

**Me, Myself, and I:  
Activating Social Identities to Protect Against Identity Threat**

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# **Me, Myself, and I: Activating Social Identities to Protect Against Self-Threat**

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University of Pittsburgh, 2020

Social identities help foster feelings of belonging and support (Cialdini & Richardson, 1980; Correll & Park, 2005). This is particularly important during college. This environment is ripe with identity-related threats that communicate a student does not belong, which is associated with decrements in academic well-being and performance (Steele & Aronson, 1995). To combat this threat, I created and tested an identity-based intervention that focused on activating students' social identities. I predicted that activation of multiple identities could enhance the benefits associated with holding social identities and integrate students' identities into a cohesive sense of self, buttressing sense of self in the face of threat. I conducted three pilot studies to investigate empirical differences between single and multiple identity activation (Study 1), better understand the experience of holding multiple social identities for college students (Study 2), and examine how a multiple identity manipulation combatted negative feedback directed to the self (Study 3). These findings were then integrated to create a multiple identity intervention (Study 4) delivered to incoming college students ( $N = 651$ ). Results of Study 4 revealed that the identity intervention did not have an overall effect of enhancing academic well-being and performance. However, moderation analyses indicated that the intervention benefitted students in situations where perceived conflict among identities or lower identity importance diminished well-being and performance. These findings suggest that activation of multiple identities can create a sense of harmony and cohesion among identities, buffering against perceived dissonance among identities

that might otherwise be detrimental to well-being and academic performance. Discussion of these findings, potential limitations of the current methodology, and modifications for further examinations of multiple identity activation are included.

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## **1.0 Introduction**

Social identities foster feelings of belonging and positive self-worth (Cialdini & Richardson, 1980; Correll & Park, 2005). They remind individuals of the groups they hold membership in and the ways in which they are valued by others (for a review of outcomes associated with social identities, see Abrams & Hogg, 1999; Brown, 2000; Ellemers, Spears, & Doosje, 1999). These identities are especially impactful during the college years, a time fraught with identity developmental and formation (Jones & Abes, 2013; Waterman, 1982). For many students, this is a time when they are first away from home and the social networks with whom they spent the bulk of their lives. Entering college presents an interesting opportunity for shedding their older social identities and “trying out” new ones, opportunities facilitated by the myriad of clubs, groups, teams, and classes on college campuses in which to find membership (Hicks & Heastie, 2008; Stephens, Hamedani, & Destin, 2014). Regardless of which identities they form, students’ social identities have a significant impact on belonging and support during a stressful and novel social experience.

Despite the benefits that social identities may confer to the student during the college transition, these identities can also lead to situations wherein the student is threatened. Holding a negatively-stereotyped identity has the potential to lead to stereotype threat, a phenomenon wherein awareness of belonging to a negatively stereotyped group can harm performance and well-being (Aronson, Quinn, & Spencer, 1998; Steele, 1997). Awareness of these negative stereotypes can result in a host of harmful outcomes, such as performance deficits (Steele, 1997; Steele & Aronson, 1995), heightened anxiety and stress (Schmader & Johns, 2003), and uncertainty about

belonging (Walton & Cohen, 2007). This experience is more prevalent for students with traditionally stigmatized identities, such as racial/ethnic-minoritized and first-generation college students, who are subject to negative stereotypes about their academic ability (Croizet & Claire, 1998; Steele, 1997; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012).

In the present research, I examined how students, especially those with historically marginalized identities, could utilize the benefits associated with social identities to counteract threats directed at any one identity. Whereas past research has tested the protective effects of single identity activation (e.g., making a positively-stereotyped identity salient to protect against a negatively-stereotyped identity; Rydell, McConnell, & Beilock, 2009; Shih, Pittinsky, & Ambady, 1999), little attention has been devoted to the effectiveness of making *multiple* identities salient. In the sections below, I review the importance of identity activation and its utility in combatting threat, especially for students entering the potentially threatening domain of college. I then present three pilot studies that examined multiple identity activation and its protective capacity. These findings are then integrated into a final study (Study 4), an experimental intervention that investigated whether a multiple identity manipulation delivered in first-year level courses at the start of the fall semester could weaken the effects of threat and bolster academic performance.

### **1.1 Using Identity to Cope with Threat**

One proposed solution to countering stereotype threat is through disidentification (Major, Spencer, Schmader, Wolfe, & Crocker, 1998; Spencer, Steele, & Quinn, 1999; Steele, 1997; Steele & Aronson, 1995), which relies on individuals disengaging with their negatively-stereotyped

identity. For example, students who experience threat in the science domain may engage in disidentification by diminishing the value of this domain (e.g., “I don’t really care about science”). Disidentification is one viable strategy for dealing with identity threat, as research indicates that the individual must hold the stereotyped identity in high regard in order for the negative stereotype to affect it (Armenta, 2010; Schmader, 2002). If the individual disidentifies from and does not regard the negatively-stereotyped identity as important, then the stereotype threat has nothing to “sink its claws into”, so to speak; consequently, the threat is rendered less impactful.

Though disidentification has benefits for the individual in the moment, studies have shown that there are negative long-term consequences to disidentifying or disengaging with an identity in the face of stereotype threat. Steele (1992) showed that for African-American boys, disengaging from their racial identity, which is negatively stereotyped in the domain of academics, was related to them dropping out of school at higher rates. Similarly, Settles (2004) showed that female science students who separated their science identity from their female identity, which was negatively stereotyped in science, reported greater depression and lower life satisfaction. Other work has also shown that long-term disidentification is associated with reduced motivation and performance (Major et al., 1998; Nussbaum & Steele, 2007; Schmader, Major, & Gramzow, 2001).

As evidenced in these studies, students disengaging with an important identity is not an ideal adaptation. As Pronin and colleagues (2004, p. 153) state: “Disidentification with one’s in-group and assimilation into some out-group may oblige one to abandon previously valued aspects of identity and sources of self-esteem—including aspects that are not ‘suspect’ with respect to achievement in the relevant domain.” In fact, individuals are still driven to belong to groups that might be socially derogated, despite being vulnerable to negative stereotypes and identity threat, so long as they personally regard these groups to be important to the self. For example, people



willingly choose to smoke or have tattoos, groups which are normally marginalized by the broader society (Crocker & Major, 1989), or sometimes even increase identification with the stigmatized group *because* it is being threatened (Maalouf, 2001; Steele, 2002). Those who are members of historically underrepresented groups, such as racial/ethnic minority groups, will still hold these group memberships in high regard because of the sense of belonging they are granted by the other members of the group, who accept them and recognize their place within that social group. Work by Phinney and Alipuria (1990), along with Pittman and Richmond (2008), has also shown that strong sense of belonging with one's ethnic identity is linked to better psychological adjustment (see also Gummadam, Pittman, & Ioffe, 2016), suggesting that having a strong identification with one's identity, even if marginalized, would overall prove fruitful and beneficial to the individual.

As evidenced above, individuals can deal with threat in contradictory ways: either through disengaging or increasing identification with the threatened identity. Given the long-term consequences of disengagement, I was interested in pursuing an alternative solution to countering identity threat. I hypothesized that having students harness the potential additive benefits of their multiple social identities (e.g., belonging, self-worth), accentuating the positive and minimizing the negative, and integrate their identities together and view them as a cohesive unit, rather than separating identities from one other and creating a dissonant sense of self, would yield more beneficial results against threat.

### **1.1.1 Thesis Overview**

The idea of using identity activation to counteract threat in the academic environment has been demonstrated in much research (e.g., McGlone & Aronson, 2006; Shih et al., 1999). As I will

further unpack below, the findings from this work highlight how activating the positive stereotypes of one identity can counteract threats to the self that target an identity with a negative stereotype. However, this work does not take into account the multiplicity of identity. In other words, it focuses primarily on the activation of a *singular* identity and does not address the possibility of activating multiple identities to protect the self.

Identity researchers have long questioned why our understanding of social identity is so constricted. Pittinsky, Shih, and Ambady stated that there has been “a lack of empirical work on the dynamics of multiple identities in the self-stereotyping literature” (1999, p. 506). And in a more recent review of multiple components of the self, Kang and Bodenhausen (2015) argued for understanding how individuals perceive and experience multiple identities, emphasizing that “the goal of optimizing these perceptions and experiences is of paramount importance” (p. 566). The current thesis aims to contribute to this gap in our understanding of how social identities operate by shedding light on how *multiple* identity activation operates and be used to buffer against identity threat. Specifically, this work embeds the idea of multiple identities within the identity activation literature by proposing an intervention that focused on using the potential additive benefits of *multiple* identities and their hypothesized function of creating a cohesive self to protect against threats to the self. I predicted that asking college students to activate and reflect on their multiple social identities would foster an implicit sense of belonging students can carry internally, supplementing them with a psychological armor that can buffer them against threats to the self. Given that the college years are filled with immense identity development, it is unlikely that a single identity would have the same benefits to the students throughout all their college years. Thus, I hypothesized that activation of multiple social identities, which captures the fluidity of identity in college, has the potential to be even more protective for the student. I focused

specifically on students entering their first year of college, as they are being newly introduced to an academic and social environment that is rife with potential threats. These threats can manifest from a variety of situations—missing friends from back home (Paul & Brier, 2001), having trouble making new friends (Hays & Oxley, 1986), or even feeling underrepresented in large lecture classes (Murphy, Steele, & Gross, 2007) and the university as a whole (Binning & Unzueta, 2013).

In the following studies, I provide the foundation for a multiple identity intervention that examined how activation of students' *multiple* social identities can serve as a psychological armor against threats to the self. The proposed identity intervention introduces the idea that individuals can rely on parts of the self that are unconscious and operating at an implicit level (similar to self-affirmation research; Aronson, 1968; Sherman & Cohen, 2006), similar to the concept of identity proposed by Tajfel and Turner (1979). Namely, each person's self-concept is composed of both personal and social identities, any of which can be activated and made salient by the social context. One key argument of this approach though, is that only one social identity is activated at a time based on the surrounding social environment. For example, if a woman is in a room of all men, it is likely her identity as a woman will be made salient. I do not dispute this view but argue that even non-salient identities can have an impact on the individual and that the collective activation of individuals' multiple social identities might lessen the impact of threat directed to any single identity.

Within this intervention, I proposed that one way to protect the self against this onslaught of psychological threat was through implicitly activating important social group memberships. While it is not *implicit* during the manipulation—the intervention asks students to actively thinking of their important social identities and how these identities contribute to the self—the long-term effects of this activation can occur underneath the surface by creating harmony and integration

among potentially conflicting identities. Thus, when these individuals encounter threats to the self, they can be implicitly reminded through their social identity memberships that they are worthy and have value.

Additionally, I predicted that embedding this activation within the context of the university could further enhance the benefits of identity activation. This activation does not occur in a vacuum; rather, it serves as an internal resource for college students contending with a difficult social and academic transition. For many underrepresented students, identity threats in the academic environment are a result of their stigmatized identity being seen as incompatible with being academically competent. I hypothesized that taking into account the contextual factors of this threat and aligning students' stigmatized social identities with their general "college student" identity could foster the sense that these identities are compatible with each other. This may be especially important for students with identities negatively stereotyped in the academic domain, as these students who are likely to *disidentify* with or drop their academic identity because of these stereotypes (Cooper & Stone, 2000; Steele & Aronson, 1995; Woolley, Kol, & Bowen, 2009). This disidentification then leads to negative academic outcomes, as academic identity is strongly tied to academic performance (Chen et al., in press). I predicted that when students with these stigmatized identities are able to see their identities as operating in harmony, rather than in conflict with each other, their performance in college would be improved. By reflecting on and integrating their identities together—in a sense, creating a school-relevant self, one that fits in and belongs at school (Stephens, Brannon, Markus, & Nelson, 2015)—students may be able to reduce some of the dissonance they perceive between any of their identities.

Importantly, activation of multiple identities could emphasize a more cohesive sense of self, helping buffer threats directed towards any one specific identity. That is, an attack to one can

be dampened when that specific identity is just one of *many*, instead of on its own—much like how a drop in an ocean is not as impactful as a drop in a puddle. Normally, such threats communicate to students that they are not important or capable. But when buttressed with their social identities, they may be able to remind themselves that, in fact, they are important, that they have other social identities in which they find and create value. Consequently, the threat is rendered less impactful.

## **1.2 Defining Social Identities**

All individuals are comprised of social identities that they regard as personally-important. Our survival, since the inception of our species, has required us to be a part of tribes and groups; this support and in some way, dependence on others, would guarantee our livelihood (Leakey & Lewin, 1979). Nowadays, being a part of a group is not only necessary for physical survival (e.g., Baumeister & Leary, 1995), but also plays a fundamental role in our mental and emotional well-being (Caporael & Brewer, 1991; Stevens & Fiske, 1995).

Social identities are “created” by holding membership in social groups (Tajfel, 1974). These identities also help foster a sense of support and inclusion into the community, narrowing the sense of the world into one where people can safely situate themselves (Tajfel & Turner, 1979). A vast body of research has shown that social support and inclusion are incredibly important to the individual, as they enhance self-esteem and well-being in the face of life stressors and health challenges (Cohen & Wills, 1985; Haslam, Jetten, O’Brien, & Jacobs, 2004; Levine, Prosser, Evans, & Reicher, 2005). For example, Sani and colleagues (2015) showed that membership is

multiple social groups is positively related to increased participation in a host of healthy behaviors (specifically, more physical exercise, decreased smoking and drinking, and improved diet).

Though social psychology has long studied the self, it was not until Tajfel and Turner (1979) that the *social* aspects of the self-concept became a primary focus of research. Rather than just limiting definitions of the self to personal characteristics (e.g., honest, loyal, intelligent), they argued that an important part of the self is also comprised of social *identities*. That is, people belong to groups that communicate belonging and “have a need for positive social identity which requires them to establish a positively valued distinctiveness for their own group compared to other groups,” (Tajfel, 1974; Tajfel & Turner, 1979). Social identities serve as categories for the self—cognitive structures through which we define ourselves. Self-categorization theory (SCT; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) then took this one step further and helped elucidate when personal versus social parts of the self would be activated. SCT argued that individuals categorize themselves with one category at a time (e.g., social, rather than personal), dependent on the situation. The bulk of identity activation work rests on this premise that one identity is activated at time (Turner, 1985).

### **1.3 Multiple Aspects of Identity**

I argue that this focus on singular activation does not fully capture the nuance of holding multiple social identities. As Walt Whitman famously wrote, “I am large, I contain multitudes” (2001), and research on the self has long attested to this fact (e.g., Ashforth & Johnson, 2001; Frable, 1997; Higgins, 1987; James, 1890; Thoits, 1983; for a review, see Kang & Bodenhausen,

2015; Markus & Nurius, 1986). The multiple self-aspects framework (e.g., DeSteno & Salovey, 1997; McConnell, 2011), for example, paints a portrait of the self as a collection of context-dependent components, such as roles, identities, relationships, goals, and behavioral situations (McConnell, 2011). These self-aspects interact together to determine an individual's personal attributes and influence affective states. In a similar vein, multiple self-concept theory (e.g., Marsh & Craven, 2006; Shavelson, Hubner, & Stanton, 1976) partitions the self into academic, physical, social, and emotional components. Research using this framework has illustrated how enhancement of a particular self-concept influences a host of desirable outcomes, such as academic achievement (Craven, Marsh, & Burnett, 2003). Relatedly, the research examining intersectionality also embraces the multidimensional nature of the self (Cole, 2009; Johnson, Freeman, & Pauker, 2012). This work argues specifically that race and gender covary and activate together, resulting in outcomes unique from just singular activation of race or gender.

Though these theories highlight the multifaceted nature of the self and outcomes associated with activation of these multiple parts, they lack a focus on how these multiple aspects can be utilized to serve the self in a beneficial manner. The current thesis addresses this limitation by examining how activation of multiple positive identities during the transition to college can serve as a source of psychological protection against threats directed towards more negative identities. This argument aligns with the work on self-affirmation, which provides evidence for utilizing alternative self-aspects—those not specifically activated by the social context—to protect the self in the face of threat. That is, this literature argues that affirming valued aspects of the self can make a more threatened aspects less detrimental.

### 1.3.1 Self-Affirmation

In this current thesis, I argue that activation of multiple social identities serves protective functions through utilizing the positive mechanisms of the self to compensate for negative aspects. This argument builds on ideas presented in self-affirmation theory, which reasons that one way to counter threats to self-integrity—the sense that one is moral, adequate, and competent (Aronson, 1968; Sherman & Cohen, 2006)—is through reflecting on components of the self that demonstrate the person’s adequacy, consequently shoring up self-integrity (Cohen, Aronson, & Steele, 2000; Steele, 1988). A common method of affirmation is the values-affirmation task, (Miyake et al., 2010), which presents individuals with a list of values (e.g., friends/family, art, music, religion) and asks them to select and reflect on one or two they regard as personally important. In doing so, individuals are implicitly reminded of why they are good and adequate beings (McQueen & Klein, 2006). These reminders enable individuals to psychologically-distance themselves from the salient threat and subsequently view themselves on a larger, more global scale, keeping their self-integrity stable when encountering threat. In a sense, affirmations expand the self so the threat does not loom as large (Walton, Paunesku, & Dweck, 2012).

Though I borrow some methods of the values-affirmation task, I contend that affirming one’s multiple social identities, versus core personal values, will be more powerful in protecting the self against threat during the transition to college. Evidence indicates that part of the efficacy of the values affirmation task derives from emphasizing social relationships (Shnabel, Purdie-Vaughns, Cook, Garcia, & Cohen, 2013), which suggests that activation of *multiple* social relationships could have additive beneficial effects. This finding corroborates the work emphasizing the importance of belonging—humans are fundamentally motivated to maintain and



enhance their bonds that facilitate social belonging (Baumeister & Leary, 1995). Thus, when individuals are threatened or devalued, they seek to maintain their sense of integrity and worth by reminding themselves of those who accept them and support their belonging (Baumeister, Twenge, & Nuss, 2002; Smart, Richman & Leary, 2009). I argue that a more direct way of enhancing social belonging is through affirming one's multiple social identities, explicitly reminding individuals of their valued social groups and situating this affirmation in the context of their university identity. By directly targeting the source of social belonging, the intervention seeks to buttress students' self-integrity and sense of self.

### **1.3.2 Examples of Single Identity Activation**

Although research has not specifically focused on using the activation of multiple social identities to counteract threat, considerable research attests to the fact that activation of a social identity generally can counteract threat associated with a negative social identity, aligning with the SCT argument that only one identity can be activated at a time. For example, Shih, Pittinsky, and Ambady (1999) battled the contrasting stereotypes on math performance associated with Asians and females. They brought Asian female students into the lab and primed either the students' Asian or female identity, thus activating the positive or negative stereotype associated with each identity, respectively. In doing so, they found that priming one identity or the other led to a performance outcome as expected with the stereotype. This highlighted that holding multiple social identities with conflicting stereotypic expectations can either impede or improve performance, depending on which one is activated.

Many other studies follow this same framework, showing that when individuals hold social identities that have conflicting stereotypic implications, activation of one or the other can lead to different outcomes. More specifically, the identity activation literature zeroes in on the idea that activating an identity associated with positive stereotypes can protect against the activation of a negatively stereotyped identity. Rydell and colleagues (2009) examined how simultaneous activation of college student and female identities buffered against a negative stereotype attributed to the female identity. In their study, female college students completed a math task after being randomly assigned to either receive 1) no information about their gender or student group membership (control condition), 2) information activating their negatively-stereotyped gender identity (gender identity condition), 3) information activating their positively-stereotyped student identity (student identity condition), or 4) information highlighting both social identities (multiple identity condition). Results for the gender identity condition mirrored prior results, illustrating how salience of the female identity decreased performance because of the stereotype threat encountered by women in the math domain. However, those in the multiple identity condition who activated both student and female identities did not experience this decrement in performance. This suggests that making both the positively and negatively stereotyped identities salient negated the negative effects of stereotype threat directed at one particular identity.

