12-2-2019

Sense of Belonging and Racial Diversity at the U.S. Service Academies

Leah Pound  
*University of Connecticut - Storrs*, leah.pound@uconn.edu

Follow this and additional works at: https://opencommons.uconn.edu/dissertations

**Recommended Citation**

https://opencommons.uconn.edu/dissertations/2386
Sense of Belonging and Racial Diversity at the U.S. Service Academies

Major Leah B. Pound, PhD
University of Connecticut, 2019

Abstract

On college campuses, access does not equal inclusion as students of color have to navigate through a predominately White space as they struggle to feel like they belong (Jack, 2019). This dissertation focuses on racial experiences and belonging within a total institution (Goffman, 1961): the U.S. service academies, colleges that are part university and part military. Across three separate papers, I explore the institutional factors impacting the disparity between Black and White students’ belonging. In Chapter 1, I apply Allport’s contact theory (1954) alongside the concept of relative deprivation (Stouffer, 1949) to systematically compare the experiences of Black and White college students using meta-analytic methods. In Chapter 2, I again apply contact theory to service academy cadets while taking into consideration the negative feelings associated with interracial contact. Negative cross-racial interactions at a service academy impact Black students’ sense of belonging more intensely than White students. In Chapter 3, I apply social identity contingency threat theory (Purdie-Vaughns, 2004) and diversity ideologies to explore how service academy cadets may be interpreting institutional diversity efforts. By considering how diversity messages act as cues, I investigate how identity contingency theory can apply to cadets and their sense of belonging. In these studies, I am interested in documenting some of the disparate experiences Black cadets experience compared to White cadets and find the extent to which sense of belonging manifests in those disparities.

Keywords: sense of belonging, college students, contact theory, Black, White, race, diversity, cadet, service academy
Sense of Belonging and Racial Diversity at the U.S. Service Academies

Major Leah B. Pound

B.S., United States Air Force Academy, 2008
M.A., University of Kansas, 2011

A Dissertation
Submitted in Partial Fulfillment of the
Requirements for the Degree of Doctor of Philosophy
at the
University of Connecticut

2019

Disclaimer: Opinions, conclusions, and recommendations expressed or implied within are solely those of the author and do not necessarily represent the views of Air University, the Air Force Research Institute, the US Air Force Academy, the United States Air Force, the Department of Defense, or any other US government agency. Cleared for public release 11 November 2019. The views expressed in this article are those of the author and do not necessarily reflect the official policy or position of the Air Force, the Department of Defense or the U.S. Government
APPROVAL PAGE
Doctor of Philosophy Dissertation

Sense of Belonging and Racial Diversity at the U.S. Service Academies

Presented by
Leah B. Pound, Maj, USAF, B.S., M.A.

Major Advisor
Felicia Pratto

Associate Advisor
Diane Quinn

Associate Advisor
Tania Huedo-Medina

University of Connecticut
2019
Acknowledgments

I will forever be grateful for the kindness of others. Working towards a doctoral degree sometimes feels like a lonely process but the support I have had from everyone in my life has truly made my dreams come true. First, I want to thank Dr. Felicia Pratto for the countless hours of mentoring, brainstorming, and conversing over big ideas. I am so grateful that you poured your heart into my development as a researcher – I hope to make you proud! We have been so lucky to have such an incredible advisor-student relationship. I want to thank other members of my committee, Diane Quinn and Tania Huedo-Medina. I don’t think I can ever have too many strong, smart women to look up to and I’m thankful for the chance to work with you both.

I owe my military mentors a great deal of credit. Col Gary Packard has been most influential in my life as an embodiment of tempered radicalism in a continued effort for achieving respect for human dignity for all of our military members. Lt Col Camilo Guerrero has truly been an inspiration and I have often thought of his gracious heart during my graduate studies – he is truly missed. I owe a great deal to Dr/Major Katrina Powell – thank you for opening my eyes to issues of belonging at the academies. I hope I have done your work justice! I must also thank my military collaborators at the service academies including Major Matt Laney, COL Archie Bates, and Dr. Lisa Korenman. Without their help in collecting data from cadets, my dissertation would not exist! And thanks to Steve Samuels – without your recommendation, I wouldn’t be here. Thank you for believing in me!

The UConn faculty have provided such valuable skills and I drew so much inspiration from your courses. I’m grateful for those experiences. Special thanks goes to Blair Johnson for being a reviewer for my dissertation as well as inspiring me to tackle a meta-analysis. My fellow graduate students have continuously given me a sense of belonging here at UConn. Shu Jiang, Cassidy Burt, Aeriele Allen, Gabriel Camacho, Kiran McCloskey, and Dakota Cintron are just a few of the names of my friends that have supported, believed, and pushed me to be a better researcher. Thank you for being there. Thanks to Jania Stewart-James for her collaborative work on our systematic reviews. Extra special thanks goes to my support squad - Mora Reinka and Devon Price. I am so proud of you both and I will forever be your hype-woman. Thank you for being mine!

Stephanie Bossert, Javaughn Baltrip, and Lucas Brown – the fam. I am so thankful for the three of you. I definitely wouldn’t be writing this had it not been for your work and dedication to the team. You sent me down a path on a topic I didn’t know would become so important to me. Thank you for opening my eyes to the experiences that cadets of color encounter daily. And to all the cadets who took the time to answer my questions, take my surveys, and tell me how they really felt – thank you. I value what I have learned from them and I hope to carry your message forward.

To my mom and dad – thank you for always valuing education and curiosity in your children. I know it has been hard to be so far away from each other for the past 15 years. But you have prepared me so well to take on the world and have been incredible supportive of my crazy ideas, starting with going to a military academy. Thanks for letting me make the smartest dumb choice of my life! I love you both so much and the families we all have created and maintained. I am grateful for my sister, Sara, for her support and understanding over the years. I am so proud of what you have accomplished in your life and your giving heart for making the world a better place through education. On to our next adventures!

Above all, I must thank my husband and best friend, Andrew. We did it! I’m amazed at what we have accomplished in our lives. But I’m more amazed and prouder of the family we have built together and the relationship that you and I have maintained and prioritized. I promise to keep making you and Marc-André the essence of all that I do. I love you both so much. -lbp
# Table of Contents

Acknowledgements ........................................................................................................... iii  
General Introduction .......................................................................................................... 1  

Chapter 1 Anacrusis:  
Comparing a U.S. Service Academy to Other Colleges.................................................14  

Chapter 1:  
Sense of Belonging Among College Students: A Meta-Analysis Comparing White and Black Student Perceptions..................................................................................................................17  

Chapter 2 Anacrusis:  
Explaining the Relationship between Cross-racial Interactions and Sense of Belonging........81  

Chapter 2:  
A Mediation Model: How Perceptions of Institutional Commitment to Diversity Affect Cross-Racial Interactions and Sense of Belonging at a US Service Academy.................................85  

Chapter 3 Anacrusis:  
Manipulating Diversity Statements Affects Sense of Belonging .....................................149  

Chapter 3:  
Whites Can’t Catch a Cue: The Impact of Diversity Statements and Imagery on Cadets at a US Service Academy ..................................................................................................................153  

General Conclusion ...........................................................................................................222
We all have had the experience of walking into the room and feeling like our presence is felt by others but for all the wrong reasons. The room or the space suddenly feels foreign, you want to run out, or you want to ask what you are doing wrong. You feel like you do not belong. When walking into White spaces in a predominately White institution (PWI), racial minorities often know exactly this feeling. As organizations attempt to become more diverse by carefully drafting diversity mission statements, implementing diversity training for employees, and recruiting more diverse people, the feeling of not belonging is hard to shake for people of color. The world of organizational diversity has been expanding; it first started with equal opportunity – a seat at the table. Next has come inclusion – being asked to speak. The next step in the evolution of diversity is belonging – having your voice heard (Fosslien & Duffy, 2019).

This dissertation focuses on racial experiences and belonging within the U.S. service academies, institutions that are part university and part military. When students enter the academies, they instantly become both college student and officer-in-training. These roles sometimes have handbooks; sometimes they do not. Students of color occasionally lack cultural capital, which includes behaviors, skills, and ways of being that are taken for granted that are valued not only in colleges but also in the military (Jack, 2019). Some have suggested that minority students constantly live biculturally, which describes the concept of a person of color in a predominately White environment trying to coexist in two distinct cultural worlds; the dominant White culture and their family culture (Cruz-Soto, 2017; L. A. Johnson, 2014). In predominately White environments, White students have the privilege of not being forced to live this same biculturalism. Instead, the patterns of behavior, norms, etiquette of interactions, are largely the same - it's just the people that change (Johnson, 2014). But for students, this lack of cultural capital can lead to feelings of exclusion, strained cross-racial interactions, and negative
perceptions of the institution. In recent years, racial minorities have generally been welcomed on campuses across the country; however, access does not equal inclusion as students of color still have to navigate through a predominately White space as they struggle to feel like they belong (Jack, 2019). In this general introduction, I will first introduce the reader to the history of social psychology within the military. Then, I will briefly describe the topic of belonging. Lastly, I will provide a brief primer to the three chapters of the dissertation.

**History of Social Psychology and the Military**

The military has been hailed as a beacon for racial integration and racial equality; a full 16 years before passage of the Civil Rights Act of 1964, President Truman mandated racial integration of American military units in 1948 (From representation to inclusion: Diversity leadership for the 21st-century military, 2011). During World War I and II, the U.S. suddenly needed to raise an army quickly; there was no way to achieve that goal without enlisting large numbers of African-Americans and immigrants or “hyphenated Americans,” a derogatory term for immigrants first used at the turn of the century (Berelson & Salter, 1946). Born out of a practical, economic, and manpower need, troops were integrated after WWII ended.

Having been contracted by the War Department during World War II, Samuel Stouffer (1949) surveyed over a half million American soldiers and reported on their attitudes towards anything and everything regarding everyday life as a soldier (Ryan, 2009; 2010). As a by-product, this research on Army soldiers detailed some of the first intergroup relations attitude research between White and Black soldiers. The data suggested that integration apparently led to success in reducing Whites’ anti-Black prejudice (Allport, 1954). Many consider Black and White soldiers serving together during WWII a major milestone for intergroup relations because the contact between White and Black soldiers under the right circumstances, as prescribed by
Allport (1954), reduced negative stereotypes held by White soldiers (Bonilla-Silva, 2014). Stouffer’s surveys of American soldiers, his subsequent analyses, and book – *The American Soldier* (1949) – are noted as the largest, most comprehensive study of American soldiers in war and in combat (Scott & Segal, 2018). Results show that White soldiers in desegregated units “who were more closely associated with Negro soldiers under combat conditions were more favorably disposed [to Black soldiers] than those who had no experience in common participation” (1954, p. 277) giving credibility to the concept of contact theory – occupational contacts with Negroes of equal status tend to make for lessened prejudice and indicated that prolonged, meaningful contact decreased Whites’ negative affect towards. Because of research performed at the request of the military and war department, some of these very first field studies provided evidence that contact theory worked but the context of the contact mattered.

The historic impact of this social science research in the military is apparent. Due to the often-random assignment of troops to units and the relatively sterile social environments, insights gleaned from military social science research has helped develop theories and current research techniques found in social psychology. Stouffer’s post-hoc explanation for the “well-known anomalies” found in the research became relative deprivation theory, which influenced Festinger’s social comparison theory (Pettigrew, 2015; Allport, 1954). Stouffer served as Thomas Pettigrew’s mentor, deeply influencing his work as Pettigrew became a well-established social psychologist in his own right. Undoubtedly, Samuel Stouffer’s contributions to social psychology, both conceptual and methodological, shaped the field as we know it today (Pettigrew, 2015). Inspired in part by Stouffer’s work but also by others who have made contributions towards racial equality and social justice within the military, I would be remiss as a
both a military member and social psychologist to not investigate current race relations in the military using social psychological theory.

**Current State of Racial Diversity in the Military**

The U.S. service academies are uniquely positioned to address intergroup dynamic questions, specifically dealing with race from a research perspective. Each institution has distinct yet similar diversity statements. However, as PWIs, the service academies are vulnerable to volatile intragroup race dynamics as the cadet, or student, population is made up of approximately 70% White students (USAFA Attrition Report, Jan 2018). At this time, diversity initiatives emphasize efforts on improving women and racial minority cadets’ experiences. But that focus leaves service academy senior leaders knowing very little about White students’ understanding of race, racial relations, and their perceptions of minority cadets’ experiences. In a 2016 interview with *The Atlantic*, then-Superintendent, Lt. General Michelle Johnson, acknowledged that “the absence of overt unrest does not mean the absence of discontent” (Deruy, 2016). Her comment hints at the idea that even while there are few overt instances of race discrimination, there may yet be relatively hidden problems regarding race that do affect cadets and ultimately their decision to stay or leave. The following quotes were collected from one of the U.S. service academies and capture some of the disparity between the experiences of cadets of color and White cadets.

Black/African-American cadets:

“It is not easy to discuss different topics about race because if you are the minority, then your opinion often gets overshadowed by the majority. You do not have anyone to back you up or that have shared your experiences.”

“For the majority of my classes, especially classes like [the social sciences], many white cadets do not understand the perspectives of other ethnicities in class. They feel as though people cannot have certain outlooks on the world besides their own.”
“Most of the time there is one to two African-American in a classroom... My personal experience in these situations is that a large group of individuals [at] the academy have arrived here with some very rigid biases about other races and as a Black male myself I feel it wouldn’t make much of a difference explaining to them that all Black/Mexican/Russian etc people are not the same because years of thinking a certain way take years to undo and I do not have that type of time. Hopefully, the academy finds a way [will] to screen out people with racial biases. However, because this school was built on exclusion of others, I have little hope that the "Long Blue/Gray Line" aka. Long White Line will be changing anytime soon.”

“White comfort levels in any class seems to be much more comfortable than the other diverse cadets.”

White cadets:

“I feel uncomfortable answering this question [about race issues at the Air Force Academy]. Why does it matter how the whites vs others feel? [W]e are all the same.”

“Very comfortable in all classes. Race is not an issue here, so stop trying to make it one.”

“Stop segregating White people from everyone else. We all supposedly get here on merit, and if that is true "White cadets" wouldn’t be any different than the culturally diverse ones. I’m White but fall under culturally diverse because I was prior enlisted.”

“Very comfortable. I would say we almost don't see color.”

While these examples show the extremity of experiences, many cadets find cross-racial interactions to be normal and comfortable. However, in this military setting, many White people want to think of the institution as colorblind and only judging its members on their capabilities and service records. At the same time, many military members of color, in particular Black or African-American cadets, have experiences of exclusion and lack of belonging. The academies struggle like many other university classrooms with the hidden challenge in achieving an integrated society. The difficult task for academy and university administrators lies in making these settings function so that all people in them feel safe and trusting (Purdie-Vaughns, 2008).
In other words, the military struggles with creating an environment where racial minorities feel safe and comfortable enough to stay.

Racial disparities do not end once cadets are commissioned into their respective branches. Using the Air Force racial demographics as an example, 76% of officers were White and 6% were Black in 2016 while the enlisted force was made of 60% White and 15% Black (Total Force Military Demographics, 2016). The enlisted, or lower ranking, members of the organization are being disproportionately led by officers who may not share a cultural and racial connection with them. In all of the services, Black members’ promotion rates are lower than White members (Racial Disparity in Military Justice, 2017). Of the entire Air Force, including active duty, Air National Guard, and the Air Force Reserves, there is one Black four-star General, the highest rank available to military members. Among 1-, 2-, 3-, and 4-star Generals, over 90% are White. As Don Christensen remarks, “if you look at the leadership of military, it skews very dramatically white and male, and you would imagine that the closer relationships will be with white male subordinates; hence, they probably get the benefit of the doubt that the African-American males don’t” (Edwards, 2017). Simply put, White military members are overrepresented at the highest ranks.

Another arena in which racial disparities are present within the military is its judicial system. Black service members across all branches were at least 1.29 times more likely than White service members to face a military court-martial—a trial where military defendants are tried against the Uniformed Code of Military Justice (Racial Disparity in Military Justice, 2017). That number rose to 2.61 times more likely to face a court-martial at different points from 2006-2015. The Air Force revealed some of the highest disparities of all the branches, with Black
airmen 71% more likely than White airmen to face a court-martial or another form of nonjudicial but formal punishment, even though only 17% of the force is Black.

While the military academies’ primary goal is to commission officers for their respective Department of Defense (DoD) branches, each academy is also an undergraduate university struggling with similar issues that most U.S. colleges and universities face, including student attrition. Many factors that traditionally contribute to high attrition rates at civilian college are not present at the military academies: cadets are paid a modest salary, spend all four years living on campus with mandatory attendance at most meals, wear the same uniform five or six days a week, and most importantly, tuition is free – cadets pay nothing to attend but instead are required to serve as an Active Duty officer for five years after graduation. And in merely being admitted to one of the service academies, students have shown themselves to be well-prepared for college.

Again, I turn to the Air Force statistics to describe the disparities between White and Black military members. Black cadets are leaving the U.S. Air Force Academy (USAFA) at a higher rate than White cadets. In 2015, the attrition rate for Black cadets was 35.4% for the junior class as compared to the attrition rate for White cadets at 21.3% (USAFA/A9N, 2015). While USAFA has done a decent job of recruiting Black and minority students to attend, retention of racial minorities remains problematic. Anecdotally, I have witnessed incidents during my time as a junior faculty member at one of the service academies that suggest that a lack of sense of belonging can spiral a cadet of color into deciding to leave despite having the formal credentials to graduate. However, research from the fields of social psychology and higher education better inform this hypothesis.

---

1 Attrition rates for racial minorities were not readily available from other service academies.
**Belongingness**

Two motives generally encapsulate how social psychologists frame theories: either the behavior is motivated by *a need to feel good about ourselves* (Baumeister, Tice, & Hutton, 1989) or *the need to be accurate* (Nisbett & Ross, 1980). As such, an underlying reason to maintain or enhance our self-esteem is that self-esteem serves as a “relationship gauge” (Leary, 1998, 2004, 2007). How we feel about ourselves alerts us to potential or upcoming social rejection, which motivates us to behave more sensitively towards others. Like a draining battery signal on a cell phone, this notification or pain can motivate action for self-improvement or by seeking acceptance elsewhere. Therefore, belongingness with others is at the very root of one of our basic motivators of self-esteem; it allows us to gauge if our behavior is appropriate and desired.

**Belonging Hypothesis**

Belongingness has been well-established as a critical component of self-esteem and basic psychological motivator of behavior (Baumeister & Leary, 1995). In their foundational 1995 theoretical statement, Roy Baumeister and Mark Leary assert that humans are naturally driven towards establishing and maintaining relationships and belongingness. In their review of the literature, they argue for the Belongingness Hypothesis as that “human beings have a pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships” (p. 497). The hypothesis holds two main features: (1) people need frequent personal contacts or interactions with significant others and (2) people need to perceive that there is an interpersonal bond marked by stability and affective concern that continues into the foreseeable future. Ideally these interactions are positive and pleasant, but they argue that the majority need to be free from conflict and negative affect (Baumeister & Leary, 1995). They
support these arguments by summarizing social and personality psychology literature relevant to belongingness.

Feelings of belonging deprivation have been shown to cause decrements in health, happiness, adjustment, and emotional well-being. Real or even imagined changes to one’s level of belongingness or acceptance can produce emotional responses—a perceived increase in belongingness is associated with positive affect (Argyle, 1987; Freedman, 1978; Myers, 1992) where a perceived decrease in belongingness is associated with negative feelings (Leary, 1990; Leary & Downs, 1995; Tambor & Leary, 1993). Prior research supports a general conclusion that being included or accepted leads to a range of positive emotions (e.g., happiness, elation, contentment, and calm), whereas being excluded or rejected leads to strong negative feelings, (e.g., anxiety, depression, grief, jealousy, loneliness; Baumeister & Leary, 1995). Veterans with a high degree of perceived support are less likely to suffer from Post-Traumatic Stress Disorder (Hobfall & London, 1986; Solomon, Waysman, & Mikulincer, 1990). Evidence indicates that people who lack a sense of belonging often suffer higher levels of mental, emotional, and physical illness and distress and are prone to engage in maladaptive behaviors.

In the military, officers and senior enlisted (non-commissioned officers; NCO) often represent the institution to the junior enlisted. Therefore, any interaction with senior military members can feel like interacting with formal representatives of the organization or with the organization itself. Plausibly, an individual may have frequent, positive interactions and long-term relationships with other peer group members but also lack frequent positive interactions with senior members or with the organization. If the organization as a separate entity does not meet the two aspects for belonging, then a sense of belonging to the organization or group would be in jeopardy. The research in this paper is presented from a social psychological perspective.
and rests on the theoretical principle that people fundamentally need to feel good about
themselves, which allows us to see ourselves as good, competent, and decent (Aronson, 1998,
2007; Baumeister, 1993; Tavris & Aronson, 2007). Research examining sense of belonging
among cadets is relevant as it allows us to examine other social psychological factors that are
theoretically related to the belonging hypothesis.

**Structure of the Dissertation**

In each of the following papers, I apply specific social psychological theories to the issue
of diversity at the U.S. service academies. Since the service academies are embedded into nearly
every aspect of a cadet’s life, I find it prudent to investigate Sense of Belonging from multiple
levels and the interactions of those levels in order to best understand the gap between White and
Black cadets’ sense of belonging. Each of my dissertation chapters use distinct methodologies to
analyze cadet experiences.

In Chapter 1, I apply the classic contact theory by Gordon Allport (1954) alongside the
concept of relative deprivation by Samuel Stouffer (1949) to systematically compare the
experiences of Black and White college students. By using meta-analytic methods, I compare the
experience of Black students to White students in college all across the country. In Chapter 2, I
again apply contact theory specifically to cadets at one of the service academies while taking into
consideration the negative feelings inevitably associated with interracial contact. Negative cross-
racial interactions impact Black students’ sense of belonging more intensely than White students
at one of the service academies. And in Chapter 3, I borrow the theoretical framework from
social identity contingency threat theory (V. J. Purdie-Vaughns, 2004), aversive racism (Dovidio
& Gaertner, 2004a), as well as research on diversity ideologies to explore how cadets at a
different service academy may be interpreting some of the institutional diversity efforts. By
considering how diversity messages can act as cues for both White and Black students, I investigate how identity contingency theory can apply to cadets and their sense of belonging. In all of these studies, I am fundamentally interested in documenting some of the disparate experiences that Black cadets experience compared to White cadets and find the extent to which sense of belonging manifests in those disparities.
References


From representation to inclusion: Diveristy leadership for the 21st-century military. (2011).


Chapter 1 Anacrusis: Comparing a U.S. Service Academy to Other Colleges

“Admission is the not the same thing as acceptance.”

- Anthony Abraham Jack

This meta-analysis project was born out of a simple question: how does a U.S. Service Academy compare to other colleges on sense of belonging? When I first started studying sense of belonging in culturally diverse cadets at the service academies, I joined a research team that had already been presenting survey results on belonging to senior leaders. In nearly every presentation our team gave, senior leaders acknowledged the fact that Black cadets reported having a lower sense of belonging as compared to White cadets. However, the next question was always, “How do we compare to civilian colleges?” I saw this question as an opportunity to unite a policy-relevant question to social science quantitative research methodology.

During my graduate school studies, my research interests have evolved to focus on the specific race relationship between Black and White people and the historical power dynamics between the groups in the United States. Therefore, I have deviated slightly from academy senior leaders’ initial question. I am less interested in the absolute value of cadets’ sense of belonging as compared to other schools and I am more interested in the relative difference between Black and White students on campus. In other words, I wanted to investigate if Black and White students are unequally affected by low or high sense of belonging. The first step in this process is to establish the extent of the disparity between Black and White students. The second is to find a pattern to explain the disparity.

My original intent of this paper is not explicitly mentioned in the following chapter for publication purposes. However, this meta-analysis provided a unique dual-purpose for me as it
does creatively answer academy leaders’ questions but simultaneously answers a gap in the sense of belonging literature. One meta-analysis on sense of belonging in the education literature exists, but it covers students in kindergarten through high school (Allen, Kern, Vella-Brodrick, Hattie, & Waters, 2018). As far as I can find, no studies specifically examining the gap between Black and White college students has been performed. As I conclude in the paper, sense of belonging in college students is understudied, especially among Black students. Therefore, this meta-analysis closes a unique gap for both policy makers and higher education researchers. I start my dissertation with the meta-analysis to provide an eagle’s eye view of sense of belonging. By using the meta-analytic framework, I was able to review the current college student sense of belonging literature and systemically organize the data associated with it. After gaining some knowledge of the field and understanding how the service academies fit into it, I will follow up in the next chapter by diving into sense of belonging data collected at one of the service academies.
References


Sense of Belonging Among College Students:
A Meta-Analysis Comparing White and Black Student Perceptions

Major Leah Pound
University of Connecticut
Dissertation – Chapter 1

Author Note: In this paper, the term “Black” will include both Black and African-American as a racial description. “African-American” is purposefully not used as it does not fully include those who are currently living in American culture and identify as Black. Not all Black people are of African descent; however, they experience the reality of being Black in America, which is the topic of interest in this meta-analysis. Participants who are identified as “Caucasian” in the studies will be identified as “White” for consistency.

Disclaimer: Opinions, conclusions, and recommendations expressed or implied within are solely those of the author and do not necessarily represent the views of Air University, the Air Force Research Institute, the US Air Force Academy, the United States Air Force, the Department of Defense, or any other US government agency. Cleared for public release. The views expressed in this article are those of the author and do not necessarily reflect the official policy or position of the Air Force, the Department of Defense or the U.S. Government.
Abstract

A meta-analysis of 44 studies found that Black college students have a lower sense of belonging on campus as compared to their White peers. Studies consisting of Black and White college students in the United States that measured sense of belonging were eligible for inclusion. A standardized mean difference between White and Black students’ sense of belonging was calculated to be .45 (CI: 0.34, 0.55). The $Q$-value, 228.8, was significant at $p < .001$ and the $I^2$ index showed a large amount of residual heterogeneity (86.4%). Multiple study characteristics and institutional characteristics were analyzed as moderator variables, revealing that the birth year of the participants, publication status, percentage of Black students on campus, and graduation rates explained some of the heterogeneity found in the meta-analysis. Overall, the results support the hypothesis that White students have a higher sense of belonging than Black students in college. Importantly, the disparity between White and Black students is underreported and has enlarged over time. Undergraduate-serving schools had the largest difference in belonging and this difference correlated with graduation rates. Higher levels of belonging to college has been shown to positively influence students’ persistence to graduation and should still be considered a viable avenue for decreasing the gap between Black and White college students’ graduation rates. Implications from this research are discussed.

Keywords: sense of belonging, college students, African-American, Black, Caucasian, White, race, diversity, higher education, meta-analysis, systematic review

Note. Special thanks to Lee Williams, Stephanie Bossert, Christopher Wetzel, Jania Stewart-James, Bradley Pan-Weisz, Graham Wright
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sense of Belonging</td>
<td>22</td>
</tr>
<tr>
<td>Sense of Belonging Associations</td>
<td>23</td>
</tr>
<tr>
<td>Sense of Belonging Among Racial Minorities</td>
<td>25</td>
</tr>
<tr>
<td>Relative Deprivation</td>
<td>26</td>
</tr>
<tr>
<td>Institutional Impact on Sense of Belonging</td>
<td>27</td>
</tr>
<tr>
<td>Current Research</td>
<td>28</td>
</tr>
<tr>
<td>Method Section</td>
<td>29</td>
</tr>
<tr>
<td>Literature Search Procedures</td>
<td>29</td>
</tr>
<tr>
<td>Inclusion and Exclusion Criteria</td>
<td>30</td>
</tr>
<tr>
<td>Inclusion Criteria</td>
<td>30</td>
</tr>
<tr>
<td>Exclusion Criteria</td>
<td>30</td>
</tr>
<tr>
<td>Coding of Study Characteristics and Moderators</td>
<td>31</td>
</tr>
<tr>
<td>Selection of Moderators</td>
<td>31</td>
</tr>
<tr>
<td>Statistical Methods</td>
<td>39</td>
</tr>
<tr>
<td>Effect Size Calculation</td>
<td>34</td>
</tr>
<tr>
<td>Results</td>
<td>36</td>
</tr>
<tr>
<td>Descriptive Statistics</td>
<td>36</td>
</tr>
<tr>
<td>Sense of Belonging Disparity Between Black and White Students</td>
<td>36</td>
</tr>
<tr>
<td>Evidence of Publication Bias</td>
<td>37</td>
</tr>
<tr>
<td>Funnel Plot</td>
<td>38</td>
</tr>
<tr>
<td>Moderators of the Disparity between Black and White Students’ Sense of Belonging</td>
<td>39</td>
</tr>
<tr>
<td>Discussion</td>
<td>40</td>
</tr>
<tr>
<td>Study Characteristics</td>
<td>41</td>
</tr>
<tr>
<td>Participant Characteristics</td>
<td>42</td>
</tr>
<tr>
<td>Institutional Characteristics</td>
<td>43</td>
</tr>
<tr>
<td>Limitations</td>
<td>46</td>
</tr>
<tr>
<td>Conclusion</td>
<td>48</td>
</tr>
<tr>
<td>References</td>
<td>49</td>
</tr>
</tbody>
</table>
Of the 1.9 million bachelor’s degrees conferred in the 2016-2017 academic year, 10.5% belonged to African-American or Black graduates, although Blacks comprised nearly 15% of the total number of enrolled students in college (U.S. Department of Education, 2019). Between 2000 and 2015, enrollments for Black students were up nearly by 3% but graduation rates have only risen by 1.4%. Further, 63.7% of White students graduated college within 6 years of starting whereas only 39.3% of Black students graduate (U.S. Department of Education, 2016; 2018). Black Americans have been enrolling and graduating from college in greater numbers over the past 10 years, but their graduation rates still lag behind those of their White peers with that gap widening for most schools. University officials often explain these disparities shift the blame from the institution and onto the students citing under-preparedness of the student or financial difficulties (Nichols, Eberle-Sudré, & Welch, 2016). However, education researchers and psychologists assert that students should not bear sole responsibility for their success or failure as the existing institutional structures can readily impact persistence to graduation (Johnson et al., 2007). There may be many causes of this complex phenomenon, but the present research focuses on a fundamental social-psychological aspect of remaining in a social context: one’s sense of belonging.

We argue that a sense of belonging, a type of relationship between a person and a setting, can add to the conversation about racial minorities student graduation rates (Walton & Cohen, 2007). As academic and social integration plays a key role in retaining students (Tinto, 1975), sense of belonging and campus climate are likely contributing to the graduation disparity. Additionally, racial minority students are less likely to report a strong sense of belonging in school than their White peers (Gilliard, 1996; Johnson et al., 2007; Reid & Radhakrishnan, 2003). A high sense of belonging is associated with a multitude of documented benefits
SENSE OF BELONGING AND RACE AMONG COLLEGE STUDENTS

(Freeman, Anderman, & Jensen, 2007; Hausmann, Schofield, & Woods, 2007; Hoffman, Richmond, Morrow, & Salomone, 2002; Strayhorn, 2008). At a basic level, humans have been shown to possess a fundamental need for belonging and social attachments; when people feel that they belong, they feel more positive about themselves (Baumeister & Leary, 1995). Yet, literature suggests students of color may experience lower levels of belonging in school contexts than their White counterparts (Vaccaro & Newman, 2017).

However, disparities between White and Black college students’ sense of belonging may vary with regional or institutional factors. Previous research indicates that Black and White students have different experiences in college at various institutions and that these differences are found within institutions, not just between (Gilliard, 1996). These divergent experiences lead to self-reflection and questioning whether or not they, as a student of color, belong or fit in at the university. Many researchers have investigated belonging disparities for racial and gender minorities finding that White male students consistently have a higher sense of belonging (Gilliard, 1996; Johnson et al., 2007; Mandell, 1992). But this small amount of information does not reveal any number of other factors that might influence how large disparities may be. To build upon this research, we investigate three major questions in our meta-analysis: 1) Do Black and White college students consistently have disparate levels of belonging, 2) if there is a difference, is there heterogeneity among the intensity of the disparity and 3) what institutional characteristics could explain the differences is disparity? The overall goal of our paper is to assist school administrators, policy makers and influencers, and higher education researchers to understand the specific institutional and demographic factors associated with the disparity of belonging between their White and Black students. We will do this by first briefly reviewing the current sense of belonging literature and the positive and negative associations with sense of
belonging. Then, we will describe what is known about racial disparities for belongingness in college students. Lastly, we will present a meta-analysis of 44 studies that examine this Black/White sense of belonging disparity and potential explanations for the disparity. We will close with recommendations and implications for future research.

**Sense of Belonging**

A need to belong has been well-established as a basic psychological motivator of behavior and a critical component of self-esteem (Baumeister & Leary, 1995). With their Belongingness Hypothesis, Baumeister and Leary assert that “human beings have a pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships” (Baumeister & Leary, 1995, p. 497). Separately, in the education literature, Tinto (1975) and Astin (1984) argued that feelings of belonging are key factors in student involvement and departure from school. Tinto’s “Model of Institutional Departure” (1975) states that students’ failure to become or remain incorporated in the intellectual and social life of the institution is one of the three major sources of student departure. The greater the student’s involvement and belonging in college, the more student learning and personal development will increase (Astin, 1984). Since the establishment of sense of belonging as a basic human drive as well as a key factor in student success, more recent research details the specific benefits of a high sense of belonging.

Although scholars use different terms to define sense of belonging, it is generally described as the degree to which a student feels connected to and gains self-esteem from their campus community (Booker, 2016; Pittman & Richmond, 2008). Others suggest that sense of belonging is the psychological dimension of student integration, and the students’ comfort levels with the culture and climate of the institution (McGee, 2004). Support (Goodenow, 1992a; T.
Strayhorn, 2008) and acceptance (Gilliard, 1996) are also important facets of the sense of belonging concept in higher education. In their meta-analysis on K-12 students, Allen and her colleagues (Allen et al., 2018) argue that various sense of belonging definitions share three aspects: (1) school-based relationships, (2) student-teacher relationships and (3) general feelings about the school as a whole. Based on the Belonging Hypothesis and on prior meta-analysis work, our meta-analysis will employ any measure of sense of belonging as a means of capturing a student’s feelings of belonging at the students’ educational institution, psychological connectedness with and feelings of support from peers, faculty, and the institution, and the student’s comfort levels at the university.

**Sense of Belonging Correlates**

Broadly, the positive impact of a high sense of belonging on college students’ behavior and psyche has been demonstrated in four areas: psychological support, persistence, academic performance, and interpersonal and interorganizational interactions. Psychologically, a high feeling of belonging increases self-worth (Gummadam, Pittman, & Ioffe, 2016), self-efficacy (Thomas, Wolters, Horn, & Kennedy, 2014), self-esteem (Rivas-Drake, 2012; Thomas, Smith, Marks, & Crosby, 2012), resistance to stereotype vulnerability for African-Americans at a predominately White institutions (PWI; Thompson, 2017), and buffers the link between stress and depressive symptoms (Sargent, Williams, Hagerty, Lynch-Sauer, & Hoyle, 2002). Sense of belonging has been shown to have direct, positive effects on institutional commitment and indirect effects on intentions to persist and actual persistence (Hausmann, Schofield, & Woods, 2007; Hoffman, Richmond, Morrow, & Salomone, 2002; Rhee, 2008) as well as decreased burnout in college (McCarthy, Pretty, & Catano, 1990). Students with a high sense belonging specifically benefit on their academic performance as we see increases in their motivation to
persist on domain-related tasks (Walton, Cohen, Cwir, & Spencer, 2012), in their academic self-confidence (Johnson, 2007), and in their GPAs (Anderman, 2002; Anderman, 2003; Goodenow, 1992; Goodenow & Grady, 2993; Roeser, Midgley, & Urdan, 1996). Students who report a higher sense of belonging tend to score higher on the SAT, ask for more advice from other students, teaching assistants, and professors, and spend more time studying (Hurtado, Milem, Clayton-Pedersen, & Allen, 1999; Walton & Cohen, 2007). Lastly, sense of belonging routinely correlates with more involvement with the campus as an institution and with other members of the campus community. Students with a high sense of belonging report having generally more positive perceptions of the campus climate (Cabrera & Nora, 1994; Chavous, 2005; Johnson et al., 2007; Pascarella, Edison, Nora, Hagedorn, & Terenzini, 1996), more positive interactions with faculty and peers (Hoffman, Richmond, Morrow, & Salomone, 2002; Locks, 2009; Reid & Radhakrishnan, 2003), and greater community involvement (Hagerty & Patusky, 1995; Hurtado & Carter, 1997; . Taken as a whole, the numerous benefits from having a sense of belonging to one’s campus or college community positively impact student’s mental, social, and academic well-being.

Conversely, a lack of sense of belonging is associated with negative effects for students on campus. Low belonging can undermine academic performance (Levin, Van Laar, & Foote, 2006; Walton & Cohen, 2007) and increase perceptions of campus discrimination of a hostile campus racial climate (Hurtado & Ponjuan, 2005; Mounts, 2004). Low levels of belonging have been shown to be a key factor in women leaving engineering early in their college experience (Brainard & Carlin, 1998). Further, having a low sense of belonging has discernable impacts on the mental and emotional well-being of college students as it has been linked with psychological distress (McCarthy et al., 1990), depression, stress (Rivas-Drake, 2012; Stebleton, Soria, &
Huesman, 2014), an increase in problem behaviors and a decrease positive coping skills (Pittman & Richmond, 2008), and levels of belonging can moderate psychological adjustment; i.e., improving or worsening adjustment to college life (Mounts, 2004). At worst, failure to belong can lead to increased stress, detriments in mental and physical health, and suicide (Baumeister & Leary, 1995). All in all, any one of the single negative impacts of a low sense of belonging mentioned above is enough to impede academic success and decrease a student’s motivation to graduate.

**Sense of Belonging Among Racial Minorities**

Research on among racial groups’ differences in belonging in college is understudied; therefore, a limited amount of theory directly addresses the gap between students of color and White students on campus. Most of the sense of belonging literature on racial minorities has focused on Latino or Hispanic students and these studies routinely note that students of color are less likely to report a strong sense of belonging to their campuses than White students (Gilliard, 1996; Johnson et al., 2007; Reid & Radhakrishnan, 2003). In contrast, a meta-analysis by Allen, Kern, Vella-Brodrick, Hattie, and Waters (2018) did not find race effects among the individual and social level factors associated with sense of belonging among 12-18-year-old students. They attributed the lack of race effect on the low number of studies that included race as a factor (4 out of 51 studies) highlighting the fact that sense of belonging is understudied in Black students. Social psychological theories can provide frameworks to help us understand more fully why students of color have a lower sense of belonging as compared to their White peers. We attempt to answer questions regarding the disparity between Black and White students but not the absolute values of belongingness experienced across different studies and do not test those relationships. Instead, we are interested in the comparison of students within the same school. To
argue for the importance of studying the relative disparity between Black and White students, we will examine the social psychological concepts of relative deprivation in relation to sense of belonging (Pettigrew, 2015; Steele, 1997).

