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I am not only a Student-Athlete: Investigating Social Identity Complexity as a Stereotype Threat Mitigation Strategy to Reduce Barriers to Academic Engagements

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Collegiate athletes must contend with harmful stereotypes (e.g., intellectually lazy, unintelligent) during their academic careers (Comeaux, 2012). Research shows that student-athletes' academic performance can be negatively impacted by stereotype threat (Riciputi & Erdal, 2017). Currently, there is no published evidence-based research on stereotype threat (ST) mitigation strategies targeted to student-athletes. Expanding the work of Gresky and colleagues (2005), this study explored a self-concept map activity, based on the social identity complexity theory, as one potential strategy for collegiate athletes. Seventy Division I athletes were randomly assigned to one of three experimental conditions (varying by the level of ST administered). ANOVA was used to assess differences in scores on an SAT-style examination across conditions. These results suggest that ST mitigations may work, but strategies should be culturally specific and relevant to the challenge of the academic tasks. The study offers unique strategies to help student-athletes combat social and psychological barriers to academic engagement, such as high-impact practices, and academic and postgraduate success.

Keywords: stereotypes, stereotype threat, stereotype threat mitigation strategy, social identity complexity, student-athlete, high-impact practices

College sports are a part of the American experience. Approximately 25 million viewers watched the 2019 National Collegiate Athletic Association (NCAA) Division I (DI) college football national championship (USA Today, 2019). Comparatively, the 2018 NCAA Division I men's basketball championship received 16.4 million viewers (Otterson, 2018). In 2018, the NCAA earned $1.06 billion, with most of its revenue received from television deals (Bloomberg, 2018). Despite collegiate sports being popular in the United States, student-athletes are not always viewed positively, from news stories about academic scandals and misconduct to research about academic underperformance and deficits in collegiate athletic culture.

Negative aspects of sports culture deserve attention, but the overrepresentation of bad news perpetuates negative stereotypes about student-athletes (Haslerig, 2017) and belies the complexity of collegiate athletics. The young, developing, and talented individuals who participate in college sports are not *your* student-athlete. They, like all college students, are multifaceted and are engaged in exploring various opportunities to determine their academic, professional, and personal paths.

Exploration happens at its most basic level through discipline-specific skill attainment and cognitive development in the classroom and can elevate to higher levels of engagement through high-impact practices (HIPs), such as undergraduate research and global learning (Kuh, 2008), but there is a need for equity in HIP engagement (Finley &McNair, 2013). When traditionally underserved groups participate in high-impact practices, there are smaller gaps in their perceived learning; and there are even larger boosts for groups who have less positive views of their learning without these practices (Finley & McNair, 2013). Collegiate athletes typically are not considered in the conversation about equity in higher education but arguably should be since they are marginalized by exclusionary verbal and nonverbal communication around their ability to excel in academic domains. Comeaux et al. (2011) noted that negative stereotypes about student-athletes may diminish the quality of their participation in meaningful activities (like high-impact practices). Ishaq and Bass (2019) called for the continued investigation of effective ways to incorporate HIPs into the student-athlete environment, while understanding the barriers that may prevent participation, such as stereotype threat. The current study investigates how Division I student-athletes engage with stereotype threat, a potential educational barrier, and explores a possible mitigation strategy. The mitigation strategy, grounded in the theory of social identity complexity theory, will allow collegiate athletes to reflect on their multiple identities.

Stereotype Threat and Collegiate Athletes

It may be challenging to address the level of participation in high-impact practices without first understanding the barriers to student-athletes' daily academic engagement. Stereotypes about student-athletes' academic ability are ubiquitous on college campuses. Stereotypes unfairly characterize collegiate athletes as lazy, dumb, and entitled (Levine et al., 2014). Some student-athletes perform poorly in the classroom just as some non-student-athletes perform poorly, but student-athletes are the group whose academic failure frequently makes the headlines when it prevents them from competing, perhaps due to our country's obsession with sports. Feltz noted that student-athletes are "… kind of the last group of students who can be openly discriminated against" (MSU Today, 2013, p.1).

Research found that sports participation is linked to positive physiological, psychological,

educational, social, and financial benefits (Chen et al., 2010; NCAA, 2014; NCAA, 2019). Stereotypes have the potential to thwart these benefits, especially educational benefits, because they can extend beyond simple labels to become dangerous categorizations that create barriers to opportunities. In addition to external barriers, stereotypes have the potential to cause internal obstacles to student-athlete scholastic achievement. One of those obstacles is *stereotype threat* which has been found to contribute to the academic underperformance of collegiate athletes (Steele, 1997).

Stereotype threat describes a social psychological phenomenon where apprehension about conforming to a negative stereotype of one's social group can negatively affect performance (Steele & Aronson, 1995). Although individuals experience stereotype threat differently, there are primary factors that, if present, enhance a person's susceptibility to stereotype threat. First, stereotype threat is situational and should not be confused with constructs such as inferiority complex or self-fulfilling prophecy, where a person harbors long-held negative beliefs about their abilities. Second, vulnerability to stereotype threat increases if a person is being evaluated and highly values the tested domain; strongly identifies with the stereotyped group being evaluated and the stereotype is directly linked to performance; and the difficulty of the task exceeds the person's capabilities.

When discussing stereotype threat among collegiate athletes, it is essential to understand athletic and academic identity. Athletic identity is the extent to which a person identifies with their role as an athlete (Brewer et al., 1993). Academic identity, in its simplest terms, is the extent to which a person identifies with their role as a learner. Academic identity or academic self-concept predicts academic motivation and achievement (Marsh & Martin, 2011). Additionally, and specific to race and ethnicity, cultural identity affects the academic self-concept of Black college students at predominantly White institutions (Williams & Chung, 2013). Racial identity also impacts levels of academic self-concept among Black collegiate athletes (Fuller, Harrsion, & Bukstein, 2017).

Pertinent to that understanding, it must be noted that the NCAA has received criticism about the academic performance of Black student-athletes, especially those competing in revenue sports (Harrison et al., 2017; Woods et al., 2018). Collegiate athletes in revenue sports like football and basketball are disproportionately Black (Beamon, 2014; Harper, 2016). When a specific population of collegiate athletes is underperforming, concerns about exploitation arise (Fuller et al., 2017). The NCAA has acknowledged the achievement gap between Black and White student-athletes, yet the gap persists. Therefore, when taking into account academic, athletic, racial, and cultural identity, identity conflict may occur when external factors, such as athletic and educational commitments, vy for a collegiate athlete's attention and time, adding pressure to an overextended young adult (Lu, Heinz, & Soderstrom, 2018).

Yopyk and Prentice (2005) found that when primed with their athletic identity, student-athletes performed worse on a math test than student-athletes primed with their student identity or those not primed for identity. More recent studies have shown stereotype threat to affect female student-athletes to a greater extent than male student-athletes, perhaps because of the females' higher level of academic engagement (Harrison et al., 2009). However, opposing findings suggested that male student-athletes, who presumably had higher athletic identities, were more vulnerable to stereotype threat than females (Dee, 2014). Contradictory to these findings, some research suggested that gender does not impact the relationship between stereotype threat and academic performance among collegiate athletes (Riciputi & Erdal, 2017), but race/ethnicity may.

Academically engaged Black collegiate athletes displayed higher stereotype threat susceptibility in learning environments than White student-athletes, perhaps due to intersectional stereotypes regarding race and athletic identity (Stone et al., 2012). Qualitative evidence suggested that Black football players learned to employ coping mechanisms (e.g., hiding athletic identity) to manage potential harmful effects of negative stereotypes (Griffin, 2017). Moreover, Feltz et al. (2013) revealed that student-athletes who have higher levels of athletic identity perceive higher stereotype threat. Overall, the research findings about collegiate athletes and stereotype threat does not differ by divisional status. The assumption is that Division III student-athletes because they do not receive athletic scholarships have a lower level of athlete identity. However, the academic performance of student-athletes from both Division I (Harrison, et al. 2009; Stone et al., 2012) and Division III (Dee, 2014; Riciputi & Erdal, 2017; Yopyk & Prentice, 2005) was found to be negatively impacted when they were primed with their athletic identity.

Social Identity Complexity and Stereotype Threat

According to Lu et al. (2018), student-athletes may experience stress from balancing their roles as students and athletes. Conflicts between those roles become especially stressful in learning environments because stereotypes categorize students as intelligent and athletes as unintelligent. Without the proper exposure to techniques to manage these situations, a collegiate athlete may experience stereotype threat that results in decreased academic performance. The social identity complexity theory supports a technique to address stereotype threat. Roccas and Brewer (2002) introduced the social identity complexity theory to address people's perceptions of the interrelationship of their multiple in-group identities. The degree to which a person views their social identities as convergent will determine one's identity structure and the accompanying consequences.