Similarly, Shih, Pititnksy, & Trahan (2006) conducted a study examining the implications of activating either a female or an Asian identity on performance on a verbal task, a domain where females are positively stereotyped and Asians are negatively stereotyped. Consistent with previous findings, participants who activated their positively-valenced female identity experienced a stereotype boost effect, performing significantly better on the verbal task compared to their peers who activated their negatively-valenced Asian identity. McGlone and Aronson (2006) utilized a

similar methodology to examine whether salience of a private college student identity could suppress the effects of stereotype threat associated with a female identity on math test performance. Analogous to previous findings, priming the positively stereotyped identity (e.g., “private college student”) subdued the effects of threat associated with the priming of the negatively stereotyped identity (e.g., “female”).

These studies highlight how experimental methods can leverage the positive connotations of one of their identities to counteracts negative stereotypes attributed to another social identity. However, one serious limitation of this work is that the experimental manipulations pit only one social identity against another—despite the fact that individuals possess multiple social identities. Moreover, they do not examine the role of identity activation in a field setting during students’ transition to college. Is it possible that the benefits of identity accrue as students activate more identities? Additionally, much of this identity activation research relies on the stigmatized individual to possess a social identity that has positive associations; however, not all individuals hold social identities are perfectly positively- or negatively-valenced against one another. That is, the researchers who examine “multiple” identity activation explicitly activate a positively stereotyped identity to counteract a negatively-stereotyped identity. In many educational contexts, not all individuals will have social identities that perfectly contrast each other.

### **1.3.3 Insights from the Multiracial Literature**

A related set of research—that examining the experiences of multiracial individuals—addresses some of the limitation of only activating a singular identity. This research highlights the utility in holding *multiple* racial identities, and corroborates the findings above: namely, that

activation of the racial identity with positive stereotypes is associated with more beneficial outcomes than those associated with activation of the racial identity with negative stereotypes. Gaither, Remedios, Schultz, and Sommers (2015) conducted an experimental study where Black/White individuals were randomized to 1) prime their Black identity (resulting in stereotype threat), 2) prime their White identity (resulting in stereotype boost), or 3) not prime either racial identity. After the priming manipulation, participants completed questions from the verbal portion of the GRE. Results were analogous to previous findings. Participants primed with their White identity performed better on the test compared to those primed with their Black identity, highlighting how increasing the salience of a positively stereotyped racial identity counteracted effects of the stereotype threat. Interestingly, those who did not receive a race prime performed similarly to those primed with their Black identity; consistent with this, those who were not primed with their race reported identifying more with being Black than being White. These findings show that when neither race identity was primed, participants' Black identity was more salient, affirming previous findings that negative social identities are particularly impactful on the individual.

Research also shows that multiracial individuals often report the experience of *switching* among their racial identities, a sign that people are able to somewhat hold onto multiple social identities at once and be able to toggle between the two (e.g., Gaither, 2015; Shih & Sanchez, 2005). This contradicts the established idea of self-categorization, which argues that people activate a singular identity at one time depending on the social context (Turner, 1985; Turner et al., 1987). Rather, findings from this work indicate that individuals with certain identities may be able to transition between and/or among their identities with some sort of fluidity. For example, researchers have shown that Black/White multiracial individuals can identify at similar strengths with *both* their Black and White racial component identities (Gaither, Remedios, Schultz, &

Sommers, 2015). These findings lend credence to the idea that multiple identities may be able to be activated at the same time, so long as they fall under a more general, overarching category (e.g., race). It is possible that for college students, conceptualizing their social identities as belonging to their general “college student” identity could help buffer against threats directed to a particular identity.

Some studies on multiracial individuals even show that being “multiracial” is seen as its own distinct identity, thus hinting at the ability of individuals to create novel social identities (Binning, Unzueta, Huo, & Molina, 2009; Rockquemore & Brunsma, 2002; see Pauker, Meyers, Sanchez, Gaither, & Young, 2018 for review). There may be the caveat that the identities must fall in the same sort of general category—in this case, race—but it is also possible that this points to the ability of individuals to mentally navigate their multiple social identities at one given point. This would suggest that people can possibly think of their social identities as grouped together under a more superordinate category, such as “college student”. In doing so, they are able to view their identities more cohesively and possibly combat any conflict or dissonance among identities. For example, for multiracial individuals who have both positively and negatively stereotyped identities, it is perhaps possible that thinking of their racial identity as multiracial, rather than Black or White, is able to protect them against threats to their Black racial identity (which is more commonly negatively stereotyped). In a similar manner, perhaps thinking of one’s important social identities as coalescing under a more general category is able to protect against threats to a specific social identity.

Though this research hints at the possibility that holding multiple social identities can ultimately help buffer against threats to one identity, we see the same limitation in that students are expressly asked to activate a positively-valenced identity to combat the stereotypes attributed

to a negatively-valenced identity. Another main limitation of the research previously mentioned is that for many of the studies, the researchers stipulate what specific identities are activated. In these studies, the researchers specifically choose individuals who have the social identities they are interested in examining. This is not reflective of the fact that students are likely to have a myriad of social identities they hold important and can activate; as stipulated by SCT, the social situation dictates which social identity is activated –we are not always able to activate only our positive identities. As evidenced above, experimental manipulations of social identity focus only on the activation of a singular identity, despite the fact that a vast body of identity research has espoused the idea that individuals are comprised of *multiple* identities.

#### **1.3.4 Examples of Multiple Identity Activation**

With the exception of two studies outlined below, there is very little research on the benefits of multiple identities. In one study, Gresky and colleagues (2005) asked participants to create self-concept maps of identities important to themselves. These maps served to increase the salience of participants' multiple social identities. Prior to completion of the maps, female participants were told they would complete math questions from the GRE test and then received a stereotype threat manipulation (participants were told the following quantitative GRE questions were diagnostic of their mathematical reasoning abilities). Participants were then randomly assigned to one of three “self-concept map” conditions, after which they completed a quantitative GRE task. For the different experimental conditions, participants were asked to either 1) create a map with few nodes, 2) create a map with many nodes, or 3) not create a map at all. Those in the first two conditions were presented with an example self-concept map where the center of the map contained a “me”

label and radiating from this central point were four nodes (“school”, “hobbies”, “family”, “friends”). Those in the “few nodes” condition saw only this map, whereas those in the “many nodes” condition viewed this map with the addition of 46 additional nodes branching out from the central point. Results indicated that participants in the “many nodes” condition, versus those in the “few nodes” condition, scored higher on the math exam. The researchers posit the creation of a larger self-concept map led to an expansion of the self, which helped to protect against the stereotype threat. This is analogous to the argument made by self-affirmation theorists, who posit that affirmations enable individuals to view themselves in a more global sense and expand the self, deflecting the effect of the threat (Critcher & Dunning, 2015).

In a similar vein, Ruvolo (1999) assigned participants to either multiple or single social categories to assess how these manipulations would protect against threat. Those in the “multiple social categories” condition were asked to think about the many social identities they belonged to, whereas those in the “single social categories” condition were asked to think of one social identity. After receiving negative information about one of their ingroups, participants were asked to rate this threatened ingroup. Those who thought of their multiple identities rated their ingroup more favorably than those assigned to a single group did. Mirroring the pattern of results found in the Gresky et al. (2005) paper, these findings suggest that those who viewed themselves more expansively were able to wield these multiple identities to buoy the self in the face of threat.

The results of these two studies hint to the possibility that activation of multiple social identities may serve similar protective functions against stereotype threat. That is, it is likely that the effect of multiple identity activation on threat is akin to the idea that a drop in the ocean has a small, possibly inconsequential effect, whereas activation of a singular identity is more akin to the idea that a drop in a puddle has a more powerful effect. They also start to address the limitations

presented earlier. In these two studies, participants are asked to generate—on their own accord—the identities they regard as personally-important, rather than the researchers dictating which identities are activated. Additionally, the identities listed are not perfectly valenced against each other; even so, we see that general activation of multiple social identities can be beneficial against the face of threat. The current studies extend this work by further investigating the outcomes associated with activation of multiple identities, specifically focusing on having students reflect on social identities they held important to the self. Importantly, this thesis is the first to examine the utility of multiple identity activation in a field setting and tracks effects of this activation long-term on well-being and academic outcomes.

#### **1.4 Proposed Studies**

In the current thesis, I extend the limited work investigating whether multiple identity activation can buffer against threats to the self and apply it to the experiences of students in the college setting. In three pilot studies, I investigated the general phenomenon of multiple identity activation within the experience of transitioning to college, a time where identities are in flux. Additionally, the pilot studies helped highlight how embedding this activation with school belonging could elicit greater effects from multiple identity activation. The final study integrated findings from the previous three studies to examine how a multiple identity-driven intervention protected students against threats in the college environment.

The identity intervention teaches students that they are not just accountable for *one* identity; rather, they have other resources from which to draw upon for integrity. My thesis centers around



the argument that individuals derive a host of benefits from thinking about the important social groups to which they belong during their early college experiences. In this intervention, students were asked to list and reflect upon their important social identities within the context of their school identity. I predicted that by activating multiple identities, which harnessed the benefits associated with one's social identities, and then integrating them under the general "college student" identity, which created a sense of cohesion among students' social identities, students would create a sort of psychological armor against threats and/or stressors experienced in their daily lives. Notably, I studied this phenomenon within the critical time period of transitioning to college. As this is a time of identity flux, it is one which provided an interesting glimpse into how individuals, especially young adults, try on new social identities.

#### **1.4.1 Pilot Study 1**

The first pilot study examined how multiple identity activation empirically differed from singular identity activation. Though research has theorized about the *concept* of multiple identities, it is still not quite clear what outcomes are associated with bringing online more than one social identity. Methodologies utilized for studying multiple self-aspects vary in how they study this multiplicity (see Ramarajan, 2014, for a review). When activating multiple identities, how many identities should be activated? This first study helped zero in on a potential *number* appropriate for future experiments by examining outcomes associated with activation of a range of multiple identities. Students were randomly assigned to list one through seven social identities, and different outcomes of well-being were tested to investigate how multiple identity activation differed from

singular identity activation. Results of this first pilot study helped define a specific operationalization for “multiple” identities for the studies in the rest of this thesis.

### **1.4.2 Pilot Study 2**

The second pilot study built off the findings of the first pilot study by conducting a more qualitative exploration of multiple identity. A focus group was conducted with upper-level college students to examine the types of identities these students held and if they derived feelings of belonging and support from these identities. This study sought to understand how students conceptualize their multiple social identities, and how they wield the power of these identities. The findings from this second pilot study provided insight into the value that social identities provide college students. Moreover, it highlighted how students conceive of their student identity and how strongly tied it is to visual depictions of the school. These findings informed the design of the identity intervention, as one of the aims of the intervention was to have students view their stigmatized social identities and academic identity more cohesively.

### **1.4.3 Pilot Study 3**

Though the first two pilot studies helped clarify how to operationalize *multiple* social identities, they did not delve into how multiple identity activation (defined by Study 1 findings as activation of five social identities) differs from single identity activation, especially in the face of threat. I was also interested in examining whether conducting the identity intervention within a cue

of school identity would enhance the effects of multiple identity activation and reduce feelings of dissonance among students' identities.

It is possible that embedding the identity task into a visual cue of the university could enhance how students view their identities and the sense of belonging they derive from them. Research from the marketing domain has long demonstrated how products and brands are symbols of identity (Levy, 1959), and how individuals prefer an identity-congruent product or symbol over an identity-incongruent one (e.g., Bolton & Reed, 2004; Oyserman, 2009). In other words, when individuals are able to see themselves reflected within an object, they tend to report feeling closer to that item and liking it more. This identity-based preference is not isolated to the consumer sphere. A study by Trudel and colleagues (2016) demonstrated how individuals were more likely to recycle products that were linked to one of their identities; they argue this occurred by throwing away an identity-linked product in the trash was seen as akin to throwing one's 'self' in the trash. These studies taken together illustrate the influence of identity-based image. An implication of this is the possibility that identity activation may have a recursive effect, in that positively coloring the school logo will in turn enhance students' perceptions of their identities. The third pilot study addressed these limitations by analyzing the effect of a multiple identity manipulation, where the listing of identities was embedded within an image of the university, on a stressful task (to imitate the effect of being threatened by a negative stereotype).

#### **1.4.4 Study 4 Identity Intervention**

Study 4 integrated findings from the previous three studies to investigate the utility of a multiple-identity based intervention in combatting threat for college students, especially those with

marginalized identities, and possible moderators of the effect. The broad framework for this intervention relies on the research on social-psychological interventions, which has recently garnered much attention. From self-affirmation to social belonging interventions, these interventions highlight the ability of more psychological, implicit processes to take hold within an individual and help buffer against threats to the self (Binning & Browman, 2020; Wilson, 2006; Yeager & Walton, 2011). The efficacy of many of these interventions relies on their ability to bolster a more positive psychological phenomenon, such as increased sense of belonging or more secure sense of self (via affirmations), that then protects the self when threatened (Harackiewicz, Tibbetts, Canning, & Hyde, 2014; Sherman et al., 2013; Walton & Cohen, 2011).

Similar to these other interventions, I argued that the “invisible processes” set in motion by thinking of one’s important social identities could serve as a psychological armor in the face of stress and threat from one’s surrounding environment. It is not that we walk around the world explicitly, concretely thinking of the social groups in which we hold membership. Rather, social psychology research has taught us that much of what influences human behavior and action is *invisible*, lying underneath the surface. Thus, it is possible that activation of one’s social identities may have lingering effects long after the initial explicit activation. When delivered early in students’ college experiences, the intervention may produce a lasting change in how students see themselves, and their multiple identities, within the university setting. When they subsequently encounter threats to particular aspects of their identity, those threats may loom less large and help students stay engaged. I investigated this possibility with this fourth study, highlighting the potential of the invisible process of identity activation.

If these processes are put in motion by the intervention, the physical reminders of the university may serve as primes or reminders of their multiple identities. As such, Study 4 examined

how embedding students' social identities within the framework of their school identity would enhance the effects of identity activation by asking students to reflect on their identities on a visual cue of the school mascot. I included a novel feature wherein students were distributed a keychain of the school mascot paw print after completing the initial intervention at the start of the year. The keychain was distributed for two primary reasons. I hypothesized that by giving students a physical reminder of the intervention, the implicit framework and mechanism of the intervention would be perpetuated (similar to boosters in values-affirmation interventions; Cohen, Garcia, Purdie-Vaughns, Apfel, & Brzustoski, 2009). Implicitly linking the identity manipulation with the keychain, since both contained a visual of school belonging, might have the potential serve as a reminder of the intervention and re-activate the benefits associated with multiple identity activation. Additionally, work has shown that school belonging is an essential feature that contributes to overall belonging at the university and improved psychological well-being (e.g., Hausmann, Schofield, & Woods, 2007; Pittman & Richmond, 2008; Roeser, Midgley, & Urdan, 1996; Wilson & Gore, 2013). I predicated that giving students a physical reminder of the school could serve as a 'cue of inclusion' within the school (Walton, Logel, Peach, Spencer, & Zanna, 2015) and create a sense of cohesion among students' school identity and their other social identities. In fact, much research within the marketing domain has illustrated how students increase their identification with an organization if they possess a physical item that is identified with that particular organization.

This study aimed to address several of the limitations within the multiple identity activation literature. In the current study, students were asked to generate their own social identities, rather than the researcher choosing the social identity to activate. This increased the likelihood of students selecting identities they personally valued, rather than solely choosing from a pre-selected list

provided by the research team. Additionally, by allowing students to generate their own identities, the current studies do not limit the identity activation to only identities oppositely-valenced against each other. This helps to make interpretation of the results more generalizable across identity activation as a whole.

I argue in this current thesis that activating multiple identities will help protect against threats to the self through bolstering students' sense of value, and other benefits associated with one's social identities, and reducing feelings of dissonance caused by identity conflict. Through implicitly reminding students of their self-important social groups, this intervention has the potential to enhance students' sense of self and create a psychological armor of sorts that can deflect threats attacking any one identity. In this way, multiple identity activation can be seen as operating with similar benchmarks and processes as other social psychological interventions.

In addition to understanding how multiple identity activation more generally benefits the self, I was also interested in examining if the utility of this intervention differed depending on how students perceived their identities. The ways in which individuals view the structure of their identities and importance of these identities can vary widely; it is possible that this variance could enhance or diminish the effects of multiple identity activation. In the current thesis, I focused specifically on the characteristics of identity importance, conflict, and overlap.

#### **1.4.4.1 Identity Importance**

As highlighted previously, much research has espoused the importance of social identities to the self (Crocker & Major, 1989). However, this work has not yet examined how the importance of identities impacts activation of multiple identities. I predicted that the greater individuals perceive their identities as contributing to the self, the more beneficial multiple identity activation

would be. That is, perhaps there is an additive effect of the benefits of bringing online multiple identities the more these identities are regarded as important to the self.

#### **1.4.4.2 Identity Conflict**

The research on identity conflict suggests similarly straightforward results for the moderating effect of identity conflict. Identities may conflict with one another if the responsibilities and/or goals associated with each particular identity get in the way of one another. The bulk of the work committed to examining role conflict has focused on the incongruence in work and family roles, especially within females (e.g., Reitzes & Mutran, 1994). The argument here is staked in the idea that because family obligations tend to fall on women, women with families who are also employed perceive themselves as fulfilling each role with lower success, leading to greater role conflict and feelings of guilt (e.g., Helson, Elliott, & Leigh, 1990). In addition to work-family role conflict, another line of research examines how role conflict manifests in employees and employers within an organization (e.g., Jackson & Schuler, 1985; Miles & Perreault Jr, 1976). The bulk of this research argues that the more roles are perceived as conflicting with each other, the more stress is elicited (Coverman, 1989).

For college students, conflict could arise from perceiving opposing demands from their academic and social identities (Vallerand, 1997). For instance, students may find themselves in the dilemma of studying for a test—a goal attributed to their student identity—or attending a party with friends—a goal attributed to their friend identity, and consequently experience negative affect from having to address this conflict (e.g., Emmons & King, 1988). Given the potentially negative impact of identity conflict, I measured this identity feature in the subsequent studies and use it as

a moderator in our analyses to investigate how variance in perceived identity conflict may impact the effectiveness of multiple identity activation.

#### **1.4.4.3 Identity Overlap**

Predictions for the impact of identity overlap are not as straightforward as those for identity importance and conflict. One body of research suggests that by perceiving the structure of one's identities as more overlapping identities are perceived to be with each other, the more likely individuals are able to perceive the responsibilities and goals of these identities as being compatible with one another. However, an opposing set of literature argues when the structure of one's identities are perceived as less overlapping, threats to one identity do not 'spill over' onto other identities, thereby decreasing the influence of the threat. Given these contradictory findings, I present both sets of literature below and further explore how the perception of overlap or separation among one's identities affect identity activation in the current set of studies.

Some evidence suggests that that the more interdependent identities are with each other (e.g., low complexity), the more beneficial this is for the individual. For example, Simon (1995) found that women who viewed their work and family roles as independent from each other (e.g., low overlap) were more likely to report their work identity as being a threat to their family identity, in that the responsibilities from work impeded their ability to be good wives and/or mothers. The implication stemming from these findings is that viewing roles—and thus, identities—as more overlapping might yield better outcomes.