**Relative Deprivation**

Relative deprivation (RD) is a judgment or a feeling that one or one’s group is disadvantaged compared to a relevant other. This relative, not absolute, disadvantage leads to angry resentment and dissatisfaction (Pettigrew, 1971; 2015). Samuel Stouffer originally constructed RD as a post-hoc explanation for counter-intuitive results found during his *American Soldier* studies (Stouffer, 1949). Military police were more satisfied with the career field’s slow promotions than the Air Corpsmen were with their rapid promotions. In the same manner, Black soldiers in the South were more satisfied than Black soldiers in the North even though the South in the 1940s remained intensely segregated by race. Realizing that the absolute comparisons between the Corpsmen and the military police and the North and South Black soldiers were inadequate, Stouffer surmised that satisfaction is relative to the available comparisons we have (Pettigrew, 2015). Military police compared themselves to other military police and Black soldiers in the South were comparing their experiences with other Blacks they encountered often – civilian Black people who lived in more segregated conditions than Black soldiers on base. The RD concept is particularly useful in understanding college students’ experiences as it connects the individual to their interpersonal and intergroup experiences as a subjective state driven by a person’s environment.

Although Black college students may have the absolute advantages that are associated with a college education and status compared to those who do not have college degrees, they compare their current experiences to those immediately around them. Claude Steele (1997)
argues, “African-American college students face doubt about whether they belong or will succeed in rigorous academic environments, given the history of negative stereotypes about the academic abilities of [African-American] students.” Supporting Steele, Strayhorn (2008) notes, “African-Americans attending PWIs report feeling alienated, marginalized, socially isolated, unsupported, and unwelcomed by their peers and faculty members.” As such, sense of belonging is a subjective experience for all students but can have psychological consequences on their academic learning and performance, but this is especially true for Black students (Taylor & Walton, 2011). And at a PWI, Black students are likely comparing themselves to White students because White students are the immediate comparison whereas Black people without college degrees are the distant comparison. Given the environmental factors that lead to RD and the importance of sense of belonging on student success, we focus on the disparity between Black and White students’ sense of belonging and institutional factors that could either attenuate or enhance those gaps.

**Institutional Impact on Sense of Belonging**

Institutional factors should be investigated to better understand the disparity between Black and White students’ level of belonging as “sense of belonging illustrates the interplay between the individual and the institution” (Johnson et al, 2007). Administrators target characteristics of the institution in policy change efforts to create change in an organization. For example, increased representation of minority students and faculty are noted as positive influences on the persistence of other minority students (U.S. Department of Education, 2016; Genheimer, 2016). As mentioned earlier, positive faculty interactions are associated with high sense of belonging (Locks, 2009) and having faculty members that students can relate with provide opportunities for more of these positive interactions. A study consisting of seventh-grade
students in middle schools in Madison, Wisconsin, found that at schools with fewer and more academically marginalized Black and Hispanic students provide more threatening environments for such students (Hanselman, Bruch, Gamoran, & Borman, 2014). Physical environments have also been shown people’s level of comfort towards organizations. Stereotypically masculine-geeky lab spaces discourage women from pursuing STEM as compared to gender-neutral lab conditions (Cheryan, Plaut, Davies, & Steele, 2009). In sum, many attributes of the institution influence a student’s sense of belonging, but we do not know systematically which macro-level characteristics impact the sense of belonging disparity between White and Black students.

**Current Research**

While the literature details how sense of belonging affects the psychological experiences of students, we do not know the extent of the disparity between Black and White students or if there is consistency in these disparities from institution to institution. To our knowledge, the present study is the first meta-analytic review specifically devoted to sense of belonging among Black and White college students. By exploring sense of belonging via the meta-analytic process, we gain a broad perspective on the racial disparity of feelings of belonging in college and then further identify factors that either intensify the disparity or attenuate it. We do this by organizing the existing and available data on sense of belonging in college students and the associated literature for university administrators as they discover the extent and impact of the disparity in belonging between their own Black and White students. We focus on determining on (a) if there is a difference between White college students’ and Black college students’ sense of belonging, (b) if there is heterogeneity among institutions based on their internal differences in belonging between White and Black students, (c) if characteristics of the studies or the study participants moderate the disparity, and (d) if characteristics of the college itself have any
moderating effects on sense of belonging. We hypothesize that Black college students will have a significantly lower sense of belonging as compared to their White student counterparts, that the size of this effect will vary greatly and have a high level of heterogeneity, and that variability in the size of the disparity will partly be explained by institutional or study characteristics.

Method

The meta-analysis presented below adheres to Meta-Analysis Reporting Standards (MARs) as outlined by the American Psychological Association’s Publication Manual. This project was pre-registered at the Open Science Foundation; further information about the development of this project can be found at https://osf.io/fy95s/?view_only=b463fc761c76453faced40711a31e9797.

Literature Search Procedures

Search Strategies

Three main databases were searched: PsycINFO, Education Resources Information Center (ERIC), and ProQuest Dissertations and Theses Global. Electronic databases were searched on March 12th, 2017, August 15th, 2018, and November 6th, 2018, using a Boolean search. Keywords and results of the database searches can be found in Table 1. After the first search, 125 articles’ abstracts were reviewed in further detail. The abstract review excluded 65 published articles or dissertations. A request for unpublished data was submitted to the Society for Personality and Social Psychology Open Forum listserv on February 21st, 2019, and 28 additional comparisons were obtained. In all, 44 separate Black/White student comparisons were deemed fit to include in the final analysis with 4,623 Black college students and 23,528 White college students as participants (N = 28,151). Active data collection ended on May 31st, 2019.

<Insert Table 1 here>
Inclusion and Exclusion Criteria

Inclusion Criteria

We only included studies that had Black and White students as participants. Any research design was accepted but only data directly comparing White and Black students from the same school or same nation-wide sample were considered. Data from some nation-wide samples were unable to be compared at the institutional level. The outcome variable of interest was sense of belonging. The articles varied in how they measured sense of belonging. To be included in this analysis, a study must utilize (a) a college sample, either undergraduate or graduate, (b) White and Black students, (c) English-speaking at a US location, and (d) some sort of sense of belonging scale that fell, in our judgment, into the spirit of the Belonging Hypothesis (Baumeister & Leary, 1995).

Exclusion Criteria

Studies from outside the United States have arguably distinct cultural and historical intergroup race relations; therefore, non-US or non-English studies were excluded. Qualitative analyses were also excluded. Results from sense of belonging interventions were excluded; however, pre-intervention data were eligible for inclusion. There was no time limit on the data collection nor no publication year cutoff. Figure 1 provides a flow chart of the search process. We did not include studies using the “psychological sense of community (PSOC)” scale because it does not measure the same construct described in our analysis, despite the similarity in its name (Chavous, 2005). The PCOS lacked the intimate aspects of group membership which aligns more directly with Baumeister and Leary's conceptualization of belongingness (1995).
Coding of Study Characteristics and Moderators

Each of the two coders used the same list of included studies, compiled by the first author, and independently extracted the data for each variable described below. Study characteristics were extracted directly from the article. Table 2 provides details of each of the variables coded. The data compiled by each coder was compared and coders discussed discrepancies until they were in complete agreement. A full report of the items and scales used in this meta-analysis are available in Table 3.

<Insert Table 2 here>

Selection of Moderators

To investigate and potentially explain the disparity between Black and White college students’ sense of belonging, we examined several study and institutional level factors. The existence of heterogeneity in disparities in belonging simply implies that the presence of one or more factors could make the disparity between Black and White students’ sense of belonging vary and that these factors may be present in some of the included studies or differ across studies (Johnson & Hennessy, 2019). As Card (2012) describes, “almost every meta-analysis will benefit from careful coding of study characteristics, whether you use them for performing moderator analyses or for describing the sample of studies” (p. 64). Characteristics of the study itself could be used to explain the intensity of the disparity between Black and White students. For example, the quality of the study could affect the accuracy of the results; therefore, we created a variable that took into account the study quality using an adapted version of the Newcastle-Ottawa Quality Assessment Scale (Wells et al., 2016). The demographics of the participants could also be factor, such as the percentage of women or racial minorities that participate in the study, or even the study’s publication status. Accordingly, we coded for these variables. However, other
factors outside the scope of the studies could explain a larger percentage of the variability found. The literature on sense of belonging and diversity in higher education has led us to investigate institutional level variables to aid in the explanation of the results of our meta-analysis.

The graduation rate disparity between Black and White college students has been well documented; Bachelor’s degree attainment for Hispanic, Black, White, and Asian students has increased since the 1970s yet the attainment gap has more than doubled between Whites and Blacks (Evaluation and Policy Development, 2016). Similarly, sense of belonging levels across K-12 students appears to be rising for all (Allen et al., 2018) but we do not know if the disparity between White and Black students’ level of belonging is staying the same, shrinking, or growing in the same vein of graduation rates. Accordingly, we will use year of publication, year of data collection, mean age of participants, and birth year of participants to test for the moderation effect of time.

Many studies on sense of belonging and diversity in higher education advocate several avenues to investigate ways to increase the retention and graduation rates of students of color. Some recommendation include urging efforts to include more faculty from diverse backgrounds (Dukakis, Duong, Ruiz De Velasco, & Henderson, 2014; Harper, Smith, & Davis, 2018) and recruiting and retaining diverse and culturally competent faculty and staff (Means, 2014; Newman, Wood, & Davis, 2015). The Department of Education (DoE; Evaluation and Policy Development, 2016) reports that a diverse faculty plays an important role in attaining an inclusive institution and that it is important for students to see themselves reflected in the faculty and curriculum to create a sense of belonging. For this reason, we investigated aspects of the institution’s faculty demographics as potential moderators by coding for each institution’s student-to-faculty ratios and the percentage of Black faculty.
The same DoE report (2016) recommended several measures that could help shed light on trends in equity and student success, such as total student enrollment, persistence and retention, and graduation rates. As such, we coded the percentage of Black and White students on campus as well as the number of reported undergraduate students at the institution for this reason. We reasoned that these variables would impact the disparity between Black and White students' sense of belonging because larger undergraduate student bodies would provide more opportunities for students of color to find same-race peers. We extended this assumption to include physical size of the school; smaller physical campus sizes could likely create a tighter sense of community that a large campus might not be able to do. Lastly, we included graduation rates as a moderator on the grounds that persistence has been heavily associated with a high sense of belonging (Hausmann et al., 2007; Hoffman, Richmond, Morrow, & Salomone, 2002; O’Keeffe, 2013; Walton & Cohen, 2007).

Given the cultural differences of regions within the U.S., like the culture of honor in the south and the culture of law in the north (Cohen, Nisbett, Bowdle, & Schwarz, 1996). Colin Woodard (2011) argues that the U.S. is made up of 11 distinct nations, each with separate social history and regional cultures that eventually translate into behaviors. While we are not able to code the studies in our meta-analysis using Woodard’s classification system, we did try to account for regional and cultural differences among the institutions. We coded for studies in the North and South using the Northern and Southern state distinctions from the Civil War. Any university that was west of Kansas was considered to be part of the West. We expected that schools in the North will have the smallest disparity on sense of belonging and the South will have the greatest disparity.
Similarly, the overall organizational culture could also affect students’ level of belonging. Because universities can vary in their undergraduate size, research focus, and teaching focus, we used the Carnegie Classification of Institutions of Higher Education (Indiana University Center for Postsecondary Research, n.d.). The framework is said to serve in educational and research capacities, such as this meta-analysis, when grouping universities with other roughly similar institutions. Research 1 universities have a very high research activity, Research 2 has high research activity, and Research 3 programs are geared towards professional doctoral degrees. For our study, we categorized undergraduate-only serving institutions under a different category as they typically have a faculty and staff focused on teaching, not research. We believe that schools that focus more on teaching will be associated with a smaller difference on belonging between their Black and White students.

Many studies on belonging offer institutional-level characteristics that can be modified in some way to make campuses for inclusive and welcoming for Black students. By using these coded moderators, we can measure the effect these factors have on the disparity between Black and White students’ levels of belonging in college. All of the institutional level information was pulled from university websites or other reputable websites. Institutional data were first independently reported by both of the two coders and compared. The two coders discussed discrepancies until they were in complete agreement. Table 2 provides details of each of the variables coded.

Analytic Considerations

Effect Size Calculation

To test for heterogeneity in effect sizes (ES), we utilized a Standardized Mean Difference (smd) between the reported means of Black and White students’ sense of belonging in the same
study. We used Cohen’s $d$, as it is the most common analytic strategy for meta-analyses in the social sciences (Paluck, Green, & Green, 2018). Card (2012) defines Cohen’s $d$ as

$$d = (\mu_1 - \mu_2) / \sigma$$

where $\mu_1$ and $\mu_2$ represent the sample averages of each group, and $\sigma$ is the sample standard deviation ($SD$). Cohen’s $d$ was calculated using the Huedo-Medina and Johnson smd spreadsheet (2011). In each sample, White students’ mean score on sense of belonging served as $\mu_1$ while Black student’s mean score on sense of belonging served as $\mu_2$. Following Huedo-Medina and Johnson’s (2011) recommendation, we used the two groups’ pooled $SD$. Thus, a positive Cohen’s $d$ always indicated that White students’ sense of belonging was higher than Black students’. A negative $d$ value indicated that Black students’ sense of belonging was higher than White students’. The smd values can be interpreted as .20, .50, and .70, represent small, medium, and large disparities between White and Black students respectively (Card, 2012). If a study collected sense of belonging at multiple time periods, we only used data collected during the first wave of surveys to provide consistency across studies in the meta-analysis.

Cochran’s $Q$ represents the potential homogeneity or between-study variance and the $I^2$ index, and its corresponding 95% confidence intervals, were calculated using the program R-Studio using the metafor package (Viechtbauer, 2010). Cochran’s $Q$ is calculated as the weighted sum of squares between individual study effects and the pooled effects across all studies in the meta-analysis and follows an approximate $\chi^2$ distribution with $k-1$ degrees of freedom, where $k$ is the number of studies included in the meta-analysis (Card, 2012). As a standardized version of $Q$, the $I^2$ index test indicates the total heterogeneity or total variability from 0% (homogeneity) to 100% (heterogeneity). A medium amount of heterogeneity would be $I^2 = 50\%$ and a large heterogeneity would be $I^2 = 75\%$ (Card, 2012, p. 190). A random-effects model was assumed to
allow for more generalizable conclusions as the random-effects approach in meta-analysis is commonly regarded as the more robust and conservative meta-analytic approach (Card, 2012). Fixed-effects analysis assumes that effect sizes are gathered from the same population. While this meta-analysis is limited to college students, the studies are diverse in location and time period which makes that assumption unlikely to be true. Lastly, random-effects models are known to offer more advantages than fixed-effects models and there are no disadvantages in using this more conservative approach (Card, 2012).

**Results**

After we summarize the descriptive statistics from our complete data set, we explore the results of meta-analytical statistical tests. We will interpret our results on (a) the differences between White and Black college students’ sense of belonging, (b) the extent of heterogeneity among intra-institutional differences in belonging between White and Black students, (c) characteristics of the studies or the study participants that explain some of the disparity, and (d) characteristics of the institution that have moderating effects on the sense of belonging disparity.

**Descriptive Statistics**

Table 2 lists descriptions, collection technique, and hypotheses for all the coded variables. Table 3 provides descriptive statistics for the variables derived from all 44 studies of interest in this meta-analysis. Table 4 supplies all of the sense of belonging scales and location of participants used in each of the articles.

<Insert Table 3 and Table 4 here>

**Sense of Belonging Disparity Between Black and White Students**

Overall, White students had a higher sense of belonging than Black students with a Grand Weighted Mean $smd$ of 0.45 and $SE$ of 0.053. Subgroup analysis by Carnegie classification
category revealed differences between Black and White students’ sense of belonging at Research 1 (R1) schools \([smd = .58 (95\% CI: .44, .73)]\), undergraduate only schools \([smd = .55 (95\% CI: .39, .71)]\), and among studies that had multiple schools \([smd = .21 (95\% CI: .05, .36)]\). But we found no race disparity among Research 2 (R2) schools \([smd = .04 (95\% CI: -.12, .19)]\). Table 5 depicts the standardized mean difference between Black and White students’ sense of belonging, stratified by Carnegie Classification. Figure 2 presents the \(smd\) effects in a Forest Plot.

The test for heterogeneity indicated a significant level of heterogeneity in the sample \(Q(43) = 228.8\), \(p\)-value < .001, supporting the conclusion that the \(smds\) collected do not come from the same sample population and do represent multiple population values. Therefore, a mean effect size for the sense of belonging literature is not very precise and requires the evaluation of potential moderators (Johnson & Hennessy, 2019). The \(I^2\) index showed a large amount of residual heterogeneity (88.4\%) which indicates that there is more variance than would be expected from sampling error alone.

**Evidence of Publication Bias**

Heterogeneity among effect sizes may indicate the presence of publication bias, that is, the tendency of peer-reviewed journals to publish only significant results. As a result, researchers tend to ‘file away’ their non-significant results and move on to other projects that have publishing potential (Card, 2012). Publication bias tests can also assist in helping us understand if smaller studies in our meta-analysis sample exhibit larger effects (Johnson & Hennessy, 2019). Begg’s test \((z = 1.81, p = .07)\) and Egger’s test \((t = 0.14, p = 0.19)\) indicated no significant asymmetries in the effect size distribution that would suggest publication bias. However, testing
for publication bias in a meta-analysis is a subjective process. A funnel plot can help us better understand the present meta-analysis as well as analyzing the types of grey literature used.

**Funnel Plot**

A funnel plot was used to visually assess if publication bias was present among the studies we included. By plotting the inverse of the standard error (plot of precision) of each study against the effect sizes, publication bias can be detected since most of the points should fall within 95% of the funnel area. A funnel plot is widely used in meta-analytic or systematic reviews as a visual indicator of publication bias (Stanley & Doucouliagos, 2014). At the bottom of the funnel plot, we can expect large variability with small studies, so the base of the funnel is wide. As we move up the y-axis, mapped as the standard error, the width of the funnel decreases because we expect less variability as study sizes increase (Card, 2012, p. 263). In other words, “the larger the study, the smaller the standard error and the smaller the estimated effect” (Paluck et al., 2018).

Figure 3a, 3b, and 3c show funnel plots for this data set. As it shows, 22 of the 44 studies fall outside the 95% confidence bands and those studies are somewhat larger sample sizes and $d$-values than the other studies. We plotted the unpublished studies in Figure 3b and the published studies in Figure 3c. These figures show that the majority (20 out of 22) of the studies that fall outside the funnel are from unpublished data. An ANOVA revealed a significant difference between the $smd$ of published and unpublished studies [$F(1,42) = 29.7, p < .001$]. Table 5 reports the standardized mean difference between Black and White students’ sense of belonging by publication status.

<Insert Figure 3a, 3b, and 3c here>
Moderators of the Disparity between Black and White Students’ Sense of Belonging

Three study level moderators explained unique variance using meta-regression models. We analyzed each variable independently first and found that both year of data collection ($\beta=.019, p < .01$) and birth year of participants ($\beta=.154, p < .001$) had positive associations with the disparity between Black and White students meaning that students born in more recent years have larger differences between Black and White students. But these year variables were highly correlated ($r = .99, p < .001$). Therefore, only one of these variables can be accurately assessed. Since there were more studies that noted data collection year, we will use it to assess the moderation effect of time. Year of data collection accounted for 25% of the variance found in the heterogeneity showing that the disparity between Black and White students has increased from 1990 to 2019. Unpublished studies report greater disparities between Black and White students’ sense of belonging ($\beta=.49, p < .001$) and accounted for 72.5% of the variance in variability found. In a multiple meta-regression model with these three variables, we found suppression effects with year of data collection and birth year of participant due to the highly linear correlation ($r = .947, p < .001$). We also tested the other potential moderating factors but none were statistically significant. Table 8 summarizes these results.

<Insert Table 8 in Appendix>

Three institutional level moderators independently explained variance. Campuses with a higher percentage of Black students on campus had smaller disparities in sense of belonging between Black and White students ($\beta=-.03, p < .001$). Schools with more undergraduates had larger disparities ($\beta=.027, p < .001$). Lastly, overall graduation rates were positively associated with greater differences between Black and White students ($\beta=.01, p < .001$). Since the overall Black and White graduation rates were highly correlated ($r > .94, p < .001$), we will only analyze
the overall graduation rate which accounted for 43.4% of the variance. While we also found the graduation rates of White students and Black students separately moderated the smd similarly to the overall rate, we did not find that the gap, or difference, in graduation rates between Black and White students significantly explained unique variance (β=-.01, p = .14).

Discussion

Across 44 studies and over 28,000 participants, this review found a consistent disparity between Black and White college students’ sense of belonging in college, $d = 0.45$ (95% CI: 0.34, 0.55), where White students reported higher levels of belonging as compared to their Black peers. The high heterogeneity may be an indication that the effect sizes, or differences between White and Black students’ sense of belonging, in the literature are not all estimates of a single population and truly represent multiple populations. The heterogeneity seen in these data shows the schools are cultivating sense of belonging for their students independently, or are not sufficiently reducing pre-existing factors that determine race differences in sense of belonging. On the other hand, all but two of the studies in this analysis had positive effect sizes. That means that in 95% of our samples, White students’ sense of belonging was higher compared to their Black student counterparts in each specific study. Based on the study authors’ current and past university affiliations, descriptions of the studies, and on information from the authors themselves, we ascertain that all of these studies were performed at PWIs, to include schools that remain anonymous in the data. No studies specifically identified their participants as students attending a historically Black college so we do not know whether such effects would pertain at predominately or historically Black colleges. Our meta-analysis lends itself support to the hypothesis that White students have a higher sense of belonging at college than their Black
counterparts. Characteristics of the studies, of the participants, and of the institutions can assist in our understanding of why this consistent high disparity might exist between Black and White students.

**Study Characteristics**

While no publication bias was detected, publication status accounted for the most variance of any moderator variable tested (72.5%). These results were surprising because we found a much larger $smd$ in unpublished studies than in the published studies. In other words, the difference between White and Black students’ belonging was greater in the unpublished studies, which indicates that the disparity is understudied and underreported. The disparity is worse than the published literature chronicles. The funnel plots in Figure 3b and 3c demonstrate that unpublished studies have larger effect sizes, even when taking into account sample size. This is the opposite effect normally seen when testing for publication bias; publication bias tests usually detect when null studies are filed away, and the significant effects found in published studies are potentially due to small sample sizes or large effects. Our finding could be an indication of a different type of bias. Institutions could be biased in that administrators typically do not want to report findings that reflect negatively on their schools. However, in a research capacity, this is unlikely. A more probable explanation is that the disparity between Black and White students’ sense of belonging is under the radar; researchers and administrators simply are not aware of the extent of the problem and how it may be contributing to disparities in performance.

Alternatively, administrators and institutional researchers could be focused on other aspects of the data or may feel like they have too small of samples to make inferences. No other study characteristics significantly moderated the heterogeneity.
Participant Characteristics

While there is evidence that sense of belonging is increasing for both Black and White students (Allen et al., 2018), our study shows that students born in the 1990s have larger differences on sense of belonging as compared to students born in the 1970s and 1980s. Taken together, White students’ level of belonging is increasing at a faster rate than Black students’ level of belonging. This is in line with other data indicating that even though overall degree attainment is increasing for all racial groups, the gap between Black and White bachelor’s degree attainments also more than doubled, from 6 percent in 1964 to 13 percent in 2014 (Evaluation and Policy Development, 2016). As mentioned before, year of data collection and birth year were highly correlated ($r = .99, p < .001$). Moderator analyses were run separately showing that year of data collection accounted for 25% of the variance while birth year accounted for 33.7%; these effects should be considered the same since they basically measure the same phenomenon of time. Again, the increase in sense of belonging among Black students in absolute terms is important to note (Allen et al., 2018); however, Black students’ progress lags behind relative to White students at the same institution.

Age of participants during the studies’ data collection was not a significant moderator. It is not the age of the student; rather, a cohort effect could partially explain the heterogeneity of the $Q$-value as cohorts of students are increasingly become more disparate on their sense of belonging scores. Using the moving constant technique (Johnson & Huedo-Medina, 2011) for follow up analyses, we found that students born in 1973 reported no significant differences in sense of belonging between White and Black students ($smd = .02, CI: -.22, .26$). But White and Black students born in 1996 had a large disparity ($smd = .56, CI: .44, .68$). Data collected more recently had larger $smd$s as compared to data collected in the 1990s which demonstrates that gap
between Black and White students is increasing, not decreasing. Table 6 provides more details regarding all variables and the moving constant technique.

Nonetheless, the results about year of data collection should also take into consideration the collinearity of other variables in our study. New studies were more likely to be unpublished \((r = .67, p < .001)\), performed at schools with higher graduation rates \((rs > .58, p < .001)\), smaller student-to-faculty graduation rates \((r = -.38, p < .01)\), and have fewer Black students on campus \((r = -.47, p < .01)\). Therefore, publication status may be accounting for so much of the heterogeneity based on the fact that there are other factors that are highly associated with publication status.

**Institutional Characteristics**

While many of the institutional level variables could not account for any significant amount of variance, two characteristics did: percentage of Black students on campus and graduation rates. Universities with higher percentages of Black students on campus had smaller \(smds\) and accounted for 41% of the heterogeneity of variance found. Also, the \(smd\) was unaffected by the percentage of White students on campus indicating that the disparity is not about being outnumbered by White students per se. If there are more Black students for other Black students to compare their experiences with, we can reason that their sense of belonging and satisfaction with their college will increase relatively compared with their White and non-White peers.

Graduation rates also accounted for significant amounts of heterogeneity. We found the opposite of our hypothesis in that when schools had higher graduation rates, they also had larger disparities in sense of belonging between their Black and White students. We tested overall graduation rates and rates for Black and White students separately. Graduation rates tend to vary
in tandem between institutions and the graduation rates for Black and White students are highly correlated (see correlation matrix in Table 7; $r_s > .95$, $p < .001$). Of important note, R1 institutions’ graduation rates did not correlate with their $smds$ ($r_s < .40$, $p > .10$) but undergraduate-only serving institutions did correlate ($r_s > .78$, $p < .01$). Concordantly, we found that graduation rate did not moderate the level of heterogeneity found among R1 schools, but graduation rate did moderate at undergraduate schools. We believe this is due to the higher graduation rates at R1s ($M = 89\%$) compared to undergraduate-only schools in our sample ($M = 69\%$). We interpret these results to mean that issues regarding the sense of belonging disparity between Black and White students is more problematic for undergraduate-serving schools than for R1 schools. This is likely due to the fact that graduation rates among R1s are very similar; the standard deviation of graduation rates at R1s was 7.8\% while the standard deviation of graduation rates at undergraduate-only institutions was 21\%. Among R1s, there was probably not enough variance in graduation rates to detect a moderator effect on the sense of belonging disparity.

<Insert Table 6 and 7 here>

Of further note, percentage of Blacks on campus was highly correlated with graduation rates in the negative direction ($r_s > .75$, $p < .001$). Schools with low graduation rates tend to be more accessible for students for color. However, lower graduation rates were also associated with smaller sense of belonging disparities between Black and White students; put another way, the higher the graduation rates, the larger the gap between Black and White students ($r_s > .50$, $p < .01$). Therefore, low graduation rates co-occur on campuses where there is a high percentage of Black students and these variables likely do not explain unique variance. Nonetheless, these variables do help us understand the disparity between Black and White students’ sense of
belonging on campus. It is likely the high percentage of Black students on campus, not the low graduation rates, that explain the disparity most accurately as belonging is described as having meaningful relationships with others (Baumeister & Leary, 1995) and most of the belonging measurements capture the idea of having close friendships. Plausibly, the increased likelihood of having same-race peers can lead to higher sense of belonging for Black students at a PWI and would sensibly close the gap between White and Black students’ level of belonging.

Interestingly, we did not find an effect of the percentage of Black faculty on the smd even though the percentage of Black faculty was correlated with the smd in the expected direction, \((r = .13, p > .05)\). We expected that schools with a greater number of Black faculty would have smaller smds given that many diversity and inclusion studies recommend increasing faculty of color as a way to increase minorities’ graduation rates. Black students would perhaps feel more belonging in a classroom being instructed by a Black professor and that White students would also benefit from having more intergroup contact. However, this lack of moderation could come from the low number of Black faculty members in general, as 50% of the schools in the sample had Black faculty members constitute less than 6% of the total faculty. RD would tell us that having classes with both Black and White professors should lead to a decrease in the disparity between Black and White students; however, the extremely low percentage of Black faculty members across the entire sample likely does not meet a threshold to make a meaningful difference. However, the problem is that Black students need to graduate at the same or at a higher rate as White students so they can enter academia at the same rate or at a higher rate in order to increase the number of Black faculty. Despite this, we did find that positive association with the percentage of Black students on campus with the number of Black faculty on campus \((r\)
With graduation rates low for Black students, it’s a circular problem – more Black faculty cannot exist without more Black college graduates.

We attempted to account for cultural differences in U.S. regions by coding for schools in the north, the south, and the west, as well as the teaching style of the institutions via the Carnegie Classification system. We found no correlation between region nor Carnegie classification with the *smd* between Black and White students’ sense of belonging. The disparity between Black and White students was negatively associated with R2 schools \((r = -.46, p < .01)\); however, only 3 of the studies came from R2 institutions and that test is underpowered. And for the regional differences, we must note that the majority of the samples from the south came from a single research team specifically looking at undergraduate-only institutions. Clearly, more study samples from universities in the south could shed more light on the effect of regional culture on the sense of belonging disparity. The majority of our studies came from studies in the North; therefore, the results should be limited when applying to schools outside of the northern United States.

**Limitations**

This study only included college students and revealed a high level of heterogeneity. Trying to apply these results to any other developmental group, such as young adolescents or children or adults, would not be recommended. While we attempted to gain access to as many data sets with sense of belonging measures, we assume more studies exist that could add to this analysis. At this time, researchers rarely report directly on Black and White college students’ sense of belonging; instead, Black students are generally lumped into a “non-White” category, presumably due to small minority sample sizes.
Our primary goal included establishing the extent of the disparity between Black and White college students’ sense of belonging, which precluded us from including any qualitative research. By and large, we can conclude that consistently within institutions or studies, Black college students have lower levels of belonging compare to White students. Black students are likely experiencing lower levels of all the factors positively associated with a high sense of belonging, such as academic motivation, emotional stability, self-esteem, relationships with peers, and teacher support. We can assume that the correlations of belonging to academic success translates to college students as seen in previous studies on students in high school and middle school (Allen et al., 2018).

We were not able to include the effects of experimental methods at this point. We found only 4 studies directly manipulating sense of belonging (Johnson, 2007; Walton & Cohen, 2007). We decided to exclude experimental manipulations in order to provide a more robust analysis of the available sense of belonging data that typically reported on cross-sectional findings of belonging. In the future, more experimental studies that directly target students of color are needed to better understand this phenomenon.

However, the heterogeneity of this meta-analysis may be indicative of how university and college administrators or policy advisors should address low sense of belonging among their Black students and even White students – it depends on the institution. While R1 and undergraduate serving institutions had similar smds, neither the physical size of the school nor the student body size moderated the gap between Black and White students’ belonging. No two universities are exactly the same, nor should they be treated as such. Diversity and inclusion efforts should be localized to each school; nevertheless, the types of interventions should be data driven and experimentally tested. Hanselman and his colleagues (2014) conclude that belonging
intervention success is dependent on the interplay between the school context and the intervention. In other words, belongingness interventions need to be highly specific to the needs of the school. This meta-analysis further supported the idea that sense of belonging is an important issue for schools to consider as sense of belonging is consistently lower for Black students and offers a data point in which other institutions can review their own students’ sense of belonging.

**Conclusion**

In closing, we confirmed that a significant disparity exists between Black and White college students’ sense of belonging. We found that the gap is underreported as the most extreme cases of disparity were found in the unpublished literature. We identified that the difference between these two groups of students is getting worse as the years pass showing that students born in the 1990s have larger differences in sense of belonging as compared to students born in the 1970s or 1980s, regardless of their age at the time of the survey. For schools and universities, R2 institutions had the smallest difference in sense of belonging whereas R1 and undergraduate-serving schools had the largest difference in belonging and this difference correlated with graduation rates for undergraduate schools only. The biggest factor for university administrators to focus on is the percentage of Black students on campus. While graduation rates were positively associated with larger disparities between Black and White students, higher levels of belonging in individual students has been shown to positively influence their persistence to graduation and should still be considered a viable avenue for decreasing the gap between Black and White college students’ graduation rates.
References


Genheimer, E. (2016). *The Impact of Minority Faculty and Staff Involvement on Minority
Student Experiences. Taylor University. Retrieved from
https://pdfs.semanticscholar.org/1a13/a089c41c942577d1bacf50657bca7df2eaa3.pdf


*Pound, L. B., & Powell, K. D. (2016). Examining culturally diverse students’ sense of
belonging and academic success at USAFA. Unpublished data set.


Note. Studies marked with * were included in the meta-analysis.
Table 1

*Search Strategy*

<table>
<thead>
<tr>
<th>Search Strategy Item</th>
<th>Search Strategy Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Databases</strong></td>
<td>PsycINFO, Education Resources Information Center (ERIC), ProQuest Dissertations and Theses Global. Request for data submitted to the Society for Personality and Social Psychology Open Forum listserv. Limited searches for specific titles made on a case-by-case basis.</td>
</tr>
<tr>
<td><strong>Language Filter</strong></td>
<td>English</td>
</tr>
<tr>
<td><strong>Time Filter</strong></td>
<td>None</td>
</tr>
<tr>
<td><strong>Exclusion criteria</strong></td>
<td>International samples, &quot;Psychological Sense of Community Scale&quot;</td>
</tr>
<tr>
<td><strong>Organizing Platform</strong></td>
<td>Mendeley: All articles available via Group access. Contact the author for permissions.</td>
</tr>
<tr>
<td>Moderator Variable</td>
<td>Description &amp; Collection Technique</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Year of Publication</td>
<td>From journal publication citation. If unpublished, no year was assigned</td>
</tr>
<tr>
<td>Year of Data Collection</td>
<td>If not provided, an estimate of two years before publication was used or, in the case of journals with longer review times, three years before publication</td>
</tr>
<tr>
<td>Mean Age of Participants</td>
<td>Mean age of the participants in the sample. “First-year college students” = average age of freshman at the specific school or university was used, as presented by the schools’ websites.</td>
</tr>
<tr>
<td>Birth Year</td>
<td>Subtracting the mean age of participants from the year of data collection</td>
</tr>
<tr>
<td>Percentage of women in Study</td>
<td>Provided in study</td>
</tr>
<tr>
<td>Percentage of Black students in Study</td>
<td>Provided in study</td>
</tr>
<tr>
<td>Percentage of White students in Study</td>
<td>Provided in study</td>
</tr>
<tr>
<td>Publication Status</td>
<td>Data published in peer-reviewed journals, dissertations, or books were noted as ‘published.’ Data obtained by the first author directly from researchers were labeled ‘unpublished.’</td>
</tr>
<tr>
<td>Study Quality</td>
<td>Assessed using an adapted version of the Newcastle - Ottawa Quality Assessment Scale</td>
</tr>
<tr>
<td>Participant Location</td>
<td>Provided in study, researcher, or estimated by authors' locations. North, South, or West.</td>
</tr>
<tr>
<td>Percentage of Black undergraduate students on campus</td>
<td>School's website or other online resource</td>
</tr>
<tr>
<td>Percentage of White undergraduate students on campus</td>
<td>School's website or other online resource</td>
</tr>
<tr>
<td>Undergraduate population size/100</td>
<td>School's website or other online resource</td>
</tr>
<tr>
<td>Physical size of school</td>
<td>In acres; collected via the school's website.</td>
</tr>
<tr>
<td>Student-to-faculty ratio</td>
<td>School's website or other online resource</td>
</tr>
<tr>
<td>Percentage of Black faculty</td>
<td>School's website or other online resource</td>
</tr>
<tr>
<td>Graduation rate (all)</td>
<td>School's website or other online resource</td>
</tr>
<tr>
<td>Graduation rate (Black students)</td>
<td>School's website or other online resource</td>
</tr>
<tr>
<td>Graduation rate (White students)</td>
<td>School's website or other online resource</td>
</tr>
<tr>
<td>Carnegie Classification</td>
<td><a href="http://carnegieclassifications.iu.edu">http://carnegieclassifications.iu.edu</a></td>
</tr>
</tbody>
</table>
Table 3. Descriptive characteristics of included studies, participants, and universities of data collection by Carnegie Classification (means ± SD).

<table>
<thead>
<tr>
<th>Descriptive Statistic</th>
<th>All studies</th>
<th>Research 1</th>
<th>Research 2</th>
<th>Baccalaureate</th>
<th>Multi-site</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of studies, (k)</td>
<td>44</td>
<td>17</td>
<td>3</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Year of study</td>
<td>2009 (±7)</td>
<td>2003 (±6.3)</td>
<td>2009 (±6.6)</td>
<td>2009 (±7)</td>
<td>2009 (±8)</td>
</tr>
<tr>
<td>Published in journal or dissertation</td>
<td>39%</td>
<td>12%</td>
<td>67%</td>
<td>17%</td>
<td>92%</td>
</tr>
<tr>
<td>Study Quality</td>
<td>9.8 (±2.3)</td>
<td>10.1 (±2.3)</td>
<td>14.3 (±4.0)</td>
<td>9.6 (±1.2)</td>
<td>8.4 (±1.8)</td>
</tr>
<tr>
<td>Total Number of Black participants</td>
<td>4,623</td>
<td>1,077</td>
<td>253</td>
<td>704</td>
<td>2,589</td>
</tr>
<tr>
<td>Total Number of White participants</td>
<td>23,528</td>
<td>8,621</td>
<td>482</td>
<td>5,892</td>
<td>8,533</td>
</tr>
<tr>
<td><strong>Participant Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Black Participants</td>
<td>105 (±199)</td>
<td>63 (±56)</td>
<td>84 (±70)</td>
<td>59 (±62)</td>
<td>216 (±357)</td>
</tr>
<tr>
<td>Number of White Participants</td>
<td>534 (±845)</td>
<td>507 (±587)</td>
<td>160 (±92.8)</td>
<td>491 (±519)</td>
<td>711 (±1395)</td>
</tr>
<tr>
<td>Percentage Female Participants</td>
<td>65.6% (±19.2)</td>
<td>65.4% (±11)</td>
<td>68.8% (±5.2)</td>
<td>58.6% (±15.3)</td>
<td>72% (±30.2)</td>
</tr>
<tr>
<td>Age</td>
<td>20.7 (±2.9)</td>
<td>19.6 (±1.1)</td>
<td>19.0 (±1.3)</td>
<td>23.8 (±5.2)</td>
<td>21.1 (±1.8)</td>
</tr>
<tr>
<td>Birth Year</td>
<td>1990 (±7.8)</td>
<td>1996 (±3)</td>
<td>1988 (±7)</td>
<td>1973 (±8.6)</td>
<td>1985 (±8.0)</td>
</tr>
<tr>
<td><strong>University Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student population/1000</td>
<td>11.7 (±8.8)</td>
<td>17.0 (±8.0)</td>
<td>15.0 (±3.9)</td>
<td>3.5 (±3.7)</td>
<td>-</td>
</tr>
<tr>
<td>Square acres</td>
<td>2516 (±4501)</td>
<td>2315 (±2122)</td>
<td>645 (±268.5)</td>
<td>3253 (±7126)</td>
<td>-</td>
</tr>
<tr>
<td>Student-to-faculty ratio</td>
<td>12.8 (±3.8)</td>
<td>13.8 (±3.5)</td>
<td>16.7 (±1.2)</td>
<td>11.4 (±4.2)</td>
<td>-</td>
</tr>
<tr>
<td>Percentage Black Faculty</td>
<td>8.5% (±7)</td>
<td>4.8% (±2.2)</td>
<td>11.2% (±8.5)</td>
<td>13.1% (±6.3)</td>
<td>-</td>
</tr>
<tr>
<td>Percentage Black Students</td>
<td>9.1% (±5.9)</td>
<td>6.2% (±.95)</td>
<td>20.7% (±8.4)</td>
<td>10.3% (±6.4)</td>
<td>8.5% (±3.9)</td>
</tr>
<tr>
<td>Percentage White Students</td>
<td>59.5% (±14.1)</td>
<td>55.5% (±10.1)</td>
<td>51.5% (±6.0)</td>
<td>65.7% (±17.7)</td>
<td>-</td>
</tr>
<tr>
<td>Overall graduation rate</td>
<td>77.1% (±19.6)</td>
<td>89.0% (±7.8)</td>
<td>48.1% (±5.4)</td>
<td>67.5% (±21.0)</td>
<td>-</td>
</tr>
<tr>
<td>Black graduation rate</td>
<td>68.7% (±22.8)</td>
<td>83.5% (±8.5)</td>
<td>36.3% (±11.9)</td>
<td>55.1% (±23.4)</td>
<td>-</td>
</tr>
<tr>
<td>White graduation rate</td>
<td>79.8% (±18.4)</td>
<td>90.9% (±4.7)</td>
<td>55.5% (±1.9)</td>
<td>69.8% (±22.1)</td>
<td>-</td>
</tr>
<tr>
<td>Gap graduation rate (White-Black)</td>
<td>11% (±7.6)</td>
<td>7.4% (±5.1)</td>
<td>19.2% (±10.0)</td>
<td>11% (±7.6)</td>
<td>-</td>
</tr>
</tbody>
</table>

**Note.** Some multi-site studies provided information regarding the combination of the schools in the studies. Only percentage of Black students had enough to make an average.