Furthermore, the perceived complexity and inclusiveness of an individual's social identity structure may determine how they manage negative stressors. For some student-athletes, identity conflict contributes to reduced cognitive functioning during academic tasks (Harrison et al., 2009). Therefore, engaging collegiate athletes in exercises that allow them to explore multiple social identities may reduce identity conflict and the negative consequences of stereotype threat. Gresky et al. (2005) found such an activity, a self-concept map exercise, to be an effective mitigation strategy for undergraduate females primed with a negative stereotype about women and math performance (explicit prime: "I'm studying the GRE because of the well-known stereotype that men usually outperform women on math tests."). When allowed to reflect, through a mapping activity, on multiple social identities, undergraduate females performed better on a GRE-style math test than undergraduate females who were only allowed to reflect, through a mapping activity, on a few or no social identities.

The current study tested a similar self-concept mapping activity (listing multiple social identities) as a stereotype threat mitigation strategy. Concept mapping is an effective activity to visualize complex systems and ideas, and the relationships between each concept (Roberts & Johnson, 2015). Concept maps are typically constructed using nodes that represent a concept and the links (or lines) represent the relationship between each concept (Schroeder et al., 2018). Concept mapping has been shown to support learning in college classrooms (Mosley & Draper, 2014) and promote critical thinking among undergraduates (Harris & Zha, 2017). Self-concept mapping is a type of identity development exercise. Although identity development impacts learning (Robinson et al., 2019), self-concept mapping has received limited research attention.

The present study used a between-group experimental design to test the effectiveness of self-concept mapping to reduce stereotype threat. The three-level independent variable included 1) an explicit stereotype threat condition with a self-concept map activity (mitigation condition), 2) an explicit stereotype threat condition without a self-concept map activity (threat condition), and 3) a condition without stereotype threat and without a self-concept map activity (control condition). Each participant was randomly assigned to one condition. Gender identity (female and male), race/ethnicity (Black, White, and Hispanic) and academic self-concept (lower and higher) served as grouping variables. Academic performance on an SAT-style examination was the dependent variable. The present study extended the work of Gresky et al. (2005) to student-athletes to address the following research questions.

RQ 1: Does an overt stereotype threat affect the performance of student-athletes on an academic task?

Hypothesis: Based on previous literature (e.g., Harrison et al., 2009 and Steel & Aronson, 1995), student-athletes in the control condition (no threat plus control activity) will have significantly higher scores on the academic task compared to student-athletes in the threat condition (threat plus control activity) and mitigation condition (threat plus identity activity).

RQ 2: Does the identification of multiple social identities alleviate the effects of stereotype threat on student-athletes' academic performance?

Hypothesis: Based on previous literature (e.g., Gresky et al., 2005), student-athletes in the mitigation condition (threat plus identity activity) will have significantly higher scores on the academic task compared to student-athletes in the threat (threat plus control activity) condition.

RQ 3: Does identity moderate these relations?

A. Are there differences in academic performance among student-athletes based on gender identity?

Hypothesis: Based on previous literature (e.g., Dee, 2014), student-athletes participating on female sports teams will have significantly higher scores on the academic task than student-athletes participating on male sports teams.

B. Does gender identity moderate the relationship between the experimental conditions and academic performance among student-athletes?

Hypothesis: Based on previous literature (Harrison et al., 2009), student-athletes participating on a female sports team in the mitigation condition will yield significantly higher scores on the academic task than student-athletes participating on female and male sports teams in the threat condition. That is, the main effect of gender identity will be refined by an interaction effect of condition by gender identity.

C. Does the degree of academic self-concept affect academic performance among student-athletes?

Hypothesis: Based on previous literature (e.g., Feltz et al., 2013), student-athletes with higher academic self-concept will have significantly higher scores on the academic task than student-athletes with lower academic self-concept.

D. Does academic self-concept moderate the relationship between the experimental conditions and academic performance among student-athletes?

Hypothesis: Based on previous literature on academic self-concept and achievement (e.g., Reynolds et al., 2012), student-athletes higher in academic self-concept will have significantly higher scores on the academic task when in the mitigation condition than student-athletes lower in academic self-concept who are in the threat condition. That is, the main effect of academic self-concept will be refined by an interaction effect of condition and academic self-concept.

E. Are there differences in academic performance among student-athletes based on race/ethnicity?

Hypothesis: Based on previous literature about the impact of racial discrimination on academic achievement among Black student-athletes (Carter-Francique et al., 2015), Black student-athletes will yield significantly lower scores on the academic task than White student-athletes.

F. Does race/ethnicity moderate the relationship between the experimental conditions and academic performance among student-athletes?

Hypothesis: Based on previous literature comparing academic performance of Black and White students when intentionally activating stereotype threat (Stone et al., 2012), Black student-athletes in the mitigation condition will yield significantly higher scores on the academic tasks than Black students in the threat condition. That is, the main effect of race/ethnicity will be refined by an interaction effect of condition and race/ethnicity.

Methodology

Participants

Recruitment. The Institutional Review Board (IRB) approved all procedures. Three hundred and eighty-nine (389) Division I student-athletes who participated on male and female sports teams at a university in the Southeast region of the United States received emails at the end of the Fall 2018 semester, inviting them to contribute to a study exploring the experiences of students participating in extracurricular activities on college campuses. The student-athletes represented six male sports teams (baseball, basketball, football, golf, soccer, and tennis) and nine female sports teams (basketball, cross country, golf, beach volleyball, soccer, softball,

tennis, track and field, and volleyball). Students were told that they would receive a $40 Amazon gift card after their participation.

The participants in this study were 70 (43 female and 27 male) Division I student-athletes representing 14 NCAA-sponsored sports. Baseball was the only sport not represented in the study. Forty-seven students identified as White, 14 as Black, and 2 as biracial (Black and White). Three White students listed their ethnicity as Hispanic, Latino(a), or Spanish Origin. Seven students did not list their race but listed their ethnicity as Hispanic, Latino(a), or Spanish Origin. The average age of participants was 20 years (minimum = 18 and maximum = 24). There was equal representation across student classifications with 17 first-year students, 18 sophomores, 17 juniors, and 19 seniors participating in the study. Participants reported their grade point averages (GPAs) by selecting from a range (e.g., 3.00 – 3.19, 3.20 – 3.39). Studies show that there are strong correlations between self-reported GPA and school-reported GPA when students list both their GPA and GPA by range (Citrus College Office of Institutional Research, Planning, and Effectiveness, 2017). The current study used GPA by range to avoid large scale inaccuracies in self-reporting. Most students reported their GPA in the ranges of 3.40 – 3.59 and 3.60 - 3.79. There was no significant difference of GPA between female (M = 3.56, SD = .435) and male (M = 3.51, SD = 3.51) student-athletes, $F(1,68) = .224$, $p = .638$. Also, there was no significant difference of GPA between racial/ethnic groups (Black: M = 3.38, SD = .389, White: M = 3.57, SD = .405, Hispanic: M = 3.68, SD = .253), $F(2,67) = 2.17$, $p = .123$. Information about student major was collected to observe any trends of academic clustering. Academic clustering, a term coined in 1987 by Case and colleagues, happens when a disproportionate number (compared to nonstudent-athletes at the same college or university) of student-athletes, usually 25% or more, select the same major or enroll in the same class (Case et al., 2017). There was no indication of academic clustering, and the study participants represented disciplines across six of the seven academic colleges at the study site, with no more than three students in one major.

Measures

Academic Self-Concept Scale-Short Form. Before participating in the on-campus portion of the study, students completed the Academic Self-Concept Scale-Short Form (ASCS-SF) as a measure of perceived academic ability. The scale is an abbreviated version of the original Academic Self-Concept Scale (Reynolds, 1988). Students are asked to rate how they feel most of the time concerning statements about school-related attitudes. Sample items include: "No matter how hard I try I don't do well in school; Most of my instructors think that I am a good student; and at times I feel college is too difficult for me." Reynolds et al. (2012) tested the ACSC-SF with 467 college students. The ACSC-SF reported an internal consistency reliability score of .90 and demonstrated convergent validity by relationships with GPA (r = .49), general self-concept (r = .47), procrastination (r = -.46), and discriminant validity shown by a low relationship with social desirability (r = .21). The ASCS-SF served as a measure of participant academic identity.

Concept map activities. A self-concept map is a visualization of the subjective representation of the self, including the interrelationships among an individual's different social identities. Two concept mapping activities were used in the experiment. In the mitigation condition, we used an adaptation of the self-concept map described in the 2005 Gresky et al. study. The self-concept mapping activity was hypothesized to mitigate the independent variable

of stereotype threat because it allows students to reflect on their multiple social identities. We hypothesize that after creating a self-concept map from a complex perspective (using many nodes of identity), participants will be better able to defend against a threat to one of their social identities (introduction of stereotype threat) and thus would perform better than others on a subsequent SAT-type test.

Students in the mitigation condition were given 20 minutes to complete the activity. After writing the word "me" in the center of their blank 12 x 18 piece of paper, the students were asked to think about their interests and social identities and then instructed to select and write down categories from a list of social identities and interests (e.g., Art, Ethnicity, Student Organizations, Relationships, Religion). Students could include other social identities and interests not listed.