However, there are findings from the role conflict literature that argue for the benefits of low identity overlap. Work conducted by Settles, Sellers, and Damas Jr. (2002) illustrates that for student athletes, who possess two roles (student and athlete) with contrasting stereotypes and



expectations of behavior (Stone, Harrison, & Mottley, 2012), viewing roles as distinct from one another is related positively to well-being. This aligns with the literature on social identity complexity theory (SIC; Roccas & Brewer, 2002), which stipulates that individuals can conceptualize their identities along a spectrum of complexity, represented by perceived identity overlap. Researchers state that individuals with low complexity perceive high overlap among their identities, whereas those with high complexity perceive low overlap between their identities (Linville, 1985; Roccas & Brewer, 2002). Defined another way, those with low complexity perceive their ingroup as consisting of the overlap among all of their social identities; those with high complexity perceive their ingroup as consisting of distinct social identities. For example, the Asian female student would be characterized as having low complexity if she perceived her ingroup as those who were female AND Asian AND a student. She would be characterized as having high complexity if she perceived her ingroup as those who were female OR Asian OR a student.

These differing degrees of overlap have differential effects on how individuals handle threat. Specifically, there is evidence that suggests it is more harmful for the individual to have high overlap (i.e., low complexity). A person who perceives high overlap among their identities might experience the effects of a threat rather intensely due to this increased perceived overlap, resulting in the threat attacking more of the self. In contrast, a person who perceives low overlap (i.e., high complexity) among their identities is able to mitigate the effect of the threat. The low overlap allows the stressor to “spread out” (a drop in a puddle versus a drop in an ocean, respectively), and also provides the individual with an opportunity to activate other distinct, positive components of the self to buffer against the threat (Linville, 1987; Roccas & Brewer, 2002).

This idea that threats directed towards a person with low complexity are more damaging to the self is evidenced by the fact that those with low complexity are more likely to decrease their self-awareness after receiving negative feedback (Dixon & Baumeister, 1991). Researchers hypothesize this occurs because the threat affects a larger portion of the self-concept (due to the high overlap among identities), causing these individuals with low complexity to create psychological distance from the self. Participants with high complexity, though, are less likely to engage in this self-distancing behavior, presumably because the negative feedback is mitigated by the ability of these participants to divert their attention to more positive aspects of the self (Renaud & McConnell, 2002). Individuals with low complexity do not have this option because the fact that their identities are so highly interrelated means that the threat pervades every aspect of their self-concept, limiting the number of positive aspects to which they can turn.

The arguments made above suggest that low identity overlap is more protective than high identity overlap. When individuals perceive their identities as more distinct from one another, this distinctiveness may serve to be more beneficial when protecting the individual in the face of threat. However, some evidence from the role conflict literature disputes this stance.

However, it should be acknowledged that SIC was traditionally created to address *intergroup* interactions. In the current studies, I examine identity complexity *within* the individual and investigate whether identity overlap has any moderating effect on how identity activation affects the individual. Given that the SIC literature has not been applied to perceptions of intraindividual overlap, there is not a clear hypothesis as to whether more or less perceived identity overlap will be more influential, or more positive, for the individual. On one hand, perceiving one's identities as less overlapping has the potential to create greater psychological surface area to protect the individual; it creates a better chance that threats will be *caught*, in a sense. On the other

hand, perceiving one's identities as more overlapping could enhance the sense that they are highly compatible with one another and bolster a collective sense of self that protects against threat. In this thesis, I investigate whether differences in how individuals structure their identities—as more or less overlapping—impacts the effect of multiple identity activation.

## 2.0 Study 1: Operationalizing Multiple Identity Activation

In the first pilot study, I aimed to create an operational definition of the term *multiple* identities and gaining a better understanding of the empirical differences between activating more than one social identity. As mentioned previously, there is no consistent definition of exactly how many identities comprise multiple identities. As such, I conducted a quantitative study to assess the significance of listing and reflecting on more than one social identity.

For this study, participants were recruited from Amazon mTurk<sup>1</sup> and delivered a survey via Qualtrics. They were randomly assigned to list one, three, five, or seven social identities they deemed personally important. After listing their identities, participants were asked to rate the importance of these identities and the difficulty in listing the number of identities respective to their condition. They then completed measures of trait, state, and collective self-esteem, and mood.

### 2.1 Participants

Participants were 161 adults (45.5% Female,  $N = 74$ ) living in the United States and recruited online via Amazon's Mechanical Turk ([www.mturk.com](http://www.mturk.com)). Participants largely identified their race as White (73.1%;  $n = 117$ ). Table 1 features a more detailed breakdown of participant

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<sup>1</sup> MTurk is a reliable recruitment tool and provides similar results as those obtained from traditional college student samples (Buhrmester, Kwang, & Gosling, 2011; Goodman, Cryder, & Cheema, 2013).

demographics. The majority of participants indicated they 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. They completed the study in exchange for monetary payment. Participants were randomly assigned to one of the four identity conditions (1-ID, 3-ID, 5-ID, 7-ID).

**Table 1. Participant demographics (Study 1)**

	%	<i>N</i>
Female	45.5	74
White	73.1	117
Black/African American	6.9	11
Hispanic or Latino/a	8.8	14
Asian/Asian American	11.3	18
American-Indian or Alaskan Native	0.6	1
Native Hawaiian/Other Pacific Islander	0.0	0

## **2.2 Procedure and Measures**

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. After thinking of an identity important to the self, 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 5-ID condition

listed five identities). After listing all identities, participants completed measures of state self-esteem, mood, and overall difficulty with listing identities. Participants in the 3-ID, 5-ID, and 7-ID conditions were then asked to rate the overlap between all pairs of the identities they listed in an effort to measure identity harmony versus conflict.

**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.

**Time to List Identities.** I measured the amount of time it took for participants to list the number of identities appropriate to their condition.

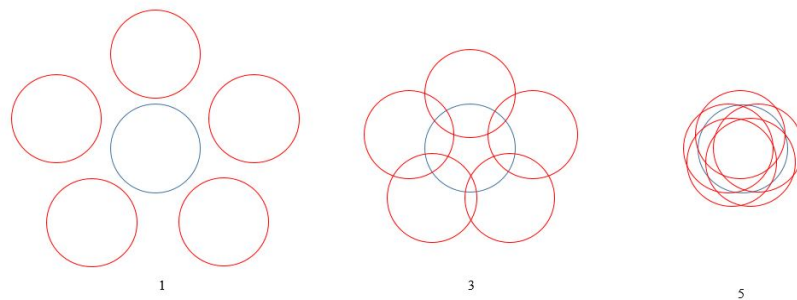
**Difficulty to List Identities.** A one-item measure asked the following: “Overall, how difficult was it to list (n) identities?” (1 = *Extremely easy*; 7 = *Extremely difficult*).

**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*). The four items were averaged together to create a reliable index of identity importance (Cronbach’s  $\alpha = .78$ ).

**Identity Overlap.** To assess how overlapping 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; Figure 1). 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*).

**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.

**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*).



**Figure 1. Visual displayed to participants to depict identity overlap (Study 1).**

## 2.3 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. Correlations and descriptive statistics of all variables are presented in Table 2; Table 3 contains descriptive statistics of all variables per identity condition.

For all outcomes below, I conducted a one-way analysis of variance (ANOVA) with identity condition as the independent variable to test for general mean differences among the conditions. This was followed by a linear contrast test (-2: 1-ID; -1: 3-ID; +1: 5-ID; + 2: 7-ID) to test for general mean differences among the conditions. This was followed by linear contrast test (-2: 1-ID; -1: 3-ID; +1: 5-ID; + 2: 7-ID) to determine if there were any significant proportional

changes in the outcome variables across the different identity conditions.<sup>2</sup> 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 (Table 4).

**Table 2. Correlations and descriptive statistics of all variables (Study 1)**

	1	2	3	4	5	6
1. Time to List	1					
2. Difficulty to List	.14	1				
3. Identity Importance	-.20*	.41***	1			
4. Identity Overlap	.25*	.13	-.19*	1		
5. Mood	.09	-.26***	.12	-.18	1	
6. State Self-Esteem	-.01	-.22**	.14	-.15	.62***	1
<i>M</i>	87.11	3.14	5.24	3.52	6.36	4.65
<i>SD</i>	78.76	1.88	1.05	.94	1.77	1.68

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Identity Category.** 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 5-ID and 7-ID conditions, a ‘Family’ identity comprised 20% of all identities listed; in the 1-ID and 3-ID conditions, a ‘Family’ identity comprised 30-40% of all identities listed.

<sup>2</sup> I also tested quadratic (-1: 1-ID; +1: 3-ID; +1: 5-ID; -1: 7-ID) and cubic (-1: 1-ID; +2: 3-ID; -2: 5-ID; +1: 7-ID) contrasts to determine whether there were any non-linear trends in the data. Results did not reveal any statistically-significant non-linear trends in the data (all  $p > .10$ ).



**Table 3. Descriptive statistics of all variables, by identity condition (Study 1)**

	1-ID	3-ID	5-ID	7-ID
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Time to List	39.45 (35.99)	72.73 (49.41)	108.00 (47.62)	146.94 (120.25)
Difficulty to List	2.25 (1.74)	2.70 (1.73)	3.60 (1.91)	4.06 (1.78)
Identity Importance	5.60 (1.10)	5.38 (.99)	4.86 (.88)	4.94 (.08)
Identity Overlap	-	3.26 (1.09)	3.63 (.75)	3.76 (.83)
Mood	5.93 (1.81)	6.75 (1.51)	6.51 (1.79)	6.26 (1.95)
State Self-Esteem	4.39 (1.82)	4.86 (1.72)	5.09 (1.54)	4.74 (1.54)

**Table 4. Pairwise comparisons from Tukey post-hoc test (raw means) (Study 1)**

	1-ID		3-ID		5-ID		7-ID	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Difficulty to list	2.52 <sup>ab</sup>	.74	2.70 <sup>c</sup>	.73	3.60 <sup>a</sup>	1.91	4.06 <sup>bc</sup>	1.78
Mood	5.93	1.81	6.75	1.51	6.51	1.79	6.26	1.95
Time to list	39.45 <sup>a</sup>	36.00	72.73 <sup>b</sup>	49.41	108.00 <sup>a</sup>	47.62	146.94 <sup>ab</sup>	120.25
Identity importance	5.60 <sup>ab</sup>	1.10	5.38	.99	4.86 <sup>a</sup>	.88	4.94 <sup>b</sup>	1.08
Final identity importance	5.60 <sup>ab</sup>	1.10	5.12	1.11	4.69 <sup>a</sup>	1.31	4.35 <sup>b</sup>	1.62
Relatedness			3.31 <sup>a</sup>	1.04	3.61	.75	3.76 <sup>a</sup>	.91

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

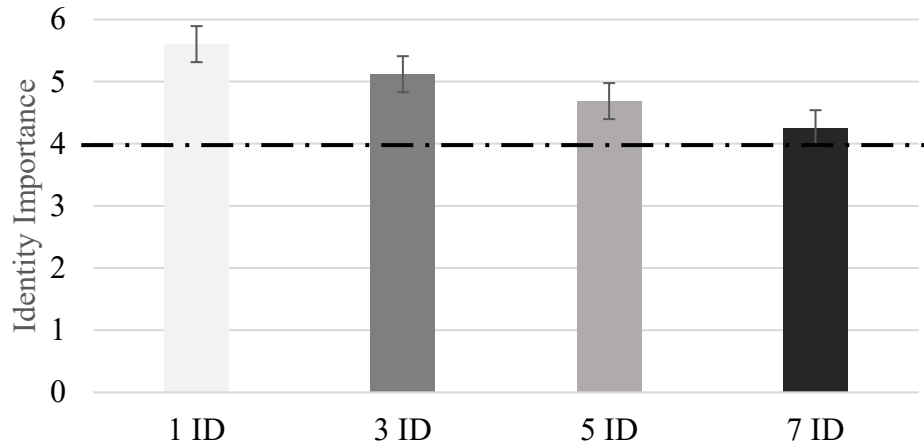
**Time and Difficulty to List Identities.** I hypothesized that listing more identities would be perceived as more difficult and take longer to complete. Results supported these hypotheses.

the length of time it took to list each identity (measured in seconds) differed across conditions,  $F(3, 156) = 16.60, p < .001$ ; contrast tests revealed a linear pattern in length of time taken, in that it took more time to list more identities,  $t(156) = 7.27, p < .001$ .

Similarly, ANOVA results revealed that difficulty differed significantly across the identity conditions,  $F(3, 156) = 6.57, p < .001$ . Specifically, the linear contrast revealed that difficulty increased as number of identities listed increased,  $t(156) = 4.42, p < .001$ . In other words, listing identities was perceived to be more difficult the more identities one listed.

**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,  $F(3, 153) = 4.92, p < .01$ . 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.

In addition to analyzing the effect of identity condition on overall identity importance, I also investigated whether the importance of the final identity in each condition differed from each other. For example, does the third identity in the 3-ID condition differ from the seventh identity in the 7-ID condition? These analyses yielded similar results to that of overall identity importance. Identity conditions significantly differed from each other,  $F(3, 155) = 7.24, p < .001$ , and final identity importance was also revealed to decrease linearly as number of identities increased,  $t(155) = -4.57, p < .001$ . Additionally, one-sample t-tests indicated that the importance of the final identity listed in the 1-ID, 3-ID, and 5-ID conditions differed significantly from the scale median of 4 (Figure 2), while the importance of the last identity in the 7-ID condition did not significantly



**Figure 2.** Identity importance score of final identity listed in each identity condition. The dotted line indicates the scale mean of 4 (Study 1). Standard errors are represented by error bars.

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 2 indicates that the 1-ID condition did differ significantly from the 5-ID and 7-ID conditions for both average identity importance and the final identity importance.

**Self-Esteem.** Results from the ANOVA revealed that self-esteem did not differ significantly across conditions,  $F(3, 156) = 1.60, p > .10$ .

**Identity Overlap.** Analyses involving identity overlap were only conducted for participants in the 3-ID, 5-ID, and 7-ID conditions, as the overlap measure was only delivered to participants who listed enough identities to create pairings. ANOVA analyses revealed a marginal main effect of condition,  $F(2, 104) = 2.47, p < .10$ , where participants who listed more identities rated these identities as less overlapping with each other, ( $M_s = 3.26_{3-ID}, 3.63_{5-ID}, 3.76_{7-ID}$ ). Although there were no significant trends in the data, the average relatedness of identities in the 3-ID condition was marginally different compared to the relatedness of identities in the 7-ID condition,  $p < .10$  (Table 2).

## 2.4 Discussion

The results of Study 1 indicated there may exist a point wherein listing social identities has diminishing returns to the self. While people are driven to create and facilitate the social bonds that create their social identities, it is likely there are limits to the benefits conferred by social identities. In other words, there is a certain point wherein thinking of multiple identities no longer has additional benefits to the individual.

Analyses indicated that when rating identity importance, participants in the 7-ID condition did not rate their final and seventh identity as significantly different from the median of the scale, suggesting 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. Post-hoc tests of identity importance and difficulty in listing identities revealed that while the 5-ID and 7-ID conditions differed from the 1-ID condition on these variables, they did not differ significantly from each other. This suggests that after listing five identities, the importance of identities and difficulty in generating identities plateaus. Consistent with this finding, self-esteem scores were lower in the 7-ID condition than in the 5-ID condition.

These results served as the basis for operationalizing multiple identities in the following studies, which quantify *multiple* identities as five social identities. Though it is possible that listing more than five social identities may still be beneficial in ways not measured within Study 1, it is notable still that self-esteem and identity importance did not continue to increase. I chose to limit identity activation at five to both maximize the psychological benefits achieved with the activation

and limit the chance of creating uncertainty about belonging (as seen in Walton & Cohen, 2007), when participants were asked to generate a list of eight friends).

However, Study 1 did not directly examine the outcomes associated with activating multiple social identities, as I only examined characteristics of the identities themselves. Furthermore, Study 1 did not directly examine how social identities are viewed by students. It is possible that students may perceive their identities as being more in conflict with each other, or that they may have a more difficult time generating identities due to the fluid nature of identity during the college years. Study 2 starts to address these limitations.

### **3.0 Study 2: Assessment of Students' Social Identities**

Study 2 served as a qualitative assessment of how college students perceive their social identities. Though there is a rich literature on the experiences of college students regarding specific identities ( e.g., being male, a student-athlete, or a lesbian or gay student; Harper & Harris III, 2010; Love, Bock, Jannarone, & Richardson, 2005; Pinkerton, Hinz, & Barrow, 1989), relatively few studies have explored the social identities that students generate on their own. Since Study 1 findings revealed diminishing returns after listing five social identities, I was especially interested in whether students would be able to list five social identities and if so, what types of identities were listed.

To shed light on this relationship, I asked 15 students from an upper-level undergraduate course to list their most important social identities and indicate why these identities were important to the self. I also asked students whether they felt their identities conflicted with each other and whether their identities provided them value. To assess students' identification with the university, I asked them their perceptions of the school mascot and what they associated with different school symbols. In doing this, I hoped to gain a better understanding of whether these school symbols elicited a sense of school identity or belonging and whether embedding the school image within the final identity intervention would bolster the effects of multiple identity activation.

### **3.1 Participants**

Participants consisted of 15 students 18 years-and-older enrolled in an upper-level undergraduate course at a large public Northeastern university. The majority of students (73%) identified as female.

### **3.2 Procedures and Measures**

Participants completed an open-ended questionnaire during their undergraduate Research Methods course. The questionnaire asked students to “list 4 social identities, other than being a student, that you have that are important to you”. They were then asked if they feel that “your identities conflict/overlap with each other at all? Why or why not?”, and if “your identities give you confidence?” These questions served to elaborate on the overlap and self-esteem findings from Study 1.

To examine how various school symbols potentially fostered feelings of school belonging or support, I asked students “Of all of Pitt’s symbols/mascots/logos, which one(s) do you most associate with the school? Why”, and “When you see the paw print, does it remind you of being a Pitt student? Why or why not?”

### 3.3 Results

**Identity Category.** Answers on the survey indicated that students ranged extensively in what identities they found important. Of the 56 total identities listed<sup>3</sup>, the majority fell either under the Family category (e.g., son, daughter, brother;  $n = 10$ ), School (e.g., member of a sorority, resident of a dorm;  $n = 9$ ); Activity (e.g., running club, video game player;  $n = 9$ ); or Friend ( $n = 8$ ). The remaining identities constituted different religious, political, gender, and ethnicity groups. These categorizations align well with the field's understanding of how social identities are composed—that they derive from group memberships we find important. Thus, it seems intuitive that students derive important membership from social groups they have immersed themselves in for a long while.

What this range of identities highlights is that individuals do not necessarily zero in on a specific category of identities. That is, there are not groups of identities from which all individuals similarly derive importance and esteem. This would suggest, then, that studies which formally randomize or group participants into a specific identity-prime may suffer from low ecological validity, as there is such a diverse range of social identities which students find important. Bringing students into the lab and asking them to specifically prime their “student” identity to assess the importance of this identity might not accurately capture whether or not that student specifically finds their student identity important.

**Identity Characteristics.** Results from this second pilot study also helped corroborate empirical evidence that social identities derive confidence and esteem (Cialdini & Richardson,

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<sup>3</sup> Two students only listed three identities, and eight students listed adjectives, not social group memberships.



1980; Correll & Park, 2005). In asking students to report on whether their identities give them confidence, students overwhelmingly responded that their identities did provide them with confidence. Students reported that their identities “remind me of what I’m good at” and “why people value me”. Importantly, the majority of students reported that their identities gave them the feeling that they were skilled or competent in a domain, a feeling they highly value. Additionally, some students reported that their important social identities made them feel valued by others and enhanced their relationships with others.

