Ethnic Identity and Social Support Influences on Social and Academic Adjustment of Minoritized Students in Two College Contexts

By

Aygul N. Hoffman

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The dissertation is approved by the following members of the Final Oral Committee:

B. Bradford Brown, Professor, Educational Psychology
Amy Bellmore, Professor, Educational Psychology
David Kaplan, Professor, Educational Psychology
Rachelle Winkle-Wagner, Professor, Educational Leadership and Policy Analysis

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Abstract

This study focused on examining social and academic adjustment of Students of Color in two ethnically different higher education contexts: one – predominantly White, another – diverse. In particular, the associations between minoritized students' ethnic identity, college-level support and social and academic adjustment in these institutions were explored. The study confirmed the developmental significance of Phinney's achieved ethnic identity for college Students of Color regardless of institutional context. Support from both ethnically and not ethnically affiliated sources was consequential for minoritized students' college adjustment. The study also affirmed the importance of general social support from peers and faculty over and above ethnic identity for minoritized students' social and academic adjustment. Contrary to predictions, no differences in regression paths for ethnically and not ethnically affiliated sources of support were found between two institutional contexts. The study extends Phinney's theory of ethnic identity development to the study of college adjustment and offers practical implications on predictors of minoritized student college adjustment.

Keywords: college adjustment, Students of Color, minoritized students, social adjustment, academic adjustment, ethnic identity

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As participation by Students of Color in four-year institutions increases (NCES, 2017), interest has grown in factors associated with their positive adjustment to college. From developmental-contextual perspective (Lerner, 1991), individuals' context plays a critical role in shaping their experiences in that context. Research shows that Students of Color generally have more negative experiences attending predominantly White universities (Nora & Cabrera, 1996; Meeuwisse, Severiens, & Born, 2010; Zepke & Leach, 2005), and this is true regardless of the ethnic composition of high school previously attended (Offidani-Bertrand, Velez, Benz, & Keels, 2019). Given that most Students of Color experience cultural shock in attending predominantly White institutions (Offidani-Bertrand et al., 2019), factors contributing to their adjustment in White and more diverse institutional settings may vary. Prior research attributes college success to student experiences in college, more so than to student background factors (Credé & Niehorster, 2011). Therefore, institutions are particularly instrumental in ensuring that college environments are promoting positive student experiences. This study will examine whether college contexts are contributing to the adjustment of Students of Color, by analyzing differences in influences of background (i.e., ethnic identity) and college-level (friend and faculty support) factors in predominantly White and diverse college settings.

The Study of College Adjustment

Research reveals that academic and retention outcomes are largely influenced by student experiences in college. In literature, college adjustment has been studied as a construct describing students' adaptation to their college environments. Research on persistence and success of the Students of Color in higher education generally uses the academic and social

integration framework: if a student successfully integrates into an institution, then they are likely to persist through their degree program, do well academically and graduate (Astin, 1996; Beil, Reisen, Zea, & Caplan, 1999; Guiffrida, 2003; Kuh, Hu, & Vesper, 2000; Tinto, 1975, 1993, 2000). At the foundation of this understanding is Vincent Tinto's theory of academic-social integration (1975, 1993), developed using Durkheim's (1897/2006) notion of Catholic and Protestant suicide. Durkheim thought that people were less likely to commit suicide if they were integrated into society (i.e., Catholics are less likely to commit suicide because they are more integrated into religion than Protestants). Vincent Tinto used this thought process to conclude that college students are more likely to persist if they are socially and academically integrated into their campus environments.

Tinto's theory has been critiqued for being largely based on White population and failing to include the perspectives of minoritized students (Howard-Hamilton, 1997; Torres, 2003), and for assuming that success in the college environment requires assimilation by the White group (Tierney, 1992, 1999, 2000). While we recognize the problematic nature of the college adjustment construct, it is still empirically most accurate in predicting students' college success (Credé & Niehorster, 2010). The feeling of contextual belonging (Meca et al., 2018; Tinto, 1993) – developed via social interactions with peers, institutional representatives and the broader campus climate – is important not only for young adults' identity development but also for their academic success (Offidani-Bertrandet al., 2019). Lack of contextual belonging can contribute to gaps in academic achievement (Booker, 2004, 2006), yet little research examined contextual factors contributing to the college adjustment of Students of Color. If Students of Color feel "incompatible" with their college contexts, understanding factors that allow Students of Color to

cope with both social and academic challenges of higher education institutions bear both theoretical and empirical importance.