The activity can be subdivided into four actions: 1) list identity categories, 2) list exemplars for those categories, 3) make connections between exemplars, and 4) identify highly valued identities (categories or exemplars). For example, if a student selected Family as a category, they could list daughter, son, brother, uncle, etc. as identities or roles that they highly value in life; or if they selected Relationships as a category, they could list friend, girlfriend/boyfriend, business partner, etc. as identities or roles they highly value. Then, they drew a line between identities or roles that they felt were connected and placed a star next to identities that they found most significant to their overall identity. See Appendix A for full details.

Participants in the remaining two conditions participated in an alternate mapping activity about food as a control for the effort and distraction of the other mapping task. The topic of food was unlikely to prime participants for either their student or athlete identity. Students were given 20 minutes to complete the activity. After writing the word "food" in the center of blank 12 x 18 piece of paper, the students were asked to discuss, in list format, their favorite and most visited places to eat in their neighborhood using a list (e.g., Coffee Shop, Fast Food, Grocery Store, etc.). Students could include other options not listed. The activity can be subdivided into four actions: 1) list food categories, 2) list examples for those categories, 3) list the best day and time to purchase/eat, and 4) identify favorite food items. See Appendix B for full details.

Scholastic Aptitude Test (SAT) writing and language and mathematics questions. The dependent measure consisted of 18 questions from the SAT writing and language and mathematics (no calculator permitted) sections of the standardized test (College Board, 2019; Warner, 2012). Each section of the test included three items of easy, medium, and hard level of difficulty. Writing and language questions focused on command of evidence, words in context, analysis of text, expression of ideas, and standard English convention. Math questions focused on linear equations and systems, problem solving and data analysis, and manipulation of complex questions. According to The Princeton Review (2020), easy SAT questions are those that most students answer correctly, and hard questions are those that most students answer incorrectly. The degree of difficulty increased throughout the exam to challenge the students but not exhaust their mental capacity and cause them to disengage from the material (Steele & Aronson, 1995). The students had 25 minutes to complete the test. The presentation of the test material adhered to the guidelines of the SAT. Scores were determined by the number of items answered correctly out of the total items available on each section. Dependent measures for analysis included total items correct, writing and language items correct, math items correct, total hard items correct, hard writing and language items correct, and hard math items correct.

Demographic survey. The demographic survey included items to collect information about gender identity, race, ethnicity, age, student classification, major, grade point average range, and sport.

Procedures

After the study participant registered online for the study, a graduate research assistant assigned student participant identification numbers to replace their names to ensure anonymity during the experiment. Then, the graduate research assistant randomly assigned participants to one of three experimental groups: 1) an explicit stereotype threat condition with the self-concept mapping activity (mitigation condition), 2) an explicit stereotype threat condition with the food mapping activity (threat condition), or 3) a condition without stereotype threat, but with the food mapping activity (control condition). Initial response to recruitment was slow, and although the rate of response improved over time, the final number of participants was lower than anticipated. Due to the interest in mitigation in the present study, participants were randomly assigned to conditions with the constraint that the mitigation condition be larger. The constraint makes it possible to conduct follow up studies on the qualitative features of the concept maps drawn in the mitigation condition.

One of the researchers facilitated the experiment and was blind to the student's academic self-concept scale scores. The students were blind to the condition in which they were randomly assigned. The experiment began, in all conditions, by telling the students that they would participate in three unrelated activities - a mapping activity, an academic test, and a demographic survey.

In the mitigation condition (n = 35), students heard the explicit prime message about athletes and academic performance ("I'm exploring performance on the exam that you will take today. In the past, student-athletes have not performed as well as other students nationally. I will compare test performance of student-athletes and nonstudent-athletes"). Replicating the priming technique of Gresky and colleagues (2005), we chose an explicit priming method because the study is more focused on the mitigation to lessen stereotype threat than the factors that create the threat. The method was implemented to maximize the possibility of evoking the threat to test the mitigation. The same evocation rationale applies to the decision to use the "student-athlete" dual identity prime, as opposed to the "athlete" only identity prime. The published works on the effects of stereotype threat among student-athletes are split on the identity priming techniques (Harrison et al., 2009; Stone et al., 2012; Yopyk & Prentice, 2005). Therefore, we applied the term most commonly used at the study site to identify a college student who participates on an NCAA-sponsored sports team. Following the prime, participants engaged in the self-concept mapping activity for 20 minutes. In the threat condition (n = 19), students heard the same explicit prime message about student-athletes and academic performance as participants heard in the mitigation condition. After the prime, participants engaged in the food mapping activity. In the control condition (n = 16), students were not primed with the negative stereotype about student-athletes and academic performance. Instead, the participants received the following message: "I'm exploring test construction and test performance on an exam." Students in the condition engaged in the same food mapping activity as the threat condition group.

After the mapping activity in each condition, participants had 25 minutes to complete the 18-question SAT-style writing and language (10 minutes), and mathematics (15 minutes) exam. After the test, participants completed the demographic survey requesting information about their

race/ethnicity, student classification, age, major, grade point average, and sport.

Performance on the academic task was analyzed separately by the number of items correct on components of the task: 1) total items, 2) writing and language items, 3) mathematics items, 4) hard items, 5) hard writing and language items, and 5) hard mathematics items. Stereotype threat typically occurs when a person attempts a mentally taxing evaluative task, so it was appropriate to look at performance in these different ways.

All study participants were debriefed at the end of the entire experiment through email. The email explained that the priming statements were untrue, discussed the rationale for using such statements, and expressed the study's purpose.

Results

Manipulation Check

Conditions. The threat and control conditions served as comparison groups to test the impact of the self-concept mapping activity in the mitigation condition. The threat condition was included to understand whether the explicit threat was sufficient to create stereotype threat, as compared with the control condition as baseline.

Level of Engagement. Gresky and her colleagues (2005) hypothesized that making multiple social identities salient (e.g., listing many nodes) rather than few social identities (e.g., listing few nodes) would serve as a buffer to stereotype threat. It was necessary for them to check that the groups did in fact produce different numbers of nodes in their mapping activity before they could test their hypothesis. The current study did not include a few nodes condition. Instead, this study included an alternate map activity to focus on the direct effect of the exercise of listing multiple social identities in response to stereotype threat. Unlike the Gresky et al. (2005) study, the focus was not on the number of nodes, but the level of engagement or effort given to the task. A one-way analysis of variance was conducted to determine if differences exist in the level of activity engagement between conditions on the mapping activities. The maps were scored by counting the number of items listed for the four map components. The maps were divided into four components dependent on map type: 1) Identity or Food Categories, 2) Identity or Food exemplars, 3) Exemplar connections or Best day and time to visit, and 4) Valued exemplars or favorite food. Two individuals, the researcher, and a graduate assistant, scored the maps and achieved 100% interrater reliability. The scores were then totaled across the four areas. For example, if a student in the mitigation condition listed 5 identity categories, 5 total identity exemplars, 5 connections, and listed 5 identities that they highly valued, then they would have received a total score of 20.

Descriptive statistics show a minimum of 18 and a maximum of 100 items listed for all participants (M = 48.27, SD = 19.04). Table 1 displays descriptive statistics and the analysis of variance output for each map component. Only one ANOVA revealed a significant difference between the groups in a map component. There was a significant difference across conditions in total number of exemplars listed, $F(2,67) = 7.57$, $p = .001$, $\eta^2 = .184$. An LSD post hoc test revealed that students in the mitigation condition listed significantly less (identity) exemplars (M = 20.94, SD = 8.31) than students in the threat condition (food) (M = 31.05, SD = 13.37, p = .003), and control condition (food) (M = 32.13, SD = 14.56, p = .002). However, a Welch test to correct non-homogeneity in this analysis was unsuccessful, and these results should be

interpreted cautiously. The general conclusion is that participants in the different conditions were equally engaged and generated similar numbers of categories, connections, and valued exemplars in the mapping tasks.

Table 1
Level of Engagement on Mapping Activities – Descriptive Statistics and ANOVA Output

Map Component	N	Mean	Std. Deviation	Homogeneity (Mean)	Sig.
Categories	70	7.44	2.91	.570	.659
Control	16	6.88	2.60		
Threat	19	7.47	4.17		
Mitigation	35	7.69	2.19		
Exemplars	70	26.24	12.47	.021*	.001*
Control	16	32.13	14.56		
Threat	19	31.05	13.37		
Mitigation	35	20.94	8.31		
Exemplar connections	70	8.89	5.88	.519	.342
Control	16	8.38	4.53		
Threat	19	10.58	5.73		
Mitigation	35	8.20	6.44		
Valued exemplars	70	5.70	4.05	.483	.991
Control	16	5.81	4.30		
Threat	19	5.63	4.33		
Mitigation	35	5.69	3.89		

*The mean difference is significant at the .05 level.

Research Questions 1 and 2. Does an overt stereotype threat affect the academic performance of student-athletes on an academic task? Does the identification of multiple social identities through self-concept mapping alleviate the effects of stereotype threat on student-athletes' academic performance? A series of one-way ANOVAs were conducted, one for each dependent measure. Results revealed no main effect of condition (mitigation, threat, control) on any dependent variable. Table 2 displays mean scores and standard deviations. The explicit stereotype threat did not depress academic performance as hypothesized, nor did listing multiple social identities improve performance.