Of the 15 students who completed the entire survey, the majority of them ( $n = 12$ ) reported their identities did not conflict with each other. One student commented that his identities “do not really get in the way of each other”, and another remarked that his identities “require some of the same roles”, which decreased the sense of conflict between them. This suggests that by the time students are in the second half of their college career, instances of dissonance caused by conflicts between social identities may have passed. Perhaps by this stage, students have shed social identities that no longer benefit them and only associate themselves with social groups that do have positive connotations. Interestingly, within the focus group participants, students did not report any sense of conflict or negatively outcomes associated with overlap among their identities. If they did report their identities overlapping, it was generally in a more positive sense, in that their multiple identities have similar attributes or are fulfilled by similar others, so there is no sense of conflict when attempting to “juggle” these identities.

However, three students reported they did feel conflict among their social identities. For instance, one student reported that “I recently quit pledging a frat because it was too conflicting of my goals as a runner and student.” His experience suggests there this is a point wherein the dissonance caused by the conflict between two identities might result in “dropping” one of the

identities. However, it does seem there is variability in when dissonance reduction occurs, as two other students in Study 2 reported conflict with no hints of assuaging the conflict. One student reported that her student identity conflicted at times with her identity as an aunt: “Family is extremely important to me, and I take my role as an aunt seriously and sometimes that interferes with my identity as a student and cause me to choose between which one [identity] is more important”, and another reported her STEM and music identities “each demand a lot of time away from the other”.

**School Symbol.** Though students ranged in which school symbol or logo they most associated with the university, all students reported that the paw print (the logo to be used in the proposed Study 4 identity intervention) reminded them of Pitt and served as a symbol of the institution. In fact, one student said the paw print reminded her of her identity “as being part of the student body.”

### 3.4 Discussion

Study 2 served as a qualitative assessment of how undergraduate students view their social identities and the relationships between this group of identities and their school identity. The evidence suggested that students did not have trouble identifying out their identities, as most students were able to list five social identities they perceived as important. Aligning with research on the salience of certain identities and the results of Study 1, these results indicated that the most common social identities were those that related to being a family member or friend. Additionally, results of Study 2 supported the thesis that social identities contribute to enhanced belonging and

confidence. Regardless of the negative stereotypes attributed to some of the social identities listed, the students largely reported their identities conferring these benefits. This corroborates previous empirical evidence indicating that individuals will seek membership in social groups that may be traditionally derogated (Crocker & Major, 1989).

The results were also eye-opening in that students reported they do not normally perceive conflict between their identities; it is possible that more conflict arises earlier on in college, when identities are more in flux. Overwhelmingly, students reported positive connotations with their social identities, suggesting that an intervention centered around the activation of personally important social identities may have beneficial outcomes. Further analysis of the reports in Study 2 indicated that if students feel tension between certain identities, they can extricate themselves from the group causing tension. In a way, this might be an attempt to reduce any cognitive dissonance in holding important identities that conflict with each other. Of concern is the fact that some students might shed their “academic” or “student” identity if they experience conflict or tension within their schooling. Perhaps underrepresented students who face stereotype threat to their stigmatized identities are more likely to disidentify with their student identity, leading to decrements in performance.

How can we intervene at this early stage, such that students can view their negatively stereotyped and academic identities as not only valued but also in harmony with one another? I address this limitation in Study 3 by examining the effect of multiple identity activation within younger students. Study 3 also empirically examined the effects of embedding identity activation within the school logo, extending the more qualitative findings from Study 2 on how the school logo fosters school identity.

#### **4.0 Study 3: Multiple Identity Activation**

The first two pilot studies shed light on how individuals perceived their social identities and the different factors associated with identity activation. Study 1 revealed that instead of having just one prominent social identity, individuals are able to think of five personally important identities without decrements to self-esteem or identity importance. These findings serve as initial support of the proposed identity intervention, as they indicate that activation of multiple social identities may have positive effects for the individual. Study 2 then highlighted that upper-level students (e.g., third- and fourth-year college students) specifically are able to generate multiple social identities and that in general, these identities are seen as relatively harmonious and positive rather than conflicting or negative.

The third pilot study tested empirically whether activating multiple identities would buffer first-year college students against decreases in performance related to receiving negative feedback. Study 3 also served as the initial test of whether activating students' multiple social identities within the context of their school identity might enhance the effects of the identity activation, findings which helped inform the creation of the final identity intervention. Thus, Study 3 had the following two research questions (RQ):

RQ1) Is activating and reflecting on five social identities significantly different than imagining one social identity (extending Study 1 findings)?;

RQ2) Does embedding the identity interaction within the school logo provide benefits to the self?

Participants were randomly assigned to one condition in a 2 (Identity: one, five) x 2 (Paw print: yes, no) x 2 (Feedback positive, negative) between-subjects design. After listing and reflecting on one or five of their social identities, either within the image of the school paw print or a more general visual, students were presented with a 10-item anagram task containing 5 solvable anagrams and 5 unsolvable anagrams. They then received either positive or negative feedback about their performance and completed survey measures.

For RQ1, I hypothesized that students who activated multiple identities would show better performance and longer duration on the anagram tasks compared to those who only activated and reflected on a singular identity. For RQ2, I expected an Identity x Paw Print interaction, such that students who activated multiple identities within the image of the paw print would report more positive outcomes overall and be most protective against the negative feedback.

#### **4.1 Participants**

Participants were recruited from the University of Pittsburgh Introductory Psychology subject pool. They were eligible for the study if they were at least 18 years and older and were currently enrolled in Introductory Psychology.

Two hundred and seventeen participants completed the study. Final analyses feature one hundred and eighty-five participants; participants were excluded from the study if they did not complete the survey and did not pass the attention check (described in detail below). The final sample was roughly split in gender ( $n_{\text{Male}} = 94$ ,  $n_{\text{Female}} = 89$ ), and the majority identified as White

( $n = 120$ ), followed by mixed-race ( $n = 29$ ), Asian ( $n = 26$ ), Black/African-American ( $n = 5$ ), and Hispanic/Latino/a ( $n = 3$ ). Student demographics presented in Table 5.

**Table 5. Student demographics, by identity condition (Study 3)**

	Single Identity Condition ( $N = 92$ )	Multiple Identities Condition ( $N = 93$ )
	%	%
Female	44.57	51.61
White	61.96	67.74
Black/African American	5.43	.00
Asian/Asian American	14.13	13.98
Hispanic, Latino/a	2.17	1.08
Native American/American Indian	.00	.00
Pacific Islander/Native Hawaiian	.00	.00
Other	9.78	16.13
English as a Second Language (ESL)	5.43	9.68

## 4.2 Procedure and Measures

Participants first completed pre-survey measures of esteem, belonging, and self-efficacy, and then were randomly assigned into one of the four conditions in the identity (1-ID, 5-ID) and paw print (No Paw Print, Paw Print) conditions. Participants in the paw print condition were presented with an image of the Pitt paw print (Fig. 3), whereas those in the no paw condition were presented with a similar shape, only represented with circles. Those in the 5-ID condition were



**Figure 3. Visuals used in Paw (*left*) and No Paw (*right*) conditions for embedding identity activation within the school logo (Study 3).**

asked to list five social identities important to the self and imagine listing their five identities in each of the five separate pads of the paw. Those in the 1-ID condition were asked to imagine listing one social identity important to the self in the middle of the largest pad. After listing their identities (or identity), participants were presented with an open-ended text box where they were asked to reflect on why each identity was important to them.

After completing the tasks appropriate to their condition, participants were given instructions to complete an anagram task. The instructions stated that participants had 20 seconds to complete each anagram; instructions were followed with an attention check question that asked participants how much time on each page they have to complete each anagram. The anagrams were selected from a list gathered by Gilhooly and Hay (1977) and were selected based on their 1) familiarity/difficulty scores and 2) age-scores. The familiarity/difficulty score rates how difficult people find the word to be –the higher the score, the more difficult it is deemed. The age score reflects at what “age” students are likely to learn the word. The higher the age score, the more “advanced” or “difficult” the word is deemed to be. Using these two metrics, I chose five anagrams

that ranked relatively low on the two factors; that is, I chose easier anagrams that I hypothesized would be solvable by the participants. I also included five impossible anagrams, or puzzles that would not be able to be solved. After completing the anagram task, students were presented with either positive feedback (their performance fell into the 75<sup>th</sup> percentile) or negative feedback (their performance fell into the 25<sup>th</sup> percentile). They then reported how interested they were in the anagram task and whether or not they had used the Internet to answer any anagrams. This was followed by post-survey measures of outcome and demographic variables.<sup>4</sup>

### **Outcome Variables.**

***Self-Efficacy.*** Participants completed an 8-item general self-efficacy measure (Sherer et al., 1982), containing items such as “When facing difficult tasks, I am certain that I will accomplish them” and “I will be able to successfully overcome many challenges.” Participants rated their agreement with the items on a 1 (*strongly disagree*) to 5 (*strongly agree*) scale. I created composite scores of the pre- (Cronbach’s  $\alpha = 0.92$ ) and post-survey (Cronbach’s  $\alpha = 0.94$ ) self-efficacy scores.

***Belonging.*** Belonging was assessed with a 4-item measure (e.g., “I feel like I belong at (school)”); adapted from Walton & Cohen, 2007) and rated their agreement with each item on a 1 (*strongly disagree*) to 6 (*strongly agree*) scale. A composite measure of belonging was computed at both pre- (Cronbach’s  $\alpha = 0.88$ ) and post-survey (Cronbach’s  $\alpha = 0.88$ ) timepoints.

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<sup>4</sup> Given that this was a pilot study, I also asked participants to rate how difficult it was imagining writing in the paw print, as well as open-ended questions assessing how difficult it was to list identities and what the paw print means to them.



**Self-Esteem.** Participants completed measures of state self-esteem, which was measured with an item asking, “How do you feel about *yourself* in this moment,” answered from 1 (*extremely poorly*) to 9 (*extremely positively*) and was measured at both pre-survey and post-survey timepoints.

**Affect.** Participants’ affect was measured with 14 items from the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) scale. They were asked to rate, on a scale from 1 (*very slightly or not at all*) to 5 (*extremely*) the extent to which they felt components of the six following affect constructs: Attentive (e.g., attentive, interested, alert), Excited (e.g., enthusiastic, inspired, excited), Proud (e.g., proud, determined), Distressed (e.g., distressed, upset), Angry (e.g., hostile, irritable), and Guilty (e.g., ashamed, guilty). In addition to each singular affect score, I also calculated a positive affect score (the composite of Attentive, Excited, and Proud; Cronbach’s  $\alpha = 0.86$ ,  $M = 2.50$ ,  $SD = 0.88$ ), a negative affect score (the composite of Distressed, Angry, and Guilty; Cronbach’s  $\alpha = 0.68$ ,  $M = 3.40$ ,  $SD = 0.34$ ), and an overall affect composite score (averaging across all subsets after reverse-coding for the negative affect; Cronbach’s  $\alpha = 0.78$ ).

**School Identity.** I assessed how participants viewed their school identity with the three following questions: “Being a Pitt Panther or Pitt student is important to me”, “I feel like my identity as a Pitt student is well aligned with my other social identities”, and “My Pitt student identity conflicts with my other social identities.” The first two items were answered on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*); the last item was answered on a scale from 1 (*never*) to 5 (*always*) and reverse-coded before analyses.

**School Engagement.** School engagement was assessed with a 7-item measure that asked participants how likely they were to participate in school-related activities, such as joining clubs

on campus or attending a professors' office hours. Students rated the likelihood of completing these activities on a scale of 1 (*extremely unlikely*) to 5 (*extremely likely*) (Cronbach's  $\alpha = 0.73$ ).

**Anagram Score.** Participants' anagram score was calculated by summing up the total amount of anagrams they correctly solved out of the five solvable anagrams.

**Anagram Persistence.** Persistence was operationalized as the amount of time each participant spent on each unsolvable anagram (i.e., whether students used up the entire 20 seconds given for each anagram). Overall anagram persistence for each participant was calculated as the mean amount of time spent across all five unsolvable anagrams.

**Demographic Variables.** Students reported on their race, gender, and whether English was their first language.

### 4.3 Results

Similar to Study 1, I tested the effects of the identity and paw print conditions using an analysis of covariance (ANCOVA). For analyses, I controlled for the pre-manipulation level of the outcome variable, as well as gender, and race (with White as the comparison group). I also tested for effects of a three-way Identity x Paw Print x Feedback interaction on the outcomes of interest to investigate whether the identity and paw print manipulations buffered against the threat of negative feedback. For analyses on anagram score, I controlled for English language fluency along with race and gender. Pre-intervention correlations and descriptive statistics of all variables in Table 6; post-intervention correlations and descriptive statistics of all variables in Table 7. Descriptive statistics of variables by condition are presented in Table 8.

**Table 6. Correlations and descriptive statistics of pre-intervention variables (Study 3)**

	1	2	3
1. Self-Efficacy	1		
2. Belonging	.22**	1	
3. Self-Esteem	.47***	.25***	1
<i>M</i>	4.01	4.80	3.57
<i>SD</i>	.70	.88	1.14

Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**RQ1) Is activating and reflecting on five social identities significantly different than imagining one social identity (extending Study 1 findings)?**

Analyses for RQ1 indicated there were no main effects of the identity condition.

**RQ2) Does embedding the identity interaction within the school logo provide benefits to the self?**

Results revealed that identity condition effects were moderated by the paw print condition.

**Pitt Identity.** A significant Identity Condition x Paw Print x Feedback interaction appeared on the measure of how well-aligned students' social identities were with their student identity,  $F(1, 173) = 4.24$ ,  $p = .041$  (Figure 4). As such, I isolated the two identity conditions to further understand this interaction.

For students in the single identity condition, there was no significant Paw Print x Feedback two-way interaction,  $t(173) = 1.28$ ,  $p = .204$ . However, a significant two-way interaction appeared for students in the multiple identity condition,  $t(173) = -3.28$ ,  $p = .001$ . Among these students who received negative feedback, perceived identity alignment did not differ between paw print conditions,  $t(173) = -1.59$ ,  $p = .113$ . For students who received positive feedback though, the paw print condition affected perceived identity alignment,  $t(173) = 3.04$ ,  $p = .003$ . Those who received the paw print reported higher identity alignment between their student identity and other social

**Table 7. Correlations and descriptive statistics of post-intervention variables (Study 3)**

	1	2	3	4	5a	5b	5c	6	7	8
1. Self-Efficacy	1									
2. Belonging	.44***	1								
3. Self-Esteem	.51***	.28***	1							
4. Affect	.48***	.39***	.31**	1						
5a. School Identity 1	.09	.43***	.13	.19**	1					
5b. School Identity 2	.21**	.50***	.17*	.28***	.59***	1				
5c. School Identity 3	-.18*	-.22**	-.04	-.11	-.16*	-.21**	1			
6. School Engagement	.28***	.40***	.20**	.17*	.43***	.34***	.15*	1		
7. Anagram Score	.04	-.03	-.01	.04	.04	.04	.01	.08	1	
8. Anagram Persistence	-.03	.02	-.01	-.02	.09	.10	.03	-.20**	.26***	1
<i>M</i>	3.89	4.74	3.51	3.24	3.73	3.72	4.38	3.56	3.39	18.81
<i>SD</i>	.75	.94	1.17	.71	1.17	1.05	.84	.72	1.4	2.71
<i>N</i>	178	178	193	184	184	184	183	184	185	185

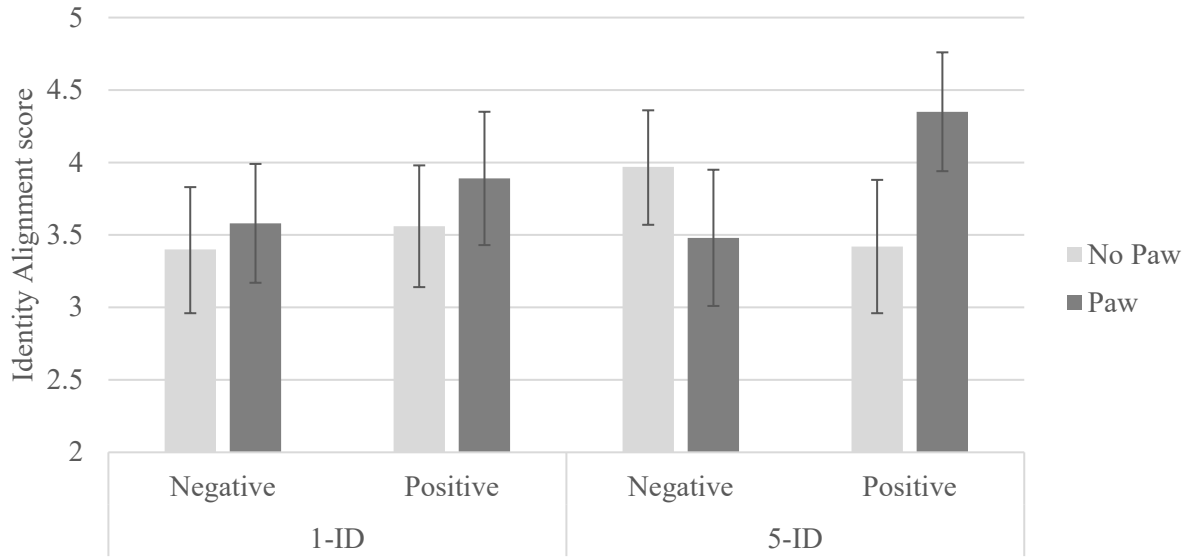
Note: \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

**Table 8. Descriptive statistics of all variables, by identity condition (Study 3)**

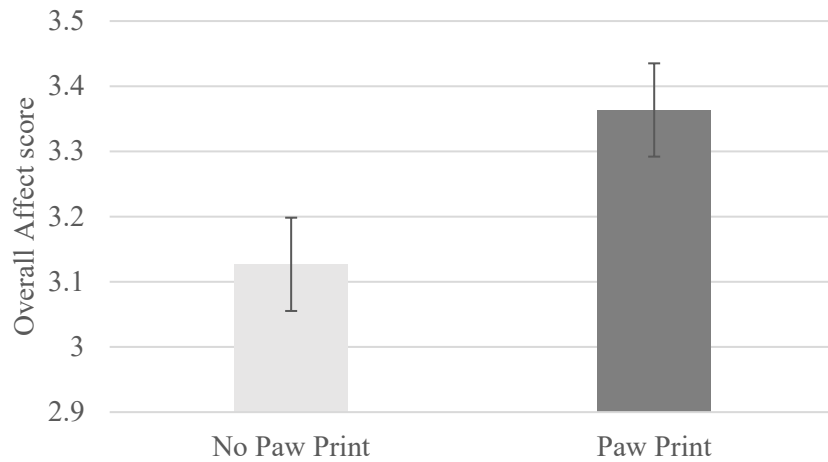
<i>Variable</i>	1-ID		5-ID	
	<i>Pre-Intervention</i>	<i>Post-Intervention</i>	<i>Pre-Intervention</i>	<i>Post-Intervention</i>
	M ( <i>SD</i> )	M ( <i>SD</i> )	M ( <i>SD</i> )	M ( <i>SD</i> )
Self-Efficacy	4.04 (.72)	3.94 (.72)	3.98 (.69)	3.84 (.78)
Belonging	4.73 (.91)	4.64 (.95)	4.87 (.85)	4.84 (.93)
Self-Esteem	3.53 1.24	3.45 (1.30)	3.62 (1.03)	3.58 (1.03)
Affect	-	3.22 (.76)	-	3.26 (.66)
School Identity 1	-	3.68 (1.19)	-	3.77 (1.15)
School Identity 2	-	3.64 (1.11)	-	3.79 (1.00)
School Identity 3	-	4.29 (.92)	-	4.48 (.74)
School Engagement	-	3.52 (.78)	-	3.60 (.65)
Anagram Score	-	3.50 (1.32)	-	3.29 (1.46)
Anagram Persistence	-	18.62 (2.71)	-	18.97 (2.71)

identities ( $M = 4.35$ ,  $SE = .236$ ) than those who did not receive the paw print ( $M = 3.42$ ,  $SE = .200$ ).