In 1984, Baker and Syrik further developed Tinto's integration framework by conceptualizing it as "college adjustment" construct. In their conceptualization, college adjustment is multi-dimensional and includes four broad categories: academic adjustment, personal-emotional adjustment, social adjustment, and institutional attachment. Academic adjustment reflects the degree to which students adapted to academic demands of an institution as evidenced by their attitudes towards academic work, engagement with academic material, and adequacy of their studying and academic efforts. Social adjustment reflects the degree to which students have been able to develop effective support systems, form friendships, meet social expectations of institutions and have a satisfying social life. Personal-emotional adjustment refers to the degree of students experiencing stress, anxiety, physical reactions (e.g., lack of sleep) and their ability to practice self-care and manage daily tasks of living. Last, institutional attachment refers to the degree of students' identification with and emotional attachment to the institutional community.

Similarly, Hurtado, Carter & Spuler (1996) defined college adjustment as a multifaceted phenomenon that is characterized by the resolution of psychological distress or transitional trauma. Experiences of college belonging and adjustment are crucial as students cope with the stress of college transition (e.g., Hurtado & Carter, 1997; Meeuwisse et al., 2010; Walton & Cohen, 2011). As young adults, students are faced with strengthening their sense of self and establishing their place in society, which develops through interactions with others in their social contexts (Arnett, 2000). College adjustment has also consistently been linked with student success outcomes. In Credé and Niehorster's (2011) meta-analytic review, college adjustment

serves as the main predictor of college grades; specifically, the predictive validity of academic adjustment for GPA is almost as strong as that of SAT scores and high school GPA. College adjustment also accounts for the retention of college students. The relationship between retention and institutional attachment (one of four dimensions of college adjustment) is stronger than for any other predictor (e.g., SAT scores); in addition, institutional attachment more than doubles the proportion of variance in retention status that can be explained from admission test scores and high school GPA alone. Social adjustment is also consistently linked with student success outcomes (Pascarella & Terenzini, 2005), especially early in one's college career (Braxton, et al., 2013; Yorke & Longden, 2004). Given the developmental significance of social adjustment during adolescence (Brown & Huang, 1995), social adjustment is inevitably linked with other success outcomes during this time period, including, college success.

The Study of College Adjustment of Students of Color

Despite the positive implications of college adjustment for student success, research reveals that Students of Color tend to report more negative experiences, especially on predominantly White college campuses, compared to their majority counterparts (Nora & Cabrera, 1996). Often, members of historically marginalized groups report experiences of exclusion, intimidation and isolation on college campuses (Meeuwisse, et al., 2010; Zepke & Leach, 2005). These experiences stem not only from the lack of structural and interactional diversity, but also racial-ethnic stereotyping, often socioeconomic marginalization, and conflicting expectations in home and campus communities (Hope, Velez, Offidani-Bertrand, Keels, & Durkee, 2018). Students of Color experience feelings of isolation upon arriving at historically White colleges regardless of ethnic-racial composition of the high schools they previously attended (Offidani-Bertrand et al., 2019).

Numerous studies (e.g., McDonald & Vrana, 2007; Schneider & Ward, 2003; Sennett, Finchilescu, Gibson, & Strauss, 2003) examined the relationship between students' minoritized status and their ability to adjust to college. While some studies reveal lower scores for student of Color samples on measures of college adjustment (Young, 1994; Hutz, 2002; Kenny & Stryker, 1996), other studies obtained no differences between White and non-White samples on adjustment subscales and the full scale (Martin, Kulstad, Hutz, & Fabian, 2000; Melendez, 2001; Napoli & Wortman, 1998). Credé and Niehorster's review (2011) of the adjustment to college literature (based on studies using the Student Adaptation to College Questionnaire) found that minoritized status was largely unrelated to college adjustment. However, there is a large variability in social adjustment for Students of Color. This variability is likely a function of the degree to which institutions are welcoming to the Students of Color or the ethnic composition of college campuses. Adan and Felner (1995) provide evidence of the impact of institutional ethnic composition by surveying students in predominantly White and predominantly Black universities. They found that black first-year students at a predominantly Black university reported better adjustment than Black and White students at a predominantly White university in social, academic areas and in overall adjustment. Overall, these weak effects of minoritized status are encouraging as they suggest that Students of Color are able to experience positive college adjustment in the environments that are welcoming to these student populations.

Ethnic Identity in College

The move into a college environment entails the change of social networks, exposure to new norms, encountering people with differing opinions and beliefs, and experiencing environments that are different from home. College students are likely to be prompted to reflect on their self-concept and engage in identity searching during this time period (Phinney, 1990;

Phinney, Cantu, & Kurtz, 1997). From a developmental standpoint, adolescence is also the time when identity searching functions as a critical developmental task (Erikson, 1968; Phinney, 1990). The college context has been found to be an "ethnicity consciousness-raising experience that makes students begin to think about who they are and what it means to be a member of their racial/ethnic group" (French, Seidman, LaRue, & Aber, 2000, p. 558). Ethnic identity is especially critical to the self-concept of the youth of Color in a diverse nation like the United States (Phinney & Chavira, 1992). Because of the salience of ethnicity in American society, the youth of Color attribute greater importance to their ethnic identity, compared to their White peers (Phinney, 1990). For young people who are not from the White culture, ethnic identity may be particularly important in developing a positive identity. Therefore, ethnic identity development, being a central task for adolescents of Color, is likely to influence these young adults' adjustment to college.