Gender Identity

Research Questions 3a and 3b. Are there differences in academic performance among student-athletes based on gender identity? Does gender identity moderate the relationship between the experimental conditions and academic performance among student-athletes? A series of 3 (condition) x 2 (gender identity) ANOVAs were conducted, one for each dependent measure. Results revealed no main effects of condition or gender identity and

no interaction effects on any dependent variable. Table 3 displays mean scores and standard deviations of female and male sports participants in each experimental condition.

Table 2
Mean Scores - Test Performance by Condition

		Mean Scores – Overall Test Performance					
Condition	**N**	**Total Score**	**SD**	**Writing and Language**	**SD**	**Mathematics**	**SD**
Control	16	12.13	2.16	5.06	1.34	7.06	1.77
Threat	19	11.74	2.88	5.00	1.37	6.74	1.88
Mitigation	35	11.86	2.85	5.14	1.59	6.71	1.92
Total	70	11.89	2.68	5.09	1.46	6.80	1.85
		Mean Scores – Difficult Items					
	N	**Total Score**	**SD**	**Writing and Language**	**SD**	**Mathematics**	**SD**
Control	16	3.50	1.03	1.44	.629	2.06	.93
Threat	19	3.32	1.25	1.26	.653	2.05	1.03
Mitigation	35	3.17	1.38	1.23	.731	1.94	1.08
Total	70	3.29	1.26	1.29	.684	2.00	1.02

Table 3
Mean Scores of Test Performance – Condition by Gender Identity

		Mean Scores – Overall Test Performance					
Condition	**N**	**Total Score**	**SD**	**Writing and Language**	**SD**	**Mathematics**	**SD**
Control	16	12.13	2.16	5.06	1.34	7.06	1.77
Female	5	13.20	1.48	6.00	.00	7.20	1.48
Male	11	11.64	2.92	4.64	1.43	7.00	1.95
Threat	19	11.74	2.88	5.00	1.37	6.74	1.88
Female	10	11.80	3.33	5.20	1.55	6.60	2.17
Male	9	11.67	2.50	4.78	1.20	6.89	1.62
Mitigation	35	11.86	2.85	5.14	1.59	6.71	1.92
Female	28	11.71	2.83	5.25	1.53	6.46	1.93
Male	7	12.43	3.10	4.71	1.89	7.71	1.60
Total	70	11.89	2.68	5.09	1.46	6.80	1.85
Female	43	11.91	2.82	5.33	1.44	6.58	1.92
Male	27	11.85	2.51	4.70	1.44	7.15	1.73

	N	Mean Scores – Hard Items					
		Total Score	**SD**	**Writing and Language**	**SD**	**Mathematics**	**SD**
Control	16	3.50	1.03	1.44	.629	2.06	.93
Female	5	3.60	.89	1.40	.548	2.20	.84
Male	11	3.45	1.13	1.45	.688	2.00	.93
Threat	19	3.32	1.25	1.26	.653	2.05	1.03
Female	10	3.00	1.15	1.10	.568	1.90	1.10
Male	9	3.67	1.32	1.44	.726	2.22	.97
Mitigation	35	3.17	1.38	1.23	.731	1.94	1.08
Female	28	3.11	1.34	1.29	.659	1.82	1.06
Male	7	3.43	1.62	1.00	1.000	2.43	1.13
Total	70	3.29	1.26	1.29	.684	2.00	1.02
Female	43	3.14	1.25	1.26	.621	1.88	1.03
Male	27	3.52	1.28	1.33	.784	2.19	1.00

Academic Self-Concept

Research Questions 3c and 3d. Does the degree of academic self-concept affect academic performance among student-athletes? Does academic self-concept moderate the relationship between the experimental conditions and academic performance among student-athletes? A reliability analysis was conducted on the ASCS-SF. Cronbach's alpha showed the questionnaire to reach acceptable reliability, α =0.90, with convergent validity shown by a relationship with grade point average (r = .55, p < .001). Academic self-concept scores were divided at the median (median = 55) to create higher and lower academic self-concept groups (higher: n = 36, M = 62.36, SD = 4.83; lower: n = 34, M = 50.29, SD = 3.18). A t-test showed a significant difference in concept scores between groups, $t(68) = 12.10$, p = <.001. Across all conditions, the mean academic self-concept scale score was 56.50 (minimum = 41 and maximum = 70). The highest score possible on the ASCS-SF is a 72.

A series of 3 (condition) x 2 (academic self-concept: lower, higher) ANOVAs were conducted, one for each dependent measure. Results revealed no main effects of condition or academic self-concept and no interaction effects on the dependent variables, except for the following. A significant main effect of academic self-concept was found for the number of math items correct, hard items correct, and hard math items correct. Students higher in academic self-concept performed better (M = 7.44, SD = 1.48) than students lower in academic self-concept (M = 6.12, SD = 1.98), $F(1,64) = 9.20$, p = .003, η^2 = .126 on all math items. Additionally, students higher in academic self-concept scored better (M = 3.64, SD = 1.10) than students lower in academic self-concept (M = 2.91, SD = 1.33), $F(1,64) = 4.63$, p = .035, η^2 = .067 on all hard test items. Further, students higher in academic self-concept performed better (M = 2.33, SD = .89) than students lower in academic self-concept (M = 1.65, SD = 1.04), $F(1,64) = 7.10$, p = .01, η^2 = .100, on hard math items. It should be noted that running multiple comparisons can increase Type 1 error rate. To be conservative, the Benjamin-Hochberg procedure was used to control for family-wise error rate; although using correction procedures for a study of this type has been debated (Feise, 2002; Seear & Vella-Broderick, 2013). Using the adjusted alpha value, the

academic self-concept findings for total hard items and hard math items would not be significant. See Table 4 for means and standard deviations.

Table 4
Mean Scores of Test Performance – Condition by Academic Self-Concept

		Mean Scores – Overall Test Performance					
ASC Group	**N**	**Total Score**	**SD**	**Writing and Language**	**SD**	**Mathematics**	**SD**
Control	16	12.13	2.16	5.06	1.34	7.06	1.77
High	8	12.50	2.39	4.88	1.55	7.63	1.60
Low	8	11.24	1.98	5.25	1.17	6.50	1.85
Threat	19	11.74	2.88	5.00	1.37	6.74	1.88
High	8	13.00	2.20	5.25	1.04	7.75	1.39
Low	11	10.82	3.06	4.82	1.60	6.00	1.90
Mitigation	35	11.86	2.85	5.14	1.59	6.71	1.92
High	20	12.30	1.72	5.05	1.15	7.25	1.52
Low	15	11.27	3.88	5.27	2.09	6.00	2.20
Total	70	11.89	2.68	5.09	1.46	6.80	1.85
High	36	12.50	1.95	5.06	1.19	7.44	1.48
Low	34	11.24	3.19	5.12	1.72	6.12	1.98
		Mean Scores – Hard Items					
	N	**Total Score**	**SD**	**Writing and Language**	**SD**	**Mathematics**	**SD**
Control	16	3.50	1.03	1.44	.629	2.06	.93
High	8	3.75	1.17	1.38	.744	2.38	.74
Low	8	3.25	.89	1.50	.535	1.75	1.03
Threat	19	3.32	1.25	1.26	.653	2.05	1.03
High	8	3.63	1.30	1.25	.707	2.38	.92
Low	11	3.09	1.22	1.27	.647	1.82	1.08
Mitigation	35	3.17	1.38	1.23	.731	1.94	1.08
High	20	3.60	1.05	1.30	.733	2.30	.98
Low	15	2.60	1.60	1.13	.743	1.47	1.06
Total	70	3.29	1.26	1.29	.684	2.00	1.02
High	36	3.64	1.10	1.31	.710	2.33	.89
Low	34	2.91	1.33	1.26	.666	1.65	1.04

Race/Ethnicity

Research Questions 3e and 3f. Are there differences in academic performance among student-athletes based on race/ethnicity? Does race/ethnicity moderate the relationship between the experimental conditions and academic performance among student-athletes? The racial and ethnic background of participants consisted of 47 White

students, 14 Black students, 2 biracial students (Black and White), and 7 students who did not list their race, but listed their ethnicity as Hispanic, Latino(a), or Spanish Origin. Also, 3 White students listed their ethnicity as Hispanic, Latino(a), or Spanish Origin. For the purposes of data analysis, students were organized into three racial/ethnic groups: 1) Black, 2) White, 3) Hispanic. The two biracial students and all students who identified their ethnicity as either Hispanic, Latino(a), or Spanish Origin were categorized into their corresponding racial and ethnic minority groups. The grouping method was not implemented to ignore the layered experiences of the multiracial/ethnic participants or ignore the complexity of race/ethnicity; rather, the method was used to improve the clarity of interpretation of results. The racial/ethnic composition, for purposes of data interpretation, included 44 White students (27 female and 17 male), 16 Black students (11 female and 5 male), and 10 Hispanic students (5 female and 5 male).