**Affect.** The positive effects of the paw print were also seen on the measure of overall affect, which revealed a significant effect of the Paw condition on overall affect,  $F(1, 177) = 6.820$ ,  $p = .010$  (Figure 5). Completing the paw print manipulation was related to more positive overall affect ( $M = 3.63$ ,  $SE = .08$ ) compared to those who did not complete the paw print manipulation ( $M = 3.13$ ,  $SE = .07$ ).



**Figure 4. Identity x Paw Print x Feedback interaction on School Identity 2, which asked how much students perceived their social identities aligning with their student identity. Standard errors are represented by error bars (Study 3).**



**Figure 5. Main effect of paw print condition on overall affect. Standard errors are represented by error bars (Study 3).**

## 4.4 Discussion

Study 3 focused on two primary research questions:

RQ1) Is activating and reflecting on five social identities significantly different than imagining one social identity (extending Study 1 findings)?;

RQ2) Does embedding the identity interaction within the school logo provide benefits to the self?

For RQ1, results indicated null effects of the identity manipulation by itself. Though effects of the 1-ID and 5-ID conditions did not have immediate effects on outcomes, findings for RQ2 suggested that there were complex patterns driving the effect of identity activation.

Results for RQ2 revealed that the effects of the identity activation differed depending on whether or not the activation was embedded within the paw print, which served as the visual cue of inclusion. For instance, activating multiple identities within the paw print was related to greater perceived alignment among students' social identities and their school identity, consistent with the argument that embedding activation within this symbol of the school helped decrease perceived dissonance among one's identities. Additionally, completing identity activation, regardless of identity condition, within the paw print was related to more positive overall affect. This aligns with research that indicates individuals have higher preference for identity-similar objects (Oyserman, 2009) and suggests that viewing this cue increases students' identification with the university.

One limitation of Study 3 is that students were only given up to 20 seconds to complete each anagram. This time limit was chosen based off the average time it took to complete the solvable anagrams in a pilot study of Study 3; I chose to give students a cut-off so that they would not discover that the anagrams were, in fact, unsolvable. However, future iterations of this task

should examine whether single or multiple identity activation affects persistence without a time constraint.

Findings from Study 3 provided initial experimental evidence that multiple identity activation, embedded within a paw print manipulation, can impact outcomes of academic well-being. Given these initial findings, the identity manipulation in the Study 4 identity intervention contained a cue of the paw print. Study 4 also capitalized on a larger sample size and longitudinal tracking of outcomes, providing the opportunity to elaborate on the results of Study 3 and investigate whether the effects of the identity intervention, bolstered by a cue of inclusion, enhanced well-being and performance over time for first-year college students.



## 5.0 Study 4: Identity Intervention

Results from the three pilot studies suggest one effective way of enhancing students' belonging and making them feel valued within the school environment is by activating their multiple social identities. Study 4 examined an identity intervention that seizes upon this idea. This intervention was delivered to majority first-year students who had just recently transitioned to college. This timing was chosen because the beginning of the college transition is marked with profound identity flux and development (Abes & Jones, 2004; Jones & McEwen, 2000); thus, an intervention at this timepoint had the potential to mold students' perceptions of their identity in a way that created sustainable, protective change that would persist over time (for discussion on importance of timing for interventions, see Cohen, Garcia, & Goyer, 2018).

Study 4 also examined how certain identity characteristics strengthened or weakened the effect of multiple identity activation, as past research has indicated that features like identity importance, conflict, and overlap can differentially affect identity-related outcomes. As such, the intervention served three primary purposes and examined the following research questions:

RQ1) Does activation of multiple identities enhance academic well-being and performance?;

RQ2) Does activation of multiple identities differentially benefit students from underrepresented backgrounds?;

RQ3) How does the structure of identities (e.g., identity overlap, identity conflict) impact the effect of activation of multiple identities?

To investigate RQ1, I conducted an identity intervention with college students from two large introductory college courses, Introductory Biology and Introductory Psychology. Students were randomized to think up and reflect on either a single one of their social identities, or five of their social identities. This intervention study extended the findings from the pilot studies by examining whether these effects would create a sort of psychological armor that buffered students against threats they received in the academic environment throughout the semester, improving well-being and grades at the end of the semester. Though the identity manipulation seems brief, its development was influenced by other social-psychological interventions that employ similarly brief intervention methods (Sherman et al., 2013; Walton & Cohen, 2011; Yeager & Walton, 2011). For the first research question, I predicted that students in the multiple identities condition would report increased academic well-being and greater academic performance. Well-being was comprised of a variety of psychological variables, such as self-efficacy, sense of belonging, and school identity. Academic performance was measured by not only the grade of the course the intervention was delivered in, but also overall Fall term grade.

A daily diary component was also administered in the middle of the semester to address RQ1. The daily diary results helped shed light on how the intervention changed relationships between daily adversity (stress and threat) and daily academic well-being (belonging and school connectedness). These diary assessments represented how perceptions of threat and stress on any given day affected students' well-being that day. Whereas adversity is typically related to lowered well-being, it is possible that the protective effects from the activation of multiple identities would help weaken this relationship. I predicted that for those in the multiple identity condition, daily diary results would show that adversity was no longer as predictive of students' well-being; in other words, the identity activation would "untether" this relationship (e.g., Sherman et al., 2013;

Sherman & Hartson, 2011). Even when students are exposed to a stressful event, having the protective buffer of their social identities would help construe this event as less damaging or stressful to the self.

RQ2 examined how students' membership in traditionally stigmatized groups moderated the effects of the intervention. I predicted that students who were more likely to experience stereotype threat—those that belonged to historically-marginalized groups—would benefit more from activating their multiple social identities. Self-affirmation literature has shown that affirming multiple valued parts of the self can protect the self in the face of threat and is especially helpful for students with stigmatized identities. In a similar vein, I predicted that reminding these students of their valued social identities and the groups they drew belonging and support from would have similarly beneficial results.

To test that the identity intervention significantly benefitted students from underrepresented backgrounds, I created the two following groups: marginalized and non-marginalized students. This followed both from the literature on which identities are likely to be negatively-stereotyped in the college domain (Aronson et al., 1998; Croizet & Claire, 1998; Nguyen & Ryan, 2008; Stephens, Fryberg, Markus, Johnson, & Covarrubias, 2012), as well as historical course analysis. This analysis of course grades earned in Introductory Biology and Psychology from the prior three years indicated that racial/ethnic minority students, including Asian students<sup>5</sup>, and first-generation college students historically underperformed in the courses

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<sup>5</sup> One important consideration in creating the marginalized group was whether or not to include Asian/Asian American students, who are traditionally positively stereotyped (see Cheryan & Bodenhausen, 2000). Historical courses analyses indicated that Asian students underperformed similar to other racial/ethnic minority students and

compared to their White and continuing-generation peers.<sup>6</sup> Given these findings, I defined the marginalized group as those who were non-White<sup>7</sup> or first-generation college students.

For RQ3, I examined the moderating effects of various identity characteristics on the effect of multiple identity activation. That is, does the structure and perception of one's identities—more or less overlapping, conflicting with each other, or important to the self—influence the effectiveness of multiple identity activation? Identity importance was characterized as how much students perceived their identities as contributing to general sense of self. Given that previous studies have extensively reported on how social identities help foster support and belonging (Correll & Park, 2005), I predicted that increased identity importance would bolster the effects of multiple identity activation. Similarly, I expected that lower perceived conflict among one's identities would also elicit more benefits from multiple identity activation, as less conflict among identities could enable students to perceive their activated identities more positively. However, I

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first-generation students. As such, they were included with the marginalized group. Other researchers at this institution have found similar results for Asian/Asian American underperformance in these courses (Betancur, Rottman, Votruba-Drzal, & Schunn, 2018; Binning et al., 2020).

<sup>6</sup> In Psychology, historical analyses revealed Marginalized group students (racial/ethnic minoritized students, including Asian students, and first-generation college students) performed significantly worse in the course compared to non-Marginalized group peers,  $F(5, 1174) = 40.05, p < .001$ . Marginalized students earned around a 3.19 ( $SE = .033$ ) in the class, while non-Marginalized students earned a 3.38 ( $SE = .024$ ). Similar results were seen in Biology, where Marginalized students received a 2.38 ( $SE = .032$ ), whereas non-Marginalized students earned a 2.56 ( $SE = .028$ ),  $F(5, 2170) = 185.10, p < .001$ .

<sup>7</sup> Non-White racial/ethnic minority included Black/African American, Hispanic or Latino/a, Asian/Asian American, Native American/American Indian, and Pacific Islander/Native Hawaiian.

did not have a concrete hypothesis for the effects of perceived identity overlap, defined as how much students perceived their identities to overlap with one another. Though previous research has shown that individuals can perceive their identities as being overlapping or separate (Linville, 1985; Roccas & Brewer, 2002), these studies have not examined the role these identity characteristics play within activation of multiple identities. Additionally, findings on the effectiveness of identity overlap are generally contradictory (e.g., with some studies pronouncing that more overlap is more beneficial, while others argue that less overlap is more beneficial).

## 5.1 Participants

A total of 651 students were recruited from Introductory Psychology and Introductory Biology lectures at the start of the Fall semester ( $n_{Bio} = 293$ ,  $n_{Psych} = 358$ ). The intervention manipulation was delivered via a paper survey in the first recitation session of each lecture ( $n_{Bio\ Recitations} = 8$ ,  $n_{Psych\ Recitations} = 16$ ). Participants were required to be at least 18 years-old for their data to be included in the study; all students indicated their consent to participate in the study prior to completing any study materials. Halfway throughout the semester, daily dairy surveys were administered via Qualtrics for five total days of daily dairies. At the end of the semester, students were emailed a final Qualtrics survey to measure post-intervention effects.<sup>8</sup> Grades were received

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<sup>8</sup> For completing at least four of the five daily dairies, students in Biology earned 1 extra credit point and those in Psychology earned 1 SONA credit towards their 6 total research credits needed for passing the course. The same incentives were distributed for completion of the post-intervention survey.

from the university. Survey and grade data were also merged with historical data from the university; this was conducted by a data broker not involved with the study, who anonymized student identifiers before sending the merged data back for analyses.

Due to the length of time that passed between surveys, natural attrition occurred among survey respondents. However, all analyses used an intention-to-treat approach (Hollis & Campbell, 1999); since all students completed the identity intervention at the beginning of the semester, all their available data was analyzed regardless of whether they completed all three components of the study or finished the course.

Of the 651 students who were included in the study, 61.9% of students identified as Female ( $n = 403$ ) and 62.5% identified as White ( $n = 407$ ). There was incomplete college generation status; from the 539 students that had data, 82% identified as continuing-generation ( $n = 433$ ). The Marginalized group (racial/ethnic minority or first-generation college student) group consisted of 290 students. See Table 9 for more detailed student demographics.

**Table 9. Student demographics (Study 4)**

	Single Identity ( <i>N</i> = 326)	Multiple Identities ( <i>N</i> = 325)
	%	%
Female	62.88	60.92
First-Generation	19.93	15.67
White	63.50	64.00
Black/African American	5.52	6.15
Asian/Asian American	18.40	13.86
Hispanic, Latino/a	4.29	3.08
Native American/American Indian	0.00	0.31
Pacific Islander/Native Hawaiian	0.00	0.31
Other	5.83	11.69
Marginalized: non-White and/or first-generation	51.20	49.47
Non-Marginalized: White and continuing-generation	48.80	50.53

## 5.2 Procedure and Measures

Biology and Psychology students completed the identity intervention in their recitation sessions during the first and third week of school, respectively (see Appendix A for intervention instructions). After providing consent for the study, students first reported their scores on the pre-intervention survey measures and then completed the identity task analogous to one of the two conditions (Identity: 1-ID, 5-ID) in the between-subjects study design.

As in previous studies, those in the 5-ID condition were asked to list five of their most important social identities within the separate pads of the Pitt paw print (Figure 6), which aimed

to activate the implicit idea that their identities coexisted together and were united under the superordinate identity of being a student. Those in the 1-ID condition were asked to list one important social identity they found important on the center pad of the paw print (see Table 10 for descriptive statistics of identity categories listed).<sup>9</sup> After listing their identities, participants were then asked to think of their identities more generally and completed measures of the identity characteristics, which reflected how they perceived the general importance, overlap, and conflict among their identities. Following this initial survey, students received a keychain emblazoned with the paw print to serve as a physical reminder of the intervention.

Halfway through the semester, students were emailed a link containing their first daily diary. Similar links were emailed for the next four following days, for a total of five days. The first diary asked students to list five of their current social identities (Table 10), providing the



**Figure 6.** Examples of completing the 1-ID (*left*) and 5-ID (*right*) identity condition manipulations within the image of a school symbol. (Study 4).

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<sup>9</sup> Of the total 1,825 identities listed, 4% ( $N = 79$ ) were adjectives, not social group memberships. Analyses in this sample did not indicate that listing these adjectives differed from listing identities.



opportunity to measure identity abandonment and acquisition at this point in students' college tenure. Students also completed measures of stress and threat each day, along with the measure of belonging and school identity. There were also questions measuring college engagement (e.g., how often to do you attend sporting events, how many clubs have you participated in). Introductory Psychology students earned one SONA credit and Introductory Biology students earned one extra credit point for completion of the daily diaries, respectively.

At the end of the semester, students were all emailed a Qualtrics survey containing post-intervention measures. Student grades were obtained from university records, along with standardized tests (i.e., SAT and ACT) and Advanced Placement (AP) test scores.

### **Identity Characteristics.**

***Identity Conflict.*** Identity conflict was measured using a 5-item measure adapted from the *conflict* subscale of the Multiracial Identity Integration Scale (MII; Cheng & Lee, 2009). This measure contains items such as “I feel like someone moving between my different social identities”, which participants were asked to rate their agreement on from 1 (*Strongly disagree*) to 5 (*Strongly agree*) (Cronbach's  $\alpha = 0.84$ ).

***Identity Importance.*** This measure is comprised of the “Identity” subscale of the Collective Self-Esteem scale (Luhtanen & Crocker, 1992), which contains items such as “The social groups I belong to are an important reflection of who I am.” However, to capture *identity* importance, instead of asking whether “social groups” are an important reflection of the self, these items ask if the participant's *identities* were an important reflection (e.g., “The identities I have are an important reflection of who I am”). These items are answered on a 1 (*Strongly disagree*) to 5 (*Strongly agree*) scale (Cronbach's  $\alpha = 0.78$ )

**Table 10. Descriptive statistics of the different categories of identities listed in the pre-intervention identity manipulation and daily diaries**

	Pre-Intervention ( <i>N</i> = 1,825)	Daily Diaries ( <i>N</i> = 1,317)
	%	%
Other (e.g., citizen of the world, kind, creative)	20.00	19.67
School (e.g., student, Pitt Panther)	14.68	18.15
Family (e.g., sister, brother, mother, cousin)	7.34	10.78
Friends (e.g., friend, buddy)	5.53	9.42
Race (e.g., African American, White)	5.21	9.11
Gender (e.g., female, male, transgender)	2.90	7.14
Sports (e.g., athlete, swimmer)	13.59	6.83
Religion (e.g., Christian, Buddhist, atheist)	2.79	4.10
Occupation (e.g., worker, cashier)	4.22	4.10
Politics (e.g., Democrat, Republican, Socialist)	2.63	2.51
Music (e.g., pianist, cellist)	4.60	1.90
Sexual Orientation (e.g., LGBTQ+ member, gay)	2.64	1.89
Arts (e.g., painter, artist)	4.55	1.82
Hobby (e.g., reader, knitter)	5.04	1.14
Organization (e.g., Greek member, club member)	1.53	1.14
Military (e.g., ROTC, soldier)	.33	.30

Identity categories were those also used in Study 1.

**ID Overlap.** Overlap was assessed with 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*) (Fig. 1).

### **Academic Performance.**

**Course Grade.** Course performance was assessed by examining the grades earned in the course the intervention was delivered in: Introductory Biology and Introductory Psychology.

**Term GPA.** Fall term semester GPA were calculated by creating the average grade point average (GPA) of all courses the student took during the Fall semester.

**STEM GPA.** STEM GPA was calculated by averaging the GPA students earned across all Fall semester courses that were categorized as belonging to science, technology, engineering, and mathematic (STEM) domain.<sup>10</sup>

**Non-STEM GPA.** This grade was calculated by averaging the GPA students earned across all Fall semester courses that were categorized as *not* belonging to the STEM domain.

### **Survey Measures of Academic Well-Being.**

**Academic Self-Efficacy.** This 8-item measure (adapted from Sherer et al., 1982) contained items such as “When facing difficult tasks, I am certain that I will accomplish them” and “I will be able to successfully overcome many challenges.” Participants rated their agreement with the items on a 1 (*Strongly disagree*) to 5 (*Strongly agree*) scale (Cronbach’s  $\alpha_{T1} = 0.89$ ; Cronbach’s  $\alpha_{T2} = 0.90$ )

**Belonging.** The belonging score was comprised of a measure of perceived sense of belonging (adapted from Walton & Cohen, 2007). Perceived belonging was assessed with a 4-item

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<sup>10</sup> STEM and non-STEM categorizations were based off a list of ACT-defined STEM Majors and Occupations (ACT, n.d.)

measure (e.g., “I feel like I belong at [school name]”) that asked students to rate their agreement with each item on a 1 (*Strongly disagree*) to 6 (*Strongly agree*) scale (Cronbach’s  $\alpha_{T1} = 0.83$ ; Cronbach’s  $\alpha_{T2} = 0.88$ )

***School Identity.*** Students’ school identity was measured with a series of questions that measured both how much they identified with their student identity. School identity was assessed with the three following questions: “Being a Pitt Panther or Pitt student is important to me”, “I feel like my identity as a Pitt student is well aligned with my other social identities”, and (R) “My Pitt student identity conflicts with my other social identities.” The first two items were answered on a scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*); the last item was answered on a scale from 1 (*Never*) to 5 (*Always*). Items were analyzed separately due to a low internal reliability score when aggregated.

***School Engagement.*** School engagement measured how often students engaged in the following school activities: attend a football game, recommend the school to students from your high school, join clubs on campus, sign up to work in a research lab, participate in homecoming, attend a talk by the chancellor, attend a professor’s office hours. Students rated their likelihood of engaging in the activity from 1 (*Extremely unlikely*) to 5 (*Extremely likely*). Scores were aggregated together to create a composite engagement score (Cronbach’s  $\alpha_{T1} = 0.71$ ; Cronbach’s  $\alpha_{T2} = 0.70$ )

***Self-Esteem.*** Self-esteem was measured by asking “Generally, I have high self-esteem”, answered from 1 (*Very untrue of me*) to 5 (*Very true of me*).

***Loneliness.*** Loneliness was measured with a shortened form of the UCLA Loneliness Scale (ULS-20; for reliability and validity, see Hays & DiMatteo, 1987). This 8-item scale asks participants to report from 1 (*I never feel this way*) to 4 (*I often feel this way*) how often each

statement is descriptive of them (e.g., “I feel left out”) (Cronbach’s  $\alpha_{T1} = 0.86$ ; Cronbach’s  $\alpha_{T2} = 0.84$ ).

