain (Steele, 1997; Spencer et al., 1999).

3.1 EXPLORING INTERRELATEDNESS

In analyses exploring how the relatedness of identities affected variables, a few interesting findings were discovered. For one, interrelatedness was found to be a significant predictor of math performance. Regardless of threat condition, participants who perceived their identities are more separate scored better on the math questions, even when controlling for math ability and education. Perhaps the more separate identities are, the more resources we have to draw on to solve quantitative tasks. When the identities are too overlapping and none of the identities are related to math, the individual may be at more of a disadvantage compared to the possibility of having one identity high in quantitative ability that could buffer against other identities. Relating this back to the stool metaphor, perhaps having the legs of a stool spread out from each other provides more stability than having the legs condensed together in a central pillar.

Interrelatedness was also found to have a significant relationship with sense of belonging. When threat was not present, separate identities were related to a higher sense of belonging. This could suggest that having identities that are perceived to be separate from each other allows the individual to derive social belonging from a variety of sources, thus increasing belonging. It may be that when identities are too related, belonging is only derived from one source, rather than multiple sources. However, results did reveal that for participants under threat, a higher sense of belonging was associated with more overlapping identities. Perhaps the more related identities are to each other, the more reinforcing they are under stress, resulting in a greater protective benefit. Even if one identity is a liability under threat, the other identities are able to reinforce it because of their interconnectedness. Thus, in the event of a challenging math task or stereotype threat, identities that are tightly-connected to each other are able to offer support (by way of

increased belonging) to buffer against the threat. If identities are too separate, threatening one identity could cause instability to creep in despite the protective effort of the other identities.

In contrast to the findings reported above, interrelatedness did not have any effect with self-esteem. This results speaks perhaps to the distinctiveness of self-esteem and belonging within the identity domain. As past research has suggested, the self is comprised of both the personal and the group self. In the current study, the self-esteem measure may not have captured self-esteem in relation to the group—rather, it only measured personal self-esteem. Perhaps measures of esteem related to the group self could speak to belonging, more so than measures of personal esteem.

3.2 FUTURE DIRECTIONS

As Study 1 was largely exploratory, there are a number of follow-up studies that can be conducted to further explore the results revealed. Considering race and gender were excluded from the identity categories presented to individuals, a future study could analyze how many multiple social identities still contribute positively to self-esteem once gender and race are added in as categories. Would we see that more than five identities contribute positively to identity importance or esteem, or do gender and race play such an integral role in the self-concept that they would detract from other social identities? Exploring different methodologies for activating multiple identities may also illuminate the benefits derived from this activation. As previously mentioned, participants were constrained by the instructions provided to them. If not given instructions to list a certain number of identities, one might see that some participants only find two identities important to them, and some may find more than ten. Perhaps what is important is

not to give a concrete number, but rather ask participants to freely think of identities important to them without any constraints. In this way, they may be less likely to feel anxious about having to generate identities when they cannot come up with any. Additionally, asking participants to reflect on why the identities they list are important to them may yield more significant results on self-esteem and belonging, which showed null findings in the current studies. It is conceivable that just simply listing identities is not enough to activate them. Rather, individuals might need to think of why the identity is important to the self for the benefits associated with social identities to become activated.

Another avenue of research could also examine moderators of the effect of multiple identity activation. A study conducted by Tibbetts and colleagues (2016) found the VA intervention was particularly successful for first-generation college students—the first in their family to attend college—when independent values were affirmed, rather than affirming interdependent values. The argument was that first-generation, who come from a more interdependent culture, are likely to be threatened by the independent values promoted at American universities (Harackiewicz et al., 2014; Stephens, Townsend, Markus, & Phillips, 2012). Thus, affirming interdependent values during a VA affirmation helped first-generation students bridge the gap between their own values and the values of the supposed culturally-mismatched American university. Along these lines, I wonder if differences in individuals' independence versus interdependence values would show differential results of activating multiple identities. Since interdependence already focuses on the group and how the individual can contribute to the group, would activating multiple identities have any benefit to an individual that holds interdependent values? Rather, activating multiple identities might be more impactful for individuals who do not normally think of their contributions to their social groups.