Furthermore, the groupings were based on societal perceptions of racial and ethnic assignment, which greatly impacts stereotype threat activation (Ho et al., 2017; Ho et al., 2013; Hollinger, 2005). The idea supports the notion of hypodescent practices (crudely known as the "one-drop rule") in American culture, which describes the assignment of a person of mixed race, by the dominant social group, to a single racial group.

A series of 3 (condition) x 3 (race/ethnicity: Black, White, and Hispanic) ANOVAs were conducted, one for each dependent measure. Results revealed no main effects of condition or race/ethnicity and no interaction effects on the dependent variables, except for the following. There was a main effect of race/ethnicity on the total number of items correct, $F(2,61) = 3.54$, $p = .035$, $\eta^2 = .104$; math items correct, $F(2,61) = 7.66$, $p = .001$, $\eta^2 = .083$; hard items correct, $F(2,61) = 5.57$, $p = .009$, $\eta 2 = .145$; and hard math items correct, $F(2,61) = 8.45$, $p = .001$, $\eta^2 = .217$. LSD post hoc tests revealed significant differences in scores between Black and White students. White students performed significantly better ($M = 12.36$, $SD = 2.16$) than Black students ($M = 10.81$, $SD = 3.60$) on total items correct ($p = .047$), math items correct (White: $M = 7.30$, $SD = 1.56$, Black: $M = 5.56$, $SD = 2.10$, $p = .001$), and hard items correct (White: $M = 3.55$, $SD = 1.15$, Black: $M = 2.69$, $SD = 1.45$, $p = .018$). Additionally, White and Hispanic students performed significantly better (White: $M = 2.23$, $SD = .886$, Hispanic: $M = 2.10$, $SD = .994$) than Black students ($M = 1.31$, $SD = 1.14$) on hard math items correct (White: $p = .001$, Hispanic: $p = .040$). There was a marginally significant condition by race/ethnicity interaction effect on hard math items that was clarified by further investigation, $F(4,61) = 2.50$, $p = .052$, $\eta^2 = .141$. Figure 1 displays results from further investigation through a simple effect analysis. In the control condition, Black student-athletes received significantly lower scores ($M = 1.00$, $SD = .816$) than White student-athletes ($M = 2.45$, $SD = .688$) on hard math items ($p = .010$). In the threat condition, Black student-athletes received significantly lower scores ($M = 0.50$, $SD = .577$) than the other race/ethnicity groups on hard math items (Hispanic: $M = 2.50$, $SD = .577$, $p = .004$; White, $M = 2.45$, $SD = .688$, $p = .001$). Yet, Black students in the mitigation condition posted significantly higher scores ($M = 1.88$, $SD = 1.25$) on hard math items than Black students in the threat condition ($p = .02$). There were no significant differences between racial/ethnic groups in the mitigation condition.

The observation of this interaction effect on hard math items prompted further exploration into the medium and easy math items. Two 3 (condition) x 3 (race/ethnicity: Black, White, and Hispanic) ANOVAs were conducted, one for medium math items and one for easy math items. The analyses yielded no main effects and no interaction effect. It should be noted that using the Benjamin-Hochberg procedure, race/ethnicity findings for total items and total hard items would not be significant. Additionally, the marginally significant finding and

subsequent simple effect findings would not be significant. Table 5 displays means and standard deviations for those performance measures.

Figure 1.
Mean Score on Hard Math Items - Condition by Race/Ethnicity

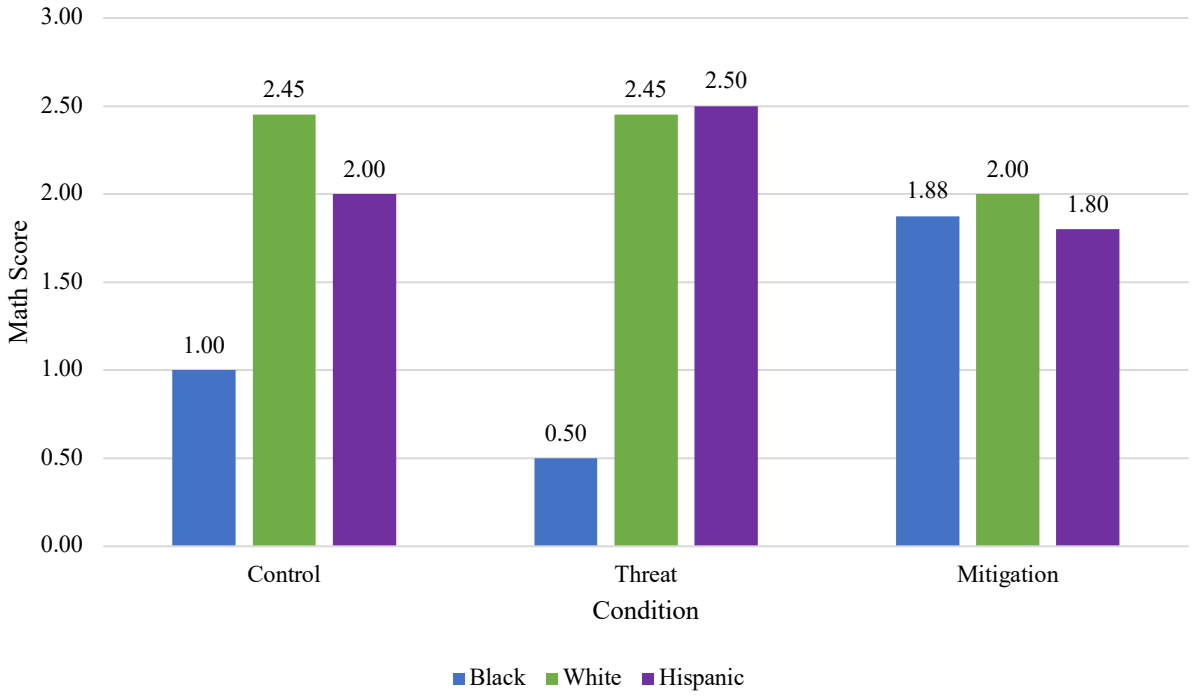

Table 5
Mean Scores of Medium and Easy Math Items – Condition by Race/Ethnicity

		Mean Scores – Medium and Easy Items			
Race/Ethnicity	**N**	**Math Medium**	**SD**	**Math Easy**	**SD**
Control	16	2.13	.88	2.87	.342
Black	4	1.75	.96	2.75	.500
White	11	2.36	.81	2.91	.302
Hispanic	1	1.00	.	3.00	.
Threat	19	2.00	.94	2.68	.582
Black	4	1.50	1.00	2.25	.957
White	11	2.27	.65	2.73	.467
Hispanic	4	1.75	1.50	3.00	.000
Mitigation	35	1.91	.95	2.86	.430
Black	8	1.75	.71	2.63	.744
White	22	2.09	.97	2.91	.294
Hispanic	5	1.40	1.14	3.00	.000
Total	70	1.99	.93	2.81	.460
Black	16	1.69	.79	2.56	.727
White	44	2.20	.85	2.86	.347
Hispanic	10	1.50	1.80	3.00	.000

Summary of Findings

In general, Hypotheses 1 and 2 were not supported. Academic performance did not vary between conditions. Thus, there was no evidence that the explicit prime activated stereotype threat among student-athletes and no evidence of improved performance in the mitigation condition. Further, in general no support was found for Hypotheses 3a and 3b. There was no influence of gender identity on performance nor did it function as a moderator of the relationship between the experimental conditions and academic performance among student-athletes. However, the results showed as expected (Hypothesis 3c) that academic self-concept affected academic performance on some measures. Students who scored higher on the academic self-concept scale answered more items correctly on math items, all hard items, and hard math items than students who scored lower on the academic self-concept scale. However, in general, Hypothesis 3d was not supported; academic self-concept did not function as a moderator of the relationship between the experimental conditions and academic performance.

Interestingly, there was support for Hypotheses 3e and 3f. Race/ethnicity had a main effect on academic performance in the predicted direction. Black student-athletes posted significantly lower performance on all test items, math items, and all hard items than White student-athletes; and on hard math items in comparison to both White and Hispanic student-athletes. Further, a marginally significant ($p=.052$) condition by race/ethnicity interaction effect for hard math items was observed that was clarified by a significant simple effect analysis. In the control condition, Black student-athletes performed significantly worse than White student-athletes. In the threat condition, Black student-athletes performed significantly worse than their White and Hispanic counterparts on hard math items, but Black student-athletes in the mitigation condition performed significantly better on hard math items than Black student-athletes in the threat condition. Further, the performance of Black participants in the mitigation condition was not different from White and Hispanic students, suggesting that for Black participants, the threat condition further reduced their performance from baseline, and the mitigation condition reduced the threat effect in the area of difficult math.