Baccalaureate category includes 2 community colleges as they also primarily serve undergraduates.
### Table 4. Sense of Belonging Measures Summary

<table>
<thead>
<tr>
<th>Study Author</th>
<th>Location of Participants</th>
<th>Sense of Belonging Scale</th>
<th>Number of items</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Davis, 2017</strong></td>
<td>Old Dominion University (assumed)</td>
<td>Sense of Belonging Instrument - Psychological State (SOBI-P; Hagerty &amp; Patusky, 1995)</td>
<td>18</td>
<td>1) I often wonder if there is any place on earth where I really fit in.* 2) I am just not sure if I fit in with my friends.* 3) I would describe myself as a misfit in most social situations.* 4) I generally feel that people accept me. 5) I feel like a piece of a jigsaw puzzle that doesn’t fit into the puzzle.* 6) I would like to make a difference to people or things around me, but I don’t feel that what I have to offer is valued.* 7) I feel like an outsider in most situations.* 8) I am troubled by feeling like I have no place in this world. 9) I could disappear for days and it wouldn’t matter to my family.* 10) In general, I don’t feel a part of the mainstream society.* 11) I feel like I observe life rather than participate in it.* 12) If I died tomorrow, very few people would come to my funeral.* 13) I feel like a square peg trying to fit into a round hole.* 14) I don’t feel that there is any place where I really fit into this world.* 15) I am uncomfortable that my background and experiences are so different from those who are usually around me. 16) I could not see or call my friends for days and it wouldn’t matter to them.* 17) I feel left out of things.* 18) I am not valued by or important to my friends.*</td>
</tr>
<tr>
<td><strong>Gilliard, 1996</strong></td>
<td>Upper midwestern states (Michigan, Illinois, and Ohio)</td>
<td>Sense of Belonging</td>
<td>1</td>
<td>I feel part of the general campus life, as far as student activities and government are concerned. (Midwest Colleges Study)</td>
</tr>
<tr>
<td><strong>Hausman et al 2009; Mounts, 2004</strong></td>
<td>University of Pittsburgh (assumed); Northern Illinois University</td>
<td>Sense of Belonging (Bollen &amp; Hoyle, 1990; Hurtado &amp; Carter, 1997)</td>
<td>3</td>
<td>I feel a sense of belonging to &lt;name of institution&gt; community. I feel that I am a member of the &lt;name of institution&gt; community. I see myself as part of the &lt;name of institution&gt; community.</td>
</tr>
<tr>
<td><strong>Johnson, D. R., 2007</strong></td>
<td>national sample with 29 &amp; 34 schools</td>
<td>Overall Sense of Belonging</td>
<td>5</td>
<td>1) I feel a sense of belonging 2) I feel a member of the campus community 3) I feel comfortable on campus 4) I would choose the same college over again 5) My college is supportive of me. (National Study of Living-Learning Programs; NSLLP)</td>
</tr>
<tr>
<td><strong>Johnson, L. A. 2014</strong></td>
<td>Delaware Technical Community College</td>
<td>Sense of Belonging</td>
<td>8</td>
<td>1) To what extent do you experience a sense of belonging? 2) I feel comfortable sharing my own perspectives and experiences in class. 3) I have been singled out in class because of my race/ethnicity, gender, sexual orientation, or religious affiliation. 4) I feel I have to work harder than other students to be perceived as a good student. 5) I don’t feel comfortable contributing to class discussions. 6) I feel awkward/uncomfortable around campus members who are different from my beliefs/cultures/views. 7) I have developed close relationships with people from different cultures or backgrounds. 8) In class, I have heard faculty express stereotypes based on race/ethnicity, gender, sexual orientation, or religious affiliation.</td>
</tr>
<tr>
<td>Study Author</td>
<td>Location of Participants</td>
<td>Sense of Belonging Scale</td>
<td>Number of items</td>
<td>Items</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>-----------------</td>
<td>-------</td>
</tr>
<tr>
<td>Mcgee, 2004; Pittman &amp; Richmond, 2008; Pound &amp; Powell, 2016; Pound et al, 2018</td>
<td>Community College at College of Alameda; US Air Force Academy, Colorado; Northern Illinois University; Minnesota – school names withheld (14 items, shortened scale)</td>
<td>Psychological Sense of School Membership (PSSM; Goodenow, 1993)</td>
<td>18</td>
<td>1) I feel like a part of my school. 2) People at my school notice when I am good at something. 3) It is hard for people like me to be accepted at my school. 4) Other students in my school take my opinions seriously. 5) Most teachers at my school are interested in me. 6) Sometimes I feel as if I don’t belong in my school. 7) There is at least one teacher or adult I can talk to in my school if I have a problem. 8) People at my school are friendly to me. 9) Teachers here are not interested in people like me. 10) I am included in lots of activities at my school. 11) I am treated with as much respect as other students in my school. 12) I feel very different from most other students at my school. 13) I am included in lots of activities at my school. 14) I feel proud to belong to my school. 15) Other students at my school like me the way that I am.</td>
</tr>
<tr>
<td>Pan-Weisz, 2014 &amp; 2017</td>
<td>University of Connecticut</td>
<td>Level of Belonging (adapted from Soria &amp; Stebleton, 2012; Walton &amp; Cohen, 2007).</td>
<td>12</td>
<td>1) I feel a sense of belonging at the University of Connecticut. 2) I feel as though I belong at the University of Connecticut. 3) Knowing what I know now, I would still choose to enroll at the University of Connecticut. 4) So far, I have been satisfied with my academic experience at the University of Connecticut. 5) So far, I have been satisfied with my social experience at the University of Connecticut. 6) I feel as though I ’fit in’ at the University of Connecticut. 7) I believe I am a prototypical University of Connecticut student. 8) Sometimes I question whether I belong at the University of Connecticut. * 9) When something bad happens, I feel that maybe I don't belong at the University of Connecticut. * 10) Sometimes I feel that I belong at the University of Connecticut, and sometimes I feel that I don’t belong. * 11) When something good happens, I feel that I really belong at the University of Connecticut. 12) I have doubted whether I belong at the University of Connecticut. (*)</td>
</tr>
<tr>
<td>Pan-Weisz, 2015</td>
<td>University of Connecticut</td>
<td>Sense of Belonging</td>
<td>22</td>
<td>1) People at the University of Connecticut accept me. 2) I feel like an outsider at the University of Connecticut. * 3) Other people understand more than I do about what is going on at the University of Connecticut. * 4) I think in the same way as do people who do well at the University of Connecticut. * 5) It is a mystery to me how things work at the University of Connecticut. * 6) I feel alienated from the University of Connecticut. * 7) I fit in well at the University of Connecticut. * 8) I am similar to the types of people that succeed at the University of Connecticut. * 9) I know what kind of people that the professors at the University of Connecticut are. 10) I get along well with the people at the University of Connecticut. 11) I belong at the University of Connecticut. 12) I know how to do well at the University of Connecticut. 13) I do not know what to do to make the professors at the University of Connecticut to like me. * 14) I feel comfortable at the University of Connecticut. 15) People at the University of Connecticut like me. * 16) If I wanted to, I could potentially do very well at the University of Connecticut. 17) People at the University of Connecticut are a lot like me. 18) Sometimes I question whether I belong at the University of Connecticut. * 19) When something bad happens, I feel that maybe I don't belong at the University of Connecticut. * 20) Sometimes I feel that I belong at the University of Connecticut, and sometimes I feel that I don’t belong.* 21) When something good happens, I feel that I really belong at the University of Connecticut. 22) I have doubted whether I belong at the University of Connecticut. *</td>
</tr>
<tr>
<td>Study Author</td>
<td>Location of Participants</td>
<td>Sense of Belonging Scale</td>
<td>Number of items</td>
<td>Items</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------</td>
<td>--------------------------</td>
<td>----------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Pan-Weisz, 2016**</td>
<td>UConn</td>
<td>Sense of Belonging</td>
<td>8</td>
<td>1) If I wanted to, I could potentially do very well at the University of Connecticut. 2) I feel like an outsider at the University of Connecticut. 3) It is a mystery to me how things work at the University of Connecticut. 4) I feel alienated at the University of Connecticut. 5) I fit in well at the University of Connecticut. 6) I feel comfortable at the University of Connecticut. 7) I belong at the University of Connecticut. 8) I know how to do well at the University of Connecticut.</td>
</tr>
</tbody>
</table>
| Rattan et al., 2018    | Stanford (assumed); Qualtrics panels | Sense of Belonging       | 1              | How much do you feel that you belong in [school]?
<p>| Ribera, Miller, &amp; Dumford, 2017 | National sample 44 locations | Sense of Peer Belonging | 5              | 1) You fit in with the other students at your institution. 2) It is difficult to make friends at this institution. 3) You have very few friends or acquaintances at this institution* 4) There are other students at this institution who share your views and beliefs 5) Quality of interactions with students. (National Survey of Student Engagement; NSSE from 44 institutions) |
| Strayhorn, 2008        | National sample from CESQ | Sense of Belonging       | 3              | Thinking of your own experience, rate the quality of your relationships with other 1) students 2) faculty 3) administrators. (College Student Experiences Questionnaire; CSEQ) |
| Wetzel, 2017**         | Rhodes college; 4 school names withheld | Belonging               | 1              | I feel as though I belong in the [Insert School Name] campus community |
| Williams, 2016**       | University of Virginia   | Sense of Belonging       | 1              | I feel that I belong at &lt;school&gt;. (Student Experiences at the Research University (SERU) survey) |
| Williams, 2018**       | University of Virginia   | Sense of Social and Academic Fit in Engineering (Walton, Logel, Peach, Spencer, &amp; Zanna, 2015) | 10             | 10 items: 1) I belong in Engineering at &lt;school&gt;. 2) I feel comfortable in Engineering at &lt;school&gt;. 3) Other people understand more than I do about what is going on in Engineering at &lt;school&gt;. 4) I think in the same way as do people who do well in Engineering at &lt;school&gt;. 5) It is a mystery to me how Engineering at &lt;school&gt; works. 6) I feel alienated from Engineering at &lt;school&gt;. 7) I fit in well in Engineering at &lt;school&gt;. 8) Compared with most other Engineering students at &lt;school&gt;, I am similar to the kind of people who succeed in Engineering. 9) Compared with most other students at &lt;school&gt;, I know how to do well in Engineering. 10) Compared with most other Engineering students at &lt;school&gt;, I get along well with people in Engineering. |
| Williams, 2018**       | University of Virginia   | Sense of Social and Academic Fit Scale (two highest-loading items and adapted for &lt;school&gt;; Walton &amp; Cohen, 2007) | 2              | 1) I fit in well at &lt;school&gt;. 2) I feel comfortable at &lt;school&gt;. |</p>
<table>
<thead>
<tr>
<th>Study Author</th>
<th>Location of Participants</th>
<th>Sense of Belonging Scale</th>
<th>Number of items</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williams, 2018**; Pan-Weisz &amp; Quinn, 2016**</td>
<td>University of Virginia; University of Connecticut</td>
<td>Sense of Social and Academic Fit Scale (adapted for &lt;school&gt;; Walton &amp; Cohen, 2007)</td>
<td>17</td>
<td>1) People at &lt;school&gt; accept me. 2) I feel like an outsider at &lt;school&gt;. * 3) Other people understand more than I do about what is going on at &lt;school&gt;. * 4) I think in the same way as do people who do well at &lt;school&gt;. * 5) It is a mystery to me how &lt;school&gt; works. * 6) I feel alienated from &lt;school&gt;. * 7) I fit in well at &lt;school&gt;. 8) I am similar to the kind of people who succeed at &lt;school&gt;. 9) I know what kind of people &lt;school&gt; professors are. 10) I get along well with people at &lt;school&gt;. 11) I belong at &lt;school&gt;. 12) I know how to do well at &lt;school&gt;. 13) I do not know what I would need to do to make a &lt;school&gt; professor like me. * 14) I feel comfortable at &lt;school&gt;. 15) People at &lt;school&gt; like me. 16) If I wanted to, I could potentially do very well at &lt;school&gt;. 17) People at &lt;school&gt; are a lot like me.</td>
</tr>
<tr>
<td>Wright, 2016**</td>
<td>Brandeis; University of Pennsylvania; Harvard; University of Michigan; University of Florida</td>
<td>Sense of Belonging</td>
<td>1</td>
<td>At &lt;campus&gt;, overall, to what extent do you feel...that you belong.</td>
</tr>
</tbody>
</table>

Note. Studies marked with ** are unpublished.
Table 5. Mean effect sizes comparing Black and White college students' sense of belonging.

<table>
<thead>
<tr>
<th>Type of Institution</th>
<th>k</th>
<th>smd (± CI)</th>
<th>Random Effects</th>
<th>Heterogeneity Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Q^a</td>
<td>I^2</td>
</tr>
<tr>
<td>All studies</td>
<td>44</td>
<td>.45 (.34, .55)</td>
<td>228.9</td>
<td>86.40%</td>
</tr>
<tr>
<td>Research 1</td>
<td>17</td>
<td>.58 (.44, .73)</td>
<td>63.9</td>
<td>76.80%</td>
</tr>
<tr>
<td>Research 2</td>
<td>3</td>
<td>.04 (-.12, .19)</td>
<td>0.84</td>
<td>0%</td>
</tr>
<tr>
<td>Baccalaureate</td>
<td>12</td>
<td>.55 (.39, .71)</td>
<td>36.8</td>
<td>64%</td>
</tr>
<tr>
<td>Multi-site</td>
<td>12</td>
<td>.21 (.05, .36)</td>
<td>34.5</td>
<td>84%</td>
</tr>
<tr>
<td>Publication Status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Published</td>
<td>17</td>
<td></td>
<td>31.7</td>
<td>45%</td>
</tr>
<tr>
<td>Unpublished</td>
<td>27</td>
<td></td>
<td>63.4</td>
<td>61.10%</td>
</tr>
</tbody>
</table>

Note. Mean effect sizes (smd) are positive when White students' sense of belonging is higher than Black students' scores.

Baccalaureate category includes 2 community colleges as they also primarily serve undergraduates.

^aSignificance implies rejection of the hypothesis of homogeneity and the inference of heterogeneity.
### Table 6. Characteristics related to the disparity between Black and White students' sense of belonging in college.

<table>
<thead>
<tr>
<th>Moderator Variable</th>
<th>k</th>
<th>Mean (SD)</th>
<th>Levels</th>
<th>Adjusted $smd$ (95% CI)</th>
<th>$Q$ ($df = 1$)</th>
<th>$b$</th>
<th>$p$</th>
<th>Heterogeneity accounted (R$^2$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Year of Data Collection</strong></td>
<td>44</td>
<td>2012 (7.2)</td>
<td></td>
<td></td>
<td>10.2</td>
<td>0.02</td>
<td>0.001</td>
<td>25.0%</td>
</tr>
<tr>
<td>1990</td>
<td></td>
<td>0.01 (-0.28, 0.29)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td>0.29 (0.15, 0.42)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td></td>
<td>0.58 (0.46, 0.72)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Publication Status</strong></td>
<td>44</td>
<td>.39 (.5)</td>
<td></td>
<td></td>
<td>50.8</td>
<td>-0.49</td>
<td>&lt;.001</td>
<td>72.5%</td>
</tr>
<tr>
<td>Published</td>
<td></td>
<td>0.15 (0.08, 0.22)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unpublished</td>
<td></td>
<td>0.63 (0.54, 0.73)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Participant Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Birth Year</strong></td>
<td>38</td>
<td>1991 (7.8)</td>
<td></td>
<td></td>
<td>13.2</td>
<td>0.02</td>
<td>&lt;.001</td>
<td>33.7%</td>
</tr>
<tr>
<td>1973</td>
<td></td>
<td>0.02 (-0.22, 0.26)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td></td>
<td>0.32 (0.21, 0.44)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td></td>
<td>0.56 (0.44, 0.68)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>University Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Percentage of Black undergraduate students on campus</strong></td>
<td>35</td>
<td>9.1 (5.9)</td>
<td></td>
<td></td>
<td>16.8</td>
<td>-0.03</td>
<td>&lt;.001</td>
<td>41.5%</td>
</tr>
<tr>
<td>4.0%</td>
<td></td>
<td>0.66 (0.54, 0.78)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.8%</td>
<td></td>
<td>0.61 (0.59, 0.71)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.9%</td>
<td></td>
<td>0.57 (0.48, 0.67)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.8%</td>
<td></td>
<td>0.45 (0.36, 0.55)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30.4%</td>
<td></td>
<td>-0.15 (-0.47, 0.17)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Graduation rate (all)</strong></td>
<td>32</td>
<td>77.1 (19.6)</td>
<td></td>
<td></td>
<td>15.3</td>
<td>0.01</td>
<td>&lt;.001</td>
<td>43.3%</td>
</tr>
<tr>
<td>68.4%</td>
<td></td>
<td>0.44 (0.34, 0.54)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>82.9%</td>
<td></td>
<td>0.57 (0.48, 0.67)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>93.5%</td>
<td></td>
<td>0.67 (0.55, 0.79)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>R1</td>
<td></td>
<td></td>
<td>2.9</td>
<td>0.02</td>
<td>0.09</td>
<td>13.4%</td>
</tr>
<tr>
<td>17</td>
<td></td>
<td>Bac</td>
<td></td>
<td></td>
<td>19.7</td>
<td>0.01</td>
<td>&lt;.001</td>
<td>89.5%</td>
</tr>
<tr>
<td><strong>Graduation rate (Black students)</strong></td>
<td>33</td>
<td>68.8 (22.8)</td>
<td></td>
<td></td>
<td>10.9</td>
<td>0.01</td>
<td>0.001</td>
<td>31.7%</td>
</tr>
<tr>
<td>63.0%</td>
<td></td>
<td>0.48 (0.39, 0.58)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70.3%</td>
<td></td>
<td>0.54 (0.44, 0.64)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>87.2%</td>
<td></td>
<td>0.66 (0.54, 0.79)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Graduation rate (White students)</strong></td>
<td>33</td>
<td>79.8 (18.4)</td>
<td></td>
<td></td>
<td>11.8</td>
<td>0.01</td>
<td>&lt;.001</td>
<td>35.0%</td>
</tr>
<tr>
<td>76.5%</td>
<td></td>
<td>0.50 (0.40, 0.60)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>84.8%</td>
<td></td>
<td>0.58 (0.48, 0.67)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>93.6%</td>
<td></td>
<td>0.65 (0.54, 0.77)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 7. Pearson correlation matrix for moderator variables.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
</tr>
</thead>
<tbody>
<tr>
<td>smd</td>
<td>-</td>
<td>Pub Yr</td>
<td>Collect Yr</td>
<td>Mean age</td>
<td>Birth Yr</td>
<td>% women in study</td>
<td>N Black participants</td>
<td>N White Participants</td>
<td>Study Quality</td>
<td>Publication Status</td>
<td>% Black students on campus</td>
<td>% White students on campus</td>
<td>Undergraduate size/1000</td>
<td>School size acres</td>
</tr>
<tr>
<td>Publication Year</td>
<td>.07</td>
<td>-</td>
<td>.15</td>
<td>.00</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Year of data collection</td>
<td>.41**</td>
<td>.90**</td>
<td>-</td>
<td>.16</td>
<td>-.30</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mean age</td>
<td>-.29</td>
<td>.76**</td>
<td>.87**</td>
<td>-.30</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Birth Year</td>
<td>.49**</td>
<td>.08</td>
<td>.02</td>
<td>.43**</td>
<td>-.17</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Percentage of women in study</td>
<td>-.01</td>
<td>.22</td>
<td>.12</td>
<td>-.02</td>
<td>-.15</td>
<td>-.18</td>
<td>.85**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Number of Black participants</td>
<td>-.25</td>
<td>-.08</td>
<td>-.16</td>
<td>.02</td>
<td>-.45**</td>
<td>-.17</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Number of White Participants</td>
<td>-.01</td>
<td>.29</td>
<td>-.09</td>
<td>.25</td>
<td>.11</td>
<td>-.05</td>
<td>-.18</td>
<td>-.18</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Study Quality</td>
<td>-.03</td>
<td>-.23</td>
<td>-.09</td>
<td>.25</td>
<td>.11</td>
<td>-.05</td>
<td>-.18</td>
<td>-.18</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Publication Status</td>
<td>-.64**</td>
<td>-.22</td>
<td>-.67**</td>
<td>.26</td>
<td>-.73**</td>
<td>.28</td>
<td>.34*</td>
<td>.03</td>
<td>-.04</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Percentage Black students on campus</td>
<td>-.60**</td>
<td>.08</td>
<td>-.33</td>
<td>.52**</td>
<td>-.47**</td>
<td>.21</td>
<td>.37**</td>
<td>-.19</td>
<td>.23</td>
<td>.64**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Percentage of White students on</td>
<td>.33**</td>
<td>.29</td>
<td>.24</td>
<td>-.47**</td>
<td>.33</td>
<td>-.20</td>
<td>-.15</td>
<td>.06</td>
<td>.05</td>
<td>-.41**</td>
<td>-.31</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Undergraduate size/1000</td>
<td>-.13</td>
<td>.28</td>
<td>.06</td>
<td>-.17</td>
<td>.22</td>
<td>.18</td>
<td>.21</td>
<td>.05</td>
<td>.22</td>
<td>.06</td>
<td>-.01</td>
<td>-.24</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Physical size of school in acres/100</td>
<td>.02</td>
<td>.53</td>
<td>.21</td>
<td>-.15</td>
<td>.30</td>
<td>-.52**</td>
<td>.07</td>
<td>.34</td>
<td>.15</td>
<td>-.10</td>
<td>-.26</td>
<td>-.03</td>
<td>-.06</td>
<td>-</td>
</tr>
<tr>
<td>Student-to-faculty ratio</td>
<td>-.35**</td>
<td>-.67</td>
<td>-.38*</td>
<td>.24</td>
<td>-.41</td>
<td>.29</td>
<td>.10</td>
<td>-.14</td>
<td>.35**</td>
<td>.38*</td>
<td>.42*</td>
<td>-.32</td>
<td>.33**</td>
<td>-.16</td>
</tr>
<tr>
<td>Percentage of Black Faculty</td>
<td>-.13</td>
<td>-.08</td>
<td>-.31</td>
<td>.32</td>
<td>-.47**</td>
<td>.16</td>
<td>-.10</td>
<td>-.21</td>
<td>-.17</td>
<td>.12</td>
<td>.45**</td>
<td>.08</td>
<td>-.29</td>
<td>.42**</td>
</tr>
<tr>
<td>Graduation rate (all)</td>
<td>.57**</td>
<td>.45</td>
<td>.64**</td>
<td>-.62**</td>
<td>.82**</td>
<td>-.10</td>
<td>-.28</td>
<td>.24</td>
<td>-.41**</td>
<td>-.64**</td>
<td>-.82**</td>
<td>.12</td>
<td>.15</td>
<td>.15</td>
</tr>
<tr>
<td>Graduation rate (Black students)</td>
<td>.50**</td>
<td>.54</td>
<td>.70**</td>
<td>-.78**</td>
<td>-.11</td>
<td>-.28</td>
<td>.21</td>
<td>-.29</td>
<td>-.60**</td>
<td>-.85**</td>
<td>.17</td>
<td>.17</td>
<td>.15</td>
<td>.15</td>
</tr>
<tr>
<td>Graduation rate (White students)</td>
<td>.52**</td>
<td>.59</td>
<td>.58**</td>
<td>-.61**</td>
<td>.78**</td>
<td>-.06</td>
<td>-.18</td>
<td>.19</td>
<td>-.35**</td>
<td>-.50**</td>
<td>-.75**</td>
<td>.15</td>
<td>.20</td>
<td>.06</td>
</tr>
<tr>
<td>Gap in Graduation rate</td>
<td>-.33</td>
<td>-.07</td>
<td>.45**</td>
<td>.51**</td>
<td>-.09</td>
<td>-.14</td>
<td>.06</td>
<td>.34</td>
<td>.05</td>
<td>.23</td>
<td>-.03</td>
<td>-.20</td>
<td>.19</td>
<td>.19</td>
</tr>
<tr>
<td>Northern Schools</td>
<td>-.12</td>
<td>.07</td>
<td>.02</td>
<td>.18</td>
<td>.19</td>
<td>.15</td>
<td>.23</td>
<td>.00</td>
<td>.34</td>
<td>.06</td>
<td>.05</td>
<td>-.21</td>
<td>.59**</td>
<td>-.23</td>
</tr>
<tr>
<td>Southern Schools</td>
<td>.25</td>
<td>.07</td>
<td>-.08</td>
<td>.04</td>
<td>.01</td>
<td>.28</td>
<td>-.10</td>
<td>-.36*</td>
<td>-.29</td>
<td>-.08</td>
<td>.55**</td>
<td>-.45**</td>
<td>-.29</td>
<td>-</td>
</tr>
<tr>
<td>Western Schools</td>
<td>-.17</td>
<td>-.07</td>
<td>-.13</td>
<td>.30</td>
<td>-.20</td>
<td>-.24</td>
<td>.04</td>
<td>.14</td>
<td>-.01</td>
<td>.31</td>
<td>.04</td>
<td>-.43*</td>
<td>-.27</td>
<td>.74**</td>
</tr>
<tr>
<td>Associate degree only</td>
<td>-.25</td>
<td>.50</td>
<td>-.46**</td>
<td>.69**</td>
<td>-.67**</td>
<td>.09</td>
<td>-.03</td>
<td>.16</td>
<td>-.03</td>
<td>.374</td>
<td>.32</td>
<td>-.59**</td>
<td>-.10</td>
<td>-.10</td>
</tr>
<tr>
<td>Bachelor's degree only</td>
<td>.30</td>
<td>.10</td>
<td>.09</td>
<td>-.07</td>
<td>-.04</td>
<td>.07</td>
<td>-.11</td>
<td>.09</td>
<td>-.15</td>
<td>-.05</td>
<td>.35**</td>
<td>.03</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Research 1</td>
<td>.01</td>
<td>.34</td>
<td>.33</td>
<td>-.35</td>
<td>.54**</td>
<td>.22</td>
<td>.01</td>
<td>.05</td>
<td>-.06</td>
<td>-.16</td>
<td>-.46**</td>
<td>-.25</td>
<td>.51**</td>
<td>-.06</td>
</tr>
<tr>
<td>Research 2</td>
<td>-.46**</td>
<td>.15</td>
<td>.51**</td>
<td>-.17</td>
<td>-.33</td>
<td>.15</td>
<td>.12</td>
<td>-.19</td>
<td>.56**</td>
<td>.40</td>
<td>.62**</td>
<td>-.17</td>
<td>.12</td>
<td>-.13</td>
</tr>
<tr>
<td>Research 3</td>
<td>.43</td>
<td>.10</td>
<td>.09</td>
<td>-.07</td>
<td>-.04</td>
<td>.07</td>
<td>-.11</td>
<td>.09</td>
<td>-.15</td>
<td>-.05</td>
<td>.35**</td>
<td>.03</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: **. Correlation is significant at the .01 level (2-tailed). *. Correlation is significant at the .05 level (2-tailed). c These data are from unpublished studies.
<table>
<thead>
<tr>
<th></th>
<th>15</th>
<th>16</th>
<th>17</th>
<th>18</th>
<th>19</th>
<th>20</th>
<th>21</th>
<th>22</th>
<th>23</th>
<th>24</th>
<th>25</th>
<th>26</th>
<th>27</th>
<th>28</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Student-to-faculty ratio</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>16 Percentage of Black Faculty</td>
<td>.17</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>17 Graduation rate (all)</td>
<td>-.41*</td>
<td>-.35</td>
<td>-</td>
<td>-.98**</td>
<td>-.95**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>18 Graduation rate (Black students)</td>
<td>-.39*</td>
<td>-.35</td>
<td>-.98**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>19 Graduation rate (White students)</td>
<td>-.42*</td>
<td>-.37</td>
<td>-.95**</td>
<td>-.95**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>20 Gap in Graduation rate</td>
<td>.30</td>
<td>.26</td>
<td>-.46**</td>
<td>.43*</td>
<td>-.69**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>21 Northern Schools</td>
<td>.22</td>
<td>-.46**</td>
<td>.09</td>
<td>.18</td>
<td>.11</td>
<td>-.28</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>22 Southern Schools</td>
<td>-.25</td>
<td>.61**</td>
<td>.00</td>
<td>-.06</td>
<td>-.01</td>
<td>.13</td>
<td>-.76**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>23 Western Schools</td>
<td>.02</td>
<td>-.13</td>
<td>-.14</td>
<td>-.20</td>
<td>-.14</td>
<td>.24</td>
<td>-.46**</td>
<td>-.23</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>24 Associate degree only</td>
<td>-.52**</td>
<td>.32</td>
<td>-.43</td>
<td>-.47**</td>
<td>-.45**</td>
<td>.31</td>
<td>-.22</td>
<td>-.11</td>
<td>.48**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>25 Bachelor's degree only</td>
<td>-.50**</td>
<td>.42</td>
<td>-.04</td>
<td>-.12</td>
<td>-.04</td>
<td>.26</td>
<td>-.82**</td>
<td>.78**</td>
<td>.15</td>
<td>-.12</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>26 Research 1</td>
<td>.06</td>
<td>-.53**</td>
<td>.61**</td>
<td>.61**</td>
<td>.51**</td>
<td>.57**</td>
<td>-.49**</td>
<td>-.19</td>
<td>-.18</td>
<td>-.67**</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>27 Research 2</td>
<td>.32</td>
<td>.12</td>
<td>-.48**</td>
<td>-.46**</td>
<td>-.42</td>
<td>.34</td>
<td>.27</td>
<td>-.20</td>
<td>-.12</td>
<td>-.06</td>
<td>-.22</td>
<td>-.32</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>28 Research 3</td>
<td>.10</td>
<td>-.12</td>
<td>.13</td>
<td>.12</td>
<td>.12</td>
<td>.06</td>
<td>.15</td>
<td>-.11</td>
<td>-.07</td>
<td>-.03</td>
<td>-.12</td>
<td>-.18</td>
<td>-.06</td>
<td>-</td>
</tr>
</tbody>
</table>

Note. **. Correlation is significant at the .01 level (2-tailed). *. Correlation is significant at the .05 level (2-tailed). .c These data are from unpublished studies.
Table 8. Characteristics not related to the disparity between Black and White students’ sense of belonging in college.

<table>
<thead>
<tr>
<th>Moderator Variable</th>
<th>k</th>
<th>Mean (SD)</th>
<th>Q; (df = 1)</th>
<th>b</th>
<th>p</th>
<th>Heterogeneity accounted (R^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year of Publication</td>
<td>19</td>
<td>2009 (7.2)</td>
<td>0.01</td>
<td>-0.001</td>
<td>0.91</td>
<td>0.0%</td>
</tr>
<tr>
<td>Study Quality</td>
<td>44</td>
<td>9.8 (2.3)</td>
<td>0.08</td>
<td>-0.01</td>
<td>0.78</td>
<td>0.0%</td>
</tr>
<tr>
<td>Number of Black students in Study</td>
<td>44</td>
<td>105 (199)</td>
<td>2.8</td>
<td>-0.001</td>
<td>0.09</td>
<td>5.2%</td>
</tr>
<tr>
<td>Number of White students in Study</td>
<td>44</td>
<td>535 (845)</td>
<td>0.001</td>
<td>0</td>
<td>0.99</td>
<td>0.0%</td>
</tr>
<tr>
<td><strong>Participant Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of women in Study</td>
<td>43</td>
<td>65.6% (19.2)</td>
<td>0.001</td>
<td>0</td>
<td>0.99</td>
<td>0.0%</td>
</tr>
<tr>
<td>Mean Age of Participants</td>
<td>38</td>
<td>20.7 (2.2)</td>
<td>2.9</td>
<td>-0.04</td>
<td>0.08</td>
<td>5.2%</td>
</tr>
<tr>
<td><strong>University Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Undergraduate population size/1000</td>
<td>34</td>
<td>11.7 (8.8)</td>
<td>0.32</td>
<td>-0.004</td>
<td>0.57</td>
<td>0.0%</td>
</tr>
<tr>
<td>Physical size of school acres/100</td>
<td>33</td>
<td>25.2 (45.0)</td>
<td>0.07</td>
<td>0.001</td>
<td>0.8</td>
<td>0.0%</td>
</tr>
<tr>
<td>Student-to-faculty ratio</td>
<td>33</td>
<td>12.8 (3.9)</td>
<td>2.6</td>
<td>-0.02</td>
<td>0.11</td>
<td>3.9%</td>
</tr>
<tr>
<td>Percentage of Black faculty</td>
<td>32</td>
<td>8.5 (7.0)</td>
<td>0.26</td>
<td>-0.004</td>
<td>0.61</td>
<td>0.0%</td>
</tr>
<tr>
<td>Percentage of White undergraduate students on campus</td>
<td>33</td>
<td>59.5 (14.1)</td>
<td>2.1</td>
<td>0.01</td>
<td>0.14</td>
<td>0.9%</td>
</tr>
<tr>
<td>Graduation rate gap</td>
<td>33</td>
<td>11.0 (7.7)</td>
<td>1.8</td>
<td>-0.01</td>
<td>0.18</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

Mean Age of Participants 20.7 (2.2) 2.9 -0.04 0.08 5.2%
Table 9. Summary of articles by author, year of data collection, publication title (if applicable), Sense of Belonging means and standard deviations by race and scale type.