Because results of Study 2 indicated that the stereotype threat prime likely did not have its expected effect, I hope to conduct a similar study with college students, with the idea that math and/or academic performance will be more salient to them than a random sample online. Additionally, in future analyses, I plan to code for the identities listed by the participants on math familiarity (e.g. professor, student). Although I controlled for math ability, activating an identity related to math may have contributed to math performance. This possibility is hinted at by the finding that participants high in math ability and education were more likely to perform better on the math task. By actively-identifying with math or feeling that one had high ability in math, participants may have felt more confident during the math task, compared to those who may not have felt as sure in their abilities.

3.3 CONCLUSION

The major aim of these studies was to present a novel solution to protect against stereotype threat utilizing the protective power of multiple social identities. In Study 1, results revealed a possible tipping point wherein activating multiple social identities is no longer as beneficial to the individual. These findings help pave the road for future studies to investigate the benefits derived from activating multiple social identities. The results of Study 2, however, do not permit concrete conclusions in regards to the protective power of multiple identities. Analyses revealed this may have been due to the stereotype threat prime not having its intended effect, an issue that can be resolved in future studies examining the same phenomenon. Although the results do not support the main hypothesis, the findings presented in the current study contribute to the research on how activation of multiple social identities both negatively and positively contributes to

performance and feelings about the self. By leveraging the power of social identities, we can create a solution to help individuals counter against threats that jeopardize who they are and where they belong.

APPENDIX A

IDENTITY PROMPT

Research tells us that a person's identity is partially comprised of the different groups the person is in. For example, a 20-year-old might be part of a soccer team. Being a member of this team would allow her to think of herself as an "athlete" or a "soccer player". These are two different identities she could have from feeling like a member of this group. As another example, think of a person who is a father. Being a "parent" or "father" is another social identity one could have.

Think about identities you have. To make it easier, first think about groups you are in. What role do you play in a family? Maybe you play sports? What are your hobbies? All social identities come from the social groups we are part of!

In the next few sections, you will be asked to think about your identities that are important to you. You will be given different categories to choose which one your identity best fits in.

For example, if we think about the examples above, the soccer player might choose the category "Athletics" or "Hobby". The father might choose the category "Family".

Please think of your important identities.

APPENDIX B

TABLES

Table 1. *Descriptive statistics*

	Mean	SD
<i>Study 1</i>		
State SE	6.30	2.00
Mood	6.34	1.79
Global SE	4.74	1.68
Difficulty	3.14	1.88
Identity Importance	5.24	1.05
<i>Study 2</i>		
State SE (pre)	6.46	1.84
Mood (pre)	6.43	1.58
Global SE (pre)	4.66	1.72
State SE (post)	6.19	1.93
Mood (post)	6.09	1.78
Global SE (post)	4.63	1.78
Gender SE	4.69	1.41
Math SE	4.46	1.94
Belonging	4.29	1.04
Difficulty	2.43	1.75
Identity Importance	4.26	1.32
Score on Math Questions	4.26	2.08

Table 2. *Correlation matrix of Study 1 outcome variables*

	1.	2.	3.	4.	5.	6.
1. State Self-Esteem	1					
2. Mood	.76**	1				
3. Trait Self-Esteem	.83**	.63**	1			
4. Difficulty	-.27**	-.26**	-.22**	1		
5. Identity Importance	.18*	.12	.15	.41**	1	
6. Interrelatedness	-.13	-.17	-.14	.13	-.16	1

* $p < .05$; ** $p < .01$

Table 3. Study 1 pairwise comparisons from Tukey post-hoc test (raw means)

	1-ID		3-ID		5-ID		7-ID	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Difficulty to list	2.52 ^{ab}	1.74	2.70 ^c	1.73	3.60 ^a	1.91	4.06 ^{bc}	1.78
Mood	5.93	1.81	6.75	1.51	6.51	1.79	6.26	1.95
Time to list	39.45 ^a	36.00	72.73 ^b	49.41	108.00 ^a	47.62	146.94 ^{ab}	120.25
Identity importance	5.60 ^{ab}	1.10	5.38	.99	4.86 ^a	.88	4.94 ^b	1.08
Final identity importance	5.60 ^{ab}	1.10	5.12	1.11	4.69 ^a	1.31	4.35 ^b	1.62
Relatedness			3.31 ^a	1.04	3.61	.75	3.76 ^a	.91

Note: For each outcome variable, means followed by the same letter differ significantly from each other, $p < .05$ (except for relatedness, $p < .10$).