***Subjective Happiness.*** Feelings of happiness were measured with a shortened version of the Oxford Happiness Inventory (OHI; Argyle, Martin, & Crossland, 1989), which features an 8-item measure that contains questions such as “I feel that life is very rewarding” and “I don’t think I look attractive” (Oxford Happiness Questionnaire, OHQ; Hills & Argyle, 2001). Participants rated their agreement with the items from 1 (*Strongly disagree*) to 6 (*Strongly agree*) (Cronbach’s  $\alpha_{T1} = 0.81$ ; Cronbach’s  $\alpha_{T2} = 0.82$ )

***Well-Being Behaviors.*** Students rated from 1 (*Never*) to 5 (*4-7 times a week*) how often they engaged in the following behaviors: attend the gym, visit the health center (for physical health concerns), and visit the health center (for mental health concerns). Scores were reverse-coded.

***Academic Burnout.*** Burnout was measured at the end of the semester using the School Burnout Inventory (SBI; Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009). This measure contains 9 items that represent the three following subscales: *exhaustion at schoolwork* (e.g., “I feel overwhelmed by my schoolwork”), *cynicism toward the meaning of school* (e.g., “I feel that I am losing interest in my schoolwork”), and *sense of inadequacy at school* (e.g., “I used to have higher expectations of my schoolwork than I do now”). Participants rated their agreement on these items from 1 (*Completely disagree*) to 6 (*Completely agree*). The 9 items were aggregated together to create a total burnout score (Cronbach’s  $\alpha = 0.88$ ) Exhaustion (Cronbach’s  $\alpha = 0.78$ ), cynicism (Cronbach’s  $\alpha = 0.83$ ), and inadequacy (Cronbach’s  $\alpha = 0.71$ ) scores were also calculated.

***Keychain.*** At the end of the semester, students indicated whether they still had the keychain I handed out at the start of the semester in the possession. Around 27% of students who responded to the final survey ( $N = 304$ ) indicated they still had their keychain.

### **Daily Diary Measures of Adversity and Well-Being.**

**Daily Stress.** To measure daily stress, participants indicated their agreement from 1 (*Very much disagree*) to 6 (*Very much agree*) on the following two question: “Today I feel nervous about school,” and “Today I feel stressed out at school” (adapted from Sherman and colleagues, 2013) ( $r = 0.63, p < .001$ ).

**Daily Threat.** Daily threat was measured by two questions (“Today in school, I am worried that other people will judge me based on a social identity I have” and “Today in school, I am worried that people will judge my identity because of the way *other* people with this social identity behave” (adapted from Cohen & Garcia, 2005), measured on a 1 (*Very much disagree*) to 6 (*Very much agree*) scale ( $r = 0.72, p < .001$ ).

**Daily Belonging.** Belonging was measured with the same sense of belonging scale used in the daily diaries (adapted from Walton & Cohen, 2007) (Cronbach’s  $\alpha = 0.86$ ).

**Daily School Identity.** School identity used the same measures as those used in the survey.

**Daily School Engagement.** School engagement used the same engagement measure used in the survey (Cronbach’s  $\alpha = 0.73$ ).

**Demographic Characteristics.** For both surveys and daily diaries, students reported their gender, age, and year in school. Students selected their race/ethnicity identity from the following options (multiple selections permitted): Black/African American, Hispanic or Latino/a, Asian/Asian American, White/Caucasian, Native American/American Indian, Pacific Islander/Native Hawaiian, or indicate that their race/ethnicity was not an option above and write it in an open-ended text box. University historical records indicated whether students were first-generation or continuing-generation.

### 5.3 Results

Out of the 651 students who completed the identity manipulation at the beginning of the semester, 219 completed all three components of the study: pre-intervention survey, daily diaries, and post-intervention survey.<sup>11</sup> Table 11 contains a breakdown of the number of students who completed each portion of the intervention. Pre-intervention correlations, means, and standard deviations of all survey academic-wellbeing variables are presented in Table 12. Post- intervention correlations of academic well-being are presented in Table 13. Descriptive statistics of these variables by identity condition are displayed in Table 14.

**Table 11. Descriptive statistics of completion rates for each component of the identity intervention, by condition and class (Study 4)**

	Single Identity Condition ( <i>N</i> = 326)			Multiple Identities Condition ( <i>N</i> = 325)		
	Biology <i>N</i>	Psychology <i>N</i>	All <i>N</i>	Biology <i>N</i>	Psychology <i>N</i>	All <i>N</i>
Pre-intervention survey	146	180	320	147	178	325
Daily diary	94	80	174	99	74	173
Post-intervention survey	75	72	147	76	82	158
Completed all 3 components	63	40	103	69	47	116

<sup>11</sup> I analyzed whether attrition from the study was affected by identity condition. Results indicated that identity condition was not associated with study completion (all  $p > .10$ ).

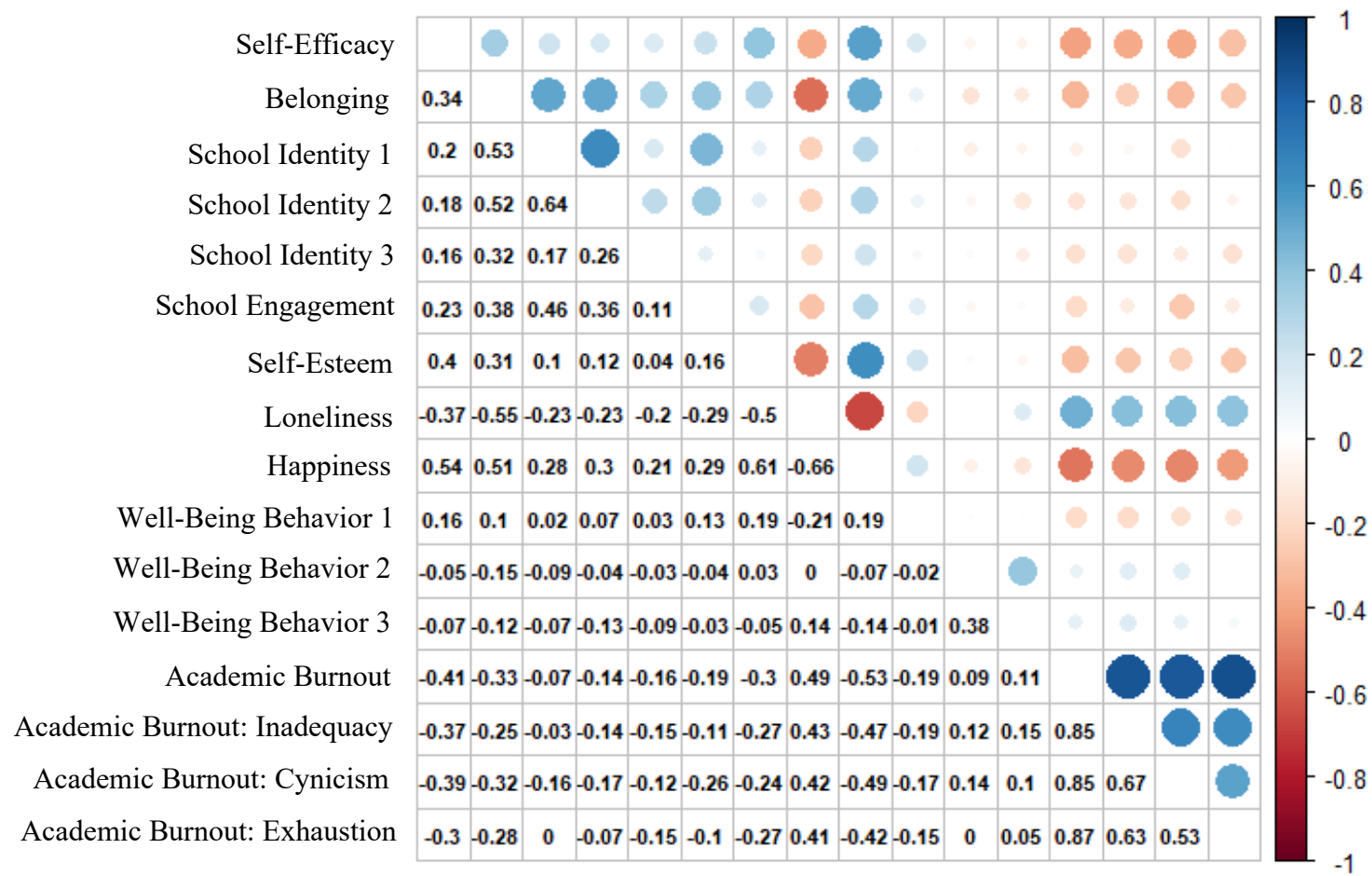
**Table 12. Correlations and descriptive statistics of all pre-intervention variables (Study 4)**

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Academic Self-Efficacy	1											
2. Belonging	.34***	1										
3. School Identity 1	.18***	.32***	1									
4. School Identity 2	.26***	.49***	.48***	1								
5. School Identity 3	.08*	.18***	.08*	.16***	1							
6. School Engagement	.23***	.29***	.42***	.31***	.08*	1						
7. Self-Esteem	.39***	.35***	.14***	.23***	.04	.14**	1					
8. Loneliness	-.35***	-.52***	-.22***	-.30***	-.09*	-.20***	-.52***	1				
9. Happiness	.48***	.45***	.25***	.36***	.14***	.27***	.63***	-.66***	1			
10. Well-Being Behaviors 1	.18***	.06	.04	.06	-.05	.25***	.18***	-.23***	.22***	1		
11. Well-Being Behaviors 2	-.13**	-.04	.04	-.04	-.01	.07	-.15***	.10*	-.16***	.10*	1	
12. Well-Being Behaviors 3	.02	.02	.07	-.02	-.05	.12*	.06	-.03	.01	.21	.50***	1
<i>M</i>	4.06	5.00	4.06	3.90	4.64	4.00	3.35	2.26	5.03	3.29	1.26	1.43
<i>SD</i>	.62	.74	.90	.89	.63	.60	1.17	.54	.95	1.39	.57	.56
<i>Range</i>	1-5	1-6	1-5	1-5	1-5	1-5	1-5	1-4	1-6	1-5	1-5	1-5
<i>N</i>	649	650	648	650	650	650	648	649	650	650	650	650

Note: School Identity 1: “Being a Pitt Panther or Pitt student is important to me”; School Identity 2: “I feel like my identity as a Pitt student is well aligned with my other social identities”; School Identity 3: “My Pitt student identity conflicts with my other social identities”; Well-Being Behavior 1: attending the gym; Well-Being Behavior 2: attending the health center for physical reasons; Well-Being Behavior 3: attending the health center for mental health reasons. \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$



Table 13. Correlation plot of all post-intervention variables (Study 4)



**Table 14. Descriptive statistics of all variables, by identity condition (Study 4)**

Variable	Single Identity Condition		Multiple Identity Condition	
	<i>Pre-Intervention</i>	<i>Post-Intervention</i>	<i>Pre-Intervention</i>	<i>Post-Intervention</i>
	M ( <i>SD</i> )	M ( <i>SD</i> )	M ( <i>SD</i> )	M ( <i>SD</i> )
Academic Self-Efficacy	4.00 (.64)	3.97 (.69)	4.12 (.59)	4.08 (.60)
Belonging	4.92 (.76)	4.83 (.94)	5.07 (.72)	4.93 (.87)
School Identity 1	4.04 (.94)	4.08 (1.04)	4.09 (.86)	4.04 (1.03)
School Identity 2	3.88 (.90)	4.05 (.91)	3.92 (.89)	3.90 (1.00)
School Identity 3	4.63 (.63)	4.49 (.62)	4.65 (.63)	4.59 (.69)
School Engagement	4.01 (.63)	3.53 (.68)	4.09 (.56)	3.64 (.73)
Trait Self-Esteem	3.23 (1.18)	3.25 (1.20)	3.47 (1.14)	3.50 (1.20)
Loneliness	2.30 (.56)	2.30 (.54)	2.23 (.52)	2.24 (.56)
Happiness	4.94 (.99)	4.76 (1.03)	5.11 (.91)	4.92 (.99)
Well-Being Behaviors 1	3.14 (.1.46)	2.44 (1.22)	3.44 (1.31)	2.38 (1.30)
Well-Being Behaviors 2	1.14 (.46)	1.04 (.35)	1.38 (.64)	1.08 (.39)
Well-Being Behaviors 3	1.25 (.52)	1.14 (.37)	1.60 (.54)	1.13 (.34)
Academic Burnout	-	3.61 (.94)	-	3.52 (1.02)
Exhaustion	-	3.64 (1.04)	-	3.54 (1.07)
Cynicism	-	3.48 (1.10)	-	3.38 (1.29)
Inadequacy	-	3.73 (1.22)	-	3.69 (1.30)
Course Grade	-	3.07 (1.02)	-	3.02 (1.09)
Term GPA	-	3.01 (.71)	-	2.96 (.75)
STEM GPA	-	2.63 (1.00)	-	2.55 (1.08)
Non-STEM GPA	-	3.28 (.67)	-	3.25 (.67)

### 5.3.1 Data Analytic Plan

The three main RQs tested in this intervention were the following:

RQ1) Does activation of multiple identities enhance academic well-being and performance?;

RQ2) Does activation of multiple identities differentially benefit students from underrepresented backgrounds?;

RQ3) How does the structure of identities (e.g., identity overlap, identity conflict) impact the effect of activating multiple identities?

To test RQ1 and RQ2, I conducted analysis of covariance (ANCOVA) tests to examine the main effect of the Identity condition, and its interaction effects with Marginalized group status (racial/ethnic minorities and first-generation students, grouped together) on students' post-intervention academic wellbeing and performance. If the Marginalized group status x Identity interaction was not significant, I then broke down the group into non-White group status and First-generation group status and tested these interactions separately with the Identity condition (these findings reported in Appendix B). Linear regression models addressed RQ3 by examining moderation by the different identity characteristics (Overlap, Conflict, Importance), which I standardized to improve clarity in interpreting results (Irwin & McClelland, 2001).<sup>12</sup>

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<sup>12</sup> Since the identity factors were measured after delivery of the identity intervention, I first conducted analyses to determine that the factors were not affected by identity condition in order to use them as moderators.

To determine if I could collapse the courses together, I tested for a Class x Marginalized x Identity Condition three-way interaction on Biology and Psychology grades. Neither interactions were statistically significant (both  $p > .10$ ), indicating that the course the student received the intervention in did not affect their grade in that specific course. Thus, I collapsed Biology and Psychology scores into a singular Course Grade variable and controlled for course.

For all grade analyses, I controlled for age, school year, gender, the course in which the intervention was delivered, previous academic achievement and number of AP credits transferred to the university. The previous academic achievement score was calculated as the standardized average of combined high school GPA and standardized test scores (i.e., SAT and ACT). Both types of scores were standardized and then averaged together. If students only had one set of scores, the standardized average of that score was used to indicate their previous academic achievement. If neither of the scores were available, I used the mean ( $M = 0.00$ ) as their previous academic achievement. For AP credits,<sup>13</sup> the majority of students transferred somewhere from 0 to 7 credits from their Advanced Placement test scores. AP credits, school year, and age were mean-centered. Supplementary grade analyses in Appendix C.

When analyzing outcomes of academic well-being, I first tested to see whether the course the intervention was delivered in moderated the effects with Identity condition and Marginalized group status on all well-being variables. There were no significant effects of course; thus, I

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Analyses indicated that identity importance, conflict, and overlap were not affected by the identity intervention (all  $ps > .09$ ).

<sup>13</sup> I used information from the Office of Admissions and Financial Aid to determine the number of AP credits that students could transfer (University of Pittsburgh Office of Admissions and Financial Aid, n.d.).

collapsed across both Biology and Psychology courses for results. Analyses on how the identity intervention impacted academic well-being also used ANCOVA tests and controlled for pre-intervention levels of the dependent variable, age, school year, and gender.

Similar controls were used in the daily diary analyses, which examined whether the multiple identity intervention was associated with an untethering between daily adversity and daily academic well-being. I correlated the stress and threat variables with the belonging and school connectedness variables to create four separate correlation scores representing the relationship between daily adversity and well-being.<sup>14</sup> ANCOVA tests analyzed whether the identity intervention impacted these correlation scores. Additionally, I also tested for moderation on untethering by Marginalized group status and identity characteristics. Supplementary mediation analyses of the data are presented in Appendix D.

### **5.3.2 Academic Well-Being and Performance Outcomes**

**RQ1) Does activation of multiple identities enhance academic well-being and performance?**

Analyses revealed no significant effects that provided evidence for RQ1.

**RQ2) Does activation of multiple identities differentially benefit students from underrepresented backgrounds?**

Analyses revealed that Marginalized group status did not moderate the effect of identity condition on outcome variables.

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<sup>14</sup> Participants needed to have completed at least 4 of the 5 daily diaries.

**RQ3) How does the structure of identities (e.g., identity overlap, identity conflict) impact the effect of activating multiple identities?**

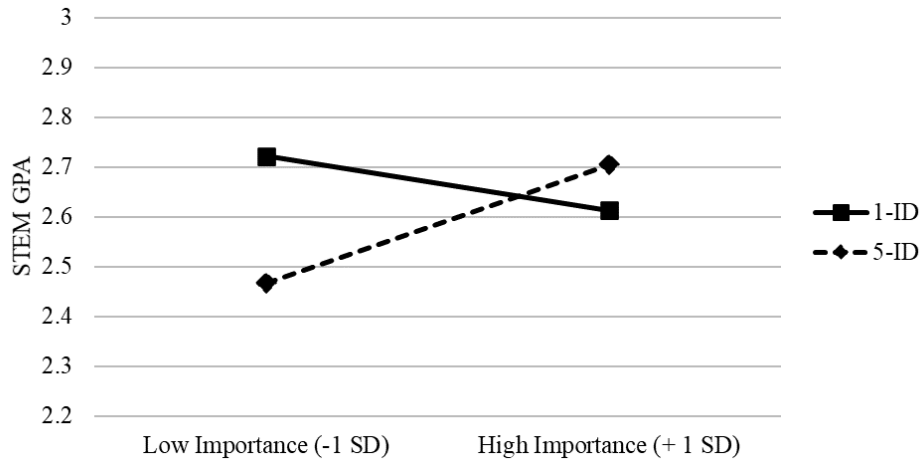
Results revealed significant moderation by identity characteristics on both academic performance and academic well-being outcomes. Identity characteristic descriptive statistics in Table 15.

**Table 15. Descriptive statistics of identity characteristics across conditions (Study 4)**

<i>Variable</i>	<i>M (SD)</i>
Identity Importance	4.02 (.80)
Identity Conflict	3.60 (.89)
Identity Overlap	2.35 (.98)

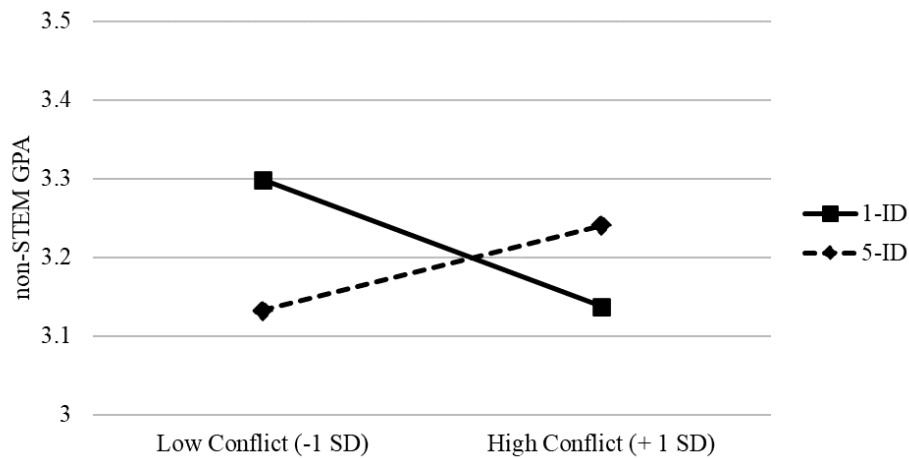
**STEM GPA.** A significant Identity Importance x Identity Condition interaction appeared on STEM grade ( $B = .173$ ,  $SE = .088$ ,  $t(428) = 1.967$ ,  $p = .050$ ; Fig. 7). Though neither of the simple slopes were statistically significant, they indicated generally that for students in the 1-ID condition, perceiving one's identities as more important to the self was associated with lower GPA whereas perceiving one's identities are more important to the self was associated with higher GPA for students in the 5-ID condition.