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year Data Collection</th>
<th>Publication Title</th>
<th>Location</th>
<th># Scale items</th>
<th>Scale Range</th>
<th>n Black Participants</th>
<th>n White Participants</th>
<th>SoB Black</th>
<th>SD Black</th>
<th>SoB White</th>
<th>SD White</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davis, S. (2017)</td>
<td>2014</td>
<td>Sense of belonging, emotion regulation, perceived social support and mental health among college students. Unpublished doctoral dissertation</td>
<td>Old Dominion University (assumed)</td>
<td>18</td>
<td>18-72</td>
<td>153</td>
<td>193</td>
<td>56.28</td>
<td>0.77</td>
<td>57.17</td>
<td>0.76</td>
</tr>
<tr>
<td>Gillen-O’Neil</td>
<td>2018</td>
<td>Racial climate and institutional support factors affecting success in predominantly White institutions: An examination of African-American and White student experiences. Unpublished doctoral dissertation</td>
<td>Minnesota</td>
<td>14</td>
<td>1-5</td>
<td>9</td>
<td>165</td>
<td>3.16</td>
<td>0.52</td>
<td>3.98</td>
<td>0.65</td>
</tr>
<tr>
<td>Gilliard, M. (1996 - seniors)</td>
<td>1990</td>
<td>Sense of Belonging as a Predictor of Intentions to Persist Among African American and White First-Year College Students. Research in Higher Education</td>
<td>Upper midwestern states (Michigan, Illinois, and Ohio)</td>
<td>1</td>
<td>1-5</td>
<td>237</td>
<td>384</td>
<td>2.59</td>
<td>1.15</td>
<td>2.78</td>
<td>1.17</td>
</tr>
<tr>
<td>Hausman, L. et al (2009)</td>
<td>2006</td>
<td>Sense of Belonging as a Predictor of Intentions to Persist Among African American and White First-Year College Students. Research in Higher Education</td>
<td>University of Pittsburgh (assumed)</td>
<td>3</td>
<td>1-5</td>
<td>141</td>
<td>214</td>
<td>3.92</td>
<td>0.86</td>
<td>4.07</td>
<td>0.88</td>
</tr>
<tr>
<td>Authors</td>
<td>Year Data Collection</td>
<td>Publication Title</td>
<td>Location</td>
<td># scale items</td>
<td>Scale Range</td>
<td>n Black Participants</td>
<td>n White Participants</td>
<td>SoB Black</td>
<td>SD Black</td>
<td>SoB White</td>
<td>SD White</td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------------------</td>
<td>-----------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------</td>
<td>---------------</td>
<td>--------------</td>
<td>----------------------</td>
<td>-----------------------</td>
<td>-----------</td>
<td>----------</td>
<td>-----------</td>
<td>----------</td>
</tr>
<tr>
<td>Mounts N. (2004)</td>
<td>2002</td>
<td>Contributions of parenting and campus climate to freshmen adjustment in a multiethnic sample. <em>Journal of Adolescent Research</em></td>
<td>Northern Illinois University</td>
<td>3</td>
<td>1-4</td>
<td>86</td>
<td>233</td>
<td>2.90</td>
<td>0.09</td>
<td>2.95</td>
<td>0.05</td>
</tr>
<tr>
<td>Pan-Weisz &amp; Quinn (2016)</td>
<td>2016</td>
<td>A social identity threat approach to understanding and combating first-generation college student’s academic disadvantage. Unpublished dissertation.</td>
<td>University of Connecticut</td>
<td>12</td>
<td>1-7</td>
<td>29</td>
<td>82</td>
<td>4.93</td>
<td>0.85</td>
<td>5.09</td>
<td>1.02</td>
</tr>
<tr>
<td>Pan-Weisz (2014)</td>
<td>2014</td>
<td></td>
<td>University of Connecticut</td>
<td>12</td>
<td>1-13</td>
<td>27</td>
<td>228</td>
<td>9.35</td>
<td>2.60</td>
<td>10.43</td>
<td>1.89</td>
</tr>
<tr>
<td>Pan-Weisz (2015)</td>
<td>2015</td>
<td></td>
<td>University of Connecticut</td>
<td>22</td>
<td>1-13</td>
<td>34</td>
<td>319</td>
<td>8.87</td>
<td>1.50</td>
<td>9.64</td>
<td>1.61</td>
</tr>
<tr>
<td>Pan-Weisz (2016)</td>
<td>2016</td>
<td></td>
<td>University of Connecticut</td>
<td>8</td>
<td>1-7</td>
<td>39</td>
<td>234</td>
<td>5.43</td>
<td>0.96</td>
<td>5.72</td>
<td>0.84</td>
</tr>
<tr>
<td>Pittman &amp; Richmond (2008)</td>
<td>2006</td>
<td>University belonging, friendship quality, and psychological adjustment during the transition to college. <em>The Journal of Experimental Education</em></td>
<td>Northern Illinois University</td>
<td>18</td>
<td>1-5</td>
<td>14</td>
<td>56</td>
<td>3.29</td>
<td>0.62</td>
<td>3.48</td>
<td>0.63</td>
</tr>
<tr>
<td>Authors</td>
<td>Year</td>
<td>Data Collection</td>
<td>Publication Title</td>
<td>Location</td>
<td># scale items</td>
<td>Scale Range</td>
<td>n Black Participants</td>
<td>n White Participants</td>
<td>SoB Black</td>
<td>SD Black</td>
<td>SoB White</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------</td>
<td>-----------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>--------------------------------</td>
<td>---------------</td>
<td>--------------</td>
<td>--------------------</td>
<td>---------------------</td>
<td>------------</td>
<td>-----------</td>
<td>-----------</td>
</tr>
<tr>
<td>Pound &amp; Powell (2016)</td>
<td>2016</td>
<td></td>
<td><em>Examining culturally diverse students’ sense of belonging and academic success at USAFA.</em> Unpublished data set</td>
<td>US Air Force Academy</td>
<td>18</td>
<td>1-5</td>
<td>152</td>
<td>1936</td>
<td>3.66</td>
<td>0.62</td>
<td>3.97</td>
</tr>
<tr>
<td>Pound, Pratto, &amp; Laney (2018)</td>
<td>2018</td>
<td></td>
<td></td>
<td>US Air Force Academy</td>
<td>18</td>
<td>7</td>
<td>55</td>
<td>650</td>
<td>4.92</td>
<td>0.85</td>
<td>5.45</td>
</tr>
<tr>
<td>Rattan, A. et al (2018 - study 2)</td>
<td>2015</td>
<td></td>
<td></td>
<td>Qualtrics panel</td>
<td>1</td>
<td>5</td>
<td>15</td>
<td>79</td>
<td>4.77</td>
<td>0.82</td>
<td>4.47</td>
</tr>
<tr>
<td>Rattan, A. et al (2018 - study 3)</td>
<td>2015</td>
<td></td>
<td></td>
<td>Qualtrics panel</td>
<td>1</td>
<td>5</td>
<td>50</td>
<td>293</td>
<td>5.91</td>
<td>1.20</td>
<td>5.51</td>
</tr>
<tr>
<td>Ribera A. et al (2017)</td>
<td>2014</td>
<td></td>
<td><em>Sense of Peer Belonging and Institutional Acceptance in the First Year: The Role of High-Impact Practices,</em> <em>Journal of College Student Development</em></td>
<td>national sample - 44 schools</td>
<td>5</td>
<td>28</td>
<td>1246</td>
<td>5090</td>
<td>White students as the reference; Beta for Black students’ belonging $B = -.12, SE = .059^*$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wetzel (2007)</td>
<td>2007</td>
<td></td>
<td></td>
<td>Anonymous</td>
<td>1</td>
<td>5</td>
<td>46</td>
<td>621</td>
<td>2.87</td>
<td>1.13</td>
<td>3.70</td>
</tr>
<tr>
<td>Wetzel (2011)</td>
<td>2011</td>
<td></td>
<td></td>
<td>Anonymous</td>
<td>1</td>
<td>5</td>
<td>39</td>
<td>446</td>
<td>3.26</td>
<td>1.09</td>
<td>3.91</td>
</tr>
<tr>
<td>Wetzel (2015)</td>
<td>2015</td>
<td></td>
<td></td>
<td>Anonymous</td>
<td>1</td>
<td>5</td>
<td>44</td>
<td>732</td>
<td>2.89</td>
<td>1.08</td>
<td>3.84</td>
</tr>
<tr>
<td>Wetzel (2017 - school 1)</td>
<td>2017</td>
<td></td>
<td></td>
<td>Anonymous</td>
<td>1</td>
<td>5</td>
<td>28</td>
<td>313</td>
<td>3.29</td>
<td>1.01</td>
<td>3.82</td>
</tr>
<tr>
<td>Wetzel (2017 - school 2)</td>
<td>2017</td>
<td></td>
<td></td>
<td>Anonymous</td>
<td>1</td>
<td>5</td>
<td>30</td>
<td>215</td>
<td>3.47</td>
<td>1.01</td>
<td>4.01</td>
</tr>
<tr>
<td>Wetzel (2017 - school 3)</td>
<td>2017</td>
<td></td>
<td></td>
<td>Anonymous</td>
<td>1</td>
<td>5</td>
<td>13</td>
<td>46</td>
<td>3.23</td>
<td>0.93</td>
<td>3.83</td>
</tr>
<tr>
<td>Wetzel (2017 - school 4)</td>
<td>2017</td>
<td></td>
<td></td>
<td>Anonymous</td>
<td>1</td>
<td>5</td>
<td>23</td>
<td>203</td>
<td>3.43</td>
<td>1.53</td>
<td>4.05</td>
</tr>
<tr>
<td>Wetzel (2017 - school 5)</td>
<td>2017</td>
<td></td>
<td></td>
<td>Anonymous</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>115</td>
<td>2.50</td>
<td>1.29</td>
<td>3.71</td>
</tr>
</tbody>
</table>
## SENSE OF BELONGING AND RACE AMONG COLLEGE STUDENTS

<table>
<thead>
<tr>
<th>Authors</th>
<th>Year Data Collection</th>
<th>Publication Title</th>
<th>Location</th>
<th># scale items</th>
<th>Scale Range</th>
<th>n Black Participants</th>
<th>n White Participants</th>
<th>SoB Black</th>
<th>SD Black</th>
<th>SoB White</th>
<th>SD White</th>
</tr>
</thead>
<tbody>
<tr>
<td>Williams (2016 - study 1)</td>
<td>2016</td>
<td></td>
<td>University of Virginia</td>
<td>1</td>
<td>1-6</td>
<td>241</td>
<td>2650</td>
<td>4.10</td>
<td>1.35</td>
<td>4.70</td>
<td>1.23</td>
</tr>
<tr>
<td>Williams (2016 - study 2)</td>
<td>2018</td>
<td></td>
<td>University of Virginia</td>
<td>10</td>
<td>7</td>
<td>45</td>
<td>506</td>
<td>4.65</td>
<td>1.12</td>
<td>5.13</td>
<td>0.97</td>
</tr>
<tr>
<td>Williams (2018 - study 3)</td>
<td>2018</td>
<td></td>
<td>University of Virginia</td>
<td>17</td>
<td>1-7</td>
<td>18</td>
<td>143</td>
<td>4.44</td>
<td>0.77</td>
<td>5.06</td>
<td>0.82</td>
</tr>
<tr>
<td>Williams (2018 - study 4)</td>
<td>2018</td>
<td></td>
<td>University of Virginia</td>
<td>2</td>
<td>1-7</td>
<td>39</td>
<td>637</td>
<td>4.44</td>
<td>0.77</td>
<td>5.33</td>
<td>1.21</td>
</tr>
<tr>
<td>Williams (2018 - study 5)</td>
<td>2019</td>
<td></td>
<td>University of Virginia</td>
<td>2</td>
<td>1-7</td>
<td>36</td>
<td>397</td>
<td>4.47</td>
<td>1.26</td>
<td>5.50</td>
<td>1.14</td>
</tr>
<tr>
<td>Wright (2016)</td>
<td>2016</td>
<td></td>
<td>Brandeis</td>
<td>1</td>
<td>1-4</td>
<td>54</td>
<td>514</td>
<td>2.37</td>
<td>1.00</td>
<td>3.28</td>
<td>0.90</td>
</tr>
<tr>
<td>Wright (2016)</td>
<td>2016</td>
<td></td>
<td>Harvard</td>
<td>1</td>
<td>1-4</td>
<td>83</td>
<td>361</td>
<td>2.78</td>
<td>0.91</td>
<td>3.12</td>
<td>0.86</td>
</tr>
<tr>
<td>Wright (2016 )</td>
<td>2016</td>
<td></td>
<td>University of Pennsylvania</td>
<td>1</td>
<td>1-4</td>
<td>87</td>
<td>476</td>
<td>2.79</td>
<td>0.89</td>
<td>3.12</td>
<td>0.90</td>
</tr>
<tr>
<td>Wright (2017)</td>
<td>2017</td>
<td></td>
<td>University of Michigan</td>
<td>1</td>
<td>1-4</td>
<td>51</td>
<td>683</td>
<td>2.41</td>
<td>0.96</td>
<td>3.40</td>
<td>0.77</td>
</tr>
<tr>
<td>Wright (2018)</td>
<td>2018</td>
<td></td>
<td>Brandeis</td>
<td>1</td>
<td>1-4</td>
<td>50</td>
<td>476</td>
<td>2.36</td>
<td>0.75</td>
<td>3.12</td>
<td>0.95</td>
</tr>
<tr>
<td>Wright (2018)</td>
<td>2018</td>
<td></td>
<td>University of Florida</td>
<td>1</td>
<td>1-4</td>
<td>95</td>
<td>669</td>
<td>2.72</td>
<td>0.94</td>
<td>3.26</td>
<td>0.83</td>
</tr>
</tbody>
</table>
Figure 1. Flow chart of included studies.

Relevant Abstracts
(\(k=3,781\) articles)

Articles Excluded (\(k=3,656\))
1. No Black/African-American Participants (\(k=3,528\))
2. No college participants (\(k=128\))

Potentially Relevant Sources
(\(k=125\) articles)

Articles Excluded (\(k=65\))
1. No White participants (\(k=25\))
2. No quantitative data (\(k=13\))
3. Duplicates (\(k=15\))
4. No college participants (\(k=8\))
5. Inconsistent Sense of Belonging measurement (\(k=2\))
6. Data from outside of the United States (\(k=1\))
7. No racial information about participants (\(k=1\))

Final Review
(\(k=60\) studies)

Grey Literature Additions
(\(k=28\) studies from 8 researchers)

Studies Excluded (\(k=16\))
1. Within-subjects concerns (\(k=8\))
2. No response from authors emailed or information no longer available (\(k=5\))
3. Inconsistent Sense of Belonging measurement (\(k=2\))
4. Experimental Data (\(k=1\))

Effect Sizes Calculated
(\(k=44\) study comparisons)
Figure 2. Forest Plot of Standardized Mean Differences.

<table>
<thead>
<tr>
<th>Study</th>
<th>SMD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brady (2019)</td>
<td>0.89</td>
</tr>
<tr>
<td>Davis S. (2017)</td>
<td>0.02</td>
</tr>
<tr>
<td>Gilland, M. (1996 - freshmen)</td>
<td>0.06</td>
</tr>
<tr>
<td>Gilland, M. (1996 - seniors)</td>
<td>0.16</td>
</tr>
<tr>
<td>Hausman L. et al (2009)</td>
<td>0.17</td>
</tr>
<tr>
<td>Johnson D.R. (2007 - co-ed STEM)</td>
<td>0.31</td>
</tr>
<tr>
<td>Johnson D.R. (2007 - other STEM program)</td>
<td>0.34</td>
</tr>
<tr>
<td>Johnson D.R. (2007 - regular STEM program)</td>
<td>0.49</td>
</tr>
<tr>
<td>Johnson D.R. (2007 - women only STEM)</td>
<td>0.89</td>
</tr>
<tr>
<td>Johnson, D. R. et al (2007)</td>
<td>0.26</td>
</tr>
<tr>
<td>Johnson, L.A. (2014)</td>
<td>0.12</td>
</tr>
<tr>
<td>Mounts N. (2004)</td>
<td>0.01</td>
</tr>
<tr>
<td>Pan-Weisz (2014)</td>
<td>0.55</td>
</tr>
<tr>
<td>Pan-Weisz (2015)</td>
<td>0.48</td>
</tr>
<tr>
<td>Pan-Weisz (2016)</td>
<td>0.33</td>
</tr>
<tr>
<td>Pan-Weisz &amp; Quinn (2016)</td>
<td>0.16</td>
</tr>
<tr>
<td>Pittman (2008)</td>
<td>0.30</td>
</tr>
<tr>
<td>Poudrd et al (2016)</td>
<td>0.49</td>
</tr>
<tr>
<td>Poudrd et al (2018)</td>
<td>0.64</td>
</tr>
<tr>
<td>Rattan, A. et al (2018 - study 1)</td>
<td>0.40</td>
</tr>
<tr>
<td>Rattan, A. et al (2018 - study 2)</td>
<td>-0.31</td>
</tr>
<tr>
<td>Rattan, A. et al (2018 - study 3)</td>
<td>-0.31</td>
</tr>
<tr>
<td>Riber A. et al (2017)</td>
<td>0.24</td>
</tr>
<tr>
<td>Wetzel (2007)</td>
<td>0.76</td>
</tr>
<tr>
<td>Wetzel (2011)</td>
<td>0.63</td>
</tr>
<tr>
<td>Wetzel (2015)</td>
<td>0.94</td>
</tr>
<tr>
<td>Wetzel (2017 - school 1)</td>
<td>0.49</td>
</tr>
<tr>
<td>Wetzel (2017 - school 2)</td>
<td>0.56</td>
</tr>
<tr>
<td>Wetzel (2017 - school 3)</td>
<td>0.60</td>
</tr>
<tr>
<td>Wetzel (2017 - school 4)</td>
<td>0.54</td>
</tr>
<tr>
<td>Wetzel (2017 - school 5)</td>
<td>1.03</td>
</tr>
<tr>
<td>Williams (2016)</td>
<td>0.49</td>
</tr>
<tr>
<td>Williams (2018 - study 1)</td>
<td>1.26</td>
</tr>
<tr>
<td>Williams (2018 - study 2)</td>
<td>0.49</td>
</tr>
<tr>
<td>Williams (2018 - study 3)</td>
<td>0.76</td>
</tr>
<tr>
<td>Williams (2018 - study 4)</td>
<td>0.75</td>
</tr>
<tr>
<td>Wright (2016 - Brandeis)</td>
<td>1.00</td>
</tr>
<tr>
<td>Wright (2016 - Harvard)</td>
<td>0.39</td>
</tr>
<tr>
<td>Wright (2016 - UPenn)</td>
<td>0.37</td>
</tr>
<tr>
<td>Wright (2017 - U of Michigan)</td>
<td>1.25</td>
</tr>
<tr>
<td>Wright (2018 - Brandeis)</td>
<td>0.81</td>
</tr>
<tr>
<td>Wright (2018 - U of Florida)</td>
<td>0.64</td>
</tr>
<tr>
<td>Grand Mean</td>
<td>0.47</td>
</tr>
</tbody>
</table>

Note. Positive standardized mean differences (smd) indicate White students scored higher on the sense of belonging measure as compare to Black students from the same sample.
Figure 3a. Funnel plot of $smd$ and standard errors for all studies.

Figure 3b. Funnel plot of $smd$ and standard errors – Unpublished Data.
Figure 3c. Funnel plot of $smd$ and standard errors – Published Data
Appendix A

NEWCASTLE - OTTAWA QUALITY ASSESSMENT SCALE
COHORT STUDIES

Note: A study can be awarded a maximum of one star for each numbered item within the Selection and Outcome categories and minimum of no stars with the potential for half-stars (1/2★). A maximum of two stars can be given for Representativeness of the Cohorts. High score is 9 and represents a high-quality assessment for this meta-analysis. A low score of 0 indicates a poor-quality paper.

Selection
1) Is the case definition adequate? How is race data collected?
   a) yes, eg record linkage or based on self reports★
   b) no description

2) Representativeness of the cases Were the Black and White samples collected at the same time and in the same location?
   a) consecutive or reasonably representative sample (Black and White samples are drawn from some common aspect, such as university or state)★★
   b) potential for selection biases or not stated

1) Representativeness of the cohorts
   a) truly representative of the average makeup of students at the school(s) – participants were randomly sampled or came from a university participant pool★★
   b) somewhat representative of the average makeup of students at the school(s) – clubs or specific groups targeted and requested to participate. ★
   c) selected group of students (convenience sample, snowball recruitment) 1/2★
   d) no description of the derivation of the cohort

Outcome
1) Assessment of outcome Measuring Sense of Belonging – Construct Validity
   a) How many items made up the SoB outcome variable?
      1) One
      2) Two or Three 1/2★
      3) Four or more ★
   b) What is the Cronbach alpha level?
      1) .85 or above ★
      2) .75 to .84 1/2★
      3) Below .75 or Not provided

2) Did the author clearly provide the means and SDs (or SEs) for the Sense of Belonging variable?
   a) yes ★
   b) somewhat 1/2★
   c) no

Study Quality
3) How many variables did you estimate or approximate in the form?
   a) Can be zero
   b) How confident in your approximation are you?
Not confident
Confident 1/2
Extremely confident

4) How many variables could not be estimated by the given information?
   1) Zero
   2) One, Two, or Three
   3) Four or more
Chapter 2 Anacrusis:
Explaining the Relationship between Cross-racial Interactions and Sense of Belonging

In this section, I capitalized on a survey conducted in 2016 at one of the service academies by performing a secondary data analysis. Although I was on a Sense of Belonging research team, I did not join until after the data had been collected and was not privy to decisions or rationales for survey item choices, dependent variables, or quantitative research hypotheses. However, many of the 2016 survey items came from the Diverse Learning Environments Survey (DLE). The DLE, designed by the Higher Education Research Institute at the University of California-Los Angeles, includes measures that focus on aspects on campus related to the climate for diversity, including experiences with discrimination, cross-racial interactions, and sense of belonging (Higher Education Research Institution at UCLA., n.d.). Therefore, I took the opportunity to explore ideas and constructs available to me.

I was heavily inspired by work of Shana Levin, Colette Van Laar, and Winoa Foote in their paper, *Ethnic Segregation and Perceived Discrimination in College: Mutual Influences and Effects on Social and Academic Life* (2006). This study examined same-race friendships among college students, perceptions of ethnic discrimination, and adjustment to college. They found that African-American students showed more positive adjustment to college life with more in-group friends but also perceived more campus discrimination. For Latino students, having more same-race friends was also associated with higher perceptions of discrimination but with a lower sense of belonging and lower academic performances. They concluded that it is important to consider what processes occur when ethnic groups segregate, not that the segregation happens in the first

---

2 The HERI at UCLA granted permission to analyze the DLE items used in the 2016 Sense of Belonging survey.
place. What is most interesting about this research is that the authors analyzed each racial group separately in order to gather a more nuanced idea of each groups’ unique experiences on campus. This paper highlighted to me the idea that it was possible for Black and White students to have similar experiences but yield a different outcome. Or conversely, have divergent experiences but come to a similar outcome.

Because of their paper, I understood the importance of investigating peer-to-peer interactions for cadets of color and White cadets separately when it comes an outcome like sense of belonging. Social and peer support is important for students as college as it is usually the first time they have lived away from family and parental support. Feeling lonely during college is normal; feeling completely left-out and unsupported can be detrimental to a students’ motivations to persist (Pittman & Richmond, 2008). Friendships and peer interactions can help mitigate the loneliness as social support is rooted in the relationships and positive interactions with others, and so any benefits of such support would support belongingness (Baumeister & Leary, 1995). Unfortunately, not all cross-racial interactions are pleasant. Most cross-racial contact can be awkward and uncomfortable for both Whites and people of color (e.g., Richeson & Shelton, 2007). Even more alarming, negative cross-racial interactions tend to be more memorable and affects intergroup attitudes more than positive contact (Goren, 2014). Therefore, I have focused this part of the dissertation on the relationship between negative cross-racial interactions and sense of belonging as the literature is currently sparse on the topic of the valence of cross-racial interactions and belonging.

However, having been an junior instructor at one of the service academies, I understand that cadets’ lives are very ingrained and fine-tuned to administrative policies, academic instructors, military instructors, and the general culture within the “permanent party” – a term
used to describe officers, civilians, and enlisted personnel assigned to the academy in support of training cadets towards their commissions. I investigated cadets’ perceptions of the institution’s commitment to diversity because I wanted to know if the faculty had an impact on cadets’ sense of belonging. More importantly, I wanted to see if faculty members’ commitment to diversity could soften or dampen the effect of negative cross-racial interactions on sense of belonging. By using a mediation model, I was able to discern some of the relationships of these variables on cadets’ sense of belonging.

In 2018, I was afforded the opportunity to collect more data from the same service academy with the help of Major Matt Laney, a junior military faculty member, and Dr. Pratto. Together, we revised many of the survey DLE survey items from 2016. Our goal was simple – to replicate the results we found in 2016 with items and analyses better suited for the data. Together, these two studies show that cadets’ perceptions of the institution mediate the relationship between negative cross-racial interactions and sense of belonging and the intensity of the relationship between these variables differs between Black and White cadets.³

³ The following paper has removed identifying features of the service academies in preparation for publication and public release, as approved by the respective branches of military Public Affairs.
References


A Mediation Model:

How Perceptions of Institutional Commitment to Diversity Affect

Cross-Racial Interactions and Sense of Belonging at a US Service Academy

Major Leah Pound

University of Connecticut

Dissertation – Chapter 2

Footnote: Funding source – US Air Force as part of normal duties. No additional funds used.

Disclaimer: Opinions, conclusions, and recommendations expressed or implied within are solely those of the author and do not necessarily represent the views of Air University, the Air Force Research Institute, the US Air Force Academy, the United States Air Force, the Department of Defense, or any other US government agency. Cleared for public release.

The views expressed in this article are those of the author and do not necessarily reflect the official policy or position of the Air Force, the Department of Defense or the U.S. Government.
Abstract

The link between racially diverse interactions and sense of belonging among college students on campus has been firmly established. However, few have attempted to understand how the valence of those interactions affect sense of belonging while also considering how individuals perceive the climate of diversity within an institution. Our research explores the impact of negative cross-racial interactions on sense of belonging and how perceptions of the institution’s commitment to diversity mediates that relationship and examine the differences between Black and White students on these factors using participants from a U.S. Service Academy. The service academies provide a unique opportunity to examine how perceptions of institutional policies and practices affect students’ sense of belonging because these institutions provide a high and unusual degree of control over students’ behavior. We found that positive and negative cross-racial interactions were associated with sense of belonging, but the strength of the associations varied by race and the cadet’s perceptions of institutional commitment to diversity. This paper concludes with a short discussion of the findings, study limitations, and directions for future research.

Keywords: sense of belonging, college students, African-American, Black, Caucasian, White, race, diversity, higher education, military, cadet, service academy
# Table of Contents

U.S. Service Academies ........................................................................................................... 89
Sense of Belonging .................................................................................................................. 92
Cross-Racial Interactions ....................................................................................................... 94
Perceptions of the Institution’s Commitment to Diversity and Sense of Belonging ............ 97

**Study 1** .................................................................................................................................. 100
  Method .................................................................................................................................... 100
     Participants .......................................................................................................................... 100
     Measures ............................................................................................................................ 101
     Procedure. .......................................................................................................................... 103
  Analysis Strategy ................................................................................................................... 103
     Addressing Missing Data .................................................................................................... 103
     Model Testing ..................................................................................................................... 104

**Results** .................................................................................................................................. 105
  Descriptive Statistics ............................................................................................................ 105
  Analysis of Variance ............................................................................................................. 105
  Mediation Results ................................................................................................................ 106
     Mediation Results for Black students ............................................................................... 106
     Mediation Results for White students .............................................................................. 107
  Model Fit Tests ..................................................................................................................... 107

**Results and Discussion - Study 1** ....................................................................................... 108

**Study 2** .................................................................................................................................. 109
  Method .................................................................................................................................... 109
     Participants .......................................................................................................................... 109
     Measures. ............................................................................................................................. 110
     Procedure. .......................................................................................................................... 111
  Analysis Strategy ................................................................................................................... 111
     Addressing Missing Data .................................................................................................... 111
     Model Testing ..................................................................................................................... 111

**Results** .................................................................................................................................. 112

**General Discussion** ............................................................................................................ 115

**References** ........................................................................................................................... 128
A host of documented benefits are associated with students having a high sense of belonging with their school at all levels of education (Freeman, Anderman, & Jensen, 2007; Hausmann, Schofield, & Woods, 2007; Hoffman, Richmond, Morrow, & Salomone, 2002; Strayhorn, 2008). Having a high sense of belonging in college is associated with higher institutional commitment, intentions to persist to and actual persistence to graduation, and academic achievement (Allen et al., 2018; Hausmann et al., 2007). Conversely, having a low sense of belonging can undermine academic performance and is associated with having more problem behaviors and decreased positive coping skills (Hussain & Jones, 2019; Pittman & Richmond, 2008; Walton & Cohen, 2007). Further, literature suggests students of color may experience less belonging than do their White counterparts (Vaccaro & Newman, 2017). Given the benefits that come with a high sense of belonging, especially to graduation persistence, and the gap that exists between Black and White students consistently on belonging (Pound, Pratto, & Stewart-James, in prep), further research on the consequences and antecedents of this belonging disparity is warranted.

University student bodies are becoming more and more diverse. The percentage of non-White undergraduate students increased from 28% to 45% over the past 20 years (Davis & Fry, 2019). As universities try to accommodate and keep up with the changing demographics of their school, universities have increasingly focused on promoting positive racial climates on campus (Hurtado, Milem, Clayton-Pedersen, & Allen, 1999). Racially integrated schools can lead to positive intergroup interactions, but it can also lead to negative intergroup interactions (Chavous, 2005). Students of color continue to have experiences of discrimination and to have negative encounters with faculty, staff, and other students. Although not every negative cross-racial interaction ends in experiences of discrimination, negative interactions with peers can affect
minority student's overall feelings of belonging. We are interested in how the interplay of diverse peer interactions and perceptions of institutional commitment to diversity affect the link between negative cross-racial interactions and students’ sense of belonging. Despite knowing that not every interaction between students is going to be positive, we are specifically interested to the extent of the institution’s role in buffering against negative experiences or if negative interactions convolute the relationship even more as colleges attempt to be more welcoming to a diverse student body. Our general approach explores the impact of negative cross-racial interactions on sense of belonging and how perceptions of the campus’s commitment to diversity mediates that relationship. We then examine the differences between Black and White students on these factors. To test this research question, we utilized two data sets from a unique student population – cadets from a U.S. service academy. To date, we found no studies investigating cadets’ sense of belonging at any of the service academies, much less studies that examine how cadets’ understanding of race, racial relations, and perceptions of minority cadets’ experiences affect sense of belonging. Therefore, we must first describe the basic components of a U.S. service academy before exploring the literature on sense of belonging.

U.S. Service Academies

The U.S. service academies serve a dual purpose: 1) provide rigorous undergraduate degrees and 2) commission graduates as officers into their respective military branches. Each military branch has an academy including the U.S. Air Force Academy, the U.S. Military Academy (Army), the U.S. Naval Academy, the Coast Guard Academy, and the Merchant Marine Academy. All are four-year officer training programs in isolated environments and are predominately white institutions (PWIs) where approximately 77% of cadets are White (S. N. Kirby, 2010). In a 2016 interview with The Atlantic, then-Superintendent, Lt General Michelle
Johnson, acknowledged that “the absence of overt unrest does not mean the absence of discontent” (Deruy, 2016). Her comment hints at the idea that even while there might be few instances of overt race discrimination, there may yet be relatively hidden problems regarding interracial relations among cadets. The quotes below were collected from a survey on race relations and belonging at one of the U.S. military academies and demonstrate some cadet perspectives on the current state of race relations.

“I feel that things like this [survey] make [our academy] too politically correct and that it should focus on people as a whole, what they go through based on their background not just their race. I feel that racial issues are blown out of proportion.”
– White cadet

“Not sure why my survey was so loaded on race; it is not a very important issue to cadets but [the permanent party] seems to think it is.”
– White cadet

“I am reminded that I am Black everyday at [our academy] and in everyone's effort to make diversity more of a thing, it becomes even more evident that we are not a diverse institution.”
- Black cadet

While only representative of some cadets, these quotes present a theme often seen between White and Black college students – Black students recognize that race relations are strained, and White students do not think there is anything wrong. This is concerning given that the cadets quoted above will graduate and become military officers. They are the future leaders of U.S. military; if they struggle with communicating cross-racially as officer-candidates and never address strategies for inclusion and belonging, the military organization can suffer with the same issues in the long run.

The service academies provide a unique opportunity to examine how perceptions of institutional policies and practices affect students’ sense of belonging because these institutions provide a high and unusual degree of control over students’ behavior. The military academies
could be classified as a “total institution,” as described by Goffman (1961). A total institution
delineates a distinctive organization that is both part of and separate from the society at large, as
“social hybrid, part residential community, part formal organization” (Goffman, 1961, p.22;
Davies, 1989). Total institutions are a place of both residence and work where a large number of
like-situated individuals, cut off from the wider society for an considerable period of time,
together lead an enclosed, formally administered phase of life (Goffman, 1961). Prisons or public
psychiatric hospitals generally serve as examples of total institutions; however, military
academies can be classified as total institutions for the following reasons.

Policies and institutional structures play an intimate role in cadets’ lives as rules and
regulations stipulate every aspect of their lives: what they can and cannot wear, their daily
schedules are sometimes fine-grained to the minute, and their academic courses are pre-
determined. All cadets and midshipmen live on campus for all four years, work alongside their
peers in their units, and conduct military operations with the same people with whom they share
a dorm hall with. Cadets often have mandatory briefings, or presentations, to attend in the
evening or during military training time in the middle of the day. Senior leaders, such as the
Dean of Students (the Chancellor equivalent) will directly speak to cadets during these briefings
on a multitude of military topics. Students are subject to an imposing structure of military
regime, which is maintained by the ‘permanent party,’ a cadre of faculty, staff, and instructors
who are a mix of military officers, enlisted members, and government-employed civilians. Given
the totality and the apparent shared agenda and cooperation among the permanent party, cadets
or midshipmen often interpret the actions and behaviors of any one individual permanent party
member as representative of the attitudes of not just everyone at the service academy, but the
entire military branch. Isolated incidents of discrimination or prejudice, even if rare, appear to
suggest a universal meaning about the whole institution. Therefore, the policies are felt by each and every student in nearly all aspects of their lives and likely impact their sense of belonging, though this has never been empirically tested.

**Sense of Belonging**

There are two different approaches to sense of belonging. After explicating both, we will explain how they can go together to address sense of belonging in service academies. Within social psychology, the need to belong with and to other people has been well-established as a basic psychological motivator of behavior and a critical component of self-esteem (Baumeister & Leary, 1995). With their Belongingness Hypothesis, Baumeister and Leary assert that humans are naturally driven towards establishing and maintaining social attachments as “human beings have a pervasive drive to form and maintain at least a minimum quantity of lasting, positive, and significant interpersonal relationships” (Baumeister & Leary, 1995, p. 497).

This contrasts with the conception of belonging within the education literature that generally defines sense of belonging as the “psychological sense of identification and affiliation with the campus community” and the degree to which students subjectively feel connected to their campus environment as an evaluation of the quality of relationships with others on campus (Hurtado & Carter, 1997; Strayhorn, 2008). Goodenow (1992) extends the definition of sense of belonging by including elements of support, as in how much the students feel personally accepted, included, respected, and encouraged by others at school. More recently in their meta-analysis on primary education, Allen and her colleagues (2018) argue that various sense of belonging definitions share three aspects: (1) school-based relationships, (2) student-teacher relationships and (3) general feelings about the school as a whole. Altogether, scholars in
different disciplines concur that having a high sense of belonging either to other individuals or groups of behavior is critical to psychological well-being.

Previous research on college students’ levels of belonging indicate that students benefit from having high levels and suffer when having low levels of belonging. Hausmann, Ye, Schofield, and Woods (2009) demonstrated that students with a high sense of belonging with their campus have increased institutional commitment, intentions to persist, and actual persistence to graduation. Moreover, high sense of belonging is associated with asking for advice from others and logging more studying time as compared to students with a low sense of belonging (Hurtado et al., 1999; Walton & Cohen, 2007). Academic achievement, retention, and persistence to degree attainment have all been positively connected with a higher sense of belonging (Rhee, 2008). On the other hand, a lack of belongingness can undermine academic performance (Levin, Van Laar, & Foote, 2006; Walton & Cohen, 2007), decrease positive coping skills and increase problem behavior (Pittman & Richmond, 2008) and perceptions of campus discrimination (Levin et al., 2006). At worst case, failure to belong can lead to stress, detriments in mental/physical health, and suicide (Baumeister & Leary, 1995). For a fuller review of the positive and negative outcomes associate with sense of belonging in college students, see Pound, Pratto, and Stewart-James (in prep). The literature clearly indicates that a high sense of belonging to a school is important student success and psychological well-being. Based on Belongingness Hypothesis (Baumeister & Leary, 1995), we predict that belongingness to a campus community can be strengthened through diverse or cross-racial interactions with peers because the likelihood that meaningful relationships will develop increases. Diverse interactions are generally good for everyone as they can positively affect self-concept, college retention, increased satisfaction with college, and sense of belonging regardless of race (Gurin,
Diverse interactions have shown to impact cognition by increasing critical-thinking skills and positive perceptions of diversity; however, negative diverse interactions have harmful effects by inhibiting students’ cognitive growth (Hurtado & Ponjuan, 2005). These results evoke principles found in a social psychology construct called the contact hypothesis (Allport, 1954). We will next discuss the contact hypothesis in relation to cross-racial interactions in higher education settings to provide nuance to this phenomenon.

**Cross-Racial Interactions**

Gordon Allport’s contact hypothesis came from a culmination of a large body of work that argued that contact between members of different groups could create harmonious relationships -- but the contact had to be under the right circumstances (Turner, Hewstone, Voci, Paolini, & Christ, 2007). The contact hypothesis entails the following:

> Prejudice… may be reduced by equal status contact between majority and minority groups in the pursuit of common goals. The effect is greatly enhanced if this contact is sanctioned by institutional supports (i.e., by law, custom or local atmosphere), and provided it is of a sort that leads to the perception of common interests and common humanity between members of the two groups (Allport, 1954, p. 281).

In essence, Allport stipulates that intergroup contact will reduce prejudice when four conditions are met: both groups have equal status, common goals, intergroup cooperation, and support of authorities. Pettigrew and Tropp’s (2006) meta-analysis of the effectiveness of the contact hypothesis provided substantial evidence that intergroup contact under Allport’s conditions can meaningfully reduce prejudice across groups. Although there is widespread evidence supporting the contact hypothesis using experimental, survey, and case study methodologies, a need still exists to contextualize intergroup contact as part of a larger understanding of greater social and
historical issues as there are criticisms of the practicality of contact theory in real life (Tredoux & Finchilescu, 2007). Paluck and her colleagues (2018) found in their meta-analysis that contact typically reduces prejudice; however, the effectiveness of the contact varies depend on the targets of prejudice. They found weaker prejudice reduction on measures of ethnic or racial prejudice as compared to prejudice reduction attempts towards people with disabilities. Because of this stronger prejudice reduction on people with disabilities, the authors argue that some prejudices are more malleable than others (Paluck et al., 2018). Further, they attribute these smaller effects to a lack of control over the four conditions that Allport outlined. On the whole, evidence supports the effectiveness of the contact hypothesis in laboratory settings with varying degrees of success.

Contemporaneously, other researchers reviewing the contact literature often voice doubt about the feasibility of facilitating the type of high-quality contact Allport described. Dixon, Durrheim, and Tredoux (2005) contend that contact in contrived conditions, such as a laboratory experiment, may not generalize to real life. Even if most studies mostly support that contact between ethnic groups reduces prejudice, it does not necessarily mean that these results are typical of real social situations (Amir, 1969). Intergroup contact rarely occurs under the four ideal conditions outside of the laboratory, and even if it occurs, it produces only casual interactions rather than high-quality friendships (Paluck, Green, & Green, 2018). Studying the contact hypothesis in a realistic setting can be difficult.

However, the military environment provides one of the rarest naturalistic opportunities to explore all four of Allport’s conditions for the contact hypothesis. In all branches of the military, members of the same unit generally have equal status among members, common goals, intergroup cooperation, and the support of commanders and policies that are arguably
‘colorblind.’ The support of authorities or laws is particularly strong in the military and the service academies because of the intricate nature that the military culture plays into each individual’s life. Additionally, as military members rise through the ranks, they become living embodiments of military ideals and practices to those members they outrank. Therefore, when a higher-ranking member endorses diversity and inclusion, subordinates should interpret this endorsement as fulfilling Allport’s definition of support of authorities. Given these constraints within a military academy, all four of Allport’s contact hypothesis conditions are met. Thus, investigating cross-racial contact at a service academy adds to the contact hypothesis literature and the sense of belonging literature because the setting provides the most potential to see the contact hypothesis successfully in action outside of a laboratory setting.

The literature establishes that intergroup contact is a pathway to reducing prejudice between the two groups, but it does not address the valence of the contact. Most interracial contact can be awkward and uncomfortable for both Whites and people of color, especially when interacting cross-racially for the first time. Research suggests that individuals’ efforts to avoid saying the wrong thing in cross-racial interactions are likely to leave them feeling cognitively and emotionally drained theoretically leading to negative cross-racial interactions (Richeson & Shelton, 2007). Despite the fact that having racially integrated schools can lead to positive intergroup interactions, it can also lead to negative cross-racial interactions (Chavous, 2005). For students, negative cross-racial interactions have been negatively associated with persistence to graduation in STEM (Chang, Sharkness, Hurtado, & Newman, 2014). Negative cross-racial interactions, including situations where students felt threatened because of their race or experienced hostile interactions, negatively impacted students’ interpersonal self-concepts (Kamimura, 2010). Per contra to this evidence, a sociological qualitative study found no
relationship between negative cross-racial incidents and sense of belonging (Cunningham, 2015). However, that author notes that cross-racial incidents can have unique negative academic and social consequences for Black students. Given this research, we make the argument that negative cross-racial interactions will be associated with lower sense of belonging. Next, we will discuss how the campus climate towards diversity and inclusion will affect this relationship between negative cross-racial interactions and sense of belonging.

**Perceptions of the Institution’s Commitment to Diversity and Sense of Belonging**

When students interact with each other, their conversations and joint experiences do not happen in isolation like in a laboratory setting (Dixon et al., 2005). Students from different racial groups co-existing on campus likely take into account the campus environment as they interpret the exact same event from two different racial perspectives. If the individual is pleased or satisfied with the campus’s diversity, that satisfaction or feeling of inclusion is likely to spill into other areas of his or her life. We know that students who perceived their institution to be supportive of racial diversity and intergroup relations were more receptive to associating with students from different racial groups than their own (Chavous, 2005). Both Inkelas (2004) and Greene (2008) contend that students' perceptions about their campuses may be just as influential as their experiences themselves. The impact of perceptions of an institution is not limited to campus culture but also military organizational culture. Within Army units, negative perceptions of organizational climate, including the underlying threat of discrimination or harassment, indicate an environment ripe with contemptuous and unfair behavior (Walsh, Matthews, Tuller, Parks, & McDonald, 2010). The researchers found that when a low, or bad, perception of organizational climate exists, members of that unit are likely to have decreased job satisfaction and increased job stress, regardless of their social identity like gender, race, or disability. We
speculate that students’ perceptions of their school as an organization, including service academy cadets and midshipmen, do affect their psychological well-being, their interactions with other students, and their sense of belonging.