Despite these obvious links, there is surprisingly little research on the impact of ethnic identity on college student adjustment, and existing studies present inconsistent results. Most importantly, existing research overlooks the importance of context in the study of minoritized students' college adjustment. From the person-environment fit perspective, context plays an important role in shaping the individual's position in their environments. College environments present considerable challenges to adjustment of the Students of Color when there is a stark contrast between the norms and the diversity make-up of peers, staff, and faculty between college and students' home environments. Research suggests that predominantly White college environments in particular present Students of Color with such challenges. Yet, little research pays attention to how ethnic identity interacts with such contexts to facilitate college adjustment of Students of Color.

Theoretical Framework

In 1989, Phinney developed the *theory of ethnic identity formation.* Grounded in Erik Erikson's (1968) and James Marcia's (1980) conceptualizations of identity development, this theory proposed an identity process that was similar across all ethnic groups. At the heart of this theory is the assumption that ethnic identity formation is a major developmental task in adolescence and young adulthood, which occurs through joint processes of ethnic identity exploration and commitment. In Phinney's conceptualization, individuals are expected to move through a three-stage progression: from the unexamined identity stage to a period of exploration and then to ethnic identity achievement. According to this model, young adults who have not been exposed to ethnic identity issues and have a lack of clear identity are in the unexamined ethnic identity stage, which is the first stage of the model. A second stage is characterized by exploration of one's ethnic identity, which is similar to Marcia's moratorium status. As a result of this exploration process, individuals come to a deeper understanding of and commitment to their ethnicity – ethnic identity achievement, which is the last stage of this ethnic identity development process. Achieved identity has been linked with psychological well-being and can influence adjustment of individuals during adolescence and young adulthood (Phinney, 1992).

Late adolescence continues to be an important time period for developing self-concept, and college experiences have been shown to raise ethnic consciousness (Phinney, 1990; Phinney, et al., 1997). Research has shown that achieved identity is linked with psychological well-being and can influence adjustment of individuals during adolescence (Phinney 1992). Ethnic identity, especially, is an important source of resilience and strength for Students of Color. Therefore, on the basis of Phinney's theory of ethnic identity formation, achieved ethnic identity should be positively associated with social and academic adjustment of Students of Color in college. Ethnic

identity achievement may be important for social adjustment because it contributes to a more positive self-concept, buffers against stressors including identity loss, and facilitates the formation of social ties (Kalsner & Pistole, 2003; Phinney, 1992; Smedley, Myers, & Harrell, 1993). In addition to contributing to social adjustment, the meaning of being a member of an ethnic group would provoke a strong desire to achieve in school, both to counter negative stereotypes surrounding some minoritized groups, and give back to families and communities, despite the many challenges that Students of Color face (Fuligni, Witkow, & Garcia, 2005). Therefore, ethnic identity achievement is expected to also be positively linked with minoritized students' academic adjustment.

With attention to context, Students of Color have more difficulty adjusting to college environments composed primarily of a White population. Research has shown that students with minoritized backgrounds have worse social experiences in college (Cabrera, Nora, Terenzini, Pascarella, & Hagedorn, 1999). Students of Color are more likely than White students to perceive discrimination on campus, report experiencing prejudice from university faculty and staff, and have more negative academic in-class experiences than Whites (Nora & Cabrera, 1996). Students of Color report lower scores on measures of social adjustment compared to their White counterparts (Hutz, 2002). This is especially true for college environments that are not diverse and primarily composed of White students. In such contexts, being supported by ethnically-related or similarly minoritized sources may serve as a counter- influence to students' negative experiences and has the potential to positively affect their adjustment.

Social identity theory posits the importance of group membership on an individual's self-concept (Tajfel & Turner, 1986). Groups are ordered according to their power and status: the "dominated" define themselves more in terms of their social position and group membership; the

"dominant" conceive of themselves more in terms of their personal characteristics (Deschamps, 1982). These differences cannot be eliminated until and unless the "…reflections of power differentials between groups were also removed" (Tajfel, 1982). In predominantly White contexts, ethnic group membership becomes more salient due to the dominance of the majority (White) group. When identity is made salient, individuals become increasingly identified with their own (Abrams & Hogg, 1990), or similarly marginalized groups (Martinez Aleman, 2000). While students from minoritized backgrounds tend to experience more difficulties with college adjustment at predominantly White campuses, having strong ties to their ethnic group or, particularly in the absence of individuals of the same background on campuses with few individuals of Color – to the minoritized other, may serve as a buffer to the negative college experiences of these students. Research on college adjustment shows that college experiences play an important role, often more so than students' demographic and background characteristics (e.g., Hurtado et al., 1996). According to social identity theory, individuals are motivated to achieve positive distinctiveness by affiliating with in-group members, who are an important source of pride and self-esteem (Tajfel, Turner, Austin, & Worchel, 1979). In particular, group membership has been shown to be important for members of ethnic groups (Tajfel, 1981). Therefore, it is likely that ethnic identity's role in college adjustment at PWIs is especially apparent in the presence of ethnically affiliated social support systems.