Discussion

It is critical to understand the psychological and social barriers that may exist between student-athletes' and their involvement in high-impact practices. The main goal of this study was to explore the impact of a stereotype threat mitigation technique among Division I student-athletes on an evaluative academic task. The mitigation encouraged participants to explore their multiple social identities through a self-concept mapping activity. Also, the study sought to explore moderators that may influence the impact of the mitigation. The study expanded the work of Gresky et al. (2005) which explored a similar self-concept mapping activity to address the experiences of stereotype threat among women during an evaluative math task. The current investigation provides the first study to evaluate a stereotype threat mitigation strategy targeted to student-athletes.

The study investigated a technique to empower students to address negative stereotypes and stereotype threat. The issue of stereotyping and its consequences are complex, and although the recipient of the negative stereotype is not at fault, the best and immediate response to a social and psychological threat, sometimes resulting in decreased performance in a valued area, is managed internally.

Overall, the hypothesis that student-athletes in the control condition would perform significantly better than students in the threat condition was not supported; thus, the threat did not depress performance. Further, the mitigation did not improve performance over the threat condition (possibly since there was no effective threat to mitigate). Gender identity did not impact test performance, and there was no observation of significant interactions between gender identity and conditions on any performance measure. The hypotheses in this study about gender identity were based on literature that has reported that female student-athletes are seen as the academic vanguard of the athletic community and are more affected by stereotype threat because of their presumably stronger academic self-concept.

As predicted, student-athletes with higher academic self-concept had significantly higher scores on the academic task than student-athletes with lower academic self-concept, specifically, on all math items, all hard items, and hard math items. Contrary to predictions, academic self-concept did not serve as a moderator between the experimental conditions and performance measures. The findings suggest that academic self-concept is a strong predictor of academic performance; however, it does not clearly explain how the construct interacts with stereotype threat and stereotype threat mitigation strategies.

The striking finding of this study was the role of race/ethnicity in interaction with experimental conditions. A passage from James Baldwin's essay entitled *Many Thousands Gone*, published in 1955, provides further context. Baldwin pointedly discusses the history and oppression of Black people in the United States.

> "Today, to be sure, we know that the Negro is not biologically or mentally inferior; there is no truth in those rumors of his body or his incorrigible sexuality; or no more truth than can be easily explained or even defended by the social sciences. Yet, in our most recent war, his blood was segregated as was, for the most part, his person. Up to today we are set at a division, so that he may not marry our daughters or our sisters, nor may he – for the most part – eat at our table or live in our houses. Moreover, those who do, do so at the grave expense of a double alienation: from their own people, whose fabled attributes they must either deny or, worse, cheapen and bring to market; from us, for we require of them, when we accept them, that they at once cease to be Negroes and yet not fail to remember what being a Negro means – to remember, that is, what is means to us" (Baldwin & Morrison, 1998, pp. 20-21).

Since slavery, Black Americans have been treated as an inferior race, and as such, Americans are often socialized to believe negative stereotypes about Black people and their contributions to America. No other concept has caused so much division than race in America. It is because of those deeply rooted feelings and misconceptions about Black people that they have experienced, currently experience, and will continue to experience violence, racism, discriminatory practices, impostor syndrome, stereotype threat in learning spaces, and other negative consequences tied to their racial identity. Of greatest interest to this study and findings is Baldwin's declaration about identity negotiation in the Black community. Baldwin discusses the challenges of belonging in a society that appropriates Black culture yet abhors Black people. Additionally, he speaks to the task of managing a dual existence (living in Black America and White America simultaneously). Specific to this study's findings, the challenges may compound experiences with stereotype threat among Black student-athletes who are attempting to negotiate roles as a Black, student, and athlete (specifically a Division I athlete) at American colleges and universities.

The hypothesis, based on previous literature about the impact of racial discrimination on academic achievement among Black student-athletes (Carter-Francique et al., 2015), that Black student-athletes would yield significantly lower scores on the academic task than White student-athletes was supported. White student-athletes performed significantly better than Black student-athletes on total items correct, math items correct, and hard items correct. Additionally, White and Hispanic students performed significantly better than Black students on hard math items correct. It is relevant to remember that although there were differences between race/ethnicity groups on the academic task in this study, there were no differences in reported GPA between the groups, suggesting that Black students found the testing situation, even without an explicit threat about athletes, a more stressful situation, quite possibly because of the racial stereotype threat that is "in the air" (Steele, 1997). Importantly, the hypothesis that student-athletes in the mitigation condition would yield significantly higher scores on the academic tasks than students in the threat condition was supported only for Black students in the area of hard mathematics. Black student-athletes yielded significantly poorer scores than White student-athletes on hard math items in the control condition. Additionally, Black student-athletes yielded significantly poorer scores than both White and Hispanic student-athletes on hard math items in the threat condition. However, Black student-athletes in the mitigation condition scored significantly better than Black student-athletes in the threat condition and equally to other groups in the mitigation condition. There was no significant difference in academic performance between Black student-athletes in the control condition and Black student-athletes in the threat condition. There was a marginally significant difference between Black student-athletes in the control condition and Black student-athletes in the mitigation condition.

The findings suggest that, possibly, there was a "threat in the air" (Steele, 1997) for Black student-athletes in the control condition, which may suggest that even without an explicit prime, Black student-athletes were impacted by stereotype threat. Then, the threat was compounded in the threat condition (not significantly so), yet the mitigation was effective in increasing their performance. The explicit prime about the academic ability of student-athletes could have differentially affected the Black student-athletes in the threat condition, but Black student-athletes benefitted from the mitigation strategy on hard math items and achieved performance equal to their peers.

In general, these findings support recent research about student-athletes and math performance when faced with stereotype threat. For example, as mentioned earlier and worth reiterating, Riciputi and Erdal (2017) found that when student-athletes were primed with their athletic identity, they received lower math scores than student-athletes who were not primed. Also, and specific to math performance by students of color, Battey and Leyva (2016) describe mathematics as a racialized space. The researchers posit that current mathematics environments perpetuate internalized deficit beliefs among students of color. In the present study, Black student-athletes in all conditions, but especially in the threat and mitigation conditions, could have been impacted by both explicit and implicit threats to their intellectual ability compounded not only by their identity as Black, student, and athlete but also their math identity. What explains Black students' performance on hard math items? The Black participants in this study did not differ from other participants in GPA or academic self-concept, but only in the mitigation condition were they able to score equally with the other groups on hard math items.

The study made four important contributions to the growing literature about collegiate athletes and stereotype threat. First, the current study expanded on previous stereotype threat literature among student-athletes by testing a potential mitigation strategy. The research points

toward formulation of robust mitigation strategies specific to this group, particularly Black student-athletes. Many evidence-based strategies exist to help resist stereotype threat in the learning environment, but none cater to the collegiate athlete, a unique and seemingly paradoxical community at colleges and universities. Second, another major strength of the study is the intentional anti-deficit framework serving as the foundation of the experiment – a framework that hopes to uplift the student-athlete community as well as encourage practitioners to acknowledge issues in the athletic community and address them from a strengths-based approach.

Further strengths are present in the experimental design and measures used in the study. Third, the current study included students from both female and male sports teams since prior research has produced differing outcomes about gender identity as a moderator of the relationship between stereotype threat and academic performance. The current study found no evidence that gender identity was a main effect or a moderator. Lastly, the study emphasized the role of academic self-concept on academic performance and self-concept maps as a potential identity development tool for student-athletes and possibly all college students. The study suggests further exploration of self-concept maps in the collegiate classroom environment. This identity development exercise is a low cost, high stakes option that could improve academic self-concept and achievement among marginalized groups.

The study limitations include sample profile and sample size. Trends in hypothesized directions observed in the current results may prove to be significant in a study with a larger sample. There was a slight imbalance of race/ethnicity and larger imbalance of gender identity in the present study that was not representative of Division I student-athletes nationally. The NCAA (2018) reported that the Division I student-athlete body consists of 47% females and 53% males; and 57% White and 43% student-athletes of color. The current study yielded 61% females and 39% males and 63% White student-athletes and 37% student-athletes of color. Additionally, in this study, there was a small number of students from revenue sports (n = 9) compared to students from non-revenue sports (n = 62). These are the students who may be most affected by stereotype threat because their high visibility may place them at greater risk of being stereotyped (Simons et al., 2007). The low diversity in the sample could jeopardize generalizability. Also, selection bias may have played a part of the sample demographics, as academically engaged student-athletes may have been more inclined to participate in the study. The homogeneous group does not wholly represent the student-athlete population at the study site and may have lessened the threat and mitigation.

Stereotype threat cannot dissipate through just one exercise, yet the premise is that the exploration of multiple social identities over time could serve as a positive strategy for identity development, meaningful identity activation, and identity appreciation. Griffin (2017), in her qualitative study on Black male collegiate football players, shared a quote from one of the study participants who stated: “I love playing football. I hate being a football player.” This sentiment highlights athletic identity conflict and the balancing act that must be performed daily by student-athletes. The study offers an opportunity for the higher education community to dismantle this dichotomous thinking (e.g., only student or athlete) and address challenges that may arise using approaches that acknowledge the full range of social identities that students possess. Specifically, results from this study help 1) identify potential stereotype threat mitigation strategies for student-athletes, 2) extend our understanding of the influence of academic self-concept and race/ethnicity on academic performance, and 3) explore potential moderators, particularly race/ethnicity, in the relationship between stereotype threat mitigation

and academic performance among student-athletes.