**Non-STEM GPA.** Analyses on non-STEM GPA revealed a significant Identity Conflict x Identity Condition interaction ( $B = .135$ ,  $SE = .058$ ,  $t(464) = 2.337$ ,  $p = .020$ ; Fig. 8). For those in the 1-ID condition, greater perceived conflict among one's identities was significantly associated with lower GPA ( $B = -.081$ ,  $SE = .039$ , 95% CI=[-.158, -.004], whereas conflict did not impact GPA for students in the 5-ID condition (95% CI=[-.030, .138]).

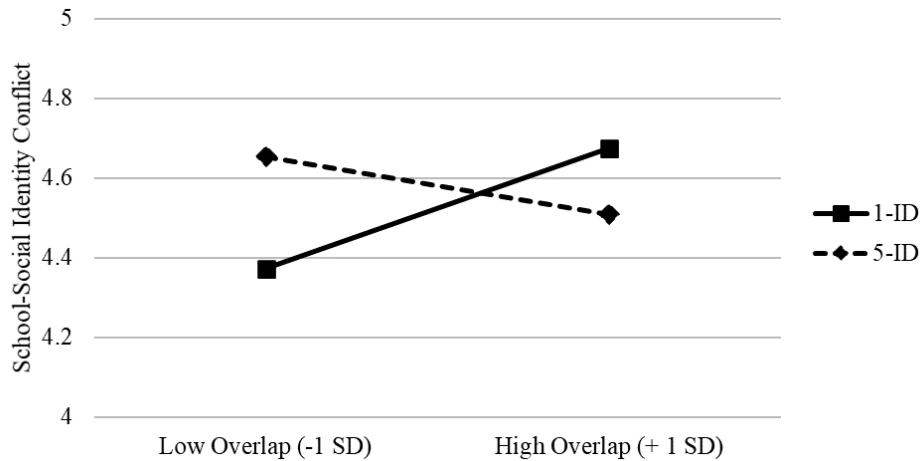


**Figure 7. Identity Importance x Identity Condition interaction on STEM GPA (Study 4).**

**Belonging.** Results revealed a significant Identity Importance x Identity Condition interaction on sense of belonging ( $B = -.311$ ,  $SE = .108$ ,  $t(244) = -2.878$ ,  $p = .004$ ; Fig. 9). For those in the 1-ID condition, perceiving one's identities as more important to the self was related to greater feelings of belonging ( $B = .369$ ,  $SE = .082$ , 95% CI=[.207, .531]. However, there were no differential effects of identity importance on belonging for those in the 5-ID condition ( $B = -.058$ ,  $SE = .071$ , 95% CI=[-.082, .197]), indicating that identity importance did not influence how students in the 5-ID condition perceived their sense of belonging.



**Figure 8. Identity Conflict x Identity Condition interaction on non-STEM GPA (Study 4).**

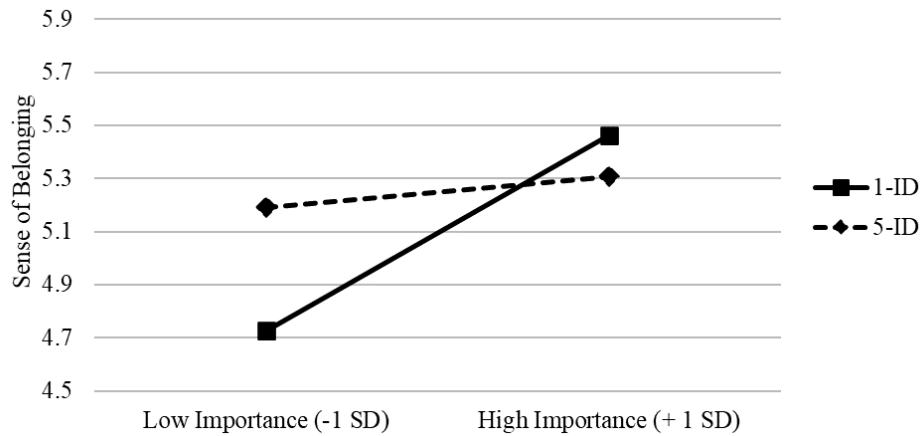


**Figure 9. Identity Importance x Identity Condition interaction on sense of belonging (Study 4).**

**School-Social Identity Conflict.** Results appeared on the measure of school identity that reflected how strongly aligned students perceived their student identity and other social identities. A significant Identity Overlap x Identity Condition interaction ( $B = -.224$ ,  $SE = .098$ ,  $t(234) = -2.283$ ,  $p = .023$ ; Fig. 10) revealed that for students in the 1-ID condition, greater overlap was significantly associated with less perceived conflict (reverse-coded) between students' school identity and their other social identities ( $B = .134$ ,  $SE = .067$ , 95% CI=[.002, .265]). For students in the 5-ID condition, identity overlap did not affect perceptions of conflict between identities.

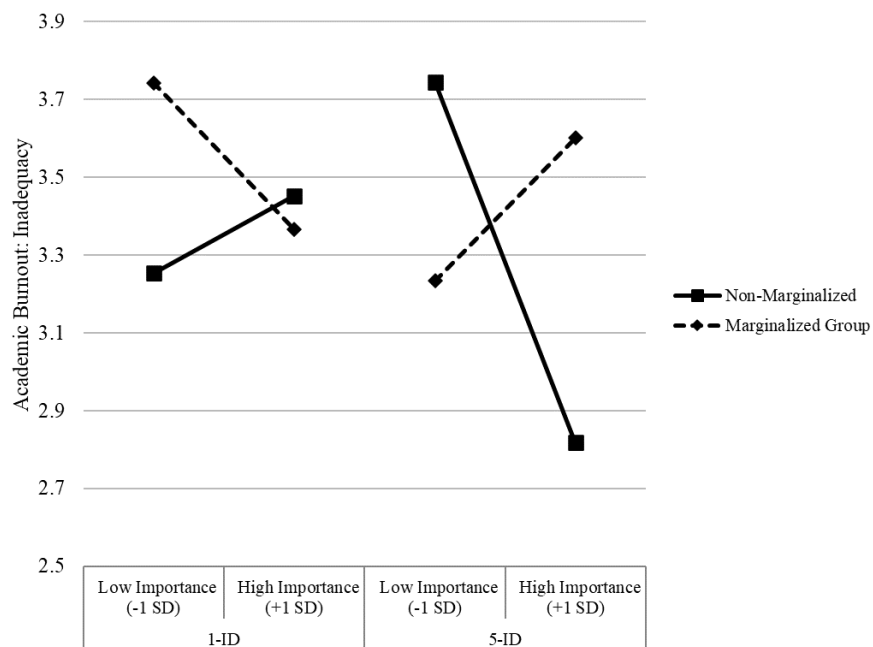
**Academic Burnout.** A significant Identity Importance x Marginalized Group x Identity Condition interaction appeared on the total academic burnout score ( $B = .597$ ,  $SE = .239$ ,  $t(259) = 2.495$ ,  $p = .013$ ; Fig. 11). For students in the 1-ID condition, there was no Identity Importance x Marginalized interaction ( $B = -.223$ ,  $SE = .183$ ,  $t(259) = -1.222$ ,  $p = .223$ ). Identity importance was not predictive of academic burnout for either non-Marginalized or Marginalized group students (both  $p > .10$ ). However, there was a significant Identity Importance x Marginalized interaction in the 5-ID condition ( $B = .374$ ,  $SE = .155$ ,  $t(259) = 2.405$ ,





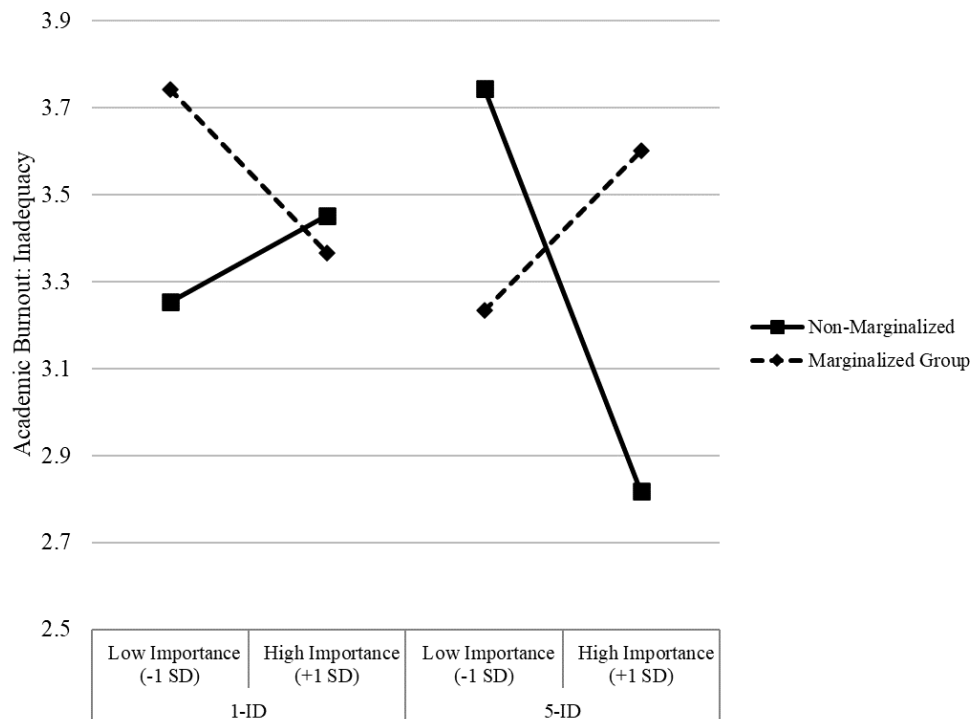
**Figure 10. Identity Overlap x Identity Condition interaction on the perceived conflict between students' school identity and their other social identities (Study 4).**

$p = .107$ ). Specifically for non-Marginalized students, higher identity importance was related to lower burnout ( $B = -.271$ ,  $SE = .115$ ,  $t(259) = -2.353$ ,  $p = .019$ ), whereas there was no effect of identity importance on burnout for Marginalized students ( $B = .102$ ,  $SE = .103$ ,  $t(259) = 1.00$ ,  $p = .320$ ).



**Figure 11. Identity Importance x Marginalized Group x Identity Condition interaction on academic burnout (Study 4).**

**Burnout Inadequacy.** Results for the inadequacy measure also revealed a significant Identity Importance x Marginalized Group x Identity Condition interaction ( $B = .935$ ,  $SE = .307$ ,  $t(259) = 3.049$ ,  $p = .003$ ; Fig. 12). For students in the 1-ID condition, identity importance was not predictive of feelings of inadequacy ( $B = -.288$ ,  $SE = .234$ ,  $t(259) = -1.230$ ,  $p = .300$ ). However, there was a significant Identity Importance x Marginalized interaction in the 5-ID condition ( $B = .647$ ,  $SE = .200$ ,  $t(259) = 3.249$ ,  $p = .001$ ). Non-Marginalized students in the 5-ID condition had a negative relationship between identity importance and inadequacy scores; as identity importance increased, inadequacy decreased ( $B = -.463$ ,  $SE = .148$ ,  $t(259) = -3.136$ ,  $p = .002$ ). For Marginalized students in the 5-ID condition, identity importance was not predictive of inadequacy ( $p > .10$ ).



**Figure 12. Identity Importance x Marginalized Group x Identity Condition interaction on inadequacy related to academic burnout (Study 4).**

### 5.3.3 Daily Diary Outcomes

The daily diaries assessed whether the identity manipulation affected the relationships between daily adversity (measured by stress and threat) and academic well-being (measured by belonging and school connectedness). I also examined whether the effects of the identity condition differed between non-Marginalized and Marginalized students.

I first examined whether students' levels of stress, threat, belonging, and school connectedness were affected by the identity condition in which students were assigned and any possible interactions of the identity condition with demographic groupings. There were no main or interaction effects on stress, threat, belonging, or school connectedness (all  $p > .10$ ).

I then examined whether the relationships between daily adversity (measured by stress and threat) and academic well-being (measured by belonging and school connectedness) were impacted by the identity intervention. The relationship was measured through a variable that represented the within-person correlation between these four variables (e.g. stress and belonging, threat and school connectedness; adapted from Sherman et al., 2013). This correlation represented how tightly tethered these variables of adversity and well-being were; analyzing how the identity intervention affected this relationship illuminated how the multiple identity intervention succeeded in buffering against felt experiences of adversity in the school environment. Results examining the effect of the identity intervention and moderation by both Marginalized group status and identity characteristics indicated no significant effects.

## 5.4 Discussion

This final study integrated findings from the previous three pilot studies to investigate the utility of a multiple identity intervention aimed at buffering students against psychological threats within their academic environment. The study aimed to address three primary research questions:

RQ1) Does activation of multiple identities enhance academic well-being and performance?;

RQ2) Does activation of multiple identities differentially benefit students from underrepresented backgrounds?;

RQ3) How does the structure of identities (e.g., identity overlap, identity conflict) impact the effect of activation of multiple identities?

For RQ1, I predicted that activation of multiple social identities would report greater feelings of academic well-being (e.g., belonging, academic self-efficacy, school connectedness) and higher grades at the end of the semester, as previous work has shown both that reminding individuals of their valued parts of the self (e.g., Cohen, Aronson, & Steele, 2000; Steele, 1988) and emphasizing the social groups and memberships they value (Rydell et al., 2009) can protect the individual in the face of threat and stressors.

Most of the predictions for RQ1 were not supported by the findings in this study. There was no conclusive evidence that activating multiple identities, rather than a single identity, positively influenced academic well-being and performance outcomes. These results were inconsistent with literature from the social support domain, where studies have found that having individuals think of the multiple groups they belong to enhances feelings of belonging and reduces

feelings of stress (Haslam et al., 2008; Jones & Jetten, 2011). These findings also differed from those found in the self-affirmation literature, which has found evidence for the beneficial and protective attributes of affirming and reflecting on important parts of the self. I had hypothesized that reflecting on multiple important social identities would elicit greater effects on well-being than just activation of a single identity, as it would create a psychological safety net comprised of the individual's multiple identities.

My hypotheses for RQ2 were that the multiple identity activation would be especially beneficial for historically stigmatized students, who are more likely to experience identity threat from the academic environment. Moderation analyses with the Marginalized group revealed that most results did not support the prediction for RQ2. However, the results did not indicate that the identity intervention harmed traditionally stigmatized students; rather, the null results indicated that the intervention did not differentially benefit those who are more likely to be negatively stereotyped.

Results for RQ3 provide a glimpse into why the primary hypotheses for RQ1 and RQ2 were not supported by the findings of this study. The analyses of identity characteristics moderation suggest that the way in which students perceive their identities can affect how multiple identity activation impacts academic performance and well-being.

Results of the identity intervention shed light on the effect of identity conflict on non-STEM GPA, the average GPA earned in Fall term courses that belonged to the STEM domain. For students in the 1-ID condition, non-STEM GPA decreased as identity conflict increased. These findings align with previous research on the detrimental effects of perceived conflict among one's identities ( e.g., increased conflict is associated with more negative outcomes; Stryker, 1968). However, these results only appeared within the 1-ID condition. For students who activated

multiple identities, identity conflict no longer impacted grade. In other words, it seemed that activating multiple identities reinforced a sense of harmony among identities despite students perceiving conflict among these identities.

This finding on non-STEM GPA on academic performance suggests that multiple identity activation can have a harmonizing effect, in that it can bring together identities even when they are perceived to have a negative characteristic, or an affirming effect, in that it can bolster the effects of a positive characteristic. Importantly, these effects were not just relegated to outcomes related to academic performance; results on academic well-being also revealed moderating effects of identity characteristics.

The harmonizing effect of multiple identity activation appeared on the relationship between the identity overlap characteristic and the outcome of perceived conflict between students' academic identity and their other social identities. For students in the 1-ID condition, lower identity overlap was associated with greater perceived conflict between academic and other social identities. However, those in the 5-ID condition did not report a relationship between identity overlap, and conflict between student identity and other social identities. In other words, activating multiple identities created a sense of harmony among students' identities that overcame the detrimental effect of perceiving low overlap among their identities. This aligns with the hypothesis that activation of multiple identities may reduce dissonance among students' identities and create a sense of a cohesive self. This finding also provided insight into whether high or low overlap was more beneficial, as previous literature has touched on both the positive and negative impacts of high overlap (Roccas & Brewer, 2002; Simon, 1995).

Results on sense of belonging also highlighted the harmonizing nature of multiple identity activation. For students in the 1-ID condition, increasing identity importance was associated higher

sense of belonging. However, for students in the 5-ID condition, identity importance did not influence scores of belonging. These findings suggest that students who activated multiple identities were able to view their identities more positively, buffering against the negative impact of low identity importance.

Multiple identity activation also seemed to serve a function of affirming students when they already perceived their identities as influential and important to the self. Specifically, analyses on STEM term grade, the average grade earned in Fall term courses that belonged to the STEM domain, found evidence that multiple identity activation affirmed the effect of identity importance. Regarding one's identities as more important to the self was associated with a decrease in STEM term grade in the 1-ID condition, whereas it was associated with an increase in STEM term grades in the 5-ID condition. This suggests that activating multiple identities affirmed the effects of perceiving one's identities as important to the self. That is, the more students perceived their identities as contributing significantly to the self, the more beneficial multiple identity activation was on STEM grade. Given that research has highlighted the importance of social identities for the individual, it seems likely that the benefits of identities are even stronger when multiple identities, versus a single identity, are activated.

This affirmation effect seemed to be especially effective for students in the non-Marginalized group, as revealed in findings on academic burnout. For non-Marginalized students in the 1-ID condition, lower identity importance was related to greater burnout. For those in the 5-ID condition though, there was no relationship between importance and burnout. Similar results were found for the inadequacy subscale of the academic burnout scale. Interestingly, the effects of identity characteristics did not impact burnout for Marginalized group students. These students reported similar scores of burnout and inadequacy regardless of identity condition. Given the full

results of this study, it does not seem that underrepresented group status moderated the intervention. Rather, the results suggest that the ways in which students characterized their identities are what drove the multiple identity activation to be more or less effective.

One reason the identity intervention did not have its predicted effect may be due to the identity manipulation not having its hypothesized recursive effects. Though I distributed a keychain emblazoned with the school symbol to serve as reminder of the intervention, only 27% of students who completed the post-intervention survey indicated they still had the keychain in their possession.<sup>15</sup> Thus, it is possible that the effect of the identity intervention slowly faded throughout the semester. Future studies could address this by delivering repeated “doses” of the identity manipulation, a procedure used in some values-affirmation interventions (e.g., Sherman et al., 2013). Furthermore, it is possible that students did not reflect long enough on why their identities were important to the self. Though a fidelity check of the intervention revealed that the majority of students were following instructions (79 of the total 1,825 identities listed personal characteristics, not social group memberships), there was no method for ensuring that all the identities listed by the student were of similar importance.