Similarly, based on the principle of homophily, humans categorize one another based on social characteristics and seek to interact with others that are closer to their own social categories (McPherson, Smith-Lovin & Cook, 2001). Since race/ethnicity is one of the most salient characteristics on which homophilous relationships are based, individuals from racially and ethnically minoritized backgrounds are more likely to interact with racially and ethnically similar

others in contexts dominated by Whites. Affiliation with these similarly marginalized sources of support also ought to serve as a positive predictor of adjustment, particularly for individuals with high ethnic identity. Given prior evidence that predictors associated with in-college experiences grow in importance compared to background factors (Ethier & Deaux, 1994; Saylor & Aries, 1999), it is even possible that college social support systems play a much larger role in adjustment of Students of Color, compared to the background variables, such as ethnic identity.

Given the importance of peers during adolescence (Brown & Huang, 1995), social support from co-ethnic and similarly-minoritized peers is likely to affect minoritized students' social adjustment in predominantly White campuses. This relationship may not hold for more diverse institutions, where in- and out-group boundaries and social status based on race/ethnicity are not as important in the absence of a dominance status group, and students' social adjustments are likely to be influenced by general peer support, including support from White peers. In addition, it is likely that the association between same-ethnic and similarly minoritized peer support and social adjustment at PWI is especially strong for students with high ethnic identity. In other words, students that are highly identified with their ethnic identity are likely to benefit the most from social support from same-ethnic or similarly minoritized peers.

Prior research (Steele, 2010) also suggests that Students of Color do not internalize the negative stereotypes about their ethnic group and excel academically in the presence of supportive relationships with faculty mentors. Therefore, it is likely that support from the minoritized faculty is associated with minority students' academic adjustment at PWI, and this relationship is likely to be stronger for highly identified Students of Color. Once again, we predict that this relationship does not hold in the context of a more diverse institution, where

students' academic adjustment is likely to be associated with general faculty support, including support from White faculty members.

Literature Review

Ethnic Identity and College Adjustment

Successful adjustment to college requires a strong sense of self. Phinney (1996) defines ethnic identity as "an enduring, fundamental aspect of the self that includes a sense of membership in an ethnic group and the attitudes and feelings associated with that membership" (p. 222). Literature captures the view of ethnic identity as a dynamic and unfolding process that changes over time and across contexts as individuals examine and explore the meaning of their ethnic group membership (Helms & Cook, 1999). In addition, the meaning of ethnic identity is largely influenced by contextual factors such as a group's status, power, salience, public attitudes by the larger society, level of social acceptance, and changes in any of these factors (Phinney, 1996; Sodowsky, Kwan, & Pannu, 1995).

A substantial body of research shows that achieved ethnic identity promotes psychological well-being among minoritized group members and can influence adjustment in adolescence and young adulthood (Phinney, 1992; Phinney & Alipuria, 1990; Phinney et al., 1997; Phinney, Horenczyk, Liebkind, & Vedder, 2001). Adolescents of Color who have a stronger ethnic identity have more positive self-esteem, more self-confidence, and better overall psychological adjustment (Phinney & Alipuria, 1990; St. Louis & Liem, 2005; Carlson, Uppal, & Prosser, 2000). A meta-analysis of 184 studies revealed a moderate association between ethnic identity and the well-being of individuals of Color (Smith & Silva, 2011). Similarly, internalized racial identity is related to positive self-esteem (Munford, 1994; Phelps, Taylor, & Gerard,

2001), unconditional positive self-regard (Speight, Vera, & Derrickson, 1996), and not having depressive symptoms (Munford, 1994).

Research on adolescent adjustment underscores the importance of ethnic identity to adjustment of individuals of Color by comparing the impact of this construct on individuals from White and non-White backgrounds. In Yasui, Dorham and Dishlon (2004) ethnic identity was a significant predictor of adolescent adjustment (average age = 12) in both areas of social adaptation and emotional adjustment for African American and European American adolescents. Although comparable in levels of ethnic identity, African American adolescents' positive adjustment was more consistently predicted by higher levels of ethnic identity, a prediction less consistent among European American adolescents. Similarly, in Phinney's study (1991), ethnic identity achievement was positively associated with self-esteem for students who were not from the White middle-class culture, but this relationship did not hold true for White students.