A practical application of this study's findings can be demonstrated by a program to change expectations regarding athletics and academics at the authors' institution. A partnership was forged between the university's honors college and the athletics department to increase the number of student-athletes enrolled in the honors college. The honors college took a phased approach by 1) attempting to deconstruct stereotypes about student-athletes and their academic performance through conversations with student-athletes, academic advisors, and coaches, 2) dispelling the misconceptions about how honors programming can realistically fit into student-athletes' schedules through conversations with student-athletes, academic advisors, and coaches, and then 3) engaging them in honors courses and high-impact practices offered by the honors college. Over the last year, student-athletes' enrollment in the honors college tripled and has helped transform the university's culture around student-athletes and their level of academic involvement and achievement. During that time, student-athletes have participated in research labs and assistantships, completed thesis projects, and garnered honors distinctions upon graduation.

Other practical applications could include incorporating identity exploration activities in NCAA Life Skills programs. Also, coaches could encourage activities beyond the athletic facilities. Academic advisors could join in this effort with the coaches and implement an internal competition between teams to promote involvement in extracurricular activities outside of their sport (e.g., high-impact practices). Specifically, more considerable attention could be placed on student-athletes of color. As Barack Obama stated in his discussion about his *My Brother's Keeper* initiative, students of color do not suffer from an achievement gap, rather an opportunity gap. There is a need for culturally aware student-athlete development support staff to create, implement, and revise culturally specific academic programming. The goal of these proposed ideas is to allow student-athletes to explore and develop multiple social identities.

The study focused on building a model for mitigating stereotype threat among Division I student-athletes. The findings of the study suggest that mitigation strategies may be most effective if they are culturally specific and specific to a particular task. First, future studies could explore the mitigation strategy among affinity groups separately; for example, Black students, females, international students, and students who receive athletic scholarships. The current mitigation strategy may help buffer stereotype threat to some degree, but it seems beneficial to target the mitigation strategy to meet the needs of a specific population. To reach that goal, the literature on student-athlete stereotype threat could benefit from a qualitative investigation of student-athletes' perceptions of stereotype threat and their opinions on how to combat it. The student voice could be critical in establishing robust identity development exercises and subsequent mitigation strategies. Second, further investigation should be conducted on the impact of specific mapping components to provide a possible rationale for how these areas functioned as stereotype threat deterrents on test performance. Also, a mixed-method study focused on exploring the differences between the ethnic groups and the identities they include on their maps could contribute to future understanding.

Lastly, in future studies, it would be beneficial to explore the use of an implicit priming technique instead of the explicit priming technique. The inclusion of more students from revenue sports could also strengthen the findings. A comparison between Division I, II and III student-athletes would provide insight on the differences of stereotype threat experiences and the potential mitigation strategy across athletic divisions; and a similar comparison between revenue and nonrevenue sports participants. Additionally, future research could further explore academic

self-concept and explore athletic identity as moderators for the relationship between stereotype threat mitigation strategies and academic performance among student-athletes. To end, future research could explore the extent to which the current study and findings apply to student-athletes of all levels (youth sport, high school, professional).

The student-athlete experience *can* consist of academic achievements, immediate and robust support systems, lifelong community, and holistic personal and professional development *if* it is intentionally designed to do so. The design should include a focus on social factors and psychological factors that lead to success. The current study focused on a socio-psychological factor, stereotype threat, that could hinder the variety of benefits inherent to the Division I athletic experience. This study provides a glimpse into the impact that engaging student-athletes in activities to explore their interests and understand their worth beyond the classroom or sports complex, may have on overall development. Specifically, identity development activities may significantly benefit students of color who deal with compounded stereotypes as a contingency of their race/ethnicity and student status (e.g., student-athlete) in learning environments.

The 'dumb jock' stereotype is pervasive, unfair, harsh, and unnecessary. It does not celebrate the multiple social identities held by student-athletes. These bright, capable, and hopeful students are not *your* student-athlete; they are learners, brothers, aunts, cousins, musicians, and future doctors. With the proper resources, they can become change agents in a world in desperate need of leaders.

References

Baldwin, J., & Morrison, T. (1998). *James Baldwin: Collected Essays: Notes of a Native Son/Nobody Knows My Name/The Fire Next Time/No Name in the Street/The Devil Finds Work/Other Essays.* Edited by Toni Morrison. New York: Library of America.

Battey, D., & Leyva, L.A. (2016). A framework for understanding whiteness in mathematics education. *Journal of Urban Mathematics Education, 9*(2).

Beamon, K. (2014). Racism and stereotyping on campus: Experiences of African American male Student-athletes. *The Journal of Negro Education, 83*(2), 121.

Bloomberg. (2018). *The NCAA Raked in Over $1 Billion Last Year*. Retrieved February 14, 2019, from http://fortune.com/2018/03/07/ncaa-billion-dollars/

Brewer, B. W., Van Raalte, J., & Linder, D. E. (1993). Athletic identity: Hercules' muscle or Achilles' heel? *International Journal of Sport Psychology, 24*, 237–254.

Carter-Francique, A., Hart, A., & Cheeks, G. (2015). Examining the value of social capital and social support for Black student-athletes' academic success. *Journal of African American Studies, 19*(2), 157–177. https://doi.org/10.1007/s12111-015-9295-z

Case, R., Dey, T., Barry, A., & Rudolph, W. (2017). An examination of the nature and scope of academic clustering in college athletic programs. *Journal of Contemporary Athletics, 11*(1), 47–57.

Case, B., Greer, S., & Brown, J. (1987). Academic clustering in athletics: Myth or reality. *Arena Review, 11*(2), 48-56.

Chen, S., Snyder, S., & Magner, M. (2010). The effects of sport participation on student-athletes' and non-athlete students' social life and identity. *Journal of Issues in Intercollegiate Athletics*, 176–193.

Citrus College Office of Institutional Research, Planning, and Effectiveness (2017). *Accuracy of self-reported high school GPA*. Retrieved March 2, 2019, from http://www.citruscollege.edu/admin/research/Documents/AB705/AccuracyGPA2017.pdf

College Board. (2019). Retrieved March 17, 2019, from https://collegereadiness.collegeboard.org/sample-questions/writing/1

Comeaux, E. (2012). Unmasking athlete microaggressions: Division I student-athletes' engagement with members of the campus community. *Journal of Intercollegiate Sport, 5*(2), 189–198

Comeaux, E., Speer, L., Taustine, M., & Harrison, C. K. (2011). Purposeful engagement of first-year Division I student-athletes. *Journal of the First-Year Experience & Students in Transition, 23*(1), 35-52.

Dee, T. S. (2014). Stereotype threat and the student-athlete. *Economic Inquiry, 52*(1), 173–182. https://doi.org/10.1111/ecin.12006

Feltz, D. L., Schneider, R., Hwang, S., & Skogsberg, N. J. (2013). Predictors of collegiate student- athletes' susceptibility to stereotype threat. *Journal of College Student Development, 54*(2), 184– 201. https://doi.org/10.1353/csd.2013.0014

Feise, R. J. (2002). Do multiple outcome measures require p-value adjustment?. *BMC Medical Research Methodology, 2*(1), 8.

Finley, A., & McNair, T. (2013). *Assessing underserved students' engagement in high-impact practices*. Washington: Association of American Colleges and Universities.

Fuller, R. D., Harrison, C. K., & Bukstein, S. J. (2017). A study of significance of racial and athletic identification on educational perceptions among African American male college athletes. *Race Ethnicity and Education, 20*(5), 711–722. https://doi.org/10.1080/13613324.2016.1150829

Gresky, D. M., Ten Eyck, L. L., Lord, C. G., & McIntyre, R. B. (2005). Effects of salient multiple identities on women's performance under mathematics stereotype threat. *Sex Roles, 53*(9-10), 703- 716.

Griffin, W. (2017). Who is Whistling Vivaldi? How Black football players engage with stereotype threats in college. *International Journal of Qualitative Studies in Education, 30*(4), 354–369. https://doi.org/10.1080/09518398.2016.1250174

Harper, S. R. (2016). *Black male student-athletes and racial inequities in NCAA Division I college sports: 2016 edition*. Philadelphia: University of Pennsylvania, Center for the Study of Race & Equity in Education.

Harris, C. M., & Zha, S. (2017). Concept mapping for critical thinking: Efficacy, timing, & type. *Education, 137*(3), 277–280.

Harrison, C. K., Stone, J., Shapiro, J., Yee, S., Boyd, J. A., & Rullan, V. (2009). The role of gender identities and stereotype salience with the academic performance of male and female college athletes. *Journal of Sport and Social Issues, 33*(1), 78-96.

Haslerig, S. J. (2017). Graduate(d) student athletes in Division I football: Redefining Archetypes and disrupting stereotypes or invisible? *Sociology of Sport Journal, 34*(4), 329–343.