APPENDIX C

FIGURES

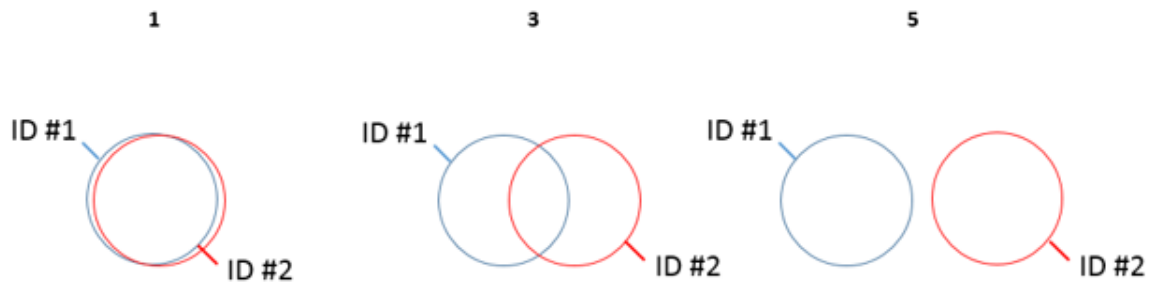


Figure 1. *Venn diagram figures used to measure interrelatedness*

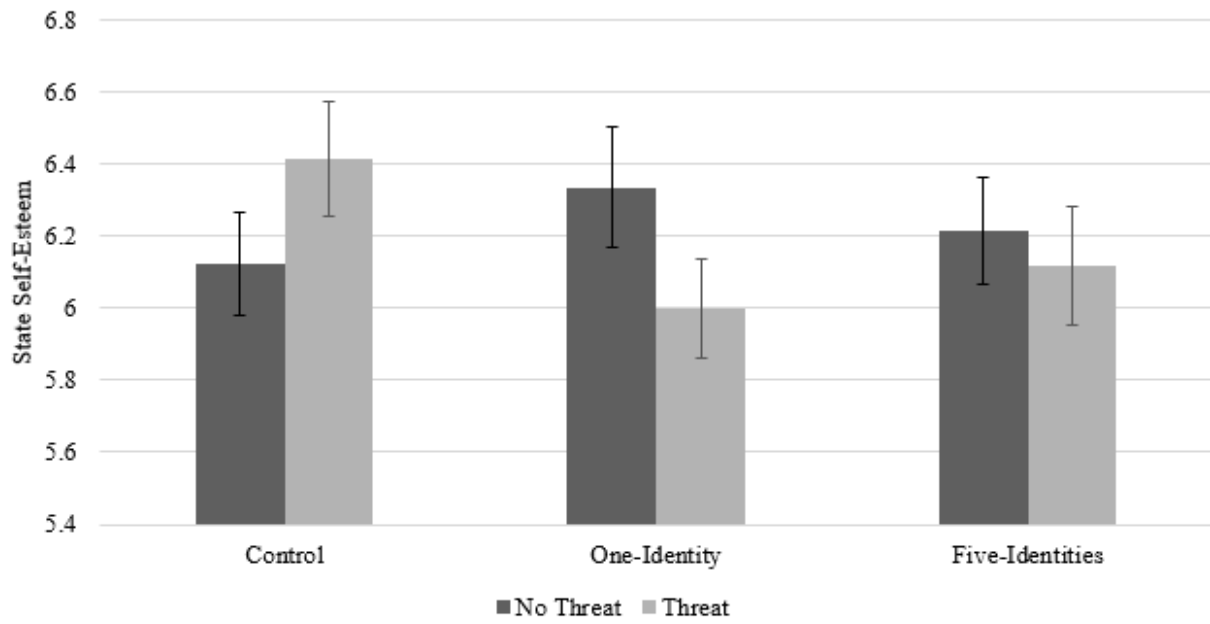


Figure 2. *Identity X Threat interaction effect on state self-esteem scores (Study 2)*