As seen earlier, Phinney conceptualized ethnic identity as a process and developed a measure that captures individuals' progression through this process (Phinney, 1992; Phinney & Ong, 2007). However, most individuals studying minoritized students' college adjustment (Kalsner & Pistole, 2019; Maduramente, 2015; Gonzalez, 2003; White, 2000) have treated ethnic identity as an accomplishment, ignoring the process component. In other words, most studies have looked at the ethnic identity as a unidimensional measure. The small body of research investigating the main effects of ethnic identity on college adjustment of Students of Color presents inconsistent results (Kalsner & Pistole, 2019; Maduramente, 2015; Gonzalez, 2003; White, 2000; Hutz, 2002; Reyes, 2012).

Ignoring two conceptually different (though relevant) components of ethnic identity in the study of college adjustment may have contributed to the weak main effects of the ethnic identity. Not a lot is known about how ethnic identity exploration and commitment interact with college student adjustment. Some research points to the negative implications of exploration and protective influences of ethnic identity commitment. The study of Latino adults in the workplace (Torres, Yznaga, & Moore, 2011) found that ethnic identity exploration was associated with increased psychological distress; ethnic identity commitment served as a buffer between covert discrimination and mental health. In college students, Scwartz, Zamboanga, Weisskirch, & Rodriguez (2009) found that current personal identity exploration was negatively associated with adaptive psychosocial functioning and was positively associated with anxiety, depression, and impulsivity in university students; however, ethnic identity exploration was not directly associated with psychosocial functioning and evidenced only a weak association through identity confusion.

Since the ethnic identity development process starts in early adolescence, by the time young people reach college, many reach an achieved status. Research has shown that there are more individuals at an achieved ethnic identity status in college compared to early to middle adolescence (Phinney & Chavira, 1992); however, college experiences have also been shown to promote recycling between stages. Hence, for many adolescents identity development continues into college (Syed, Azmitia & Phinney, 2007). Since in college contexts ethnic identity exploration is often stirred by experiences of racism and prejudice (Syed & Azmitia, 2010), this component of ethnic identity may not serve as a positive predictor of college adjustment. Some research points to the negative implications of exploration and positive implications of commitment for college Students of Color. As such, in Syed et al.'s (2013) study, ethnic identity

search (as measured by Multidimensional Ethnic Identity Measure – MEIM, Phinney, 1992) was negatively associated with well-being of the Students of Color. On the contrary, Brittain, Umaña-Taylor, & Derlan's (2013) study found that ethnic identity resolution and affirmation were associated with adjustment outcomes in bi-racial college students.

In summary, research underscores the developmental importance of achieved ethnic identity, with implications for ethnic minority students' college adjustment. The commitment component of Multidimensional Ethnic Identity measure, developed by Phinney, most closely resembles the achievement stage of the ethnic identity development process. Somewhat inconsistent results in research testing direct links between ethnic identity and college adjustment of Students of Color may be explained by lack of attention to the components of ethnic identity and the potential differential consequences of ethnic identity exploration and ethnic identity commitment for college adjustment of Students of Color. However, it is likely that the effects of these two ethnic identity constructs on college adjustment are not as strong as those of college-level support variables.

Social Support and College Adjustment

Research consistently shows that family and background influences are being replaced by peer and other college contextual influences during the college years (Ethier & Deaux, 1990, 1994; Saylor & Aries, 1999). Both qualitative and quantitative studies have shown that students' in-college experiences affect their adjustment far more than student background characteristics. Hurtado et al.'s (1996) qualitative study of Latino undergraduate students found that student perceptions of the college climate and student behaviors accounted for much larger variance on all dimensions of college adjustment, compared to student background and institutional characteristics; academic adjustment to college in the second year was not significantly related to

any of the pre-college indicators (including high school GPA). Crede and Niehorster's (2011) meta-analytic review of the adjustment to college literature (using Student Adjustment to College Questionnaire) concluded that none of the background demographic variables (age, minoritized status, gender, socio-economic status, first-generation college status) significantly predicted college adjustment.

Students make sense of large environments by locating themselves within manageable campus geographies (Hurtado et al., 1996). Presence of a strong social support person is predictive of academic success and retention of first-year Students of Color (Tracey & Sedlacek, 1985). The use of social support networks has been found to have a positive effect on college adjustment of Students of Color (Hurtado et al., 1996; Smedley et al., 1993; Solberg, Hale, Villareal, & Kavanagh, 1993; Tracey and Sedlacek, 1985; Zea, Jarama, & Bianchi, 1995; Solberg, Valdez, & Villareal, 1994, 1997). Given the significance of peers for social adjustment during adolescence (Weiss & Duncan, 1992), and of the faculty support – for college academic adjustment (Credé & Niehorster, 2011), this study will examine the differential effects of peer and faculty support in two compositionally different higher education contexts.