Given the socially normative presumption of whether people in dominant or subordinate groups belong in elite institutions, people in subordinated groups are much more likely to be sensitive to and influenced by clues about organizations’ diversity than are members of dominant groups. That is, the presumption that dominant groups belong at the institution implies that they do not need clues regarding whether the institution values them and includes them in order to have high sense of belonging. In contrast, given that subordinated groups cannot generally assume they are welcome, they may attend to and interpret cues about the organization’s commitment to diversity much more. On the other hand, organizational perceptions regarding diversity are unlikely to influence high-status social group students’ experiences, but these perceptions are likely to influence minority group members’ experiences. Organizational perceptions affect businesses as well. In three studies, Purdie-Vaughns and her colleagues (Purdie-Vaughns, Steele, Davies, Ditlmann, & Crosby, 2008) demonstrated that cues in a business organization affect Black participants’ trust and comfort towards the organization, but White participants’ level of comfort were not affected. Minority students (African-Americans, Chicanos, and Asian Americans) and White students have been shown to be in agreement regarding the existence of sociocultural difficulties among students, but White students perceive greater levels of university support for minorities than the ethnic minority students perceived (Chavous, 2005). Other research suggests that Black students' belief that the institution’s administration discriminates against other Black students has a highly significant and negative effect on these students' sense of belonging (Gilliard, 1996). In other words, Black students
themselves do not have to experience the discrimination personally in order to experience the impacts of the discrimination. Instead, observing other minority members’ discrimination is enough to affect other students of color levels of belonging. The findings support the idea that students of color, as members of a traditionally disadvantaged group, are having different experiences and hold differential perceptions of the context as compared to their White peers.

Institutional cues to diversity in higher education is particularly important when considering racial disparities. The transition to college is arguably difficult for all students; however, socially disadvantaged group members experience more complex challenges to belonging than White, middle-class students (Jack, 2016). Further, Black students appear to be most affected by the characteristics and climate of their institutions as compared to other racial groups on campus (Greene, 2008). Ordinary daily stressors quickly turn into existential crises about whether ‘people like me’ belong here and many minority students do not know how to positively engage with institutional authority figures to help mitigate those day-to-day issues (Jack, 2016). White students experience the same daily stressors but those fears typically do not turn into the belonging crises that students of color experience. Because these typical, daily stressors can occur in addition to tense cross-racial interactions without overt experiences of discrimination, we are interested in how these experiences affect Black and White students’ sense of belonging differently. Given the literature outlined above, the valence of cross-racial interactions, particularly negative cross-racial interactions, can impact sense of belonging among college students based on their race. We use two data sets from a single U.S. service academy to investigate the role of the institution in relation to negative cross-racial interactions among students and sense of belonging. Therefore, my hypotheses are as follows:
H1: Negative Cross-Racial Interactions (NCRI) will be inversely related with a high sense of belonging.

H2: This relationship will be mediated by individual student Perceptions of the Institution's Commitment to Diversity (PICD).

H3: These mediation models with fit better for Black students as compared to White students.

**Study 1**

**Method**

Study 1 used data from a survey collected at a U.S. service academy in 2016. The original survey focused on sense of belonging among culturally diverse cadets and reported instances of discrimination. It included many items from the Diverse Learning Environments (DLE) survey, a product of the Higher Education Research Institute (HERI at UCLA, 2016). Survey items primarily came from the Classroom Climate and the Intergroup Relations module; rather than the entire DLE survey. The goals for this study were to test all three hypotheses listed above with the available data.

**Participants.** Students at an unspecified U.S. service academy were invited to participate in an online survey in February of 2016 during a dedicated survey and assessment week, that is, a week in which students’ normal military training events are suspended, allowing them to voluntarily partake in research studies. Students were appropriately compensated for their time with military training credits. Demographic information, such as students’ ethnic and racial background, age, sex, and class year were collected via self-report. A total of 2,635 students were included in the study, and they identified as Asian (n = 200; 7.6%), African-American or Black (referred to as “Black” from here; n = 152; 5.8%), Caucasian or White ("White;" n =
1936, 73.4%), Hispanic or Latino (“Latino;” $n = 190; 7.2\%$) or as another minority or of mixed-racial descent ($n = 157; 6\%$). However, the analyses presented here include only Black and White students. Of these students, Black women accounted for 26.3% ($n = 40$) of the total Black students and White women accounted for 27.1% ($n = 524$) of the White students. Among the Black and White subsample, all four of the class-year groups were represented with freshmen ($n = 666; 31.9\%$), sophomores ($n = 542; 26\%$), juniors ($n = 487; 23.3\%$) and seniors ($n = 393; 18.8\%$).

**Measures.** All item responses in Study 1 were z-scored in order to combine item responses into a single measure. Each scale outlined below was assessed using Confirmatory Factor Analysis and evaluated to be a good measure. The resulting mean of the items served as the participant’s score on each of the variables.

**Sense of Belonging.** An adaptation of Goodenow’s Psychological Sense of School Membership (PSSM, 1993) tailored for a service academy population measured sense of belonging. The PSSM consists of 18 questions with responses rated on a 5-point Likert scale ranging from 1 (*Not at All True*) to 5 (*Completely True*). This scale assesses belonging and sense of belonging on a campus level. This score was determined by a series of questions, including the following; “Other students in this school take my opinions seriously,” “Sometimes I don’t feel as if I belong here’” and “I wish I were in a different school.” This questionnaire has been shown to be a significant indicator of perceptions of campus climate in school-aged children, yielding an internal consistency of .88 (Goodenow, 1992). Reliability for this composite score was good ($\alpha = .92$).

**Positive Cross-Racial Interactions.** PCRs was measured with four items of how often the participant interacted in a positive way with someone from outside their racial group (e.g.,
“Had meaningful and honest discussions about race/ethnic relations outside of class” or “socialized or partied”). All items were answered on a 5-point Likert scale from 1 (Very Often) to 5 (Never). The items came from a DLE subscale (HERI at UCLA, 2016). Responses were reverse coded and yielded good reliability ($\alpha = .69$).

**Negative Cross-Racial Interactions.** The NCRI measured included two items of how often the participant interacted with someone from outside their racial group in a negative way (e.g., “Had tense, somewhat hostile interactions” or “Felt insulted because of your race/ethnicity”). All items were answered on a 5-point Likert scale from 1 (Very Often) to 5 (Never). The items came from a subscale of the DLE survey (HERI at UCLA, 2016). Responses were reverse coded and had good reliability ($\alpha=.68$, ICC = .51).

**Perceptions of Institutional Commitment to Diversity.** Perceptions of Institutional Commitment to Diversity gauges how much the participant perceives the school to embrace diversity and inclusivity, as seen through their interactions with faculty, staff, and administrators. Our measure of was adapted from Williams, Berger, and McClendon’s (2005) access and equity subscale of their “Inclusive Excellence Scorecard,” a multidimensional management tool designed to assess change related to organizational inclusivity. The items came from a subscale of the DLE survey (HERI at UCLA, 2016). Perceptions of Institutional Commitment to Diversity was assessed with 10 items from two stemmed questions. One set of four items asked to what extent the participant agreed with statements like, “the faculty/staff here have a long-standing commitment to diversity” and “the faculty/staff regularly speak about the value of diversity.” These items were answered on a 1 (Strongly Agree) to 4 scale (Strongly Disagree). The second set of question contained six items that rated participants satisfaction with diversity at their school. Examples items are “satisfaction with the racial diversity of the faculty/staff/students”
and “satisfaction with atmosphere for differences in ethnicity.” These items were answered on a 1 (Very Satisfied) to 5 scale (Very Dissatisfied). The 10 items had good reliability (α= .88). Items were reverse coded so that high scores indicated high satisfaction with institutional commitment to diversity.

**Class Year.** Class year was defined as the student’s projected year of graduation. Students are required to graduate in four years at this institution. Student participants provided their class year in the demographics portion of the survey. Options were class of 2016, class of 2017, class of 2018, or class of 2019 and were coded as Year 4 (seniors), Year 3 (juniors), Year 2 (sophomores), and Year 1 (freshmen), respectively.

**Procedure.** Students were directed to an on-line survey located on a website containing a cover letter with a brief description of the study and instructions. We gave students an electronic consent form and notification of voluntary participation before they could begin the survey. Participants were informed that the survey was approximately 25-35 minutes in duration. Students were not able to return to the survey and finish once they exited.

**Analysis Strategy**

To accommodate a more accurate interpretation of the effect of students’ perceptions of diversity within their college, a mediation model was used to analyze the data. R studio was the program of choice with the Mediation package (Tingley, Yamamoto, Hirose, Keele, & Imai, 2014). SPSS handled all the data manipulation before final conducting final analyses in R.

**Addressing Missing Data.** Rather than delete entire participants based on a few missing items, we performed a multiple regression imputation in SPSS using the entire original data set (n = 2635). Little’s MCAR Test (Missing Completely at Random) was performed only on the items of interest for this project. The results of the test, $\chi^2(1174, N = 2654) = 1432.66, p < .001$,
indicated that the data were not missing completely at random. Pattern analysis revealed that several participants were missing most, if not all, of the sense of belonging scale. Due to the high importance of the entire scale, those participants were excluded. Little’s MCAR analysis was run again and the results became non-significant for minorities, indicating missing data from minority cadets was indeed missing completely at random. For White cadets, the test remained significant $\chi^2(941, N = 1851) = 1178.97, p = .000$. Looking at the pattern analysis, I could not make out a pattern for Whites unfortunately other than seven participants who failed to mark a class year. Those participants were excluded, and data imputation was then performed. A separate data set was created by trimming all participants who had any missing data ($N = 2523$). All analyses were performed on both the imputed data set and the trimmed data set. The data sets yielded comparable results in the same direction; however, the imputed data set gave more conservative estimates and therefore will be presented here.

**Model Testing.** Three models were created to test the hypotheses. First, a linear regression was executed testing the effect of NCRI on Sense of Belonging (Figure 1). Next, the mediational effect of perceptions of institutional commitment to diversity was analyzed. All mediation results utilized a Bootstrapping approach with 1000 simulations each and used linear models as linearity and normality assumptions were met. Using the Baron and Kenny method (1986), mediation was established in four steps: 1) Show that the predictor variable is correlated with the outcome variable, 2) show that the predictor variable is correlated with the mediator, 3) show that the mediator affects the outcome variable, and 4) establish the type of mediation present, either a full mediation (predictor and outcome variable relationship equals zero) or a partial mediation (predictor and outcome variable relationship does not equal zero) (Baron & Kenny, 1986). Model 1 tested NCRI as the predictor variable, sense of belonging as the outcome
variable, and perceptions of institutional commitment to diversity as the mediator. Model 1 and Model 2 were examined the Black and White students combined but also was run as subsets. Covariates in all regression models included PCRI and Class Year.

**Results**

**Descriptive Statistics**

Table 1 and 2 provide the standard deviations and correlations of the measures. Since the items were z-scored, the mean is zero. All variables were reliably correlated with each other. Sense of belonging was negatively correlated with NCRIs ($r = -.23, p < .01$) and positively correlated with perceptions of institutional commitment to diversity ($r = .46, p < .01$). Perceptions of institutional commitment to diversity was negatively correlated with negative cross-racial interactions ($r = -.21, p < .01$). Positive and negative cross-racial interactions were correlated for White students ($r = .14, p < .01$) but not for Black students ($r = -.01, p = .95$). In order to control for the effect of students’ overall frequency of interacting with students outside their own racial group, PCRI was added as a covariate.

<Insert Table 1 & 2 here>

**Analysis of Variance**

An omnibus analysis of variance test examined mean differences in the measures (see Table 3). Controlling for PCRI and class year, there were significant race differences on three measures: sense of belonging, $F(1, 2084) = 41.2, p < .001$, negative cross-racial interactions, $F(1, 2084) = 110.2, p < .001$, and perceptions of institutional commitment to diversity, $F(1, 2084) = 176.33, p < .001$. Black students reported having a lower sense of belonging and lower perceptions of institutional commitment to diversity while White students reported having less
NCRIs. There was no difference between White and Black students on positive cross-racial interactions, \( F(1, 2085) = 2.14, p = .143. \)

**Mediation Results**

Perceptions of institutional commitment to diversity was found to mediate the relationship of NCRI and sense of belonging in the negative direction (see Table 4). The more NCRIs that students report having, the higher the mediational effect of perceptions of institutional commitment to diversity, resulting in a lower sense of belonging. The average causal mediated effect (ACME) is 0.07, 95% CI [-0.09, -.06], \( p \leq .001 \). Additionally, 33.8% of the total effect of NCRI and sense of belonging is mediated by perceptions of institutional commitment to diversity. The average direct effect (ADE) decreased from -.21 in the original model to -.14 in the mediation model when taking into account the indirect effect of PICD resulting in a partial mediation.

**Mediation Results for Black students**

Perceptions of institutional commitment to diversity mediated the relationship of NCRI and sense of belonging in the negative direction for Black students. The more NCRIs that students report having, the higher the mediational effect of perceptions of institutional commitment to diversity, resulting in a low sense of belonging. The ACME is 0.07, 95% CI [-.13, -.02], \( p < .001 \). Further, 32.1% of the total effect of NCRI and sense of belonging is indirectly affected by perceptions of institutional commitment to diversity. In this partial mediation, the ADE decreased from -.22 in the original model to -.15 in the mediation model.
when taking into account the indirect effect of perceptions of institutional commitment to diversity.

<Insert Figure 1b here>

**Mediation Results for White students**

Perceptions of institutional commitment to diversity mediated the relationship of NCRI and sense of belonging in the negative direction for White students. The more NCRIIs that students report having, the higher the mediational effect of perceptions of institutional commitment to diversity, resulting in a low sense of belonging. The ACME is 0.05, 95% CI [-0.07, -0.04], \( p < .001 \). Further, 26.7% of the total effect of NCRI and sense of belonging is indirectly affected by perceptions of institutional commitment to diversity. As a partial mediation, the ADE decreased from -.19 in the original model to -.14 in the mediation model when taking into account the indirect effect of perceptions of institutional commitment to diversity.

**Model Fit Tests**

Model fit tests indicated a goodness of fit for the model overall and for Black and White students separately (CFI = 1; RMSEA = 0; see Table 8). Lower values of Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) comparative measures of fit indicate a better model fit (Kenny, 2015). Comparatively, Black students had the best fit (AIC = 574.63; BIC = 601.85) compared to White students (AIC = 6873.33; BIC = 6923.44). Each racial group’s sample fit the model better separately than the aggregate data (AIC = 7570.27; BIC = 7621.01).

<Insert Table 8 here>
Results and Discussion - Study 1

As expected, controlling for the number of positive cross-racial interactions, students who reported having negative cross-racial interactions (Hypothesis 1) had lower ratings of sense of belonging as compared to those who described having negative cross-racial interactions less often. Importantly, Black students reported more frequent negative cross-racial interactions ($M = .63, SD = 1.1$) as compared to White students ($M = -.10, SD = .80$), $F(1, 2084) = 110.2, p < .001$, but there was no difference in the amount of positive cross-racial interactions ($M = .00, SD = .7$), $F(1, 2085) = 2.14, p = .143$. Students who have a high number of negative cross-racial interactions have more negative perceptions of the institution.

The mediation model supported Hypothesis 2, which predicted that the relationship between NCRI and sense of belonging would be mediated by students’ perceptions of the institution's commitment to diversity. The directions of the relationships between variables and the mediator were the same for Black and White students. Further, this mediation accounted for more variance in the model for Black students (31.8%) than it did for White students (26.7%). From this we can surmise that Black students’ perceptions of the institution are more affected by negative cross-racial interactions than White students. Additionally, Black students had significantly more negative cross-racial interactions which may account for the differences in model fit tests. Our model fit tests indicated a good fit for the model with differences between Black and White students’ responses. Black students’ responses fit the data better with lower AIC and BIC scores. These findings do indicate that differences in experiences exist between Black and White students in college. Study 1 provides some evidence of our hypotheses, but it is important to replicate results whenever possible; therefore, we collected data on students again two years later.
Before we collected data for our second study, we addressed the potential weaknesses of study 1’s survey items. Many of the items were derived from the DLE and likely did not capture the nuance needed for assessing cross-racial interactions at a service academy. By adding several items, we attempted to remedy the weaknesses of the DLE items for this study’s purpose.

**Study 2**

In study 2, we aimed to replicate findings from study 1 to further support the hypotheses of the overall project. Study 2 was designed to improve and strengthen the measures for a military service academy population from the results of study 1. We designed additional items to for the cross-racial interactions measures to reflect deeper conversations than the items from the DLE. The service academies have three distinct faculty organizations: military training faculty, academic faculty, and athletic faculty. Per the request of the institutional survey review board, the first four questions of the perceptions of institutional commitment to diversity were asked three times, separately for each of the separate faculty organizations. Study 2 still contained many of the same items; however, study 2 served more of a conceptual replication to test if our results from study 1 would hold across another sample two years later.

**Method**

**Participants.** Students at the same service academy were invited to participate in an online survey in April of 2018 during a dedicated survey and assessment week. The procedure is the same as for Study 1. After data cleaning, a total of 862 students were included in the study who identified as Asian \(n = 52; 6\%\), Black \(n = 55; 5.8\%\), Latino \(n = 52; 7.2\%\), White \(n = 650, 75.4\%\), or as another minority or of mixed-racial descent \(n = 53; 6.1\%\). Again, the analyses presented here include only Black and White students. Of these students, Black women accounted for 30.9% \(n = 17\) of the total Black students and White women accounted for 28.9%
(n =188) of the White students. All four-year groups were represented with freshmen (n = 340; 48.2%), sophomores (n = 135; 19.1%), juniors (n = 124; 17.6%) and seniors (n = 106; 15%). Freshman were overrepresented in the sample as the student body is approximately made of 30% freshman.

Measures. Building from the DLE items in Study 1, we modified the items to better reflect the culture of the institution while adding several items to increase the strength of our measurements. All items can be found in Appendix B. Like study 1, each scale outlined below was assessed using a CFA and evaluated to be a good measure. All measures in study 2 had higher Cronbach α’s than in study 1. The mean of the items in the construct became the participant’s score on each of the measures.

Sense of Belonging. Sense of belonging was measured with the PSSM, as in study 1. We adapted the PSSM to a 7-point Likert scale ranging from 1 (Not at All True) to 7 (Completely True). Reliability for this composite score was good (α = .91).

Positive Cross-Racial Interactions. PCRI was measured in study 2 with seven items of how often the participant interacted with someone from outside their racial group in a positive way (e.g., “Shared personal experiences, problems or opinions with a student of another race” or “[I]nvited a student of another race to hang out or do schoolwork together”). All items were answered on a 7-point Likert scale from 1 (Very Often) to 7 (Never). Responses were reverse coded and yielded good reliability (α = .89).

Negative Cross-Racial Interactions. The NCRI measure included five items of how often the participant interacted with someone from outside their racial group in a negative way (e.g., “I have felt stressed, angry, or misunderstood after talking with a cadet of a different race.” or “Have felt like the other person didn’t understand you because of your racial differences.”). All
items were answered on a 7-point Likert scale from 1 (Very Often) to 7 (Never). Responses were reverse coded and had good reliability ($\alpha=.87$).

**Perceptions of Institutional Commitment to Diversity.** Perceptions of institutional commitment to diversity was assessed with 20 items from two stemmed questions. One set of 12 stemmed questions asked to what extent the participant agreed with statements like, “faculty/staff encourage students to have a public voice and share their ideas openly to solve problems” and “faculty/staff have an unwavering commitment to diversity.” These items were answered on a 1 (Strongly Agree) to 7 scale (Strongly Disagree). The second set of 8 questions where participants rated their satisfaction with diversity at the school. Examples items are “Satisfaction with school policies on diversity” and “Satisfaction with institutional response to incidents of discrimination.” These items were answered on a 1 (Very Satisfied) to 7 scale (Very Dissatisfied) with good reliability ($\alpha=.94$). Items were reverse coded so that high scores indicated high satisfaction with institutional commitment to diversity.

**Class Year.** Class year was defined the same way as in Study 1.

**Procedure.** The procedure matched Study 1 exactly.

**Analysis Strategy**

**Addressing Missing Data.** Little’s MCAR Test was performed only on the items of interest. The results of the test, $\chi^2 (1178, N = 864) = 1791.12, p = .409$, indicated that the data were missing completely at random. Therefore, data imputation was performed with no modification. The process for imputation was performed exactly as in study 1.

**Model Testing.** The same three models for study 1 were tested. First, a linear regression was executed testing the effect of NCRI on sense of belonging. Next, the mediational effect of perceptions of institutional commitment to diversity was analyzed. All mediation results utilized
a Bootstrapping approach with 1000 simulations each and used linear models as linearity and normality assumptions were met. Model 1 tested NCRI as the predictor variable, sense of belonging as the outcome variable, and perceptions of institutional commitment to diversity as the mediator. Model 1 examined the Black and White students combined but also was run as subsets. Again, covariates in all regression models included PCRI and class year.

Results

Descriptive Statistics

Table 5 provides the means, standard deviations, and correlations of the measures for study 2. All variables were correlated in the same fashion as study 1. Sense of belonging was negatively correlated with NCRIs \( r = -0.28, p < .01 \) and positively correlated with perceptions of institutional commitment to diversity \( r = 0.45, p < .01 \). Perceptions of institutional commitment to diversity was negatively correlated with negative cross-racial interactions \( r = -0.27, p < .01 \). Positive and negative cross-racial interactions were also correlated \( r = 0.11, p < .01 \).

Analysis of Variance

Controlling for PCRI and class year, there were significant main effects for race (Black or White) on three measures: sense of belonging, \( F (1, 701) = 20.5, p < .001 \), negative cross-racial interactions \( F (1, 701) = 94.7, p < .001 \) and perceptions of institutional commitment to diversity \( F (1, 701) = 30.0, p < .001 \); see Table 6). Black students reported having a lower sense of belonging and lower perceptions of institutional commitment to diversity while White students reported having less NCRIs. There was no difference between White and Black students on positive cross-racial interactions \( [F (1, 702) < 1] \).
**Mediation Results**

Perceptions of institutional commitment to diversity was found to partially mediate the relationship of NCRI and sense of belonging in the negative direction (see Table 7). The more NCRIIs that students report having, the higher the mediational effect of perceptions of institutional commitment to diversity, resulting in a lower sense of belonging. The average causal mediated effect (ACME) is 0.08, 95% CI [-0.11, -0.05], \( p < .001 \). Additionally, 36.1% of the total effect of NCRI and sense of belonging is mediated by perceptions of perceptions of institutional commitment to diversity. The ADE decreased from -.22 in the original model to .14 in the mediation model when taking into account the indirect effect of perceptions of institutional commitment to diversity resulting in a partial mediation.

<Insert Table 7 and Figure 2a here>

**Mediation Results for Black students**

Perceptions of institutional commitment to diversity fully mediated the relationship of NCRI and sense of belonging in the negative direction for Black students. The more NCRIIs that students report having, the higher the mediational effect of perceptions of institutional commitment to diversity, resulting in a low sense of belonging. The ACME is 0.19, 95% CI [-0.33, -0.08], \( p < .001 \). Further, 62.1% of the total effect of NCRI and sense of belonging is indirectly affected by perceptions of institutional commitment to diversity. In this full mediation, the ADE decreased from -.20 in the original model to -.12 (\( p = .11 \)) when taking into account the indirect effect of perceptions of institutional commitment to diversity.

<Insert Figure 2b here>
Mediation Results for White students

Perceptions of institutional commitment to diversity partially mediated the relationship of NCRI and sense of belonging in the negative direction for White students. The more NCRIs that students report having, the higher the mediational effect of perceptions of institutional commitment to diversity, resulting in a low sense of belonging. The ACME is 0.06, 95% CI [-.09, -.03], p < .001. Further, 30% of the total effect of NCRI and sense of belonging is indirectly affected by perceptions of perceptions of institutional commitment to diversity. As a partial mediation, the ADE decreased from -.20 in the original model to -.14 in the mediation model when taking into account the indirect effect of perceptions of institutional commitment to diversity.

<Insert Figure 2c here>

Model Fit Tests

Model fit tests indicated a goodness of fit for the model overall and for Black and White students separately (CFI = 1; RMSEA = 0; see Table 8). Comparatively, Black students had the best fit (AIC = 236.57; BIC = 254.64) with the model compared to White students (AIC = 3086.36; BIC = 3216.66). Each racial group’s sample fit the model better separately than the aggregate data (AIC = 3337.89; BIC = 3378.91).

Results and Discussion - Study 2

As we found in Study 1, students in Study 2 that reported having more frequent negative cross-racial interactions had lower ratings of sense of belonging as compared to those who described themselves as having fewer negative cross-racial interactions, supporting hypothesis 1. The mediation models again supported hypothesis 2, which predicted that the model would be mediated by individual student perceptions of the institution's commitment to diversity. Results
from study 2 mirror that of study 1 and offer further support of the original hypotheses. We will go into a deeper explanation of these data in the next section.

**General Discussion**

The present study investigated the idea that cross-racial interactions are related to college student’s level of belonging as past research has clearly found a connection between diverse interactions and a higher sense of belonging for college students (Cabrera & Nora, 1994; Hoffman, Richmond, Morrow, & Salomone, 2002; Locks, 2009; Strayhorn & Johnson, 2014). However, these studies generally examined positive cross-racial interactions or merely amount of contact with someone outside of one’s own racial group. While these interactions are still important, we are missing the other half of the story as human beings experience both positive and negative interactions with each other. Negative interactions can impact a student’s experience, but that impact has not been studied extensively in relation to sense of belonging. Further, we found that Black and White students experience differential impacts from these negative interactions – i.e., Black students are unequally burdened with negative cross-racial interactions and the harm it brings to their psychological well-being. From these studies, we have four main conclusions outlined below. But in general, we found that students’ negative cross-racial interactions negatively impact their sense of belonging.

**Differences in Sense of Belonging, Cross-Racial Interactions, and Perceptions of Institutional Commitment to Diversity**

First, in both studies, Black students reported a significantly lower sense of belonging and poorer perceptions of the institution’s commitment to diversity than did White students. These results raise a question regarding one condition of the contact hypothesis: How important is the support of authorities or laws for cross-racial interactions and belonging (Allport, 1954;
In a military academy, the permanent party members represent the authorities and become embodiments of military policy. Black and White students are generally being told the same diversity messages from the institution and from instructors during class time, but those messages might be interpreted differently, depending on experience, schemas regarding racism, or other memories and mind-sets associated with the students’ race. The significant differences found between Black and White students’ perceptions of institutional commitment to diversity suggest that it is a racially subjective experience. Black and White students did not agree on their perceptions of the institution’s commitment to diversity with Black students consistently having more negative impressions than White students. Our findings echo that of Hussain and Jones (2019), who found the same type of race difference in perceptions of institutional commitment to diversity for students of color attending a primarily White institution. This finding is important as many survey items and studies ask about students’ general interactions or positive interactions with students outside their race. The negative aspect of intergroup contact is largely ignored in the sense of belonging literature and the contact hypothesis literature; our research shows that the negative valence of interactions is an important consideration in creating an atmosphere of inclusion.

As shown in Table 3 and Table 6, we found that Black students reported more frequently experiencing negative cross-racial interactions than White students do; however, there were no differences on their reported positive cross-racial interactions. This supports evidence found by Strayhorn (2008) that Black men in national college student sample report having more frequent cross-racial interactions than White men; however, our evidence extends that finding by including the negative valence of the interaction as an important factor. Black and White students report having similar amounts of positive cross-racial interactions but significantly
different amounts of negative cross-racial interactions. Black students potentially are losing all of
the positive aspects of the contact hypothesis because they are also having negative interactions
that cancel out the positive ones. This substantiates data from a report by National Public Radio
and the Harvard T.H. Chan School of Public Health in a 2017 survey of 802 Black adults.
Among their findings, they report that the more money Blacks have, the more they report
experiencing interpersonal discrimination and differential treatment. This means that Black
adults higher in socio-economic status (SES) face more prejudice (National Public Radio, 2017).
This experience can be described as "the bind of Black success:" not only are Black people
higher in the SES in more contact with White people, they also “more acutely experienced the
stakes of being direct competition with them. The more proximity to inclusion is realistic, the
price of exclusion is more pronounced” (Demby, 2017). Black students at the U.S. service
academies find themselves experiencing this bind of Black success. Attending a service academy
is a competitive and elite process – academies acceptance rate ranges from 9% to 18% (Jackson,
2017). And as Strayhorn and Johnson (2014) point out, Black students are forced to interact with
White students simply because there are so many of them proportionately on a PWI campus
(2014). Black cadets have even less opportunity for complete self-segregation because of
mandatory training and living environments. Regardless of their own SES or previous exposure
to White people, Black cadets are immersed into a large, novel group of high-status White
people, and will routinely interact with upper-income White cadets who potentially have had
limited exposure to non-White people.

Our White participants reported experiencing less of the negative type of cross-racial
interactions as compared to our Black participants (see Table 3 and Table 6). Given Paolini and
her colleague’s (2010) conclusion that repeated negative interracial contact tends to increase
Whites’ accessibility of and beliefs in negative out-group stereotypes (i.e., stereotypes of Blacks), we can surmise that our sample of cadets may hold fewer negative out-group stereotypes as compared to those who report high levels of negative intergroup contact.

However, Strayhorn’s work notes that nearly a quarter of White students report “never” having a discussion with a peer of a different racial group (2008), which neglects an important aspect of Allport’s contact hypothesis approach to reducing prejudice – actual cross-racial contact. The authors argue that White students are simply afforded the opportunity to avoid all cross-racial interactions merely because they make up the largest racial group at most universities and colleges, hence the term “Predominately White Institutions,” granting them the ability to choose same-race peers (Strayhorn & Johnson, 2014). If intergroup contact only occurs for one group (Blacks) and another group can avoid it on the whole (Whites), then true prejudice reduction at the individual or organizational level will happen at an extremely slow pace. However, our items could not capture the amount or volume of negative and positive cross-racial interactions proportionately, which is a limitation in our understanding of how frequently White and Black students are engaging interracially comparatively to each other. We asked about their interactions with another cadet outside of their race and the positive or negative aspects of those interactions. But we did not ask about same-race interactions. It is likely that Black cadets are having proportionately more other-race interactions than same-race conversations as compared to White cadets. There are relatively fewer minority students at PWI campuses, so minority students are more likely to have a lot of cross-racial interactions while White students have less frequent cross-racial interactions in the first place, harking back to Strayhorn’s point. While our data support Strayhorn’s assertion that Whites have the privilege of avoiding cross-racial interactions, we expand it by applying the concept of aversive racism. Whites may fear labeling
any type of cross-racial interaction as negative because they do not want to appear racist, even if to themselves (Crandall, Eshleman, & O’Brien, 2002; Gaertner & Dovidio, 1986). Bonilla-Silva (2013) argues that when Whites have a tense interaction with a person from another racial group in college, they will back away from the conversation when it starts to get tense or difficult and claim that overly politically correctness inhibits true conversation. This avoidance is a form of colorblind racism. Further research needs to be done to fully substantiate the argument that White cadets are engaging in colorblind racism by avoiding the conversation (Bonilla-Silva, 2013).

**Negative Cross-Racial Interactions Inversely Related to Sense of Belonging**

Secondly, we found evidence supporting the inverse relationship between negative cross-racial interactions and sense of belonging for all cadets (hypothesis 1). Given that diverse interactions are positively correlated with sense of belonging, we could assume that the relationship between NCRI and sense of belonging would be negative even though it has not been explicitly established in the literature.

Further, and as expected, the negative relationship between negative cross-racial interactions and sense of belonging was stronger for Black students than it was for White students. Knowing that White students report having less frequent NCRIs and that NCRIs are inversely related to sense of belonging, it is clear why Black students’ overall sense of belonging is lower than White students’ belonging. Yet, the simple relationship between NCRI and sense of belonging only partially explains why White students’ belonging is higher than Blacks. Students who belong to the same school are having these interactions in the context of the campus environment. As mentioned before, service academies hold a high and unusual amount of control over cadets’ and midshipmen’s lives. Taking into account students’ perceptions of institutional
commitment to diversity strengthens our ability to improve minority students’ sense of belonging. The findings support the idea that students of color, as members of a traditionally disadvantaged group, are having different experiences than their White peers and that the messages their institutions send regarding diversity matter.

**Perceptions of the Institutional Commitment to Diversity as a Mediator**

Third, we found consistent results between study 1 and study 2 indicating support for the idea that perceptions of the institution’s diversity and inclusion mediated the relationship between students’ negative cross-racial interactions and their sense of belonging. We found partial mediations in both studies for all students and of a full mediation for Black students in Study 2. In study 1, the coefficients for the model remained relatively stable across all students, Black students, and White students. Perceptions of institutional commitment to diversity as a mediator accounted for roughly a quarter to a third of the total amount of variance found in the model.

In Study 2, we again found similar coefficients except for our Black student participants. Testing the model with only Black students, we found that the NCRI to perceptions of institutional commitment to diversity ($r = .41$, $p < .001$) was over one and half times stronger than in study 1 ($r = .25$, $p < .001$). Similarly, the perceptions of institutional commitment to diversity to sense of belonging relationship ($r = .46$, $p < .001$) was over one and half times stronger than in Study 1 ($r = .28$, $p < .001$). And lastly, the proportion mediated by the model in Study 2 was at 62.2% for Black students, an increase from 32.1% in Study 1. For White cadets, the mediational strength of the model in Study 1 and Study 2 stayed relatively the same at 26.7% and 30%, respectively. This change is likely due to the change in measures from study 1 to study 2. The basic items from the DLE used in study 1 likely did not capture the nuance needed for assessing
cross-racial interactions at a service academy and was not sensitive enough to capture the unique experiences for Black cadets. In other words, the DLE cross-racial items from HERI (Higher Education Research Institution at UCLA., n.d.) were likely written with White students in mind. By adding several items, we were able to more strongly capture the experiences of Black students while interacting with non-Black students inside a military organization. Our added items reflected deeper connections and more specific emotions associated with those interactions whereas the DLE items surface level interactions. Next, we discuss the implications of this statistical difference.

**Differential Experiences for Black Students in College**

Lastly, indeed we found that Black students were more affected by perceptions of the characteristics and climate of the institution as compared to White students. Black students, as the socially disadvantaged group members, experienced more complex challenges to belonging than White students (Walton & Brady, 2017) and Black students also appeared to be more affected by the characteristics and climate of the school compared to White students (Greene, 2008). The correlations were stronger on all relationships, the average mediational effect was consistently larger, and the model fit indices indicated a better fit of the model for Black students. Taken together, we can reasonably support the idea that Black students and White students are differentially affected by the racial climate on campus.

The weaker correlation between NCRI and perceptions of institutional commitment to diversity for White students than for Black students can explained for two main reasons. First, White cadets do not just represent the academies to outsiders – they represent the institution to fellow classmates. From the perspective of Black students, White students represent the institution, which affects how Black students might interpret the academy’s commitment to
diversity. In the eyes of Black students, White cadets could be representing the overall organization in the same manner as the permanent party members do. When White students say things like, “I feel that racial issues are blown out of proportion,” minority cadets’ experiences are not only invalidated by a peer, but those words ultimately represent the institution as a whole. In contrast, Black students (or non-White students) ironically do not represent or impact their perception of the institution’s commitment to diversity for White students. Secondly, we did find a significant difference in perceptions of institutional commitment to diversity showing that White students had a more positive perception of the institution’s diversity policies. Essentially, White students and faculty end up representing the institution more so than Black students.

The mediational pathway is stronger for Black students than it is for White students, which might explain why their sense of belonging generally is lower than White students. If Black students are having more of these negative cross-racial interactions in the first place, it causes their perceptions of the institution to decrease as White students appear to be like “insiders” to Black students, which then decreases Black students’ sense of belonging. Black students’ perceptions of the institution and other institutional cues also influence their sense of belonging as well as negative cross-racial interactions. For White students, these associations still exist but not to the same extent that it does for Black students. When White students have a negative cross-racial interaction, it will negatively affect their sense of belonging even if their perceptions of the institution’s diversity efforts are positive. But for Black students in study 2, their perceptions of the institution completely explain the relationship between their negative cross-racial experiences and sense of belonging. Therefore, everyday negative experiences with a non-Black person impact their perceptions of the institution, which then affects their belonging. Negative cross-racial experiences do not affect White students in the same way and do not have
the same consequences as it does for Black students, which could be described as “inequality” between Black and White students (Strayhorn & Johnson, 2014).

**Limitations**

To our knowledge, this is the first time the mediational effect of perceptions of the institution’s commitment to diversity on the relationship between negative cross-racial interactions and sense of belonging has been tested in a college setting or in a military setting. Nonetheless, our studies have several limitations that need to be noted. First, we conducted at a service academy which is quite different than a state university. Therefore, we would expect stronger relationships with students’ perceptions of the institution’s commitment to diversity and their sense of belonging than one would find at civilian colleges. As students in a university that is also a total institution, cadets at the service academies are extremely engrained into the policies and activities of the school and are likely more affected by the organization’s policies. For example, cadets attend mandatory training, meals, and military formations which are not normally required of students at a civilian college. Civilian college students are busy but enjoy the luxury of controlling their day-to-day lives in a more liberated fashion than cadets or midshipmen. Since all cadets live on campus all four years, work alongside their peers, and conduct military operations together, cadets engage in a lot of mandatory interactions with other cadets that may not have occurred at a civilian university. Therefore, the intensity of our results may not be found in other universities.

We did not include data representing other races, such as Asian-American, Latino, or Mixed-Race students because we believe that each racial group has distinct experiences at PWIs. Grouping all non-White students together as one group does a disservice to racial minorities, as each minority group has its own collective cultural and history with an institution and with
White-Americans. Therefore, our study can only represent Black students and we cannot generalize to other racial minorities. However, the results demonstrate the importance of recognizing unique experiences on campus in conjunction with race. Further research on this model utilizing all types of racial categories would serve as beneficial for institutional administrators in their quest to increase their students’ sense of belonging.

Due to the ethical considerations of collecting cadet and midshipmen data at the service academies, no identifying information about the participants were collected during study 1 or during study 2. Due to this constraint, we were unable to recruit nor preclude any of the participants from study 1 for study 2. Consequently, the freshman and sophomores in study 1 theoretically could have taken the second survey as juniors or seniors. While many of the items in the surveys remained the same or were slightly updated, not being able to track participants accurately is a weakness of this study. However, the studies occurred more than two years apart and the likelihood of participants remembering their specific responses to the first survey are low and would have negligible impact on the overall results of the study. Yet, longitudinal research on belongingness and cross-racial interactions at the service academies should be completed. Since cadets must graduate in exactly four years, the cadet and midshipmen rank progression offers a unique opportunity to track developmental change in perceptions of diversity, cross-racial interactions, and sense of belonging.

Implications for Research and Practice

Additional research methods carefully examining sense of belonging, perceptions of institutional commitment to diversity, and negative cross-racial interactions is needed. Questions still linger after these studies including: Do White students realize the impact they are having on their Black peers? Did the White student know that the cross-racial interaction they just had was
a negative experience for the other person? Aversive racism describes this experience well. People who are low on explicit measures of bias but rate high on implicit measures of bias are termed “aversive racists” (Dovidio & Gaertner, 2004a). They find overt racism to be aversive; however, their body language and lack of eye contact convey when interacting with Black people indicate that they are uncomfortable (Hagiwara, Dovidio, Eggly, & Penner, 2016). In racially discordant physician-patient interactions, physicians in the aversive racist category were assessed by independent coders as exhibiting less positive affect and more negative affect than physicians not identified as aversive racists (Hagiwara et al., 2016). It is possible that in cross-racial interactions in college, White students are walking away from a conversation with a Black student thinking it was positive, while Black students step away from the conversation thinking it was a negative experience. Using these data as points for further investigation, we can begin to understand the root cause of the differential experiences of Black and White students in college may lie in the Black students’ negative cross-racial interactions.