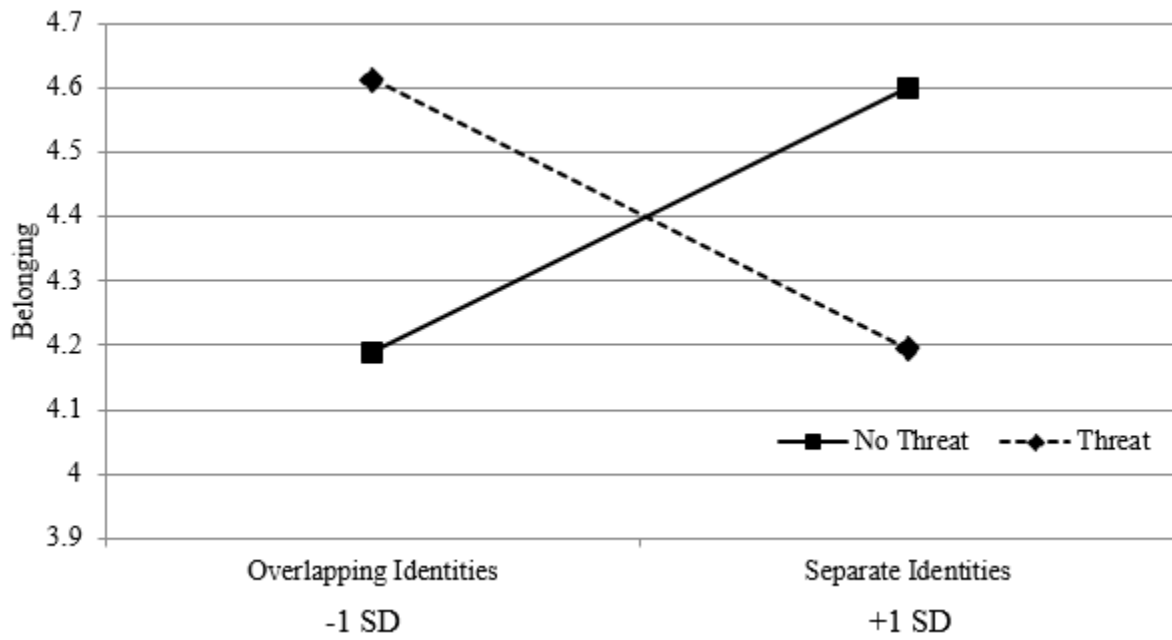


Figure 3. *Threat X Interrelated interaction effect on belonging measure (Study 2)*

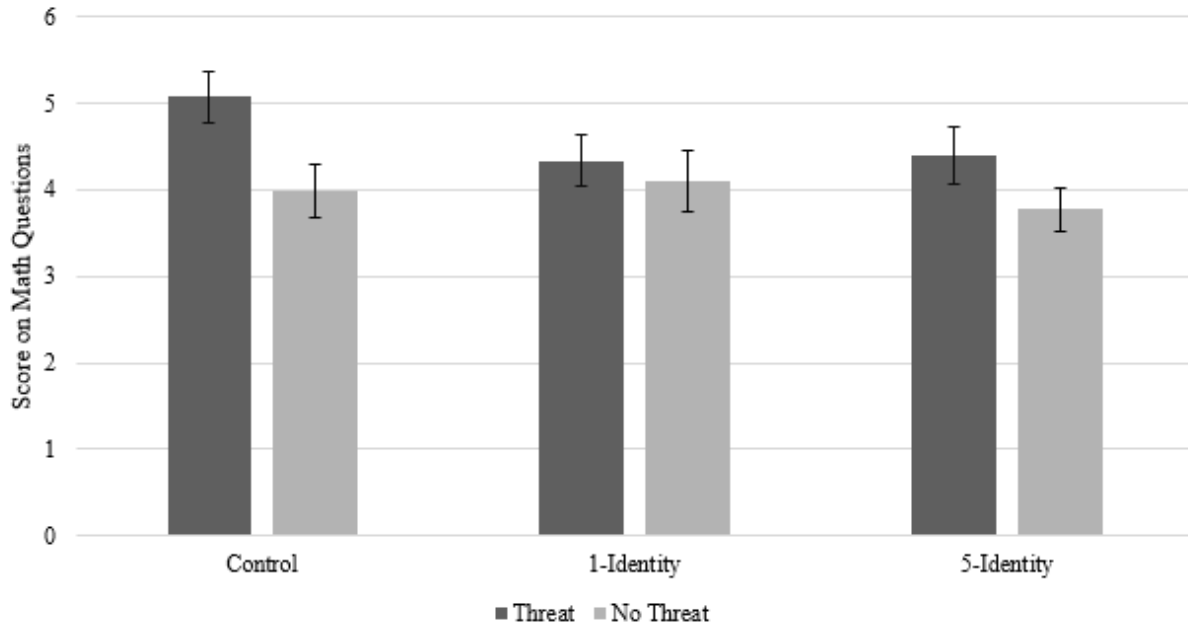


Figure 4. *Identity X Threat interaction effects on math score (Study 2)*

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