Peer Support

Parents become less influential as children grow, and peers become more important, especially during college, since college attendance often requires the move away from home and family (Brown & Huang, 1995). Weiss & Duncan (1982) stated that adolescence is a time when attachments are directed towards figures other than parents (e.g., peers). Researchers have found that college adjustment can be considerably influenced by peer relationships (Hurtado et al., 1996; Smedley et al., 1993; Solberg et al., 1993).

More recent studies have also supported the role of peers in the social adjustment of college Students of Color (e.g., Gonzalez, 2003). A large body of mostly qualitative work (Thomas, 2016; Harper, 2006; Patton, 2009; McCabe, 2015; Martinez Alemán, 2000; Brooms & Davis, 2017) points to the significance of co-ethnic peer relationships for Students of Color in higher education contexts. One example of the peer-focused models delivered by institutions are ethnic-based mentoring models, where first-year Students of Color are partnered with juniors and seniors of the same racial or ethnic background (Thomas, 2016).

With attention to institutional contexts, availability of co-ethnic peers appears to be particularly instrumental for Students of Color in predominantly White institutions. In Harper's (2006) qualitative study of thirty-two African American male college achievement at six predominantly White universities, undergraduate participants attributed much of their college success to the support offered by peers from the same racial backgrounds. Similarly, in a qualitative study by Brooms and Davis (2017) of three historically White institutions, peer-to-peer bonding and association with Black males emerged as one of the two critical components positively shaping persistence efforts for Black male students.

In addition to co-ethnic friendships, literature points to the significance of the connection to other, similarly minoritized peers, for the college adjustment of Students of Color. Martinez Alemán (2000) showed the significance of Women of Color friendships for undergraduate females of Color in a small, predominantly White liberal arts college context. These relationships were especially important because they have met the "conditions of familiarity"; ethnic and racial similarity allowed for the connection along the experiences "more similar to my own" (p. 6). They were then used to acquire information about campus life for persons of Color, especially in the forms of warning about the subtle forms of racism and ethnocentrism on a

White campus. On a campus with small number of co-ethnic peers, a racial/ethnic minority status may become a source of comfort and familiarity, because persons of Color "will understand what I am going through… more than a White person will" (p.6). A good example of the point of connection between the women of Color is provided in the comment by Elena, a Latina: "My women friends of Color know my issues, you know, my racial issues, and ethnicity and stuff. And then my other women friends I talk more, maybe, about feelings in general…" (p.9). On the other hand, women of Color experienced stress, resentment, frustration and bitterness about explaining their ethnic or racial self to Whites, which shifted the developmental focus away from them and took away from their own developmental growth.

Similarly, Kelly, Raines, Brown, French and Stone (2019) in their critical study of Black women's retention at predominantly White institutions described the importance of "validating agents" – individuals who could validate the experiences of Black women on these campuses. Although the participants sometimes had male and White women validating agents, the majority of them described women of Color validating agents. Based on the studies described, implications can be drawn for the significance of peer support from both co-ethnic and minoritized peers at predominantly White institutional contexts.

Despite the attention to the significance of co-ethnic peers and other Peers of Color in predominantly White contexts, few studies examined the effects of the institutional composition on the perceived support from co-ethnic, similarly marginalized and cross-ethnic peers. According to stereotype threat research (Steele, 2011), students need to feel safe to adjust well to their surroundings and interact with others comfortably. In diverse campus environments students feel nonthreatened and safe, which allows them to communicate and socialize comfortably with both co- and cross-ethnic individuals (Santos, Ortiz, Morales, & Rosales,

2007). In this regard, Park and Kim's (2013) study of student organizations in racially diverse institutions in noteworthy. They found that students who attended more racially diverse institutions tended to interact less with peers in Greek organizations – which in turn mitigated the negative impact of Greek life on interracial friendship. In other words, the greater structural diversity of higher education institution decreased the likelihood of students interacting with peers from Greek organizations, which in turn positively affected students' engagement in interracial friendship. This finding is significant, as it provides some light to the importance of studying the effects of support networks within the larger institutional contexts. While literature points to the importance of co-ethnic and similarly minoritized peer support in institutional contexts that are predominantly White, ethnically diverse contexts may offer differential dynamic for the effects of co- and cross-ethnic peer support – Students of Color may be more likely to interact across races and ethnicities in such contexts.

The reviewed studies note the importance of using social support networks, and especially same-ethnic peers and peers from similarly marginalized groups, for the adaptation of college Students of Color. Research on connections with other, similarly minoritized peers brings light to the importance of race and ethnic identity in higher education institutions – students that are disadvantaged and marginalized in predominantly White settings are more likely to connect more with similarly minoritized peers, which in turn has an impact on their institutional belonging and college adjustment. However, more understanding of the differential impact of different types of sources of support, based on ethnic compositions of institutions, is needed. Specifically, in ethnically diverse institutional contexts Students of Color may feel less threatened to interact across racial or ethnic lines, thus engaging more with both White and other cross-ethnic peers.