For educators and administrators who want to proactively change the campus culture towards diversity and inclusion, our work expands upon the two implications for practice offered by Hussain and Jones (2019). First, colleges can facilitate positive cross-racial interactions by creating spaces and opportunities outside of formal classes (Hussain & Jones, 2019). However, our research suggestions that such opportunities are likely to bring about some negative cross-racial interactions as well. Students should be provided with options to debrief and discuss when cross-racial conversations go awry. Facilitators, program managers, and faculty should receive training on mediation specifically for cross-racial interactions. White students are possibly unaware of the impression they leave on their non-White peers and providing feedback for them would be valuable, albeit difficult. Colleges could also have special events that recognize the
unique experiences that Black students face on campus. For example, one of the U.S. service academies held an evening discussion series during the Ferguson Unrest in 2014. Black and White cadets gathered with volunteer faculty facilitators to break into small groups to discuss different aspects of racial tensions in the United States at the time. This event was seen as successful, largely by the cadets themselves. White cadets remarked that they would have never heard some of their Black peers’ stories about the police had it not been for the event.

Additionally, faculty members can also simply acknowledge and listen to their students of color to hear their experiences. In the first author’s personal experience, White faculty have a tendency to explain or rationalize or downplay minority students’ experiences because they believe it is helpful in assisting the student to move past the harmful or negative experience. However, denying someone’s reality and feelings can be damaging (Purdie-Vaughns, 2004). Largely, giving the space for Black students to express their feelings without them being denied by other students or faculty members is key to providing a sense of belonging for minority cadets.

Secondly, institutions should “boldly affirm their commitment to diversity and diversity-related issues” (Hussain & Jones, p. 7, 2019). Our studies suggest that faculty and staff can show their unwavering commitment to diversity, promote the value of cultural differences, and regularly speak about the value of diversity to increase students’ perceptions of institutional commitment to diversity. This should occur within a context of a diverse faculty, student body, and student leaders. College administrators should take time to review their diversity policies to earnestly inspect the impact of them. For example, diversity policies can create an “illusion of fairness” (Kaiser et al., 2013) as pro-diversity messages may inadvertently lead dominant group members to overlook bias and discrimination. This bias impairs high-status group members’ ability to detect discrimination against minority group members (Kaiser et al., 2013). Moreover,
the philosophy of the diversity policy can impact members’ trust of the organization (Purdie-Vaughns et al., 2008). Colorblind diversity messages, including ideas that everyone within the organization is similar and that group differences should be minimized, led Black professionals to distrust the organization more while having no effect on White professionals (Purdie-Vaughns et al., 2008). The effect of faculty members’, institutional administrators’, and university representatives’ actions in and out of the classroom about diversity and inclusion may be less obvious than previously assumed.

College is supposed to be a challenging experience. Students attend university with hopes and dreams of graduation, giving them more opportunities later in life. However, college students of color often face more challenging experiences and obstacles to overcome in regard to belonging. The unique challenges students of color face should be continually validated and addressed by the universities in order to increase belongingness among Black students. When Whites remain silent about race issues communicates a message, often unintended, that Black students are not welcome to share their experiences on campus. This may undermine all the progress made towards diversity and inclusion. Therefore, it is critical that minority student voices are acknowledged, and that faculty and staff boldly assert their commitment to diversity as well as the institution’s commitment to diversity and inclusive practices that will allow all students to flourish and feel a high level of belonging to the school.
References


Table 1. Means and SD of measured variables by race, Study 1. Raw data comparison to imputed data.

<table>
<thead>
<tr>
<th></th>
<th>Sense of Belonging</th>
<th>PCRI</th>
<th>NCRI</th>
<th>PICD</th>
<th>PICD1</th>
<th>PICD2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Imp.</td>
<td>Raw</td>
<td>Imp.</td>
<td>Raw</td>
<td>Imp.</td>
</tr>
<tr>
<td>Overall</td>
<td>2088</td>
<td>0.00(.62)</td>
<td>3.94(.63)</td>
<td>0.00(.72)</td>
<td>3.72 (.73)</td>
<td>0.001(.87)</td>
</tr>
<tr>
<td>White Students</td>
<td>1936</td>
<td>0.04 (.61)</td>
<td>3.98 (.63)</td>
<td>-0.02 (.80)</td>
<td>3.70 (.72)</td>
<td>-0.01 (.80)</td>
</tr>
<tr>
<td>Black Students</td>
<td>152</td>
<td>-0.27 (.62)</td>
<td>3.66 (.62)</td>
<td>0.06 (.70)</td>
<td>3.77 (.71)</td>
<td>0.63 (1.1)</td>
</tr>
</tbody>
</table>

Note: Mean (SD). All scales except PICD2 are on a 1 to 5 scale. PICD1 = 6 items of the same stem question, 1 to 5 scale; PICD2 = 4 items of the same stem question, 1 to 4 scale.
Table 2.
Study 1 Standard Deviations, Correlations, and Reliability of Major Scales

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sense of Belonging</td>
<td>--</td>
<td></td>
<td></td>
<td>0.65</td>
</tr>
<tr>
<td>2.</td>
<td>Negative Cross-Racial Interactions</td>
<td>-.23**</td>
<td>--</td>
<td></td>
<td>0.87</td>
</tr>
<tr>
<td>3.</td>
<td>Positive Cross-Racial Interactions</td>
<td>.23**</td>
<td>.13**</td>
<td>--</td>
<td>0.72</td>
</tr>
<tr>
<td>4.</td>
<td>Perceptions of institutional commitment to diversity</td>
<td>.46**</td>
<td>-.21**</td>
<td>.21**</td>
<td>--</td>
</tr>
</tbody>
</table>

Cronbach's α | .92 | .68 | .69 | .85 |
Number of Participants | 2088 |

Note. **. Correlation is significant at the 0.01 level (2-tailed). All items are z-scored. Mean = 0.

Table 2a. Means, Standard Deviations, Correlations, and Reliability of Major Scales for Black Students

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sense of Belonging</td>
<td>--</td>
<td></td>
<td></td>
<td>-.269</td>
<td>.62</td>
</tr>
<tr>
<td>2.</td>
<td>Negative Cross-Racial Interactions</td>
<td>-.36**</td>
<td>--</td>
<td></td>
<td>.630</td>
<td>1.05</td>
</tr>
<tr>
<td>3.</td>
<td>Positive Cross-Racial Interactions</td>
<td>.30**</td>
<td>-.01</td>
<td>--</td>
<td>.064</td>
<td>.70</td>
</tr>
<tr>
<td>4.</td>
<td>Perceptions of institutional commitment to diversity</td>
<td>.45**</td>
<td>-.35**</td>
<td>.25**</td>
<td>--</td>
<td>-.616</td>
</tr>
</tbody>
</table>

Cronbach's α | .89 | .67 | .65 | .79 |
Number of Participants | 152 |

**. Correlation is significant at the 0.01 level (2-tailed).

Table 2b. Means, Standard Deviations, Correlations, and Reliability of Major Scales for White Students

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sense of Belonging</td>
<td>--</td>
<td></td>
<td></td>
<td>.035</td>
<td>.61</td>
</tr>
<tr>
<td>2.</td>
<td>Negative Cross-Racial Interactions</td>
<td>-.20**</td>
<td>--</td>
<td></td>
<td>-.099</td>
<td>.80</td>
</tr>
<tr>
<td>3.</td>
<td>Positive Cross-Racial Interactions</td>
<td>.23**</td>
<td>.14**</td>
<td>'--</td>
<td>-.016</td>
<td>.72</td>
</tr>
<tr>
<td>4.</td>
<td>Perceptions of institutional commitment to diversity</td>
<td>.44**</td>
<td>-.13**</td>
<td>.23**</td>
<td>'--</td>
<td>.074</td>
</tr>
</tbody>
</table>

Cronbach's α | .92 | .76 | .70 | .84 |
Number of Participants | 1936 |

**. Correlation is significant at the 0.01 level (2-tailed).
Table 3.
Study 1 ANOVA, Differences in Major Scales by Race

<table>
<thead>
<tr>
<th>Race</th>
<th>Sense of Belonging</th>
<th>Negative Cross-Racial Interactions</th>
<th>Positive Cross-Racial Interactions</th>
<th>Perceptions of Institutional Commitment to Diversity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD) F</td>
<td>M (SD) F</td>
<td>M (SD) F</td>
<td>M (SD) F</td>
</tr>
<tr>
<td>Overall</td>
<td>41.2***</td>
<td>110.2***</td>
<td>2.1</td>
<td>176.3***</td>
</tr>
<tr>
<td>Black</td>
<td>-.27 (.65)</td>
<td>.63 (1.1)</td>
<td>.06 (.70)</td>
<td>-.62 (.77)</td>
</tr>
<tr>
<td>White</td>
<td>.03 (.64)</td>
<td>-.10 (.80)</td>
<td>-.02 (.72)</td>
<td>.07 (.64)</td>
</tr>
</tbody>
</table>

*Note.** **p<.01. ***p<.001. Positive cross-racial interactions and class year were entered in as covariates except on PCRI which only controlled for class year.

Table 4.
Study 1 Mediation Results, Model 1

<table>
<thead>
<tr>
<th>Race</th>
<th>n</th>
<th>b</th>
<th>ACME</th>
<th>ADE (95% CI)</th>
<th>Prop. Mediated</th>
<th>ADE p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>2088</td>
<td>-.21***</td>
<td>-.07***</td>
<td>-.14 (-.17, -.10)***</td>
<td>33.8%</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Black</td>
<td>152</td>
<td>-.22***</td>
<td>-.07***</td>
<td>-.15 (-.24, -.05)**</td>
<td>32.1%</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>White</td>
<td>1936</td>
<td>-.19***</td>
<td>-.05***</td>
<td>-.14 (-.18, -.21)***</td>
<td>26.7%</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

*Note.** Covariates include Positive Cross-Racial Interactions and Class Year. CRI = Cross-Racial Interactions; ACME = Average Causal Mediatinal Effects; ADE = Average Direct Effects. ***p<.001
Table 5.
*Study 2 Means, Standard Deviations, Correlations, and Reliability of Major Scales*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sense of Belonging</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td>5.38</td>
<td>0.85</td>
</tr>
<tr>
<td>2. Negative Cross-Racial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactions</td>
<td>-.28**</td>
<td>--</td>
<td></td>
<td></td>
<td>2.17</td>
<td>1.19</td>
</tr>
<tr>
<td>3. Positive Cross-Racial</td>
<td>.18**</td>
<td>.11**</td>
<td>--</td>
<td></td>
<td>4.99</td>
<td>1.23</td>
</tr>
<tr>
<td>Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Perceptions of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>institutional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>commitment to diversity</td>
<td>.45**</td>
<td>-.27**</td>
<td>.21**</td>
<td>--</td>
<td>5.18</td>
<td>0.92</td>
</tr>
<tr>
<td>Cronbach's α</td>
<td>.91</td>
<td>.89</td>
<td>.87</td>
<td>.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Participants</td>
<td>864</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note.* **. Correlation is significant at the 0.01 level (2-tailed).

Table 5a.
*Means, Standard Deviations, Correlations, and Reliability of Major Scales for Black students*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sense of Belonging</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td>4.93</td>
<td>0.85</td>
</tr>
<tr>
<td>2. Negative Cross-Racial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactions</td>
<td>-.32**</td>
<td>--</td>
<td></td>
<td></td>
<td>3.43</td>
<td>1.35</td>
</tr>
<tr>
<td>3. Positive Cross-Racial</td>
<td>.37**</td>
<td>.28**</td>
<td>--</td>
<td></td>
<td>5.04</td>
<td>1.03</td>
</tr>
<tr>
<td>Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Perceptions of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>institutional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>commitment to diversity</td>
<td>.64**</td>
<td>-.45**</td>
<td>.33**</td>
<td>--</td>
<td>4.59</td>
<td>0.99</td>
</tr>
<tr>
<td>Cronbach's α</td>
<td>.91</td>
<td>.88</td>
<td>.84</td>
<td>.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Participants</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5b.
*Means, Standard Deviations, Correlations, and Reliability of Major Scales for White students*

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sense of Belonging</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td>5.45</td>
<td>0.82</td>
</tr>
<tr>
<td>2. Negative Cross-Racial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactions</td>
<td>-.24**</td>
<td>--</td>
<td></td>
<td></td>
<td>1.98</td>
<td>1.05</td>
</tr>
<tr>
<td>3. Positive Cross-Racial</td>
<td>.17**</td>
<td>.09*</td>
<td>--</td>
<td></td>
<td>4.95</td>
<td>1.2</td>
</tr>
<tr>
<td>Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Perceptions of</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>institutional</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>commitment to diversity</td>
<td>.41**</td>
<td>-.20**</td>
<td>.21**</td>
<td>--</td>
<td>5.23</td>
<td>0.89</td>
</tr>
<tr>
<td>Cronbach's α</td>
<td>.91</td>
<td>.85</td>
<td>.88</td>
<td>.94</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Participants</td>
<td>650</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).
Table 6.
Study 2 ANOVA, Differences in Major Scales by Race

<table>
<thead>
<tr>
<th>Race</th>
<th>Sense of Belonging</th>
<th>Negative Cross-Racial Interactions</th>
<th>Positive Cross-Racial Interactions</th>
<th>Perceptions of Institutional Commitment to Diversity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M (SD)</td>
<td>F</td>
<td>M (SD)</td>
<td>F</td>
</tr>
<tr>
<td>Overall</td>
<td>20.5***</td>
<td>94.7***</td>
<td>0.25</td>
<td>30.0***</td>
</tr>
<tr>
<td>Black</td>
<td>4.93 (.85)</td>
<td>3.43 (1.4)</td>
<td>5.04 (1.0)</td>
<td>4.59 (.99)</td>
</tr>
<tr>
<td>White</td>
<td>5.45 (.81)</td>
<td>1.98 (1.1)</td>
<td>4.95 (1.2)</td>
<td>5.23 (.90)</td>
</tr>
</tbody>
</table>

Note. ***p<.001. Positive cross-racial interactions and class year were entered in as covariates except on PCRI which only controlled for class year.

Table 7.
Study 2 Mediation Results, Model 1

<table>
<thead>
<tr>
<th>Race</th>
<th>n</th>
<th>b</th>
<th>ACME</th>
<th>ADE (95% CI)</th>
<th>Prop. Mediated</th>
<th>ADE p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>705</td>
<td>-.22***</td>
<td>-.08***</td>
<td>-.14 (-.19, -.09)***</td>
<td>36.1%</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Black</td>
<td>55</td>
<td>-.30***</td>
<td>-.19***</td>
<td>-.12 (-.33, .04)</td>
<td>62.2%</td>
<td>0.14</td>
</tr>
<tr>
<td>White</td>
<td>650</td>
<td>-.20***</td>
<td>-.06***</td>
<td>-.14 (-.20, -.15)***</td>
<td>30.0%</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

Note. Covariates include Positive Cross-Racial Interactions and Class Year. CRI = Cross-Racial Interactions; ACME = Average Causal Mediational Effects; ADE = Average Direct Effects. ***p<.001
Table 8.

*Model Fit Indices for Mediation Model, Study 1 and Study 2*

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>X² (df)</th>
<th>p</th>
<th>CFI</th>
<th>AIC</th>
<th>BIC</th>
<th>RMSEA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>2088</td>
<td>861.11 (7)</td>
<td>&lt;.001</td>
<td>1</td>
<td>7570.27</td>
<td>7621.07</td>
<td>0</td>
</tr>
<tr>
<td>Black Cadets</td>
<td>152</td>
<td>92.16 (7)</td>
<td>&lt;.001</td>
<td>1</td>
<td>574.63</td>
<td>601.845</td>
<td>0</td>
</tr>
<tr>
<td>White Cadets</td>
<td>1936</td>
<td>715.01 (7)</td>
<td>&lt;.001</td>
<td>1</td>
<td>6873.33</td>
<td>6923.44</td>
<td>0</td>
</tr>
<tr>
<td><strong>Study 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>705</td>
<td>303.88 (7)</td>
<td>&lt;.001</td>
<td>1</td>
<td>3337.89</td>
<td>3378.91</td>
<td>0</td>
</tr>
<tr>
<td>Black Cadets</td>
<td>55</td>
<td>72.53 (7)</td>
<td>&lt;.001</td>
<td>1</td>
<td>236.57</td>
<td>254.64</td>
<td>0</td>
</tr>
<tr>
<td>White Cadets</td>
<td>650</td>
<td>218.43 (7)</td>
<td>&lt;.001</td>
<td>1</td>
<td>3086.36</td>
<td>3126.66</td>
<td>0</td>
</tr>
</tbody>
</table>

*Note.* Covariates in both studies include Positive Cross-Racial Interactions and Class Year.
Figure 1a. Model 1 of Study 1: Effect of Negative Cross-Racial Interactions on Sense of Belonging as a function of Perceptions of Institutional Commitment to Diversity

Figure 1b. Model 1 of Study 1 for Black students: Effect of Negative Cross-Racial Interactions on Sense of Belonging as a function of Perceptions of Institutional Commitment to Diversity
Figure 1c. Model 1 of Study 1 for White students: Effect of Negative Cross-Racial Interactions on Sense of Belonging as a function of Perceptions of Institutional Commitment to Diversity.

- Class Year → Negative Cross-Racial Interactions
- PCRI → Negative Cross-Racial Interactions
- Negative Cross-Racial Interactions → Perceptions of Institutional Commitment to Diversity
- -0.13*** (a1)
- Perceptions of Institutional Commitment to Diversity → Psychological Sense of School Membership (Sense of Belonging)
- 0.38*** (b1)
- Psychological Sense of School Membership (Sense of Belonging) → -0.14*** (-0.19***)

Note: The diagram indicates causal relationships between variables with arrows representing the direction of influence.
Figure 2a. Model 1 of Study 2: Effect of Negative Cross-Racial Interactions on Sense of Belonging as a function of Perceptions of Institutional Commitment to Diversity

Figure 2b. Model 1 of Study 2 for Black students: Effect of Negative Cross-Racial Interactions on Sense of Belonging as a function of Perceptions of Institutional Commitment to Diversity
Figure 2c. Model 1 of Study 2 for White students: Effect of Negative Cross-Racial Interactions on Sense of Belonging as a function of Perceptions of Institutional Commitment to Diversity
Appendix A

Positive Cross-Racial Interactions – Study 1
Adapted from Hurtado, Dey, Gurin, & Gurin, 2003

While attending [school], to what extent have you experienced the following with students racial/ethnic group other than your own?
1. Had meaningful and honest discussions about race/ethnic relations outside of class
2. Had intellectual discussions outside of class
3. Studied or prepared for class
4. Socialized or partied
1 to 5 Likert Scale:
Very Often, Often, Sometimes, Seldom, Never

Negative Cross-Racial Interactions – Study 1
Adapted from Hurtado, Dey, Gurin, & Gurin, 2003

While attending [school], to what extent have you experienced the following with students racial/ethnic group other than your own?
1. Had tense, somewhat hostile interactions
2. Felt insulted because of your race/ethnicity
1 to 5 Likert Scale: Very Often, Often, Sometimes, Seldom, Never

Perceptions of Institutional Commitment to Diversity – Study 1
Adapted from Williams, Berger, & McClendon, 2005

Pertaining to [school] ’s faculty and staff (i.e., instructors/professors, administrators, etc.), please indicate to what extent you agree or disagree with the following statements:
1. Encourages students to have a public voice and share their ideas openly
2. Has a long-standing commitment to diversity
3. Promotes the appreciation of cultural differences
4. Has campus faculty/staff who regularly speak about the value of diversity
5. Has a lot of racial tension
1 to 4 Likert Scale: Strongly Agree, Agree, Disagree, Strongly Disagree

Please rate your satisfaction with [school] in each area:
6. Overall sense of community among students
7. Racial/ethnic diversity of the faculty (instructors/professors)
8. Racial/ethnic diversity of the student body
9. Racial/ethnic diversity of the staff (administration)
10. Atmosphere for differences in ethnicity
11. Socioeconomic diversity of the student body
12. Administrative response to incidents of discrimination
13. Respect for the expression of diverse beliefs
1 to 5 Likert Scale: Very Satisfied, Satisfied, Neutral, Dissatisfied, Very Dissatisfied
Sense of Belonging
Psychological Sense of School Membership (PSSM) – Study 1 and Study 2

1. I feel like a real part of [school].
2. People here notice when I’m good at something.
3. It is hard for people like me to be accepted here. (reversed)
4. Other [students] in this school take my opinions seriously.
5. Most [instructors/professors] at [school] are interested in me.
6. Sometimes, I don’t feel as if I belong here. (reversed)
7. There’s at least one [instructor/professor] or other [faculty member] in this school I can talk to if I have a problem.
8. People at [school] are friendly to me.
9. [Instructors/professors] here at not interested in people like me. (reversed)
10. I am included in lots of activities at [school].
11. I am treated with as much as other [students].
12. I feel very different from most other [students] here. (reversed)
13. I can really be myself at [school].
14. The [instructors/professors] here respect me.
15. People here know I can do good work.
16. I wish I were in a different school. (reversed)
17. I feel proud of belonging to the [school].
18. Other students here like me the way I am.
Appendix B

Positive Cross-Racial Interactions – Study 2

While attending [school], how often have you had the following experiences?
1. Enjoyed meaningful and honest discussions about race in an informal setting
2. Had pleasant intellectual or academic type discussion outside of mandatory events, like class or training, with students of a different race
3. Had a good time socializing with students of another race than your own
4. Shared personal experiences, problems, or opinions with a student of another race
5. Shared personal experiences, problems or opinions with a student of your race
6. Had a student of another race confide in you or ask you for advice
7. Invited a student of another race to hang out or do schoolwork together.
1 to 7 Likert Scale: Constantly, Very Often, Often, Sometimes, Seldom, Rarely, Never

Negative Cross-Racial Interactions – Study 2

While attending [school], to what extent have you experienced the following with students racial/ethnic group other than your own?
1. Students of another race insulted your race
2. Had uncomfortable interactions with students of another race than your own.
3. I have felt stressed, angry, or misunderstood after talking with a student of a different race.
4. Have felt like the other person didn’t understand you because of your racial differences.
5. Had other students make assumptions about me because of their assumptions about my race.
1 to 7 Likert Scale: Constantly, Very Often, Often, Sometimes, Seldom, Rarely, Never

Perceptions of Institutional Commitment to Diversity – Study 2

Think about [school] ’s faculty and staff (i.e., instructors/professors, administrators, etc.). How much do you agree or disagree with the following statements about them?
1. Encourages students to have a public voice and share their ideas openly to solve problems
2. Have an unwavering commitment to diversity
3. Promotes the value of cultural differences
4. They regularly speak about the value of diversity
1 to 7 Likert Scale: Strongly Agree, Agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Disagree, Strongly Disagree

Note. The first 4 questions in the PICD of study 2 were asked 3 times. The service academies have three distinct faculty organization: military training faculty, academic faculty, athletic faculty. We asked the questions separately for each organization at the request of the school.

How satisfied or dissatisfied with [school] in the following aspects
5. Racial diversity of the faculty (instructors/professors)
6. Racial diversity of the student body
7. Racial diversity of the student organizations’ leadership
8. Racial diversity of the staff (outside of the classroom)  
9. Tolerant atmosphere for all racial backgrounds  
10. Institutional response to incidents of discrimination  
11. Respect for the expression of diverse beliefs  
12. [School’s] policies on diversity  

1 to 7 Likert Scale: Very Satisfied, Satisfied, Somewhat satisfied, Neutral, Somewhat dissatisfied, Dissatisfied, Very Dissatisfied
Chapter 3 Anacrusis: Manipulating Diversity Statements Affects Sense of Belonging

In Chapter 2, I established that cadets’ sense of belonging was affected by negative cross-racial interactions, but that relationship was explained by cadets’ perceptions of the institution’s commitment to diversity. Since the data were all survey and correlational research, the direction of the relationship among those three variables remains unknown, especially for cadets at a U.S. Service Academy. Therefore, I wanted to purposefully explore the impact of diversity statements on cadets’ sense of belonging using experimental manipulations and methodology.

Further, I had a desire to incorporate more traditional social psychological theory and methodologies into the world of military race relations. Even though sense of belonging is arguably related to the Belonging Hypothesis (Baumeister & Leary, 1995), and many researchers have studied sense of belonging from a social psychological perspective (Levin, Van Laar, & Foote, 2006; Walton & Brady, 2017; Walton & Cohen, 2007; Weisz, 2017), this construct has not been studied in a military environment, much less a military-college environment. We know that sense of belonging is a critical component of self-identity (Hagerty & Patusky, 1995; Winter-Collins & McDaniel, 2000) and when self-identity and belonging is not achieved concordantly in a setting, dissatisfaction occurs and individuals tend to leave to find other opportunities (Winter-Collins & McDaniel, 2000). These authors describe social identity theory as an individual’s knowledge of belonging to a social group of individuals.

Based on these ideas, I have reasoned that cadets with a low sense of belonging may be experiencing some type of social identity threat. That social identity threat can stem from two different aspects of their life: military life or college student life. I argue that cadets, and college students in general, take in a multitude of cues in their environment before actually feeling or
experiencing the consequences of identity threat. This idea corresponds with Valerie Purdie-Greenaway’s (formerly Purdie-Vaughns) theory of social identity contingencies. She and her colleagues argue that a person’s expectation of treatment in a certain setting is contingent on one or more of the social identities they possess. In other words, social identity contingencies are “possible judgments, stereotypes, opportunities, restrictions, and treatments that are tied to one’s social identity in a given setting” (Purdie-Vaughns, Steele, Davies, Ditlmann, & Crosby, 2008, p. 615). This perspective takes into account that a single cue in an environment may not be sufficient enough to create an identity threat, but a single cue can induce a person into ‘high alert’ and searching for either confirmatory or disconformity evidence that they will be judged or treat differently based on their social identity.

Valerie Purdie-Greenaway established that African-American job candidates have less trust and comfort towards an organization with two identity-threatening cues (Purdie-Vaughns, 2004). I expect to find similar results among Black cadet participants in that under social contingency threat, Black cadets will have a lower sense of belonging. However, she did not find that White participants’ trust or comfort to be impacted by these contingency cues. One of the cues she used was type of diversity ideology. Other research in diversity ideologies and mission statements have been known to have differential impacts on White people and people of color. Because of this, I am led to believe that White people can experience social contingency threat, but the outcome affected will not be the same as Black people. I explore what happens when White participants have the opportunity to endorse Colorblind Racist beliefs after experiencing social identity threat and the negative stereotypes associated with White people such as “White people are racist.”
References


Retrieved from https://opencommons.uconn.edu/dissertations/1467

Whites Can’t Catch a Cue:

The Impact of Diversity Statements and Imagery on Cadets at a US Service Academy

Major Leah Pound

University of Connecticut

Dissertation – Chapter 3

Footnote: Funding source – US Air Force as part of normal duties. No additional funds used. We use the term ‘cadet’ to describe student participants in this study. However, students at the U.S. service academies are referred to as cadets or midshipmen. Disclaimer: Opinions, conclusions, and recommendations expressed or implied within are solely those of the author and do not necessarily represent the views of Air University, the Air Force Research Institute, the US Air Force Academy, the United States Air Force, the Department of Defense, or any other US government agency. Cleared for public release.

The views expressed in this article are those of the author and do not necessarily reflect the official policy or position of the Air Force, the Department of Defense or the U.S. Government.
Abstract

Diversity statements are more commonplace than ever as business organizations, universities, and government agencies readily adopt them as part of their mission. Yet, studies reveal mixed evidence as how it can affect minorities and majority group members. Some studies have indicated that diversity messaging can create a “White Backlash,” making White organization members resistant to recognizing discrimination (Kaiser, Major, Jurcevic, Dover, Brady, & Shapiro, 2013). Other evidence shows that minorities trust organizations more when diversity statements are present (Purdie-Vaughns, Steele, Davies, Ditlmann, & Crosby, 2008). Using the well-established colorblind and multicultural diversity ideologies as a cue, we seek to investigate how cues within an organization can induce identity threat differently based on participants’ race for members currently immersed into an organization. Using a sample of students at one of the U.S. service academies, we presented cadets with flyers with varying minority representation and either colorblind or multicultural diversity cues. We found main effects of race with White cadets always having higher scores of belonging, perceptions of the institution’s diversity, and colorblind racism but Whites rarely were affected by the manipulations. On the other hand, Black cadets had varying responses to the diversity messaging cues.

Keywords: sense of belonging, colorblind racism, college students, African-American, Black, Caucasian, White, race, diversity, higher education, military, student, US service academy
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>159</td>
</tr>
<tr>
<td>Diversity Within the Military</td>
<td>157</td>
</tr>
<tr>
<td>What is Diversity?</td>
<td>158</td>
</tr>
<tr>
<td>Colorblind Diversity</td>
<td>159</td>
</tr>
<tr>
<td>Social Identity Contingency Threat Theory</td>
<td>164</td>
</tr>
<tr>
<td>Double Identity-Threatening Cues</td>
<td>167</td>
</tr>
<tr>
<td>Method</td>
<td>172</td>
</tr>
<tr>
<td>Analysis Strategy</td>
<td>177</td>
</tr>
<tr>
<td>Participants</td>
<td>172</td>
</tr>
<tr>
<td>Study Design</td>
<td>174</td>
</tr>
<tr>
<td>Stimulus Materials</td>
<td>173</td>
</tr>
<tr>
<td>Measures</td>
<td>174</td>
</tr>
<tr>
<td>Perceptions of Institutional Commitment to Diversity (PICD)</td>
<td>174</td>
</tr>
<tr>
<td>Quote Believability</td>
<td>174</td>
</tr>
<tr>
<td>How High School Students Potential Belonging</td>
<td>175</td>
</tr>
<tr>
<td>Sense of Belonging</td>
<td>175</td>
</tr>
<tr>
<td>Short Sense of Belonging Measures (SSoB)</td>
<td>175</td>
</tr>
<tr>
<td>Colorblind Racism (CBR)</td>
<td>175</td>
</tr>
<tr>
<td>Procedure</td>
<td>176</td>
</tr>
<tr>
<td>Results</td>
<td>177</td>
</tr>
<tr>
<td>Perceptions of Institutional Diversity</td>
<td>177</td>
</tr>
<tr>
<td>Sense of Belonging</td>
<td>181</td>
</tr>
<tr>
<td>Results on Colorblind Ideology Endorsement</td>
<td>184</td>
</tr>
<tr>
<td>General Discussion</td>
<td>186</td>
</tr>
<tr>
<td>Limitation</td>
<td>190</td>
</tr>
<tr>
<td>Implications for Future Research</td>
<td>193</td>
</tr>
<tr>
<td>References</td>
<td>196</td>
</tr>
</tbody>
</table>
Diversity mission statements are more commonplace than ever. Even though diversity ideologies can have positive and negative outcomes, organizations are overwhelming adopting them as part of their organizational brand (Jonsen, Point, Kelan, & Grieble, 2019). All of the Fortune 50 companies have diversity structures in place (Gündemir & Galinsky, 2017). Most faculty job postings in higher education now require a diversity statement in addition to teaching and research statements that highlight an applicant’s commitment to enhance campus diversity and equity efforts. While it is hard to speculate the true intentions of a company’s diversity statement, we do know that a company’s adoption of any policy or practice is largely ceremonial and symbolic (Dobbin & Kalev, 2017). Generally, no one questions when a company creates a diversity statement; rather, they may be questioned if they do not have one.

Instead of simply looking at the company’s intentions of diversity messaging, Robert K. Merton (1936) encourages the question, “what consequences does an arrangement, practice, or belief have?” Ostensibly, diversity policies may be intentionally used by companies to display their adherence to equal opportunity policies or used by civil rights activists who see workplace diversity as a tool for ending discrimination (Dobbin & Kalev, 2017). However, Jonsen and his colleagues (2019) established in a five country and 75 company comparison study that organizations use diversity statements, messaging, and branding to attract talent, become employers of choice, and to signal that diversity is relevant to the mission of the organization. That is to say, organizations use diversity statements to look good to their own members and potential new employees. The positive consequence of the original intention of diversity may very well occur; however, other unintended consequences may arise. Research shows that diversity initiatives do not make companies more racially or gender diverse (Dobbin & Kalev, 2017; Kalev, Dobbin, & Kelly, 2006) and there is little evidence that diversity training makes
companies less likely to discriminate against minorities and women (Dover, Major, & Kaiser, 2016). A meta-analysis investigating the outcomes associated with diversity training found no compelling evidence of long-term effects related to attitudes and affective outcomes (Bezrukova, Spell, Perry, & Jehn, 2016). In sum, diversity statements apparently will continue to be a part of organizational branding, but the outcomes of the branding may have differential impacts on its members. People from under-represented groups often feel that their presence and acceptance in certain organizations is uncertain and people in groups with different histories may perceive the same message to mean different things (Apfelbaum, Stephens, & Reagans, 2016). This research seeks to garner insights about the impacts of these diversity messages so that organizations can maximize the gains but minimize the negative consequences of diversity to create the most productive environment for intergroup relations.

**Diversity Within the Military**

“[The] largest problem with racism is that it is too prevalent because people assume everything is racism. It is extremely rare that anyone really means harm and the best way to solve it is to not constantly ask people if they feel like they have been discriminated upon. That's what makes people think everyone is racist all the time” – White Cadet

“At school here, I cannot even discuss anything without being called a racist and people getting mad. I truly believe the issue is made more serious than it is and that people would like to believe that racism is real for their own sake. I see attitude problems with many black students here. And, they won't even talk about race with me without getting emotional.” – White cadet

“I believe cadets are very immature when it comes to the topic of race. It is hard to have beneficial conversations in large groups because cadets feed off of each other and are less likely to be honest during group sessions.” – Black cadet

Managing diversity within any organization is a complex task. However, managing diversity within a military context intensifies the difficulties as assimilation tends to be the way of life in the military. Under assimilationism, group members are expected to adopt the majority culture and to relinquish their former distinct cultures or any markers of it (Hornsey & Hogg,
2000). Most military members start their careers in basic training where hair is buzzed, civilian clothes are banned, and freedom of movement ceases – new members are expected to assimilate to military identity immediately. In this training environment, assimilation of group members leads to intense efficiency. The rigid military culture requires every individual to accommodate their personal behaviors in favor of group goals. However, as military technology advances and adversaries innovate their practices, the military seeks to recruit and retain a diverse force to be more innovative and creative to overcome new and future challenges outside of basic training. The U.S. service academies are a combination of an institution of higher education and a military training environment. Graduates of the military academies serve as military officers in their respective branches. Therefore, their four years of college education is not just a college experience; it is four years spent getting to know the organization in which they will one day lead. As seen in the quotes above, cadets have differing opinions about diversity and how to talk about diversity. As the future leaders on the Armed Forces, how cadets of different racial groups react to diversity ideologies and the impact it has on their views towards inclusive practices within the organization is worth investigating. Because of this complex combination of college and military training pipeline, U.S. service academies provide a unique situation in which diversity can be studied in higher education and in work organizations simultaneously. Before we detail the relevant aspects of diversity within the military, we first will discuss the basics of organizational diversity.

**What is Diversity?**

Organizational diversity efforts have widespread use in government, the corporate world, and higher education but diversity continues to carry conceptual ambiguity. In their review, Plaut and her colleagues (2015) note that diversity statements contain vague explanations and can be
specific or vague (e.g., "backgrounds" or "experiences") referring to either individual attributes (personality), group attributes (race/ethnicity/gender), or organizational values. They suggest that the slippery and ambiguous nature of the term "diversity" make it particularly susceptible to interpretation (Plaut, Cheryan, & Stevens, 2015). Racially dominant groups within the organization may interpret these mission statements as evidence of what the organization already is, instead of what it strives to be. As many organizations create diversity mission statements to set the stage for diversity in their organizations (Galinsky et al., 2015), diversity approaches provide an outline for intergroup relations within the organization. These frameworks guide members on how to think, act, feel, and interact with people from different backgrounds than their own (Apfelbaum et al., 2016). The bulk of diversity research within social psychology focuses on two approaches – colorblind and multiculturalism. Both ideologies have roots in aiming to improve intergroup relationships, albeit from two opposite perspectives.

**Colorblind Diversity.** The Colorblind (CB) ideology promotes ignoring individual differences in hopes of focusing on the unifying identity and similarity among group members. This is in slight contrast to assimilation as assimilation requires minority group members to assimilate to the dominant group identity whereas CB completely ignores group differences. Colorblindness has been described as an American-style assimilation (Celeste, Baysu, Phalet, Meeussen, & Kende, 2019). Colorblindness emerged from efforts to increase equality under the assumption that once laws and guiding practices are colorblind, any differences in treatment would be due to the individual’s efforts (Rattan & Ambady, 2013). The benefit of the colorblindness ideology for Whites is that it encourages downplaying group differences and focus on individuals but “ignoring race may also be the best way to ignore the existence of racial discrimination” (Apfelbaum, Norton, & Sommers, 2012) further perpetuating the White cultural
norm of not talking about race (Richards, 2018; Apfelbaum, Sommers, & Norton, 2008). Colorblindness ignores pre-existing race-based inequalities and has been noted as sometimes more of an obstacle than an asset to facilitating constructive race relations and equitable race-related policies (Apfelbaum, Norton, & Sommers, 2012).

While a colorblind diversity statement may appear better for organizations than no diversity message at all, the plethora of research indicates otherwise. For minorities, being exposed to colorblind diversity messaging was associated with poorer cognitive performances and task disengagement (Holoien & Shelton, 2012). Colorblind statements place less emphasis on diversity or racial differences and is viewed as less welcoming to racial minorities (Wilton, Good, Moss-Racusin, & Sanchez, 2015). The impact of the colorblindness ideology on Whites is even more profound. With White participants, the CB ideology was associated with greater bias and prejudice in dyad interactions (Apfelbaum, Sommers, & Norton, 2008), greater implicit and explicit measures of racism (Correll, Park, & Smith, 2008; Richeson & Nussbaum, 2004; Holoien & Shelton, 2012), and CB lowered White people’s ability to detect overt instances of racism or discrimination (Kirby, Kaiser, & Major, 2015). Overall, CB intuitively is about equality, it can misfire and perpetuate current social, informal, and racial power hierarchies within an organization.

**Colorblind racism.** The sociologist Eduardo Bonilla-Silva (2006; 2014) has written extensively about the negative consequences of ignoring race through the notion of colorblind racism or, as he puts it, “racism without racists.” Through extensive interviewing of Americans, he identified that White Americans have developed powerful explanations for contemporary racial inequality that remove blame from themselves and other Whites – the ideology explains unequal racial outcomes using nonracial justifications. In this sense, when asked about diversity,
a White person might respond with saying she supports diversity of all kinds. But when asked about support for affirmative action-type programs, she sees them as flawed and against the American cultural theme of ‘Equal Opportunity’ (Bonilla-Silva, 2014). Knowles and his colleagues (2009) found that antiegalitarian White people employed colorblindness as a legitimizing ideology to codify the status quo but only when their group is at risk and under social identity threat. For our research purposes, the concept of colorblind racism potentially could serve as an ideology for Whites to embrace while under identity threat.

Further, “the colorblind approach to organizational diversity is intertwined with American cultural ideals of individualism, equality, meritocracy, and assimilation (Stevens, Plaut, & Sanchez-Burks, 2008). Deeply engrained into colorblindness is the idea that “everyone should be treated equally” (Markus, 2008, p. 657); therefore, all people are citizens subject to the U.S. laws equally. A major principle of colorblindness is seeded in individualism; that is, when we ignore color or race, White people then assume successes or failures in life are truly based on merit and consequently ignore historically systemic barriers. Additionally, Helen Neville and her colleagues (2000) recognize that wanting to believe that race does not matter is an admirable goal; however, ignoring the existence of race makes it impossible to address consequences of racism.