Although the majority of RQ1 and RQ2 predictions were not supported, there was evidence that identity characteristics impacted multiple identity activation, a relationship that had not yet been examined. To better understand these effects, future studies should examine how manipulations of identity conflict, overlap, and importance impact outcomes of academic well-being and performance. The results of this study suggest that a multiple identity intervention might

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<sup>15</sup> This does not include the 411 students who did not complete the post-intervention survey.



be most beneficial not for students who have traditionally stigmatized identities, but rather students of any background who view disharmony or tension among their identities.

## 6.0 General Discussion

The objective of the present research was to better understand the experience of activating multiple social identities (pilot studies 1-3) in an effort to investigate the utility of a multiple identity-based intervention to improve students' academic well-being and performance (Study 4). The first pilot study showed that there were empirical differences between single identity activation and activation of multiple identities and provided an operational definition for the number of identities involved in *multiple* identity activation. Specifically, Study 1 results indicated that there were no added benefits to outcomes of self-esteem and identity importance after listing 5 identities, a finding that helped set the stage for the identity manipulations that later followed in Studies 3 and 4.

Study 2 then helped specify what the experience of multiple identity activation and holding multiple social identities was like for college students specifically. Since college is a time of significant identity development (Waterman, 1982), I wanted to gain more insight into the types of identities students held and whether these identities were personally significant. Students overwhelmingly stated that their identities contributed positively to belonging and feelings of support, consistent with previous research stating that thinking of multiple social identities “grounds people more firmly in their social world and provides them with multiple connections to similar others” (Jetten et al., 2017). Findings from this second pilot study also provided initial evidence for whether cues of the university would signal belonging or inclusion. I followed this up with Study3, which highlighted the potential benefits of embedding identity activation within a cue of belonging. Results from this study indicated that students who completed their identity

activation within the school symbol reported greater harmony and alignment among their identities, as well as overall more positive affect. This suggested that such types of visual cues could enhance positive connotations about the self and argues that a focus on creating a cohesive identity for students using such symbols could be a powerful way of bolstering belonging in the university.

The final intervention study integrated the findings from these pilot studies and tested whether activation of multiple identities, specially embedded within school symbol to enhance the benefits of holding social identities (e.g., belonging, self-worth) and identity cohesion, would improve students' well-being and performance during their first semester of college. I predicted that activating multiple social identities, versus a single identity, would positively influence academic well-being and performance. Moreover, I predicated that this activation would differentially benefit students from marginalized backgrounds, as well as vary depending on different identity characteristics.

Results showed that the intervention did have a detectable impact, as it appeared to yield academic and psychological benefits for some students. However, contrary to predictions, these effects were not general across students nor were they stronger among marginalized students. In fact, the intervention effects did not so much depend on a students' demographic category as they did on the structure and characteristics of students' social identities. Namely, analyses showed the intervention benefits on harnessing the additive benefits of social identities (e.g., the variable of belonging) and creating sense of cohesion (e.g., the variable of school-identity conflict) depended on factors such as how students viewed the importance of their multiple identities, the perceived conflict among their identities, and the degree of overlap among their identities. In other words, results showed that the intervention, while potentially beneficial for some students, was also highly

contingent. As such, the intervention as it was delivered did not prove to be practically useful means for improving students' outcomes. However, the pattern of results and exploratory analyses did yield a number of rich theoretical insights and directions for future research, which I unpack below.

Importantly, results of the identity intervention suggested that multiple identity activation served two important functions: 1) it created harmony among identities when they were seen to be dissonant from each other, or 2) it affirmed those times when identities were seen as compatible. In its harmonizing function, activation of multiple identities served to create a sense of cohesion among students' identities when they were perceived to be highly in conflict with each other or had low degree of overlap. In its affirming function, activation of multiple identities bolstered effects of perceiving one's identities to be important to the self.

Evidence for this first function of creating harmony was found on both outcomes of academic performance and well-being. Specifically, analyses on non-STEM GPA found that for students who only activated a single identity, higher perceived conflict among one's identities was associated with lower grade. However, among students who activated their multiple identities, identity conflict was no longer associated with non-STEM GPA. That is, thinking of one's *multiple* social identities seemed to counter the adverse effects of perceiving high conflict among one's identities (e.g., Helson, Elliott, & Leigh, 1990).

A similar result was seen on the perceived conflict between students' academic identity and their other identities. It is common for students to feel conflict among their social and academic identities (Vallerand, 1997). In this study, this was primarily seen in students in the single identity condition who perceived low overlap among their identities. For students in the 1-ID condition, conceptualizing one's identities to be distinct from each other, or having low overlap, was

associated with greater perceived academic-social identity conflict. These effects were negated in the 5-ID condition. Activating multiple identities seemed to nullify the relationship between identity overlap and perceived academic-social conflict, and instead created a cohesive sense of self, regardless of how students actually perceived their identities. The final piece of evidence for this harmonizing effect was seen on the outcome of belonging. Whereas students in the 1-ID condition reported greater belonging only when they perceived their identities as being a significant contributor to the self, those in the 5-ID condition did not report this relationship between identity importance and belonging. Rather, those who had activated multiple identities reported similarly high levels of belonging—regardless of identity importance. These findings taken together hint to a harmonizing effect of multiple identity activation that is most effective for individuals who perceive their identities to be in conflict with one another or highly distinct and separate.

Another possible function of multiple identity activation is its ability to affirm the individual. Analyses on STEM GPA highlighted this function of multiple identity activation. For students in the 5-ID condition, trending results indicated that greater identity importance seemed to be associated with higher GPA. That is, activating multiple identities helped affirm, and possibly enhance, the benefits related to perceiving one's identity as important to the self (Haslam, Jetten, O'Brien, & Jacobs, 2004; Tajfel, 1974). It seemed that having activated multiple identities bolstered these effects of identity importance, specifically on academic performance. Additionally, results on academic burnout (and its related subscale of inadequacy) also provided evidence for this affirmation function of multiple identity activation. On these outcomes, the benefits of identity importance were similarly affirmed in students in the 5-ID condition. Whereas those in the 1-ID condition did not report any differential effect of increasing identity importance, those in the 5-ID

condition revealed that higher identity importance was associated with lower feelings of burnout (and inadequacy).

In addition to these main findings, results of Study 4 also shed light on the effects of identity overlap. Current research offers two competing theoretical arguments for whether high or low perceived overlap among identities is more favorable. Whereas the self-complexity literature argues for low overlap being more beneficial to the individual (Linville, 1985), the role conflict literature states that high overlap can help the individual view their identities or roles as more unified (Barnett & Baruch, 1985). Findings from Study 4 provided evidence that perceiving greater overlap between one's identities was related to more positive outcomes, specifically lower perceived conflict among one's social identities and academic identity (within Appendix B, similar results are shown on reported sense of belonging).

## **6.1 Contributions, Limitations, and Future Directions**

The identity intervention was the first to test the potential effect of activating multiple identities to improve academic well-being and performance for college students, and also novel in its examination of identity characteristics moderators. Though the intervention did not have its predicted effects, the findings from this study, and its preceding three pilot studies, contributed to the identity literature a more general understanding of how multiple identities function (see Kang & Bodenhausen, 2015; Stryker & Burke, 2000). Importantly, the current studies show that multiple identity activation is more complex than just summing together the effects of single identity

activation; rather, there are significant components of both context and how identities are structured at play in the equation.

Despite these contributions, there are a few limitations to these studies that contribute to why the multiple identity activation may not have had its intended effect. For one, the identity manipulation may not have had its predicted recursive effect in reminding students of their important social group memberships. Whereas other research on social-psychological interventions have shown that the effects of the intervention ‘snowball’ throughout the school year to create profound, long-term effects (e.g., Cohen et al., 2009), it is possible that the current identity intervention did not have this intended effect. Though I attempted to address this issue through delivering the keychain, which served as a physical reminder of the intervention, as well as through conducting the daily diaries, where students were asked to list again their important social identities, it is possible that this design did not create strong enough of reminders for the students. In fact, only 27% of students reported that the keychain was still in their possession (not including 411 of the total 651 students who completed the identity intervention but did not complete the final survey). This indicates that this particular cue was not compelling enough for students to retain, much less serve as a reminder of the intervention. Future studies should randomly assign distribution of this physical reminder of the intervention to determine whether giving students a physical cue of the intervention helps enhance results of the multiple identity activation.

Additionally, the keychain may not have had its intended effect because the image of the paw print was already too specific of an image to elicit the intervention effects. Though Study 2 results indicated that the paw print reminded students of their school identity, and analyses from Study 3 revealed that the paw print was generally associated with positive affect, these results do not specifically indicate that the paw print served as a reminder of the identity intervention. It is

possible that the paw print was already too specific of a cue within the school environment –that is, students already associated it too strongly with another meaning that it was not possible for the intervention to manipulate, in a sense, its meaning. Research has shown that the extent to which individuals have prior knowledge about a cue can impact the ability of this cue to impact later judgements and choices (Park & Lessig, 1981). An interesting consideration for future work is whether a measurement of the strength of students’ association between their school identity and the paw print could moderate the effectiveness of the keychain to serve as a reminder of the intervention. Another limitation and avenue for further examination lies in the procedure used for the identity manipulation. Though the pilot data presented evidence that multiple identity activation significantly differed from single identity activation, and that embedding this activation within a cue of the university enhanced the sense that one’s identities are in alignment with one another, integrating these findings together into the identity intervention manipulation did not elicit similar results. In the intervention, students were asked to list five of their important social identities –a decision formed from findings in the first pilot study where there was evidence that after listing five identities, there were no longer significant benefits to the self. It is possible that listing even two, or four, identities could be beneficial to the student. Thus, future research could examine whether listing any number of identities greater than a single identity could achieve the hypothesized benefits of multiple identity activation.

Additionally, future research should examine whether other methodologies or psychometric evaluations of multiple identity would be more effective, as there is no general consensus within the field on how to manipulate multiple social identity activation (Haslam, Oakes, Reynolds, & Turner, 1999). Though we are confident in our abilities to make *one* identity salient, far less research has been conducted on how to make *multiple* identities salient. Given that



moderation results with identity characteristics indicated that the efficacy of multiple identity activation varies by identity structure, it may be the case that simply listing one's multiple identities does not capture the experience of holding these identities. Rather, integrating measures that depict or evaluate other features of the individual's social network might elicit a stronger effect of multiple identity activation. For example, the psychometric evaluation of multiple social identities termed Social Identity Mapping (SIM; Cruwys et al., 2016), looks at a variety of factors related to group membership –such as compatibility of group memberships and the individual's prototypicality in the group—to further understand how multiple social group membership benefits the individual. The researchers argue that this method for understanding multiple identities helps advance our understanding of multiple social identity interaction outside the pure *number* or intensity of relationship.

Consistent with the SIM approach, I measured a variety of identity characteristics in the current study. Analyses with identity importance, conflict, and overlap did show that they moderated the effect of the multiple identity activation, aligning with this argument that perhaps there is more than just a numerical factor to identity that alters its utility. One minor limitation was that these identity characteristics were measured after delivery of the identity intervention. Though analyses showed they did not differ by identity condition, further analyses should measure identity importance, conflict, and overlap prior to delivery of the identity manipulation to more accurately determine their moderating effects (MacKinnon, 2011).

In addition to these characteristics, I also explored whether the number of negatively-stereotyped identities listed by students would influence the effects of multiple identity activation. Though students were categorized into non-marginalized and marginalized groups based on their demographic records, I hypothesized that listing the stigmatized identities within their top one or

top five valued identities could help buffer against threats directed toward this particular identity. Results indicated this characteristic did not moderate results. However, I believe it warrants further examination, as it aligns with the idea that even societally stigmatized identities can offer benefits to individuals so long as these individuals regard the identity to be personally-important (Crocker & Major, 1989).

Finally, it is important to note that in the present research, the same identity manipulation was conducted in different classrooms, rather than in a more general university context. Several studies implementing social-psychological interventions have noted that the context in which the intervention is delivered can impact the effectiveness of the intervention (e.g., Binning et al., in press; Walton & Cohen, 2007). It is possible that delivering the identity intervention in Biology and Psychology narrowed students' sense of their identities to just how they functioned within the classroom. One objective of the identity intervention was to push students to think of their social identities and student identity existing cooperatively within the general university environment. Perhaps delivering the intervention at a more general university level when it is salient to students that they are part of a whole (e.g. during orientation) would enhance the effects of multiple identity activation.

Though results of Study 4 indicated that perceptions of identity characteristics and structure seemed to impact the effectiveness of multiple identity activation, specifically within the context of students just transitioning to college. These novel moderation results suggest that within this context, multiple identity activation is highly complex, and its benefits are perhaps discernible in cases where students view their identities in specific ways. Given the inconclusiveness and complexity of Study 4 results, it is likely that multiple identity activation may benefit students in specific ways that were not measured in the current study.

## 6.2 Conclusion

The current study tested whether a multiple identity intervention impacted the academic well-being and performance of college students, especially those traditionally stigmatized in the university context. The findings of the intervention were inconclusive, suggesting that activation of multiple identities had both positive and negative impacts on the student. However, findings highlighted the role that different identity characteristics –conflict, overlap, and importance—played in the effectiveness of multiple identity activation. In particular, multiple identity activation seemed to serve both harmonizing and affirming effects, creating a cohesive sense of self when identities were perceived to be disparate or in conflict, or enhancing the benefits of already highly-valued identities, respectively. Overall, the identity intervention presented here and its associated pilot studies help shed more light on the phenomenon of activating multiple social identities, an experience that is understudied yet necessary for understanding the complex self (McConnell, 2011; Stryker & Burke, 2000). Through using both quantitative and qualitative methods, I was able to better understand the social identities of individuals in a very fraught time of identity development and growth, as well as shed some light on how identity and group membership can affect psychological well-being and academic performance.

## **Appendix A : Study 4 Intervention Materials**

The students at the University of Pittsburgh are a diverse set of individuals who all possess different social identities. You have your own social identities that make you unique but also help contribute to the diversity at this university.

Research tells us that a person's identity is partially comprised of the different groups in which the person belongs.

For example, a 20-year-old might be part of a soccer team. Being a member of this team would allow this person to identify as an "athlete" or a "soccer player". These are two different identities that could result from being a member of this group.

Think about identities you have. To make it easier, first think about groups you are in. All social identities come from the social groups of which we are a part.

**Please think of all the social identities that are important to you.**

In the paw print on the next page, please write down five social identities [one social identity] that are important to you.

The identities [identity] you write will only be shown to me. No one else will view what identities [identity] you write down. Remember, our identities are the different groups or roles we are in—they are not adjectives (like “nice” or “generous”). Please only list social identities.

## Appendix B : Study 4 Non-White and First-Generation Moderation

### Appendix B.1 Non-White Analysis

**Academic Burnout Exhaustion.** A non-White x Identity Condition interaction appeared on academic burnout ( $B = .518, SE = .268, t(248) = 1.936, p = .054$ ). In the 1-ID condition, there was no difference in reported exhaustion between White and non-White students ( $p > .10$ ). In this condition, White students reported similar exhaustion ( $M = 3.68, SE = .138$ ) to that of non-White students ( $M = 3.55, SE = .157$ ). In the 5-ID condition however, non-White students reported greater exhaustion ( $M = 3.69, SE = .164$ ) than their White peers ( $M = 3.30, SE = .133$ ) ( $B = -.390, SE = .191, t(248) = 2.044, p = .042$ ).

**Academic Burnout Cynicism.** Results indicated a significant Identity Importance x non-White x Identity Condition interaction on cynicism ( $B = .89, SE = .319, t(241) = 2.795, p = .006$ ). For White students, greater identity importance was associated with lower cynicism if students were in the 5-ID condition ( $B = -.26, SE = .13, t(241) = -2.06, p = .04$ ). There was no significant impact of identity importance on cynicism for White students in the 1-ID condition ( $p > .10$ ). For non-White students, greater identity importance was associated with lower cynicism in the 1-ID condition ( $B = -.47, SE = .18, t(241) = -2.58, p = .01$ ). There were no significant effects for non-White students in the 5-ID condition ( $p > .10$ ).

## Appendix B.2 First-Generation Analysis

**STEM GPA.** An Identity Importance x First-Generation x Identity Condition interaction appeared on STEM GPA ( $B = .450, SE = .212, t(425) = 2.121, p = .035$ ). For continuing-generation students, identity importance did not moderate the effect of grade ( $p > .10$ ). However, for first-generation students, identity importance interacted with identity condition ( $B = .520, SE = .186, t(425) = 2.797, p = .005$ ). As identity importance increased, STEM GPA also increased for first-generation students in the 5-ID condition ( $B = .389, SE = .128, t(425) = 3.05, p = .002$ ). There was no effect of identity importance on STEM GPA for first-generation students in the 1-ID condition ( $p > .10$ ).

**Belonging.** There was a significant Identity Overlap x First-Generation x Identity Condition three-way interaction on reported sense of belonging ( $B = .642, SE = .235, t(236) = 2.729, p = .007$ ). For those in the 1-ID condition, there was a significant Identity Overlap x First-Generation interaction ( $B = -.336, SE = .149, t(236) = -2.258, p = .025$ ). Continuing-generation students reported greater belonging the more overlapping their identities were ( $B = .148, SE = .077, t(236) = 1.932, p = .056$ ). However, for first-generation students, identity overlap was not predictive of belonging ( $p > .10$ ). In the 5-ID condition, identity overlap was no longer predictive of belonging for either continuing-generation or first-generation students (both  $p > .10$ ).

**Attending the Health Center.** There was a significant First-Generation x Identity Condition interaction on attending the health center ( $B = .264, SE = .123, t(246) = 2.151, p = .033$ ). This interaction was driven by continuing-generation students, such that continuing-generation students in the 1-ID condition reported going more frequently ( $M = 1.22, SE = .039$ ) than their

peers in the 5-ID condition ( $M = 1.09$ ,  $SE = .037$ ) ( $B = -.135$ ,  $SE = .0525$ ,  $t(246) = -2.582$ ,  $p = .010$ ).

## **Appendix C : Comparing Grades with 2191 Cohort**

To further examine the impact of receiving the intervention on grade, I also included historical Introductory Biology and Introductory Psychology course data from the year prior to the study. I dummy-coded this group, as well as the two intervention conditions, and created orthogonal contrasts to compare whether activation of multiple identities differed significantly from both activation of a singular identity and conducting no intervention (-2: multiple identity; +1: single identity; +1: historical control), and whether activation of a single identity differed from the historical control (0: multiple identity; -1: single identity; +1: historical control).

Results indicated that students who received the identity intervention did not differ from the historical control on term GPA, STEM GPA, or non-STEM GPA.



## **Appendix D : Study 4 Mediation**

To explore possible mechanisms of the effect of identity condition on grades, I conducted mediation tests using the significant interaction effects on well-being outcomes. I first tested whether total academic burnout mediated the relationship between Identity condition and grades (Biology, Psychology, overall term, STEM, non-STEM) and whether this differed between first-generation and continuing-generation students. For all grade outcomes, results revealed that academic burnout did not mediate the relationship between Identity condition and grade, and that this effect did not differ between first-generation and continuing-generation students. Tests of mediation with the total happiness score, and the exhaustion and inadequacy subscales of the academic burnout measure also revealed null results. I also tested whether just moderation of the dependent outcome to the mediator (A path; Baron & Kenny, 1986) and a non-moderated mediation model would yield results; all analyses indicated null results.

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