Instructor Support

A large body of (mostly qualitative) work also paid attention to the positive implications of connections with instructors and perceptions of student-centered faculty on college adjustment of Students of Color (e.g., Hurtado et al., 1996). Credé and Niehortser's (2010) meta-analytic review of college adjustment literature found that institutional support as well as social support from faculty had a stronger relationship with college student academic adjustment, compared to other types of support. Students' comfort with faculty tends to be somewhat race related. Similar to peers, Students of Color tend to seek out faculty mentors of the same racial or ethnic background (Banks, 1984; Loo & Rollison, 1986; Patton & Harper, 2003; Tinto, 1993). The results of a survey of White students and Students of Color at the University of California campus indicated that students tended to identify more with the faculty of their own race (50% vs. 12%).

Similar to research on peers, research on interactions with instructors shows the positive implications of co-ethnic faculty support for the success of the Students of Color. In a study by McCoy, Luedke and Winkle-Wagner (2015), White faculty were seen as engaging with Students of Color from a "Colorblind perspective"; by using race-neutral, Color-blind language, White faculty described Students of Color as academically inferior, less prepared, and less interested in pursuing research and graduate studies, while ignoring structural issues of higher education institutions. Consequently, faculty perceptions influenced student confidence in pursuing STEM disciplines or graduate studies and succeeding academically. Other studies also confirm that White instructors often express more interest in interacting with those who are similar to them rather than engaging with Students of Color (Bowman, Kite, Branscombe, & Williams, 1999). In Patton's study of mentoring experiences among African American women in graduate and

professional schools (2009), trust issues came up most frequently in participant discussions about White mentors.

Significance of co-ethnic faculty appears to be specifically pronounced at predominantly White college settings. Access to Black faculty and role models at PWIs contribute to academic success of Black students (Hurtado, Cabrera, Lin, Arellano, & Espinosa, 2009; Kim & Conrad, 2006). Black female graduate students seek opportunities to have interactions with Black female professors (Patton & Harper, 2003). In Baker's (2013) study of African American and Latino college students attending selective colleges, taking classes with professors of the same race had a strong effect on the grades of Latinas, Black females and Latinos. Patton (2009) examined experiences of eight African American female students in graduate and professional programs at a predominantly White, research university and found that, for these women, availability of African American female mentors was deeply significant for their success. All participants in the study agreed that African American female mentor would have the capacity to relate to them in a unique way, by sharing advice and offering observations from her own experiences to help them avoid making mistakes.

In addition to more likely affiliating with co-ethnic faculty, Students of Color seek out similarly minoritized faculty for support when navigating the predominantly White environments (Banks, 1984; Blackwell, 1988; McKay, 1997; Menges & Exum, 1983; Plata,1996; Tierney & Bensimon, 1996). Research demonstrates that faculty and staff of Color are often engaged in mentoring Students of Color, despite their lack of representation in higher education institutions (Clayborne & Hamrick, 2007). Faculty and staff of Color have the capacity for bi-directional socialization process (Luedke, Collom, McCoy, Lee-Johnson, & Winkle-Wagner, 2019), allowing students to be socialized into campus norms while also maintaining fidelity to prior

their previous backgrounds and experiences. In Kelly et al.'s (2019) qualitative research study of Black women at PWIs, the majority of participants described women of Color validating agents. Due to experiences of marginalization at predominantly White campuses, these agents were crucial for retention and success of women in this study, by exercising validation via advocacy, mentorship and affirmation.

With attention to context, however, there is scarcity of research attending to the impact of institutions' ethnic composition on the perceptions of and affiliation with the faculty of different backgrounds and subsequent implications of these affiliations on student adjustment. If it is known that the cultural shock experienced by the Students of Color in predominantly White contexts make them more likely to seek support from co-ethnic and other similarly minoritized faculty members, does this tendency break in more diverse contexts? There is evidence of higher quality student-faculty interactions at HBCUs (Brown & Davis, 2001; Fries-Britt & Turner, 2002; Palmer & Gasman, 2008). Kim and Conrad (2006) found that more Black students worked with faculty on research projects at HBCUs, compared to PWIs. McCoy, Luedke and Winkle-Wagner (2017) explored undergraduate student perceptions of faculty at PWI and HBCU and found that students perceived PWI faculty as "weeding out" of the STEM fields and unwilling to mentor, whereas HBCU faculty were perceived to be providing positive mentoring and professional development to the Students of Color. It is therefore possible that more diverse institutional contexts create more comfortable environments for Students of Color to interact with any faculty, including those from European American backgrounds.

In summary, research consistently presented positive influences of supportive faculty and, in particular, the availability of the faculty of the same or similarly minoritized race on college adjustment of the Students of Color. However, there is little research examining if

Students of Color seek faculty of different or same race based on ethnic composition of higher education institutions, and whether seeking faculty of certain race is related to students' academic adjustment. The tendency to seek out Black faculty mentors at PWIs is especially pronounced for Black students. However, there is little evidence supporting this pattern for other groups of Color. There is also little understanding of in- and out-group student-faculty affiliations and the implications of these affiliations for college adjustment of the Students of Color in more diverse institutions.