**Multiculturalism Ideology.** If the CB ideology seeks to minimize group differences, the multiculturalism (MC) ideology seeks to recognize and celebrate group differences. Proponents of MC assert that it leads to more positive and secure identities, maximizing the benefits of diversity in an organization. However, MC has been known to reify race and other group identities which could lead to members believing that minorities are only valued for their minority status and not their individual strengths (Wilton, Good, Moss-Racusin, & Sanchez,
Multiple studies show the benefits of MC diversity messages over CB messages. For minorities, MC messages positively predicted psychological engagement at work in a large U.S. health care organization (Plaut, Thomas, & Goren, 2009). Companies with MC diversity messages were significantly more likely to be viewed as fairer towards minorities by racial minorities (Gündemir & Galinsky, 2018). Individuals who read multicultural diversity statements, as opposed to colorblind diversity statements or an unrelated statement, are more accurate in their perceptions of other groups, display less racial bias and prejudice, and engage in smoother interracial interactions (Galinsky et al., 2015; Ryan, Hunt, Weible, Peterson, & Casas, 2007). For organizational recruitment, the benefits of a MC diversity message clearly outperform the desired outcomes when compared to CB diversity messaging.

Yet, there are conflicting opinions about the overall benefits of MC. Whites can also feel excluded by MC (Plaut, Garnett, Buffardi, & Sanchez-Burks, 2011) leading them to overlook discrimination (Kirby, Kaiser, & Major, 2015). MC messages allows White people to believe in an “illusion of fairness;” that is, Whites are more likely to believe that all people are treated fairly within an organization despite given evidence that discrimination has occurred (Kaiser et al., 2013). White participants exposed to MC messaging versus a control condition had more negative reactions towards people who claimed discrimination (Kaiser et al., 2013). Whites exposed to MC diversity messages showed lower levels of prejudice but expected less bias in the organization (Plaut et al., 2009). These effects are found in any type of diversity messaging but are most pronounced with MC diversity initiatives as compared to CB initiatives (Gündemir & Galinsky, 2017). Further, multiculturalism initiatives often fade, fall short, or fail to improve intergroup relations because majority group members feel excluded by them (Brief, Umphress, Dietz, Burrows, Butz, & Scholten, 2005; Kalev, Dobbin, & Kelly, 2006; Konrad & Linnehan, 2015).
1995; Mannix & Neale, 2005; Thomas, 2008). This exclusion felt by Whites has been interpreted as threat as Dover and her colleagues (2016) found that young White men interviewing for a pro-diversity company displayed a cardiovascular profile characteristic of threat and were more worried about personally experiencing discrimination, expected more discrimination against Whites, and less discrimination against minorities compared to those interviewing for a company that did not mention diversity. Again, we find that there are negative consequences with well-intentioned MC diversity messages and can be threatening for dominant group members.

These studies on diversity ideologies highlight the idea that perceptions of the institution's commitment to diversity are vulnerable to situational cues, such as the type of diversity statement. From this brief review, diversity emerges as a broad, elusive concept that has been defined in a myriad of ways and that has diverted attention away from group power relations (Plaut, Cheryan, & Stevens, 2015). Organizational diversity statements that tout colorblindness in an attempt to encourage their members to act in a colorblind way (this is the future of our organization) may unintentionally communicate that this is how our organization already is, conveying the message to Whites that the organization does not have diversity issues. On the other hand, minority group members find more positive benefits of MC messaging as compared to CB diversity messaging. Each diversity approach leaves one group benefiting and one group feeling excluded. These concepts allow for the possibility that other situational influences may affect people within an organization differentially based on racial background. We will next use concept of Social Identity Contingency Threat Theory (Purdie-Vaughns, Steele, Davies, Ditlmann, & Crosby, 2008) to help us understand the experiences of dominant and minority group members exposed to different types of diversity ideologies.
Social Identity Contingency Threat Theory

Dr. Purdie-Vaughns and her colleagues (2008) define social identity contingencies as possible judgments, stereotypes, opportunities, restrictions, and treatments that are tied to one’s social identity in a given setting. Cues within a setting make one’s identity salient and can affect the extent to which a person will trust and feel comfortable in a given setting and concomitantly, experience identity threat. According to the theory, cues are about anticipating threat; noticing one threat can incite a person to look for additional threat cues. If the person establishes that the situational cues indicate social identity contingencies to be negative or devaluing of their group, the setting will be perceived or feel threatening to that person. However, if the contingencies cues combine together to equal net positive or net neutral, the setting is identity safe, which will lead to increased trust and belongingness. If aspects of a setting convey devaluation of one’s group identity, a person may choose not to enter the setting or may leave before reaching the performance state (Plaut, Thomas, Tran, & Bazemore, 2014; Purdie-Vaughns, 2004). Research on social identity contingencies found that potential African-American employees exposed to information about a fictional company with low minority representation and a colorblind diversity policy had lower trust and a lower desire to work at the advertised company than those in all other conditions (Purdie-Vaughns, 2004). As described above, a social identity threat cue can be described as anything in the situation that makes one’s social identity salient including diversity statements or minority representation.

Social Identity Threat Cues.

Diversity Statements as a Cue. We have already reviewed CB and MC diversity ideologies in this paper as two different types of diversity messaging. Other research on diversity statements indicate diversity branding have the potential to make racial identity salient and can
act as a cue that the environment is identity-safe or identity-threatening (Gündemir & Galinsky, 2017; Purdie-Vaughns et al., 2008). Whites and Blacks would experience these cues differently as CB and MC ideologies make people aware of their racial identity in nearly opposite ways. Because these diversity initiatives challenge the existing social hierarchy, group members who are favored within that hierarchy may find them threatening (Major & Kaiser, 2017). The diversity efforts may ironically misfire and create blind spots and resentment from Whites. For Whites, MC diversity ideologies have been associated with decreased perceptions that racial equality is an issue and an increased belief in race essentialism, or the idea that group differences are valid, biologically based, and undisputable (Wilton, Apfelbaum, & Good, 2019). Diversity statements that celebrate group differences may put Whites on edge or on alert for additional cues that indicate safety. Further, effects of diversity approaches are less likely to be observed among White men who are not a historically stigmatized group and generally are represented in large numbers in professional settings (Purdie-Vaughns et al., 2008). This supports the social identity contingency theory perspective which would argue that many situations where Whites are attuned to one identity cue rarely experience a second cue that will confirm the identity threat experience. However, diversity statements can act as positive cues for racial minorities.

A company with a mission statement that values diversity, as compared to a CB philosophy, can increase trust among black professionals, even when they company is not yet diverse (Gündemir & Galinsky, 2017; Purdie-Vaughns et al., 2008). Even with the slippery definitions of diversity and outcome measurements across research disciplines, many studies indicate the racial minorities are highly attuned to how an institution may treat them (Plaut, Thomas, Hurd, & Romano, 2018). An institution’s message that stresses equal opportunity may be more motivating to racial minorities than one that focuses only on tolerance and diversity
efforts, especially when their representation is low (Apfelbaum, Stephens, & Reagans, 2016). We found evidence of this at one of the U.S. Service academies; Black students’ perceptions of the institution mediated the relationship between their reported experience negative cross-racial interactions and their sense of belonging. Black cadets’ negative interactions with classmates affects their impression the institution’s culture of diversity and their sense of belonging more profoundly than it is for White cadets (Pound, Pratto, & Laney, in prep). We can surmise from this research that diversity statements deemed identity-safe for minority group members are likely to be considered identity-threatening for Whites.

**Minority Representation as a Cue.** One basic cue that can indicate if an environment is identity-safe or identity-threatening is minority representation (Walton & Brady, 2017). Arthur Ashe, a tennis player, wrote, “Like many other blacks, when I find myself in a new public situation, I will count. I always count. I count the number of black and brown faces present” (Ashe & Rampersad, 1993, p. 144; Walton and Brady, 2017). As Emerson and Murphy (2015) note in their review of social identity threat in the workplace, it is well documented that environments are perceived as more threatening when they lack critical mass—that is, when they contain few others from one’s social group. As a result, Black students may suspect that their identity is counter-normative putting them at risk for social exclusion (Purdie-Vaughns, Steele, Davies, Ditlmann, & Crosby, 2008). A group’s numerical representation in an organization, in absolute or relative terms compared to the majority group (typically, White men) is one decisive factor that effects whether a diversity approach is helpful or harmful. And Black men and women possess greater representation-based concerns than White men and women (Apfelbaum, Stephens, & Reagans, 2016). Lastly, Tyson and his colleagues found that low group presence in the school context combined with low academic positioning place academic stress on Black
students (Hanselman et al., 2014). These studies indicate that people are sensitive to situational cues in varying ways. Diversity messaging can induce identity threat, but the threat is contingent on the interaction between the person and the type of diversity ideology presented.

A single identity-threatening cue is not enough to confirm an identity-threatening environment. At first, a single threatening cue will place an individual on high alert looking for a second cue that will confirm that the threat exists for their racial identity. However, if the second cue they are presented with is deemed identity-safe, the setting is not deemed as threatening. But the combination of identity-threat versus identity-safe cues depends on the interpretation of the cues that generally coincide with race differences. In the next section, we will discuss the two separate identity contingency situations that presents two identity-threatening cues separately for Blacks and for Whites.

**Double Identity-Threatening Cues**

Because Black and White people have different racial identity concerns within an organization, the threat cues introduced above will manifest and register differently between the two racial groups. Blacks are typically threatened when low minority representation is coupled with CB diversity ideologies; both identity-threatening cues need to be present for the setting to be confirmed as identity-threatening. This threatening situation will lead to decreased trust and belonging (Purdie-Vaughns, 2004). However, Whites are more likely to find the MC diversity ideology and the high minority representation cues are the double identity-threatening condition as both of the cues in concert confirm that the situation is safe for racial minorities and perhaps not as safe for Whites. Later in this section, we will discuss the Whites’ identity threatening condition in terms of aversive racism theory (Dovidio & Gaertner, 2004a). But first, we will
summarize the how the double-threat condition affects Black cadets’ sense of belonging and perceptions of the diversity.

Generally, Black students at a predominately White institution (PWI) battle stereotypes about whether they are welcome and belong in a primarily White context. They are also fighting against negative stereotypes, such as not getting as good grades as other students and only being admitted to a school because of Affirmative Action-type policies (Bonilla-Silva, 2010). For all college students, sense of belonging has direct, positive effects on institutional commitment and indirect effects on intentions to persist and actual persistence (Hausmann, Schofield, & Woods, 2007). However, Black students routinely have a lower sense of belonging as compared to their White peers (Pound, Pratto, & Stewart-James, in-prep). And our prior research has indicated that Blacks’ sense of belonging in college is susceptible to situational cues. We found that belonging among cadets was associated with their perceptions of the institution’s approach to diversity (Pound, Pratto, & Laney, n.d.). Given this information, cues in the setting influence how a Black student might perceive their fit to the organization.

*Aversive racism.* A person does not have to be in a historically marginalized group to be susceptible to identity threat (Schmader, Johns, & Forbes, 2008). A negative stereotype is sufficient to induce threat and for Whites, “few labels are aversive as that of ‘racist’” (Crandall, Eshleman, & O’Brien, 2002). Expressions of explicit racism are generally condoned on college campuses, as seen in colleges’ policies against discrimination and harassment or in student codes of conduct. Many White people are genuinely aversive to racism and may sincerely see themselves as nonprejudiced and certainly do not want to be labeled as racist. However, they also possess negative feelings and associated beliefs towards Blacks that they are unaware they hold (Gaertner & Dovidio, 1986). These negative, subconscious feelings are said to be a results
of normal socialization practices, experiences, and cognitive biases. The term used to describe this experience is aversive racism; people who have a mismatch when it comes their implicit preferences and their overt feelings are identified as aversive racists (Hagiwara et al., 2016). Aversive racists reject traditional notions of racial bias and discrimination, but they also struggle with high levels of implicit bias. This bias may still be affecting how Whites interpret institutional diversity messaging and how/when they endorse ideologies that favor the in-group.

Students in diverse environments are normatively motivated to control and hide their explicit racial bias, especially among a diverse racial crowd (Crandall et al., 2002). But when diversity cues, such as MC messaging combined with high minority representation, induce Whites into an identity-threatening situation, Whites may try to find a way to express their unfamiliarity and discomfort with Blacks. “These feelings will eventually be expressed, but they will be expressed in subtle, indirect, and in rationalizable ways” (Dovidio & Gaertner, 2004, p. 8). Coupling this process with Whites’ own ideals that they should not be racist and do not want to be seen as racist by Blacks (Gaertner & Dovidio, 1986), White people may turn to CB ideology to avoid appearing racist. For Whites talking about racial issues, they might experience some apprehension that they might act in a manner that is consistent with a negative stereotype. If Whites are threatened, they may try extra hard to not be labeled as a racist (Schmader et al., 2008). It stands to reason that asking Whites to endorse or speak about any type of racial issue would cause them to be concerned about appearing prejudiced or racist; therefore, they may try to find any avenue to avoid talking about or commenting on race (Bonilla-Silva, 2014). One of our main research questions centered on whether White people exposed to MC diversity ideology combine with high minority representation photos might feel threatened about appearing racist. When MC is salient, Whites may feel that minorities are unfairly favored and
thus actively reject the occurrence of racial discrimination (Gündemir & Galinsky, 2017). Whites are not largely concerned about whether or not they fit into the environment, especially compared to Blacks. Therefore, Whites trust and comfort levels are not negatively stereotyped or affected by minority representation or diversity cues in a mostly White organization. However, their endorsement of colorblind racism ideologies will likely increase as they attempt to appear nonprejudiced as compared to those White cadets in the non-threatening conditions.

Diversity ideologies at a U.S. service academy. A colorblind mentality has dominated the militaries in terms of diversity as the assimilation process continually runs in the background of military operations. When combining assimilation plus diversification goals, military policy makers likely leaned on what they know which is assimilation – unify everyone under team identity and overlook individual differences. However, examining how diversity statements affect cadets at one of the U.S. service academies can offer insight into how military members might benefit, or be hurt by, multicultural or colorblind diversity ideologies. Given the evidence on White backlash to diversity messaging and the contingency theory work, we have reason to believe that Whites CBR endorsement may increase under double threat cues.

Purpose of the Study

Our review of seemingly anti-racist ideologies suggests that there are different stereotype domains relevant to Blacks (i.e., belonging to the organization) and Whites (i.e., not appearing racist). And earlier research on social identity contingency threat has examined outcomes relevant to one racial group or the other, bringing merit to the idea that inducing White and Black participants into a threat experience is going to be different for each group (Purdie-Vaughns et al., 2008). Thus, we aim to test the effect of social identity contingency threat on Blacks and Whites in threat-relevant domains using a three-way interaction between diversity ideology cue,
minority representation cue, and self-identified racial background. We exposed Black and White service academy cadets with recruitment flyers aimed at high school juniors ostensibly to be used by the admissions office. Diversity ideology statements were presented as quotations from other cadets or graduates. Minority representation was presented as the proportion of racial minorities included in the flyer images.

Based on the research presented above, Whites will be threatened when presented with multicultural ideology statements and high minority representation images. Dissimilar to White participants, Blacks will be threatened when presented with colorblind ideology statements and low minority representation images. Each of these specific threatened conditions contain two cues that have previously registered as threat for each racial group and will result in an identity-threatening condition. If there is at least one identity-safe cue in the condition, the situation will not be threatening and not create a response from the participant. Our study takes on a unique design in that there is no standard control condition; the control conditions are different for Whites than it is for Blacks. Consequently, White and Black responses to identity threat will also be different. Whites under threat will have higher colorblind racism endorsement than when Whites not under threat. Blacks participants will report a lower sense of belonging than Black participants in non-threatening conditions where either one or none of the identity-threatening cues are present.

**Study Design**

This study is broken down into two parts for clarity. Participant race served as a blocked independent variable; based on each participant’s self-identified race, he or she was randomly assigned to either the MC or CB diversity messaging ideology. Next, participants saw both high and low minority representation images. Based on the two variables being manipulated, we expected that the greatest differences will manifest between the high- and low- minority
representation flyers. Therefore, each participant saw two flyers – one with high minority representation and one with low minority representation – but only saw one set of quotes, either the multicultural cue or the colorblind cue. In Part 1, the experiment was a 2 (Black cadets vs. White cadets) × 2 (culture of diversity cue: multicultural vs colorblind) × 2 (pictorial minority representation: high or low) between participants factorial design. Part 2 included a within-participants design for the minority representation cue (high versus low). We counterbalanced the order of the minority representation images to control for potential effects in the order of exposure.

My specific hypotheses are as follows:

H1: A main effect of race on sense of belonging, perceptions of the institution’s commitment to diversity, and colorblind racism with Whites consistently scoring higher than Black cadets.

H2: Black cadets will experience social identity threat in the colorblind diversity messaging/low minority representation condition. White cadets will experience social identity threat in the multicultural diversity messaging/high minority representation condition.

H3: In each groups’ respective threat conditions, stereotype relevant domains will be affected. For Black cadets, ratings and scores on perceptions of diversity and belonging will be lower as compared to the other three conditions that have one or two identity-safe cues. White cadets will have no differences on perceptions of diversity and belonging but will have higher endorsement of colorblindness in their identity-threat condition.

Method

Participants

A total of 194 undergraduate cadets from one of the U.S. service academies were recruited via the Social Sciences Division participant pool. Cadets received extra credit in their courses for their participation. Demographic information, such as students’ racial background, age, sex, and class year were collected via self-report. After data cleaning, a total of 179 students
were included in the study who identified as Asian (n = 13; 7.3%), African-American or Black (n = 39; 21.8%), Caucasian or White (n = 97, 54.2%), Hispanic or Latino (n = 5; 2.8%) or as another minority or of mixed-racial descent (n = 25; 14%). Of these students, women accounted for 25.1% (n = 45) of the total sample. Three class year groups were represented with 55 freshmen (30.7%), 19 sophomores (10.6%), and 40 juniors (22.3%). On average, participants took between 12 and 16 minutes to complete the survey.

<Insert Table 1 here>

**Stimulus Materials**

**Minority group representation.** We produced two versions of a flyer: one with high minority representation and one with low minority representation in the photographs presented on the flyer. The minority representation cues were presented in the form of two sets of five photographs with multiple cadets in each photo and included academy cadets marching in various uniforms, walking on campus, and working in classrooms. One set of photographs depicted higher proportions of racial minorities. The other set of photos only depicted White and mostly male cadets in similar poses or scenes. These photos of cadets in uniform are not included in the appendix to protect the anonymity of the institution.

**Culture of Diversity cue.** The diversity ideology cues were presented in the form of quotes supposedly from other cadets describing their experiences. Participants read the quotes that highlighted either multicultural ideologies or colorblind ideologies. The full listing of the quotes is included in Appendix A. The following is an example of the CB ideology: “One’s success at [school name] is a combination of merit, capabilities, motivation, and opportunity. [School name] provided me a chance to become the best version of myself. No one here cares about what high school you went to, what your background is – if you have what it takes, you
will be successful." The MC ideology was represented through quotes much like: “I never thought I would be immersed with such a diverse and talented group of people when I came to [school name]. We all were cadets but each of our unique perspectives really helped develop me as a leader and I feel prepared to lead soldiers from all over the country as an officer.”

Measures

Perceptions of diversity was measured using items that measured perceptions of institutional commitment to diversity, perceptions of how a high school student like them would like the flyer, and the level of believability of the quotes used in the flyer. Belonging was measured once using a long form of school belonging (Goodenow & Grady, 1993) and twice using a single item. Lastly, the colorblind ideology was measured. The primary dependent variables for the between participants design will be sense of belonging, colorblind racism, and perceptions of institutional commitment to diversity. The primary dependent variables for the within participants analysis will include overall impressions of the flyer, short sense of belonging measures, and opinions about how a potential high school student would think about the flyers. Next, we will describe in more detail the measurements used in this study. All items, response options, and a concise presentation of the stimuli order are provided in Appendix C.

Perceptions of Institutional Commitment to Diversity (PICD). We adapted four items from Pound, Pratto, and Laney (in prep) to measure PICD [“How much would you say [school name] promotes the value of cultural differences?” and “How satisfied are you with the racial diversity at [school name]?”]. PICD was assessed once after participants saw both images. The Cronbach’s alpha = .850.

Quote Believability. Three items specifically asked participants to rate how realistic the quotes were to determine if cadets perceive the quotes differently based on race or on the images.
We asked if participants thought the quotes included phrases that they could see themselves or other cadets saying in real life. The Cronbach’s alpha of the 3 items = .861.

**How High School Students Potential Belonging.** Participants rated how they think a high school student like them would feel about the flyer in with four questions (“How much would a high school student like you feel they would 1) fit in at [school name]? 2) be appreciated at [school name]? 3) would be made to feel out of place at [school name]? 4) would have their qualifications questioned at [school name]?”). These items were seen twice and corresponded to the flyer participants most recently viewed on from 1 = far below average to 7 = far above average. The Cronbach’s alpha = .668.

**Sense of Belonging.** An adaptation of Goodenow’s Psychological Sense of School Membership scale (PSSM; 1993) was tailored for the cadet population and was assessed once during the study; after they saw flyer 1 but before they saw flyer 2. The PSSM consists of 18 questions with responses rated on a 7-point Likert scale ranging from 1= not at all true to 7= completely true. The PSSM tested well (Cronbach’s alpha = .872).

**Short Sense of Belonging Measures (SSoB).** Participants will be asked a short version of the sense of belonging measure, which will be repeated after the 2nd flyer is presented. Each time participants see these items they will respond in relation to the flyer they just saw. The SSoB appears as “How much do you feel like a real part of the [school name]?”

**Colorblind Racism (CBR).** Thirteen items assessed 8 factors of CBR in cadets, including attitudes towards equal opportunity, meritocracy, minimization, helplessness, political correctness concerns, competitive victimhood, colorblind, and apathy. CBR was assessed once on a 1 to 7 scale (strongly disagree to strongly agree) after participants saw the first flyer but before they saw the second flyer. Example items include: “One’s success in life is determined by
one’s merit, capabilities, and motivation – anyone who can work hard can get ahead” and “For the most part, everyone is given the same opportunity in the US.” The Cronbach’s alpha = .773.

Procedure

Students were directed to an on-line survey via an experiment-presentation program that included a cover letter with a brief description of the study and instructions. An electronic consent form and notification of voluntary participation was given before students could begin the survey. Participants were informed that the survey took approximately 25-35 minutes to complete.

The experiment-presentation program randomly assigned participants to one of four experimental conditions based on their self-identified racial background. Participants completed the experiment individually in a laboratory setting using a computer or a quiet space in the dorms. Procedures were similar to Purdie-Vaughns’ Studies 1 and 2 (2004). The brief instructions explained that he or she would be participating in a study about their impressions of potential recruitment materials for their specific service academy. Their job was to carefully evaluate the materials selected randomly among a couple designs, which were presented in a 1-page recruitment flyer for the service academy. Cadets were allowed as much time as he or she wanted with the flyer. Next, they responded to the first set of dependent measures including a short sense of belonging item, how high schoolers would respond to the first flyer, the PSSM, and CBR items.

After completing the first set of dependent measures, the cadets saw another version of the flyer with the same quotes. However, the second flyer presented different images their first image. We randomized which images participants saw first to control for the effect of image order. All participants saw the flyers with high and low minority representation, but half saw the
CB messaging and the other half saw MC messaging. After seeing the second flyer, cadets responded to a limited number of items asking about their overall impression of the flyer, a short sense of belonging item, and how high schoolers would respond to the 2nd flyer. Finally, cadets were debriefed, thanked for their participation, and awarded extra credit for their time.

**Results**

**Analysis Strategy**

As mentioned above, this experiment takes on a Three-Way Factorial ANOVA design as a 2 (Black cadets vs. White cadets) × 2 (culture of diversity cue: multicultural cue vs colorblind cue) × 2 (pictorial minority cadet representation: high or low) and between participants factorial design. The repeated measures will add an additional factor of image order (high then low or low then high) for the within-participants ANOVA.

We will discuss the results in three sections. The first results will discuss cadets’ perceptions of diversity, the second will highlight cadets’ belonging, and the last section will describe the colorblind ideology endorsement. Each of the following section will have a small discussion on the results and we will finish the paper with a general discussion section. Means, standard deviations, correlations, and reliability of dependent measures are in Table 2.

<Insert Table 2 here>

**Perceptions of Institutional Diversity**

**Perceptions of Institutional Commitment to Diversity (PICD).** The 2 (participant race: Black or White) × 2 (minority representation: high or low) × 2 (diversity messaging cue: colorblind or multicultural) factorial ANOVA on PICD revealed no significant effect on either minority representation or diversity messaging cue effects nor any interaction effects. Race was a significant factor on PICD, \( F(1, 119) = 18.69, p < .001 \); White cadets \( M = 5.19, SD = 1.17, \)
95% CI = 4.9, 5.4) had a more positive impression of the institution’s commitment to diversity as compared to Black cadets (M = 4.03, SD = 1.60, 95% CI = 3.6, 4.5). For all students, neither the diversity messaging cue nor the proportion of minority representation in the images impacted cadets’ levels of PICD. On average, Black students were neither satisfied nor dissatisfied when questioned how much the service academy promoted cultural and racial differences. White cadets were moderately to extremely satisfied with the institution’s level of commitment to diversity on average.

<Insert Figure 1 here>

**Quote Believability.** Cadets rated how believable the quotes in the flyer were. Again, we found a main effect of race, F(1, 119) = 5.7, p = .018, qualified by a moderately significant interaction between race and the order in which participants saw the minority representation images (either the high minority representation first and the low minority representation second or vice versa), F(1, 119) = 4.91, p = .051. White cadets believed the quotes to be more realistic (M = 4.87, SD = 1.05, 95% CI = 4.6, 5.1) than Black cadets (M = 4.32, SD = 1.35, 95% CI = 3.9, 4.7) regardless of the minority representation in the image or diversity messaging cues. However, Black cadets rated the quotes as most believable when they saw the low diversity image paired first (M = 4.7, SD = .82, 95% CI = 4.1, 5.4) to a non-significant degree, as compared to those who saw the minority representation images first (M = 3.8, SD = .82, 95% CI = 3.2, 4.5).

<Insert Figure 2 here>

**Repeated Measure: High School Students Potential Belonging.** A 2 (race) × 2 (minority representation) × 2 (diversity messaging cue) × 2 (image order) mixed-factorial ANOVA found a significant main effect of image type (high versus low minority rep), F(1, 119) = 25.97, p < .001, a main effect of race F(1, 119) = 11.12, p < .001, and 2-way interaction
between race and diversity messaging $F(1, 119) = 4.0, p = .048$, on the within-participants measures after the high minority representation image and the low minority representation image. However, there was no effect of order presentation. A between-participants interaction was revealed between minority representation, race, and diversity messaging was also significant, $F(1, 119) = 3.6, p = .048$.

To further explicate these results, the ratings of how much a high school student like themselves were collapsed across time since order of image presentation did not produce any effects. The $2 \times 2 \times 2$ within-participants ANOVA revealed a main effect of minority representation within-participants, $F(1, 123) = 26.2, p < .001$, where the high minority representation received higher ratings ($M = 4.85, SD = .99, 95\% CI = 4.6, 5$) than the low minority representation image ($M = 4.43, SD = 1.14, 95\% CI = 3.9, 4.3$). There was also an interaction effect of the minority representation image and race, $F(1, 123) = 8.29, p = .001$, as well as a three-way interaction between minority representation image, race, and diversity messaging, $F(1, 123) = 3.93, p = .050$. To better understand these results, we will break down the ANOVA by comparing and Black and White cadet ratings.

When asked how much a high school student like themselves would fit in at the service academy, White participants reported a higher fit in general ($M = 4.6, SD = .88, 95\% CI = 4.7, 5$) than Black students ($M = 4.01, SD = .13, 95\% CI = 3.7, 4.4$). White participants reported a higher fit for a high school student after the high minority representation image ($M = 4.96, SD = .86, 95\% CI = 4.8, 5.1$) as compare to the low minority image ($M = 4.74, SD = .88, 95\% CI = 4.5, 4.9$), $F(1, 93) = 4.26, p = .042$. There was no main effect or interaction of diversity message on White participants on this measure.
Black participants were also more likely to report that a high school student like themselves would fit in at the service academy after seeing the high minority representation image ($M = 4.55$, $SD = 1.21$, 95% CI = 4.1, 5) as compared to the low minority image ($M = 3.5$, $SD = 1.33$, 95% CI = 3.1, 3.9), $F(1, 30) = 12.64$, $p = .001$. There was a main effect of diversity messaging on Black participants, $F(1, 30) = 4.7$, $p = .038$, where fit for high school students was perceived to be lower after seeing the CB messaging ($M = 3.69$, $SD = 1.34$, 95% CI = 3.2, 4.1) as compared to the MC messaging ($M = 4.38$, $SD = 1.07$, 95% CI = 3.9, 4.8) regardless of the order in which participants saw the images. Even though the interaction was not significant, Black participants perceived that a high school student like them would fit the least in the CB messaging and low minority representation image ($M = 2.94$, $SD = 1.19$, 95% CI = 2.3, 3.6) and most in the multicultural messaging and high minority representation image ($M = 4.67$, $SD = .90$, 95% CI = 4, 5.3).

**Discussion of Perceptions of Institutional Diversity**

Recall that we expected the MC diversity messaging and the high minority representation condition to be identity-threatening for Whites and that the CB messaging and low minority representation condition to be identity threatening for Blacks. Results showed that the effect of identity-threatening conditions only affected Black cadets’ perceptions of institutional diversity. We measured cadets’ diversity perceptions in three ways: 1) by asking directly their satisfaction with diversity at their service academy, 2) the believability of either multicultural or colorblind diversity ideology quotes within the flyer, and 3) how much they thought a high school student like them would fit in at the service academy. In all three measures, White cadets scored higher and were more satisfied with the current diversity, thought the quotes were more believable, and thought high school students like them would fit in more than the Black cadets did. As predicted,
White cadets’ perceptions were not affected in the hypothesized threat condition of high minority representation combined with multicultural messaging because the threat was not domain relevant to a negative stereotype about Whites.

We found partial support for our prediction that Black cadets’ perceptions would be affected by the manipulations. We found significant results on one of three measures, namely perceptions of how a high school student would fit in at the service academy. The threat condition of the colorblind diversity messaging and the low minority representation resulted in the lowest level of expected fit for Black high school students. While not significant, Black cadets in the same identity threat condition also reported the lowest levels of perceptions of the institution’s commitment to diversity. We did not expect to find Black cadets’ ratings of quote believability in the flyer to be highest in the MC messaging and the low minority representation condition. Oddly enough, the same MC quotes were rated as the least believable by Black cadets who saw the multicultural diversity quotes paired with the high minority representation images. We surmise that the MC messaging combine with high minority representation condition was too unrealistic for Black cadets to trust.

**Sense of Belonging**

**Sense of Belonging.** The 2 (race: Black or White) × 2 (minority representation: high or low) × 2 (diversity messaging cue: colorblind or multicultural) Factorial ANOVA on sense of belonging revealed a significant main effect of race \( F(1, 121) = 27.41, p < .001 \), qualified by a significant 3-way interaction effect \( F(1, 121) = 5.47, p = .021 \). White cadets had a higher sense of belonging \( (M = 5.3, SD = .73, 95\% CI = 5.2, 5.5) \) than Black cadets \( (M = 4.51, SD = .81, 95\% CI = 4.3, 4.8) \). Neither the diversity messaging cue nor the proportion of minority representation in the images impacted cadets’ levels of sense of belonging directly. Regardless of whether
White participants saw the high or low minority representation images, they had relatively equal levels of belongingness after seeing either the CB or MC diversity messaging cues.

However, Black cadets’ results exhibited a marginally significant interaction of diversity messaging and minority representation images on sense of belonging, $F(1, 30) = 4.13, p = .051$. Black participants who saw the low minority representation image with CB messaging had a lower sense of belonging ($M = 4.06, SD = .67, 95\% CI = 3.5, 4.6$) as compared to those who saw the MC diversity messaging paired with the low minority representation image ($M = 4.94, SD = .78, 95\% CI = 4.4, 5.5$). In contrast, Black participants who saw the high minority representation image and CB messaging ($M = 4.66, SD = .91, 95\% CI = 4.1, 5.2$) had a relatively similar sense of belonging compared to those who saw the MC message with the high minority representation image ($M = 4.46, SD = .71, 95\% CI = 3.9, 5$). In essence, participants experiencing the paired experience of low minority representation and MC messaging had higher levels of belonging than those who saw the same low minority representation images and CB diversity messages. But Black participants who saw the high minority representation images reported the same level of belonging regardless of diversity messaging ideology.

<Insert Figure 4 here>

**Repeated Measure: Short Sense of Belonging.** To test the impact of minority representation in image impacted sense of belonging, we performed a 2 (race: Black or White) × 2 (minority representation: high or low) × 2 (diversity messaging cue: colorblind or multicultural) × 2 (image order: high-minority image first/low-minority second or low-minority image first/high-minority second) mixed-factorial ANOVA. There were no significant within-participant effects of image type, order, or messaging on the short sense of belonging measure, $F(1, 119) < 1$. However, the average both short measures of sense of belonging resulted in a
diversity message main effect, $F(1, 119) = 8.14, p = .005$, and a race main effect, $F(1, 119) = 36.5, p < .001$. These main effects were qualified by a diversity message by participant race interaction effect, $F(1, 119) = 6.08, p = .015$. For Black cadets, the 2 (diversity messaging) × 2 (minority representation) ANOVA on the short sense of belonging measure revealed a marginally significant main effect of diversity messaging $F(1, 32) = 4, p = .056$ but no main effect was found on minority representation. Black cadets who saw the MC messaging on the flyer reported a higher sense of belonging ($M = 5.16, SD = 1.63, 95\% CI = 4.3, 6$) as compared to those cadets who saw the CB messaging ($M = 4.0, SD = 1.80, 95\% CI = 3.1, 4.8$), regardless of the minority representation image presented to him or her. White participants did not report any significant difference on the short sense of belonging across all four conditions ($M = 5.91, SD = .79$; simple $F < 1, 95\% CI = 5.7, 6.1$).

The order presentation of minority representation image did not matter to participants on sense of belonging. We calculated change scores by subtracting participant’s sense of belonging score from time 2 from time 1. A positive change in belonging indicated that participants had a higher score on the short sense of belonging at the end of the study and a negative score would indicate that their sense of belonging score decreased from time 1 to time 2. The change in participants short sense of belonging score did not significantly change from the first image they saw to the second image regardless of diversity messaging, minority representation image, or race of the participant ($M = -.124, SD = .95, 95\% CI = -.32, .07$).

**Discussion on Belonging**

Again, we found a main effect of race where White cadets routinely had a higher sense of belonging than Black cadets. As expected, we found no difference on White cadets’ sense of belonging in any of the conditions, which were uniformly higher than those of Black cadets.
These results echo those of Purdie-Vaughns and her colleagues (2008) in that White participants trust and comfort in the organization were not affected by the cues in the experiment. However, we found results that suggest Black cadets are affected by the experimental cues.

Black cadets were not affected solely by the low minority representation image. Instead, when Black participants saw the low minority representation image alongside the CB diversity messaging, their sense of belonging decreased, as measured by the PSSM (Goodenow, 1992). Again, we found that Black cadets’ sense of belonging on the long form was highest in the multicultural messaging and the low minority representation condition. Black cadets’ sense of belonging was generally higher when presented with the multicultural diversity ideology quotes. Overall, Black cadets’ belonging was more affected by the diversity message instead of the proportion of minority representation.

**Results on Colorblind Ideology Endorsement**

**Colorblind Racism.** With Colorblind Racism endorsement scores, we found a main effect of race for the 2 (race) \(\times\) 2 (minority representation) \(\times\) 2 (diversity messaging cue) factorial ANOVA, \(F(1, 112) = 32.1, p < .001\), but no effects of condition. White cadets endorsed CBR more (\(M = 4.43, SD = .93, 95\% CI = 4.2, 4.6\)) than Black cadets (\(M = 3.38, SD = .75, 95\% CI = 3.1, 3.7\)) regardless of the images of diversity or diversity messaging cues. White participants experienced a moderately significant main effect of diversity image on CBR endorsement, \(F(1, 89) = 3.74, p = .056\), but CBR was unaffected by type diversity message. White participants that were presented with either the MC messaging or CBR messaging had a higher endorsement of CBR when exposed to the high minority representation image (\(M = 4.6, SD = .76, 95\% CI = 4.3, 4.9\)) than those who saw the low minority image (\(M = 4.23, SD = 1.1, 95\% CI = 3.9, 4.5\)).
Black participants showed a significant main effect of diversity messaging cue, $F(1, 28) = 5.08, p = .032$. Black participants who were presented with either low or high minority representation images had a higher endorsement of CBR in the MC messaging condition ($M = 3.66, SD = .67, 95\% CI = 3.3, 4$) than those in the CB condition ($M = 3.11, SD = .74, 95\% CI = 2.8, 3.5$).

**Discussion on Colorblind Ideology Endorsement**

Our last measure was designed to capture a response to threat that White cadets might feel; however, Black cadets’ CBR endorsement varied by condition as well. We found that White cadets’ agreement with CBR was affected by the diversity images and Black cadets were more affected by the diversity messaging cues. We failed to find evidence that the double threatening cue condition (multiculturalism diversity messaging and high minority representation images) lead to increased CBR endorsement for White cadets. Instead, we found that high diversity images alone were sufficient to higher agreement with CB ideology as compared to the low diversity images. White cadets’ in the colorblind and low minority representation condition showed the lowest CBR endorsement; this is likely because White cadets felt most safe and comfortable in the double identity-safe condition.

Our hypothesis for the Black participants was partially supported as Black participants showed lower colorblind racism scores when presented with CB diversity rather than MC ideology cues but there was no interaction with minority representation cues. This higher endorsement of CBR by Black cadets in the MC condition could stem from an increased level of comfort and trust in the institution. Since Black cadets have received a realistic signal (MC diversity messaging), they are more likely to believe in likelihood of actually being treated fairly, regardless of race. However, if the Black participants get both the high diversity image and MC
message, they are less likely to believe in the ideals of CBR/meritocracy. This is likely due to the unrealistic nature of experiencing both high minority representation and MC messaging at the same time at a service academy. In other words, cadets do not buy it and the institution is trying excessively hard to appeal to minorities and lacks sincerity.

**General Discussion**

Diversity continues to be a slippery term often interpreted differently by diverse people within an organization. The military is no exception. Diversity ideologies adopted by each service and each service academy can guide members on how to think and act with diverse people; however, these diversity ideologies may not be interpreted as intended by everyone. Previous research found mixed evidence on the effectiveness of diversity ideologies. We attempted to draw connections between organizational diversity research and social psychological approaches to situational threat cues in the environment. Based on previous research, we predicted that Black participants would experience social identity threat when exposed to colorblind diversity ideologies coupled with low minority representation. This threat experience would affect Black cadets’ sense of belonging and perceptions of the institution. We further hypothesized that White cadets would experience social identity threat when exposed to multiculturalism diversity messaging and high minority representation, affecting their endorsement of colorblind racism ideologies.

In our research, we sought to find the unintended, negative consequences of different types of diversity ideologies and the differential impact on have Black and White cadets at a U.S. service academy. Most of the relationships among our variables and manipulations were evident for Black cadets but not for White cadets, despite White cadets being represented in much higher numbers among our participants. In all cases, Black cadets had lower scores on their perceptions
of the institution, feelings of belonging, and attitudes aligning with the colorblind ideology. This finding is consistent with our argument that setting cues do not affect White cadets or students in the same manner that affect cadets of historically marginalized groups.