Ho, A. K., Sidanius, J., Cuddy, A. J. C., & Banaji, M. R. (2013). Status boundary enforcement and the categorization of black–white biracials. *Journal of Experimental Social Psychology, 49*(5), 940–943. https://doi.org/10.1016/j.jesp.2013.04.010

Ho, A. K., Kteily, N. S., & Chen, J. M. (2017). "You're one of us": Black Americans' use of hypodescent and its association with egalitarianism. *Journal of Personality and Social Psychology, 113*(5), 753–768. https://doi.org/10.1037/pspi0000107

Hollinger, D. A. (2005). The one drop rule & the one hate rule. *Daedalus, 134*(1), 18–28. https://doi.org/10.1162/0011526053124424

Ishaq, F. J., & Bass, J. (2019). High Impact Educational Practices and the Student Athlete Experience: The Implementation and Barriers of HIPs in the Student Athlete Support Setting. *Journal of Issues in Intercollegiate Athletics, 12*, 178-204.

Kuh, G. D. (2008). Excerpt from high-impact educational practices: What they are, who has access to them, and why they matter. *Association of American Colleges and Universities*, 19-34.

Levine, J., Etchison, S., & Oppenheimer, D. (2014). Pluralistic ignorance among student-athlete populations: a factor in academic underperformance. *Higher Education, 68*(4), 525–540. https://doi.org/10.1007/s10734-014-9726-0

Lu, L. D., Heinze, K. L., & Soderstrom, S. (2018). Playing multiple positions: Student-athlete identity salience and conflict. *Journal of Intercollegiate Sport, 11*(2), 214–241.

Marsh, H. W., & Martin, A. J. (2011). Academic self-concept and academic achievement: relations and causal ordering. *The British Journal of Educational Psychology, 81*(1), 59–77. https://doi.org/10.1348/000709910X503501

Mosley, B. F., & Draper, S. R. (2014). Concept Mapping: A tool to support learning. *National Teacher Education Journal, 7*(2), 27–30.

MSU Today. (2013). *Fighting the 'Dumb Jock' Stereotype*. Retrieved February 14, 2019, from https://msutoday.msu.edu/news/2013/fighting-the-dumb-jock-stereotype/

NCAA. (2014). *Benefits to college student-athletes*. Retrieved July 30, 2017, from http://www.ncaa.org/student-athletes/benefits-college-student-athletes

NCAA (2018). *NCAA Demographics Database*. Retrieved March 21, 2019, from http://www.ncaa.org/about/resources/research/ncaa-demographics-database

NCAA. (2019). *After the Game*. Retrieved February 12, 2019, from http://www.ncaa.org/student-athletes/former-student-athlete

Otterson, J. (2018). *NCAA Championship Game Viewership Drops 28% From 2017*. Retrieved February 14, 2019, from https://variety.com/2018/tv/news/2018-ncaa-championship-game-ratings-1202742895/

Reynolds, W. M. (1988). Measurement of academic self-concept in college students. *Journal of Personality Assessment, 52*(2), 223–240. https://doi.org/10.1207/s15327752jpa5202_4

Reynolds, W.M., Weseman, C., & Gilman, L. (2012, April). *Reliability and Validity of the Academic Self-Concept Scale Short Form*. Poster session at the Western Psychological Association Annual Conference, San Francisco, CA.

Riciputi, S., & Erdal, K. (2017). The effect of stereotype threat on student-athlete math performance. *Psychology of Sport and Exercise, 32*, 54–57. https://doi.org/10.1016/j.psychsport.2017.06.003

Roberts, R., & Johnson, P. (2015). Understanding the quality of data: a concept map for 'the thinking behind the doing' in scientific practice. *Curriculum Journal, 26*(3), 345–369. https://doi.org/10.1080/09585176.2015.1044459

Robinson, K. A., Perez, T., Carmel, J. H., & Linnenbrink-Garcia, L. (2019). Science identity development trajectories in a gateway college chemistry course: Predictors and relations to achievement and STEM pursuit. *Contemporary Educational Psychology, 56*, 180–192. https://doi.org/10.1016/j.cedpsych.2019.01.004

Roccas, S., & Brewer, M. B. (2002). Social Identity Complexity. *Personality & Social Psychology Review, 6*(2), 88–106. https://doi.org/10.1207/S15327957PSPR0602_01

Schroeder, N. L., Nesbit, J. C., Anguiano, C. J., & Adesope, O. O. (2018). Studying and constructing concept maps: A meta-analysis. *Educational Psychology Review, 30*(2), 431–455. https://doi.org/10.1007/s10648-017-9403-9

Seear, K. H., & Vella-Brodrick, D. A. (2013). Efficacy of positive psychology interventions to increase well-being: Examining the role of dispositional mindfulness. *Social Indicators Research, 114*(3), 1125-1141.

Simons, H., Bosworth, C., Fujita, S., & Jensen, M. (2007). The athlete stigma in higher education. *College Student Journal, 41*(2), 251-273.

Steele, C. M. (1997). A threat in the air: How stereotypes shape intellectual identity and performance. *American Psychologist, 52*(6), 613–629. https://doi.org/10.1037/0003-066X.52.6.613

Steele, C. M., & Aronson, J. (1995). Stereotype threat and the intellectual test performance of African Americans. *Journal of Personality and Social Psychology, 69*(5), 797–811. https://doi.org/10.1037/0022-3514.69.5.797

Stone, J., Harrison C.K., & Mottley, J. (2012). Don't call me a student-athlete: The effect of identity priming on stereotype threat for academically engaged African American college athletes. *Basic & Applied Social Psychology, 34*(2), 99–106.

The Princeton Review. (2020). *Why you shouldn't want an "easy" SAT*. Retrieved April 12, 2020 from https://www.princetonreview.com/college-advice/no-to-easy-sat

USA Today. (2019). *Clemson blowout draws lowest TV ratings for CFP title game*. Retrieved February 14, 2019, from https://www.usatoday.com/story/sports/ncaaf/2019/01/08/clemson-blowout-draws-lowest-tv-ratings-for-cfp-title-game/38863005/

Warner, S. (2012) *320 SAT Math problems arranged by difficulty level: A proven roadmap to your first-choice college*. Hempstead, NY: www.SATPrepGet800.com

Williams, W. S., & Chung, Y. B. (2013). Do cultural attitudes matter? The role of cultural orientation on academic self-concept among Black/African College students. *Journal of College Counseling, 16*(3), 228–242. https://doi.org/10.1002/j.2161-1882.2013.00039.x

Woods, A. D., McNiff, J., & Coleman, L. (2018). A comparative analysis: Assessing student engagement on African-American male student-athletes at NCAA divisional and NAIA institutions. *Education, 138*(4), 356–368.

Yopyk, D. J. A., & Prentice, D. A. (2005). Am I an athlete or a student? Identity salience and stereotype threat in student–athletes. *Basic & Applied Social Psychology, 27*(4), 329–336. https://doi.org/10.1207/s15324834basp2704_5

Appendix A

Self-Concept Map Instructions (Mitigation condition)

Self-Concept Mapping Activity

Self-concept mapping activities provide a visual tool to elaborate on a topic.

Instructions

1. You will have 20 minutes to create your map.
2. Please write "Me" at the center of your map.
3. Think about your interests and your social identities. Select and write down categories from the list below that relate to your social identities and interests. Separate the categories in their own areas on the paper. There is no limit on the number of categories that you select. Focus more on the information you provide and note creating a "perfect" map.

    - Art
    - Dance
    - Ethnicity/Race/Nationality
    - Family
    - Gender identity
    - Music
    - Occupation
    - Organizations/Clubs/Affiliations
    - Politics
    - Relationships
    - Religion
    - School
    - Sports
    - Other (Specify)

4. Now, reflect and write down a list of identities or roles related to the categories you selected. Write your list under the selected categories. further, if you select Family as a category, you could list son, brother, uncle etc. as identities or roles that you highly value in your life; or if you select Relationships as a category, you could list friend, girlfriend/boyfriend, business partner etc. as identities or roles that you highly value in your life.
4. Draw a line between identities or roles that you feel are connected. Not the categories.
5. Place a star next to the identities that are most significant to your overall identity.

Appendix B

Alternate Map Instructions (Food Map: Threat and Control conditions)

Mapping Activity

Mapping activities provide a visual tool to elaborate on a topic.

Instructions

1. You will have 20 minutes to create your map.
2. Please write "Food" at the center of your map.
3. Think about your favorite and most visited places to eat. Select and write down categories from the list below related to those places. Separate the categories in their own areas on the paper. There is no limit on the number of categories that you select. Focus more on the information you provide and note creating a "perfect" map.

    - Coffee Shop
    - Delivery
    - Diner
    - Family member's house
    - Fast Food
    - Grocery Store
    - Health Food Store
    - Restaurant
    - Other (Specify)

4. Now, write down a list of items that you recently purchased or ate. Write your list under the selected categories.
4. Write down the best day and time to visit the locations you listed.
5. Place a star next to your favorite food items.