**Threat Cues**

Cues are all about anticipating threat. For our Black participants, we found evidence that the cues in the environment prime them to anticipate threat; a second cue then confirms the threat experience. Once the threat is confirmed, the threat affects their perceptions of the institution, their feelings of belonging, and also their endorsement of the tenets of the colorblind ideology. Black cadets are accustomed to finding clues and indications that the environment they are in is an identity-safe situation. Our study supports previous research showing that racial minorities are highly attuned to how an institution may treat them (Plaut, Thomas, Hurd, & Romano, 2018). We found that Black cadets were more often affected by diversity messaging than the minority representation. This finding suggests that Black students pay attention to the subtle cues of an environment whereas White students are more affected by the blatant cues (images).

**Diversity Messaging.** Overall, multicultural diversity messaging as identity-safe cue had more positive outcomes associated with it than the colorblind diversity ideology. Unlike Kaiser and her colleagues’ work (Dover et al., 2016; Kaiser, 2019; Wilkins, Hirsch, Kaiser, & Inkles, 2017), multiculturalism diversity messaging had no impact, much less a backlash reaction, on our White participants. On the other hand, our work echoes previous research by Cohen and Swim (1995) and Purdie-Vaughns (2004), as they also did not find that the combination of the cues in this experiment elicited a threat response from White participants. However, this does not mean that White cadets did not experience some level of social identity threat. Dover and her colleagues (2016) have found that White men interviewing for a pro-diversity company
displayed cardiovascular characteristics consistent with a threat experience and found significant differences regarding expectations of discrimination. In most of Kaiser and her colleague’s work mentioned before, the outcome measured discrimination and anticipated discrimination. It is theoretically likely that our participants were in a threatened state, but our measures were not relevant enough to the specific threat.

In our study, White cadets could not catch the cue of diversity ideology. A second cue that confirms an identity-threatening situation for Whites likely exists but our study did not find it. In terms of identity threat contingency theory, we had expected to find White cadets’ racial identity to be threatened after being exposed to MC diversity messaging and high diversity images. We rationalized when Whites’ experienced two cues that have been shown to exclude Whites in other studies (Dover et al., 2016; Plaut et al., 2011), they would have higher agreement with the ideologies found in CBR. The double threat would make their White racial identity salient making the negative stereotype of White people being racist activated. Our cues did not provoke such a response. The study was highly anonymous and there was no person for the participants to interact with who could judge whether the participant was racist; therefore, there was no threat of being labeled a racist by another person.

Bonilla-Silva’s theory of Colorblind Racism (2013) can offer some insight as to why our White participants’ scores were high but did not vary on CBR. In his work, White interviewees would engage in verbal and mental gymnastics to maintain their positive sense of self when actively confronted with racial issues, that is, attempt maintain the position that they themselves are not racist. White people struggle with talking about the topic of race as many equate seeing race as the same thing as being racist (Glazier, 2003). Historically, Whites have avoided talking about race as it evolved to be the most gracious way to stop the cycle of racism and not talking
about race continues to be a White cultural norm (Richards, 2018). In our study, participants were not forced to talk about race. In not being face-to-face with an interviewer or a potential audience, their backlash or resistance to the flyer manipulations was not intense enough to elicit a defensive reaction on anonymous survey items.

We found that the CB diversity messaging provided little or no organizational benefit to members’ belonging, perceptions of diversity, or colorblind racism endorsement. If paired with higher-minority representation images, the negative aspects associated with CB diversity messaging effects were non-existent, which supports the identity-contingency theory that two cues are necessary to induce an experience of identity threat. At least, the MC messaging cues avoided the most negative scenario for Black participants. From this, organizations seeking to retain a diverse workforce should consider adopting more MC than CB diversity messages across the institution. While we cannot say that it will unequivocally boost minority retention, MC messages seem to cause less harm overall than CB messaging.

Patterns of Colorblind Racism by Race

Cadets’ endorsement of Colorblind Racism ideologies depended on their racial background. The ideologies present in the CBR scale – meritocracy, colorblindness, minimizing racial differences, etc – appear to be interpreted differently based on race. Whites had the lowest CBR endorsement in the CB and low minority representation condition, which is the identity safe condition for Whites. In this sense, CBR could be a defense mechanism. In the CB and low minority condition, White cadets’ position in the social hierarchy of a service academy is not threatened. Therefore, Whites’ do not need to double down to assert equality and fairness. Interestingly, Whites were more affected by the images presented than the diversity messaging. This could indicate that Whites are more sensitive to visual diversity cues than Black cadets.
Black cadets have the opposite experience. Their endorsement of CBR appears to be idealistic in that they are willing to believe the likelihood of meritocracy existing at a service academy when they setting cues indicate a certain level of safety. Black cadets’ endorsement of CBR was stable across the three conditions that had 1 or 2 identity-safe cues. But in the CB and low minority representation condition, CBR endorsement dropped. CBR endorsement was highest when Black cadets in the safest identity condition, where they saw MC messaging and highly diverse images. While the patterns may look similar, as seen in figures 7a and 7b, the explanation of the patterns requires a nuanced thinking because of the main effect of race in the ANOVA. These results emphasize the importance of piloting testing materials on all groups relevant to the measures because the effects can vary by race. This variation should be interpreted based on how the participants construe the items; we must not assume that one size fits all when it comes to measurement, especially on a nuanced concept such as colorblind racism. The historical, collective, and individual experiences participants bring into the lab are important to consider when interpreting these results.

Limitation

First and foremost, we must acknowledge the lack of power and low sample size for Black cadets. Since we were unable to recruit the intended 40 Black and 40 White participants, these results must be taken with caution. This study design was inspired by experimental methods of Purdie-Vaughns’s and her colleague’s (2008). In their experiments, they recruited Black students at Stanford and conducted multiple studies with similar stimuli. Their studies contained approximately 30 Black participants per condition whereas ours had around 10 Black participants per condition. Moving forward, more data needs to be collected before any certainty behind these findings can be substantiated. We do plan to continue collected data from the
service academy, if our contacts continue to be willing to participate. However, we did collect enough White participants (97) to make conclusions about their responses to diversity images and messaging.

The experiment presented here offers some insight into the experience of navigating ambiguous diversity message at a U.S. service academy. These well-meaning diversity cues can be confusing for Black cadets but invisible at times for White cadets. The cues are not interpreted in the same manner, making it difficult for institution administrators to find the right answer for maximizing all cadets’ experiences and officer development. Attempts at diversity messaging at universities and at the service academies is supposed to help close the gap between White and Black students’ grades, graduation rates, and feelings of belonging. But even on this benign social psychology experiment targeted at uplifting minority students, Whites’ scores remain higher and indicate a higher sense of comfort and trust towards the institution. White scores on belonging, perceptions of the institution, and colorblindness were always higher than Black cadets, even at White cadets’ lowest.

Most of our effects were driven by the racial category our participants self-identified. This could be a limitation of our study; when participants that are part of a historically marginalized group respond to demographic questions at the beginning of surveys, the experience of stereotype threat can be induced (Danaher & Crandall, 2008). However, this experimental procedure was unavoidable due to nature of recruiting participants at this particular service academy. However, the fact that we found some conditional effects on Black cadets indicates that the diversity cues still have an impact on their experiences in college and have less impact on White cadets’ experiences. Concordantly, a common limitation of studying stereotype threat on White participants is that it is extremely difficult to make a White participant’s race
salient to them as White people, men, and other majority groups are considered normal and typical in most sectors of society (Walton & Cohen, 2003)

We failed to find conclusive evidence that Whites responded to the multicultural messaging coupled with the high diversity images as threatening. Prior research has indicated that White participants have physiologically responded to threat after reading diversity mission statements or quotes from corporate executives. These previous experiments usually included a control condition where participants read something completely not related to diversity. In our study, White participants always saw some sort of diversity statement and image – we did not have a true no-treatment control condition.

Perhaps stronger minority representation would have elicited a strong experience of threat for White cadets. For example, there have been strong reactions to an image from the U.S. Military Academy: The Black women in the West Point class of 2014 with their clenched fists in the air. While the photos in our flyers did have an over representation of racial minorities, White cadets still appeared in the images. White participants are more sensitive to images of diversity, as compared to diversity messaging, and if we had used only included images of cadets of color, White cadets may have experienced a level of identity threat to influence their belongingness or their perceptions of the institution.

Another way to intensify the identity threat experience would have been to remind White participants that White people are generally perpetrators of racial violence or that White people have unearned privilege in American society. Bonilla-Silva’s technique included asking his interviewees to explain racial disparities; this question alone is likely enough of a threat to conjure up feelings of threat for White participants. Even though all groups of people can experience identity threat, people sometimes need to be reminded of the stereotype and then be
told that the study measures their level of racism. Bottom line – the stereotype needs to be explicitly said for historically powerful people whereas most negative stereotypes about historically marginalized groups are always implicitly available to non-White people.

**Implications for Future Research**

Despite this evidence in a laboratory setting, this manipulated experiment is not how cadets live their lives in the dorms, in the classrooms, or in the training field. Walking into most spaces at any military academy, cadets of color will glance across the room and find low minority representation and language use that replicates colorblind racism. In many formal capacities, like recruiting materials or presentations by the permanent party, words about diversity and inclusion can be found readily. The recruitment materials and mission statements of institutions do tout inclusion -- but once students are on campus, especially at a military academy, ideals about meritocracy, colorblindness, and grit quickly overshadow the ground-level use of the multicultural ideology. Therefore, our study implies that cadets of color are swimming in a reality that can foster lower belongingness for cadets like them, lower beliefs in ideals found in the CBR scale, and lower perceptions of the institution. Recruitment does not seem to be the issue - retention is. And a key competent of retention for Black organization members lies in the MC diversity ideology.

At the same time, organizations must be careful as to not over-do the multicultural messaging for racial minorities. Contrary to results found by Purdie-Vaughns (2004), we found that photographs with a higher proportion of minorities did not always maintain Black cadets’ belongingness or perceptions of the institution. In fact, we found no direct effect of the minority representation images, but Black cadets did pay attention to the type of diversity ideology presented in the flyer. The additive experience of the diversity ideology and the minority
representation made for nuanced results based on the outcome measure. For the long belonging measure, perceptions of a high school student fit, and CBR, Black cadets’ scores were the lowest in the CB and low minority representation. Our results imply that Black participants routinely respond more negatively to the double threat experience of colorblind diversity messaging coupled with low-minority representation. By most accounts, simply having one identity safe cue dampened the effect of one of the identity-threat cues. But increasing the number of diversity cues is not always good thing as doubling up on diversity cues can appear organizationally insincere and unrealistic.

Exaggerating diversity and inclusion efforts may to lead to cynical beliefs. Black cadets’ scores on quote believability was lowest in the multicultural ideology and high minority representation. Sense of belonging was highest for Black cadets who saw the multicultural diversity statements and the low minority representation. The cadets appear skeptical that a high minority representation and multicultural environment could actually exist at U.S. service academy, diminishing the realistic nature of the flyer. This interaction effect helps us to understand that diversity efforts are not always additive. Black participants are taking in the entire context of the flyer when assessing the realistic nature of it; even if the images are more diverse and that makes them feel like they belong, they know it is not realistic.

We can conclude from this experiment that cadets have much in common with other civilian universities. There appears to be a universal struggle in creating a safe and inclusive environment for all students. Diversity messaging should be realistic for the environment as to not foster cynicism but also should be clearly aspirational, as the diversity messaging sets the tone for interpersonal interactions among cadets. Academy officials should take this seriously as the colorblind ideology has the potential to cause more harm than good; but the multicultural
approach is not ideal on all fronts either. As school administrators look to impact the cultural climate, the following things should be kept in mind.

Diversity statements have good and bad impacts; it is critical to explore the ways diversity messages may cause intended and unintended consequences. In the present research, we expose some of the paradoxical impacts of the same diversity messaging and situation cues on cadets of color and White cadets at the same institution. The important thing for an organization to consider its specific goals for the institution at that moment in time while considering the unintended consequences it may cause in the future. It may be extremely difficult to accomplish all of an organization's diversity goals with a single approach. However, by more fully understanding the intended and unintended consequences of the diversity ideology chosen and minority representation, organizations can maximize their goals and minimize disruption to the organization.
References


Richards, B. N. (2018). Questions institutions should ask themselves to determine if they are operating in a racist way (opinion). Retrieved May 25, 2018, from https://www.insidehighered.com/advice/2018/05/25/questions-institutions-should-ask-themselves-determine-if-they-are-operating


Table 1. Participant Characteristics

<table>
<thead>
<tr>
<th>Race</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>39</td>
<td>21.8%</td>
</tr>
<tr>
<td>Asian</td>
<td>13</td>
<td>7.3%</td>
</tr>
<tr>
<td>White</td>
<td>97</td>
<td>54.2%</td>
</tr>
<tr>
<td>Latino</td>
<td>5</td>
<td>2.8%</td>
</tr>
<tr>
<td>Mixed Race</td>
<td>25</td>
<td>14.0%</td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>134</td>
<td>74.9%</td>
</tr>
<tr>
<td>Female</td>
<td>45</td>
<td>25.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class Year</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>40</td>
<td>22.3%</td>
</tr>
<tr>
<td>2021</td>
<td>19</td>
<td>10.6%</td>
</tr>
<tr>
<td>2022</td>
<td>55</td>
<td>30.7%</td>
</tr>
<tr>
<td>Missing</td>
<td>2</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
<td>1.2</td>
</tr>
</tbody>
</table>
### Table 2. Means, Standard Deviations, Correlations, and Reliability of Major Scales

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sense of Belonging</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>5.00</td>
<td>0.9</td>
</tr>
<tr>
<td>2</td>
<td>Colorblind Racism</td>
<td>.24**</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>4.10</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Perceptions of Institutional Commitment to Diversity</td>
<td>.53**</td>
<td>.46**</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>4.80</td>
<td>1.4</td>
</tr>
<tr>
<td>4</td>
<td>Quote Believability</td>
<td>.44**</td>
<td>-.14</td>
<td>.40**</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>2.30</td>
<td>1.2</td>
</tr>
<tr>
<td>5</td>
<td>First Short Sense of Belonging</td>
<td>.60**</td>
<td>.42**</td>
<td>.41**</td>
<td>.31**</td>
<td>--</td>
<td>--</td>
<td>2.40</td>
<td>1.3</td>
</tr>
<tr>
<td>6</td>
<td>Second Short Sense of Belonging</td>
<td>.69**</td>
<td>.36**</td>
<td>.53**</td>
<td>.44**</td>
<td>.77**</td>
<td>--</td>
<td>2.60</td>
<td>1.4</td>
</tr>
<tr>
<td>7</td>
<td>Perceptions of High Schooler Fit - 1st</td>
<td>.43**</td>
<td>.23**</td>
<td>.29**</td>
<td>.011</td>
<td>.36**</td>
<td>.38**</td>
<td>--</td>
<td>4.69</td>
</tr>
<tr>
<td>8</td>
<td>Perceptions of High Schooler Fit - 2nd</td>
<td>.33**</td>
<td>0.07</td>
<td>.24**</td>
<td>.27*</td>
<td>.10</td>
<td>.011</td>
<td>.31**</td>
<td>4.40</td>
</tr>
</tbody>
</table>

Cronbach's α - Colorblind Racism Exposed | 0.91 | 0.96 | 0.84 | 0.84 | 0.86 | -- | 0.69 | 0.72 |
Cronbach's α - Multicultural Message Exposed | 0.89 | 0.81 | 0.87 | 0.78 | 0.83 | -- | 0.70 | 0.73 |

Number of Participants | 170 |

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

### Table 2a. Means, Standard Deviations, Correlations, and Reliability of Major Scales for Black Participants

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sense of Belonging (long)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>4.51</td>
<td>.81</td>
</tr>
<tr>
<td>2</td>
<td>Colorblind Racism</td>
<td>.37*</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>3.38</td>
<td>.75</td>
</tr>
<tr>
<td>3</td>
<td>Perceptions of Institutional Commitment to Diversity</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>Quote Believability</td>
<td>.62**</td>
<td>.52**</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>4.03</td>
<td>1.60</td>
</tr>
<tr>
<td>5</td>
<td>First Short Sense of Belonging</td>
<td>.55**</td>
<td>.30</td>
<td>.48**</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>4.32</td>
<td>1.35</td>
</tr>
<tr>
<td>6</td>
<td>Second Short Sense of Belonging</td>
<td>.46**</td>
<td>.46**</td>
<td>--</td>
<td>.31</td>
<td>.39*</td>
<td>--</td>
<td>4.67</td>
<td>1.80</td>
</tr>
<tr>
<td>7</td>
<td>Perceptions of High Schooler Fit - Lo image</td>
<td>.56**</td>
<td>.58**</td>
<td>.54**</td>
<td>.62**</td>
<td>.73**</td>
<td>--</td>
<td>4.53</td>
<td>1.88</td>
</tr>
<tr>
<td>8</td>
<td>Perceptions of High Schooler Fit - High image</td>
<td>.41*</td>
<td>-.01</td>
<td>.08</td>
<td>.12</td>
<td>.04</td>
<td>.08</td>
<td>--</td>
<td>3.50</td>
</tr>
</tbody>
</table>

Cronbach's α - Colorblind Racism Exposed | 0.89 | 0.81 | 0.87 | 0.78 | 0.83 | -- | 0.70 | 0.73 |

Number of Participants | 170 |

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).
<table>
<thead>
<tr>
<th></th>
<th>Table 2b. Means, Standard Deviations, Correlations, and Reliability of Major Scales for White Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>Sense of Belonging (long)</td>
</tr>
<tr>
<td>2</td>
<td>Colorblind Racism</td>
</tr>
<tr>
<td>3</td>
<td>Perceptions of Institutional Commitment to Diversity</td>
</tr>
<tr>
<td>4</td>
<td>Quote Believable</td>
</tr>
<tr>
<td>5</td>
<td>First Short Sense of Belonging</td>
</tr>
<tr>
<td>6</td>
<td>Second Short Sense of Belonging</td>
</tr>
<tr>
<td>7</td>
<td>Perceptions of High Schooler Fit - Lo image</td>
</tr>
<tr>
<td>8</td>
<td>Perceptions of High Schooler Fit - High image</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).
Table 3. Variables, Cronbach’s Alpha, Mean, and Standard Deviations by Condition and Race

<table>
<thead>
<tr>
<th>Variables</th>
<th>Example Items</th>
<th>Race</th>
<th>Alpha</th>
<th>No. Items</th>
<th>Colorblind Messaging</th>
<th>Multicultural Messaging</th>
<th>Colorblind Messaging</th>
<th>Multicultural Messaging</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quote Believability [CB then M]</td>
<td>The quotes in the flyer seem like something I could see myself/other students saying about [school].</td>
<td>Black Participants</td>
<td>0.907</td>
<td>3</td>
<td>4.4 (1.07)</td>
<td>5.1 (.82)</td>
<td>4.0 (1.87)</td>
<td>3.8 (1.26)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White Participants</td>
<td>0.814</td>
<td>4.8 (1.08)</td>
<td>5.0 (1.13)</td>
<td>5.0 (1.06)</td>
<td>4.8 (.97)</td>
<td></td>
</tr>
<tr>
<td>Sense of Belonging</td>
<td>I can really be myself at [school].</td>
<td>Black Participants</td>
<td>0.867</td>
<td>18</td>
<td>4.1 (.67)</td>
<td>4.9 (.81)</td>
<td>4.7 (.91)</td>
<td>4.5 (.71)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White Participants</td>
<td>0.877</td>
<td>5.5 (.69)</td>
<td>5.2 (.56)</td>
<td>5.3 (.78)</td>
<td>5.2 (.85)</td>
<td></td>
</tr>
<tr>
<td>Colorblind Racism</td>
<td>If we stopped talking about racism, it wouldn’t be a problem anymore.</td>
<td>Black Participants</td>
<td>0.728</td>
<td>13</td>
<td>2.8 (.94)</td>
<td>3.8 (.66)</td>
<td>3.4 (.32)</td>
<td>3.6 (.71)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White Participants</td>
<td>0.819</td>
<td>4.1 (1.02)</td>
<td>4.4 (1.13)</td>
<td>4.6 (.8)</td>
<td>4.6 (.73)</td>
<td></td>
</tr>
<tr>
<td>Perceptions of Institutional Commitment to Diversity</td>
<td>[School] promotes the value of cultural/racial diversity.</td>
<td>Black Participants</td>
<td>0.897</td>
<td>4</td>
<td>3.4 (1.67)</td>
<td>4.4 (1.22)</td>
<td>3.9 (1.7)</td>
<td>4.4 (1.8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White Participants</td>
<td>0.803</td>
<td>5.1 (1.13)</td>
<td>5.2 (1.17)</td>
<td>5.1 (1.25)</td>
<td>5.4 (1.16)</td>
<td></td>
</tr>
</tbody>
</table>
### Table 3 - continued. Variables, Cronbach's Alpha, Mean, and Standard Deviations by Condition and Race

<table>
<thead>
<tr>
<th>Variables</th>
<th>Example Items</th>
<th>Race</th>
<th>Alpha</th>
<th>No. Items</th>
<th>Colorblind Messaging</th>
<th>Multicultural Messaging</th>
<th>Low minority representation images</th>
<th>High minority representation images</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Sense of Belonging - Time 1</td>
<td>I feel like a real part of [school].</td>
<td>Black</td>
<td>--</td>
<td>1</td>
<td>3.8 (2.04)</td>
<td>5.1 (1.73)</td>
<td>4.3 (1.6)</td>
<td>5.4 (1.6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White</td>
<td>--</td>
<td>6.0 (1.02)</td>
<td>6.0 (.62)</td>
<td></td>
<td>5.9 (.76)</td>
<td>6.0 (.77)</td>
</tr>
<tr>
<td>Short Sense of Belonging - Time 2</td>
<td>I feel like a real part of [school].</td>
<td>Black</td>
<td>--</td>
<td>1</td>
<td>3.6 (2.07)</td>
<td>5.1 (1.73)</td>
<td>4.4 (1.92)</td>
<td>5.0 (1.8)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White</td>
<td>--</td>
<td>5.9 (1.0)</td>
<td>6.0 (.67)</td>
<td></td>
<td>5.6 (1.32)</td>
<td>5.8 (.95)</td>
</tr>
<tr>
<td>Rating of how a high school student like them would fit in - Time 1</td>
<td>How much would a high school student like you feel like they would -- fit in at [school]?</td>
<td>Black</td>
<td>0.745</td>
<td>4</td>
<td>4.3 (1.21)</td>
<td>4.7 (.65)</td>
<td>4.6 (1.8)</td>
<td>4.8 (1.2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White</td>
<td>0.577</td>
<td>5.1 (.69)</td>
<td>5.0 (.93)</td>
<td></td>
<td>4.8 (.96)</td>
<td>4.9 (.93)</td>
</tr>
<tr>
<td>Rating of how a high school student like them would fit in - Time 2</td>
<td>How much would a high school student like you feel like they would -- be appreciated at [school]?</td>
<td>Black</td>
<td>0.636</td>
<td>4</td>
<td>3.0 (1.19)</td>
<td>4.4 (1.27)</td>
<td>4.3 (1.2)</td>
<td>4.7 (1.23)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>White</td>
<td>0.715</td>
<td>4.7 (.71)</td>
<td>4.6 (.84)</td>
<td></td>
<td>5.1 (1.06)</td>
<td>4.8 (.87)</td>
</tr>
</tbody>
</table>
Figure 1. Means for Perceptions of Institutional Commitment to Diversity (PICD) as a function of race, diversity ideology, and minority representation. Higher scores indicate more positive perceptions, higher believability, and higher ratings of fit. Error bars represent 95% Confidence Intervals.
Figure 2. Means for Quote Believability as a function of race, diversity ideology, and minority representation. Higher scores indicate more positive perceptions, higher believability, and higher ratings of fit. Error bars represent 95% Confidence Intervals.
Figure 3. Means for Perceptions of how a high similar high school student would perceive the images (high minority or low minority representation) as a function of race, diversity ideology, and minority representation. Higher scores indicate more positive perceptions, higher believability, and higher ratings of fit. Error bars represent 95% Confidence Intervals.
Figure 4. Means for Sense of Belonging – Psychological Sense of School Membership Scale - as a function of race, diversity ideology, and minority representation. Higher scores indicate more positive perceptions, higher believability, and higher ratings of fit. Error bars represent 95% Confidence Intervals.
Figure 5. Means for change short sense of belonging as a function of race, diversity ideology, and minority representation. Negative scores indicate sense of belonging scores decreased from time 1 to time 2. Error bars represent 95% Confidence Intervals.
Figure 6. Means for Colorblind Racism as a function of race, diversity ideology, and minority representation. Higher scores indicate more higher endorsement of the Colorblind Ideology. Error bars represent 95% Confidence Intervals.
Appendices

Appendix A – Flyers and Quotes to be Used
Appendix B – Response Items
Appendix C – Survey/Study Flow in Qualtrics
Appendix A - Flyers
(Flyers will be removed before publication. Not approved for Public Release)

[IMAGES INTENTIONALLY REMOVED. EMAIL LEAHBPOUND@GMAIL.COM FOR ACCESS]

Diversity and Inclusion cue. The culture of diversity and inclusion will be presented in a series of quotes from recent academy graduates.

The colorblind condition will communicate former cadet quotes highlighting the colorblindness of the institution.

“No matter your background, everyone starts as equals here at [school name]. You determine your success based on the hard work and determination you bring to the table. If you can get into [school name], you can be successful here!”

“One’s success at [school name] is a combination of merit, capabilities, motivation, and opportunity. [School name] provided me a chance to become the best version of myself. No one here cares about what high school you went to, what your background is – if you have what it takes, you will be successful.”

“It doesn’t matter who you are when you enter [school name] – you immediately become a member of the U.S. [military] and a future officer. I am proud to be a [school name] graduate – it’s more than just a college.”

The multicultural condition will again communicate cadet quotes that highlight the inclusive nature of the service academy. Many components of the quotes below were inspired by the academy’s strategic plan five-year plan from the late 2010s (not directly cited for anonymity purposes).

“Everyone has a unique perspective and background when they enter [school name]. Those differences make us all stronger leaders. I appreciated the variety of experiences I got with all kinds of people as a cadet!”

“I never thought I would be immersed with such a diverse and talented group of people when I came to [school name]. We all were cadets but each of our unique perspectives really helped develop me as a leader and I feel prepared to lead soldiers from all over the country as an officer.”

“Even though we all tend to look the same in our uniforms, we’re all so different from one another here at [school name]. It’s been awesome to get to know people from across the country and I believe the relationships I built with my classmates is what has made me successful.”
Appendix B

1. **Order of Stimuli and Questions:**
   1. Instructions
   2. Demographics
   3. Flyer 1
   4. Short SoB items and questions about flyer 1 regarding hypothetical high school student
   5. Sense of Belonging (full scale - PSSM)
   6. Color-blind racism
   7. Flyer 2
   8. Short SoB items and questions about flyer 2 regarding hypothetical high school student
   9. Quote believability
   10. Perceptions of Institutional Commitment to Diversity

2. **Design:**
   Between Participants: Color-blind quotes or Multicultural Quotes
   Within Participants: Low or High representation in photos
   Between Participants: Image order

**Dependent Variables**

3. **Demographics**
   a. Race
      a. Asian-American
      b. African-American or Black
      c. European-American or White
      d. Hispanic or Latino
      e. Mixed race or Other
         i. Other racial identities will not be asked in order to protect the personal identity of underrepresented minorities
   b. Gender
   c. Class Year

4. **Short Sense of Belonging Measure**
   a. How much do you feel like a real part of the *school name*?

5. **How High School Students will think of flyer 1 (HiSch1)**
   a. After seeing this flyer, how much would a high school student like you feel like they would -
      1. fit in at *school name*?
      2. be appreciated at *school name*?
      3. would be made to feel out of place at *school name*?
      4. would have their qualifications questioned at *school name*?
   b. 1 to 7 scale (Far below average to Far above average)
   a. “As part of the feedback on the flyers you’ve seen, we would like to include statistics about how cadets feel about going to [school name]. Please provide your honest impression of how you feel right now as a cadet as [school name] to be included on the back of the flyer. Feel free to take a look at the flyer as you answer the questions below as to how you feel right now in this moment.”
      i. 1 to 7 scale (Strongly disagree to Strongly Agree)

1. I feel like a real part of [school name].
2. People here notice when I’m good at something.
3. It is hard for people like me to be accepted here. (reversed)
4. Other [cadets] in this school take my opinions seriously.
5. Most [instructors/professors] at [school name] are interested in me.
6. Sometimes, I don’t feel as if I belong here. (reversed)
7. There’s at least one [instructor/professor] or other [adult/permanent party member] in this school I can talk to if I have a problem.
8. People at [school name] are friendly to me.
9. [Instructors/professors] here at not interested in people like me. (reversed)
10. I am included in lots of activities at [school name].
11. I am treated with as much respect as other [cadets].
12. I feel very different from most other [cadets] here. (reversed)
13. I can really be myself at [school name].
14. The [instructors/professors] here respect me.
15. People here know I can do good work.
16. I wish I were in a different school. (reversed)
17. I feel proud of belonging to the [school name].
18. Other cadets here like me the way I am.

   a. Based on my knowledge and experience as both a cadet and an officer at one of the service academies, I believe the most pertinent ideologies to service academy members that appear in the CBR scale are equal opportunity, meritocracy, minimization, helplessness, political correctness concerns, competitive victimhood, colorblind, and apathy.
      i. 13 items - 1 to 7 scale (Strongly disagree to Strongly Agree)

1. One’s success in life is determined by one’s merit, capabilities, and motivation – anyone who can work hard can get ahead.
2. People need to stop making excuses when they don’t exceed.
3. For the most part, everyone is given the same opportunity in the U.S.
4. In the past the country was racist, but it isn’t a problem nowadays.
5. We’ve equalized the races about as much as we can.
6. If we stopped talking about racism, it wouldn’t be a problem anymore.
7. I don’t see how I can do anything about racism.
8. If people would stop accusing everyone else of being racist, we could have more open conversations about race.
9. You can’t even ask an innocent question about someone without getting accused of being a racist.
10. It’s wrong to assume a person is racist just because he or she is White.
11. A person’s race doesn’t mean anything to me one way or another.
12. I don’t see color; I only see people.
13. The problems minorities have are not my business.

8. **Short Sense of Belonging Measure**
   a. How much do you feel like a real part of the [school name]?

9. **How High School Students will think of this flyer 2**
   a. After seeing this flyer, how much would a high school student like you feel like they would -
      i. – fit in at [school name]?
      ii. – be appreciated at [school name]?
      iii. – would be made to feel out of place at [school name]?
      iv. – would have their qualifications questioned at [school name]?
   b. 1 to 7 scale (Far below average to Far above average)

10. **Feedback about Quotes Used**
    a. The quotes used in the flyer seem like something I could see myself saying about [school name].
       i. 1 to 7 scale (Strongly disagree to Strongly Agree)
    b. Hypothetically, I could see a typical cadet saying similar things in real life.
       i. 1 to 7 scale (Strongly disagree to Strongly Agree)
    c. I have heard other cadets say similar things personally.
       i. 1 to 7 scale (Strongly disagree to Strongly Agree)

    a. [School name] promotes the value of cultural differences. 1 = strongly disagree. 7 = strongly agree.
    b. How satisfied are you with the racial diversity at [school name]? 1 = extremely dissatisfied. 7 = extremely satisfied.
Appendix C

Screenshots of Survey Flow and Randomization of Conditions

1. The study in Qualtrics is set up so that participants will provide demographic information first.
2. Based on their response on the question “Which racial category do you most identify with?” Qualtrics then randomizes which condition the participant will see.
3. By using ‘Branches,’ I can ensure that an equal number of participants within a racial category are assigned either the CB or MC Quotes cue condition and then again randomized into seeing the high or low minority representation flyer first.
4. The images below are from the current set up in Qualtrics. There are five branches (image 1).
5. Within each branch, there are two randomizers set up. The first randomizer puts the participant in the CB Quote or MC Quote condition. The second randomizer assigns which flyer image they will see first – either high or low minority representation.

Image 1 – Survey Flow: Five Branches shown
WHITES CAN NOT CATCH A CUE
WHITES CAN NOT CATCH A CUE

Show Block: 2nd Flyer prep (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: Flyer #1 (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: Attention Checks CBR (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: Overall Impression of Flyer 1 (2 Questions)  Add Below  Move  Duplicate  Delete
Show Block: Short Sense of Belonging Measures Flyer 1 (4 Questions)  Add Below  Move  Duplicate  Delete
Show Block: High School Student Questions 1 (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: Feedback about Quotes used CBR (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: Social Dominance Orientation (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: IDP (1 Question)  Add Below  Move  Duplicate  Delete
End of Survey  Add Below  Move  Duplicate  Delete

Add a New Element Here

Randomizer
Randomly present 1 of the following elements  Overly Present Elements  Edit Count
Add Below  Move  Duplicate  Collapse  Delete

Group: Inc 1
Show Block: Flyer #3 (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: Overall Impression of Flyer 3 (2 Questions)  Add Below  Move  Duplicate  Delete
Show Block: Short Sense of Belonging Measures Flyer 3 (4 Questions)  Add Below  Move  Duplicate  Delete
Show Block: High School Student Questions 3 (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: Psychological Sense of School Membership (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: CBR Items (5 Questions)  Add Below  Move  Duplicate  Delete
Show Block: 2nd Flyer prep (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: Flyer #4 (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: Attention Checks Inc (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: Overall Impression of Flyer 4 (2 Questions)  Add Below  Move  Duplicate  Delete
Show Block: Short Sense of Belonging Measures Flyer 4 (4 Questions)  Add Below  Move  Duplicate  Delete
Show Block: High School Student Questions 4 (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: Feedback about Quotes used Inc (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: Social Dominance Orientation (1 Question)  Add Below  Move  Duplicate  Delete
Show Block: IDP (1 Question)  Add Below  Move  Duplicate  Delete
WHITES CAN NOT CATCH A CUE
General Discussion

“In the absence of love, connection, and belonging, there is suffering.”
- Brene Brown

Exclusion hurts. We all can remember times when we didn’t fit in because of something we couldn’t control. As you reminisce, you can teleport yourself right back into that sad, anxious, and confusing feeling. I ask the reader to think of that soul-destroying feeling of not belonging. Now imagine a high stress, high stakes environment of a service academy where every day feels like you are on the edge of losing your sanity or, even worse, on the edge of losing your chance to graduate to become a military officer – a dream you’ve had for yourself since you were young. A high sense of belonging is not the only factor or skill or characteristic that is going to propel a cadet towards graduation; academic preparedness, familial and institutional support, personal problems, financial barriers, and even hunger or homelessness are noted as major contributing factors to student attrition (Goldrick-Rab, 2016; Hess, 2019). But a lack of belonging could be the thing that steers them towards leaving the military before they even have a chance to really make an impact. Across three papers, I have explored the racial disparity in sense of belonging among White and Black college students. By using three different study designs and statistical analysis, I hope to bring a multifaceted approach to understanding this disparity while also using social psychological principles.

The first paper compared Black and White college students’ sense of belonging across time and institutions to establish the extent of the disparity between the two groups. Black students consistently had a lower sense of belonging as compared to their White peers in college. The gap in belonging between White and Black students is widening over a timespan of nearly 30 years, from 1990 through 2019. Students in general are feeling more like they belong on campus than in the past, but Whites are gaining comfort and belonging on campus at a faster rate
than Black students. This is widely underreported. Senior leaders at the service academies can now see that college campuses across the United States are struggling with the exact same racial gap in belonging found at the two academies surveyed for this dissertation. Further, the meta-analysis revealed that the gap between White and Black students on belonging at one of the service academies is bigger than the average found at civilian schools.

The second paper explores some of the interpersonal, micro-level, variables that affect belonging via a mediational model. The study demonstrated that for all students, sense of belonging is related to their cross-racial interactions, but that correlation is partially explained by the change in the student’s perception of the institution’s commitment to diversity after negative cross-racial interactions. Further, this intensity of the relationship of these variables differs based on the students’ race. This paper validated that these day-to-day negative interactions affect belonging, but that relationship affects how students perceive the institution approaches diversity, which also is tied to the student’s level of belonging. Further, Black cadets that experience negative cross-racial interactions at a higher rate than White students. This research demonstrated the importance of the contact theory in real-life cross-racial interactions.

And in my last paper, I argued that students receive and interpret different types of diversity messaging, sometimes in opposite ways. Using an experimental method, I sought to find the extent to which the institution plays a role in cadets’ sense of belonging, perceptions of the institution, and endorsement of colorblind racism. I found that no matter the type of diversity messaging, Black cadets routinely had lower scores than White cadets on sense of belonging, perceptions of the institution, and colorblind racism. White cadets were impervious to the types of diversity messaging but were slightly sensitive to diversity imagery. On the other hand, Black cadets were sensitive to the diversity messaging but were not affected by the imagery. While my
dissertation uses divergent modalities for examining race relations in college, the studies routinely show that Black and White college students, especially at the U.S. Service Academies, are having inconsistent and distinct experiences affecting their sense of belonging on campus.

From this body of work, we know that diversity is a slippery term and that it can mean different things to different people. Perhaps the term “belonging” is just as ambiguous. It is a subjective thing— it is not the same as reporting percentage of students or pointing to number of racial minority faculty members as evidence that institutions are diverse. However, belonging is one of those feelings that we all know even if at most moments we are not actively experiencing belonging. When we feel like we do not belong, it affects our performance and how we see ourselves in the future in that organization. In relation to sense of belonging and diversity efforts, inclusion is more than just feeling tolerated or respected by someone in another racial group— it is a genuinely feeling that they care about you, your well-being, and truly believe that your presence makes the environment a better place. My research has shown that race disparities persist on belonging even when diversity statements exclaim “we all belong here” and frankly, the military as an organization can do better to prioritize and validate the experiences of non-White members.

In a meritocracy, a person’s value to the system is evaluated on the basis of talent, effort, and achievement. A meritocracy implies that a person’s competency is the key attribute in their value and contribution to the organization. While it is likely true that competency becomes the evaluable comparison between military members in a combat zone, a lot of talented and qualified diverse people have already left the organization long before combat. The foxhole can be a great equalizer because when push comes to shove in a combat zone, all military members want to know that the person next to them is qualified to do their job in order to keep everyone
safe. However, the path to the foxhole is not colorblind, genderblind, or generally bias-blind. When military members are in training environments, cultural histories between Black and White Americans could be hampering the true potential of military members and the organizational effectiveness of that training. If people feel they are not truly valued by a system, they are likely to exit that system. In the military, belonging is far from the sole reason for a member’s departure. However, the military is likely losing many highly qualified, competent, skilled, and racially diverse leaders partly because these individuals do not feel like they belong.

This research on belongingness within the military should spark a conversation among senior leaders about how to increase trust and comfort towards an organization. While I do not have the answers as to how exactly to increase belonging for Black military members, I do believe that belonging is an avenue for the military to start investigating to potentially increase the racial diversity of the officer corps and decrease the attrition rates of Black cadets at the service academies. We can start by acknowledging that a colorblind diversity approach may be limiting the experience and potential of non-White military members. Not talking about race is a White cultural norm; White military members and leaders should learn to overcome this cultural bias in order to recruit and retain the best and brightest people America has to offer, not just the best and brightest of White men. By embracing the multicultural diversity ideology from the top down, including senior military leaders and influential instructors in all training pipelines, we can increase the sense of belonging for military members of color. It will take a long time for an organization as large as the military to gain complete trust of Black people given the historical legacy of segregation and discrimination. But the military is on its way -- my hope is that the military will once again be at the forefront of progressive race relations and close the gap on all types of race disparities. Bottom line – we can’t quit now. The military has started the process of
equal opportunity for all by offering seats at the table and asking for diverse voices. But now it is
time to really hear those voices.
References