Interaction between Ethnic Identity and Social Support

Since college-level factors replace background variables as predictors, one might expect that ethnic identity commitment will have a moderating effect on the relationship between social support from same-ethnic or similarly marginalized sources and minoritized students' social and academic adjustment at PWI. This assumption might seem especially likely, given that prior research presents conflicting results about the relationship between ethnic identity and college adjustment (see White, 2000, for example of weak ethnic identity-adjustment association).

As already noted, for college Students of Color, educational engagement occurs in the presence of supportive relationships (Ethier & Deaux, 1994; Torres, 2003). Ethier and Deaux (1994) found that, for highly ethnically identified Latinos on a predominantly White campus, ethnic-related peers and organizations serve as important sources of support, leading to increased support from other sources and increased college adjustment. In contrast, less identified Latinos were less likely to seek and benefit from ethnic involvement, making their transition to college more difficult (i.e., they perceived more threat in their environment and showed decreases in self-esteem). Saylor and Aries (1999) report similar results for highly identified Latinos. However, they also found that less ethnically identified minoritized students were just as likely

as highly identified students to be adjusted to college by the end of their first year. This finding suggests establishing ethnically related support may be less important for the adaptation of less identified Latinos, who may seek and acquire social support through other sources.

Contrary to the findings of Ethier & Deaux (1994) and Saylor & Aries (1999), highly ethnically identified Latinos in Schneider and Ward's (2003) sample were less adjusted than less identified Latinos. However, perceived support mediated the relationship between ethnic identification and the different types of college adjustment, suggesting that highly identified Latinos were less adjusted, in part because they perceived lower support than less identified Latinos. It is important to note that the study was conducted in the college context with very few Latinos, and the sample was incredibly small (35 students). In the same study, when perceived family, general peer, faculty, and institutional support were combined into one model, they accounted for as much as 51% of the variance in institutional attachment, with other types of adjustment ranging from 18% to 39%. These findings underscore the importance of social support for college adjustment of the Students of Color.

In summary, existing research presents evidence of the importance of co-ethnic support for minoritized students, and there is some evidence that this support may be particularly important for Students of Color highly identified with their ethnic groups. Since ethnically committed students also tend to seek support from similarly minoritized peers and faculty (Martinez Aleman, 2000), it is conceivable that the same is true for social support from similarly marginalized sources. Less ethnically committed Students of Color, on the other hand, may equally benefit from social support from other ethnic groups, and White peers and faculty, in particular.

Present Study

This study focused on examining factors associated with social and academic adjustment of the Students of Color in two compositionally different higher education contexts: predominantly White and diverse (75% non-White). The ethnically and racially minoritized students are the focus of this study because research evidence indicates that ethnic identity is especially salient for this population. The study's purpose was to measure the association of ethnic identity and college-level social support from several sources (peers and faculty in general, co-ethnic peers and faculty members, peers and faculty from minoritized groups, White peers and faculty) with minoritized college students' social and academic adjustment in two ethnically different higher education institutions.

With respect to ethnic identity (H1), I hypothesized that ethnic identity commitment will be positively associated with minoritized students' academic (H1a) and social (H1b) adjustment, and ethnic identity exploration will be negatively associated with minoritized students' academic (H1c) and social (H1d) adjustment, while controlling for instructor and friend support variables, regardless of higher education context.

With respect to instructor social support variables (H2), I hypothesized that, in predominantly White institution, due to significance of ethnic sources of support, co-ethnic instructor support (H2a) and support from instructors of Color (H2b) will be positively associated with minoritized students' academic adjustment, and general (H2c) and White instructor support (H2d) will not be associated with minoritized students' academic adjustment, while controlling for ethnic identity exploration and commitment. In diverse institution, general (H2e) and White (H2f) instructor support will be positively associated, and co-ethnic instructor support (H2g) and support from instructors of Color (H2h) will not be associated with

minoritized students' academic adjustment, also controlling for ethnic identity exploration and commitment.

With respect to friend support variables (H3), I hypothesized that, in predominantly White institution, co-ethnic friend support (H3a) and support from friends of Color (H3b) will have a positive relationship with minoritized students' social adjustment, and general (H3c) and White friend support (H3d) will not be associated with minoritized students' social adjustment, while controlling for ethnic identity exploration and commitment. In diverse institution, general (H3e) and White (H3f) friend support will have a positive relationship with minoritized students' social adjustment, and co-ethnic friend support (H3g) and support from friends of Color (H3h) will not be associated with minoritized students' social adjustment, also while controlling for ethnic identity exploration and commitment.

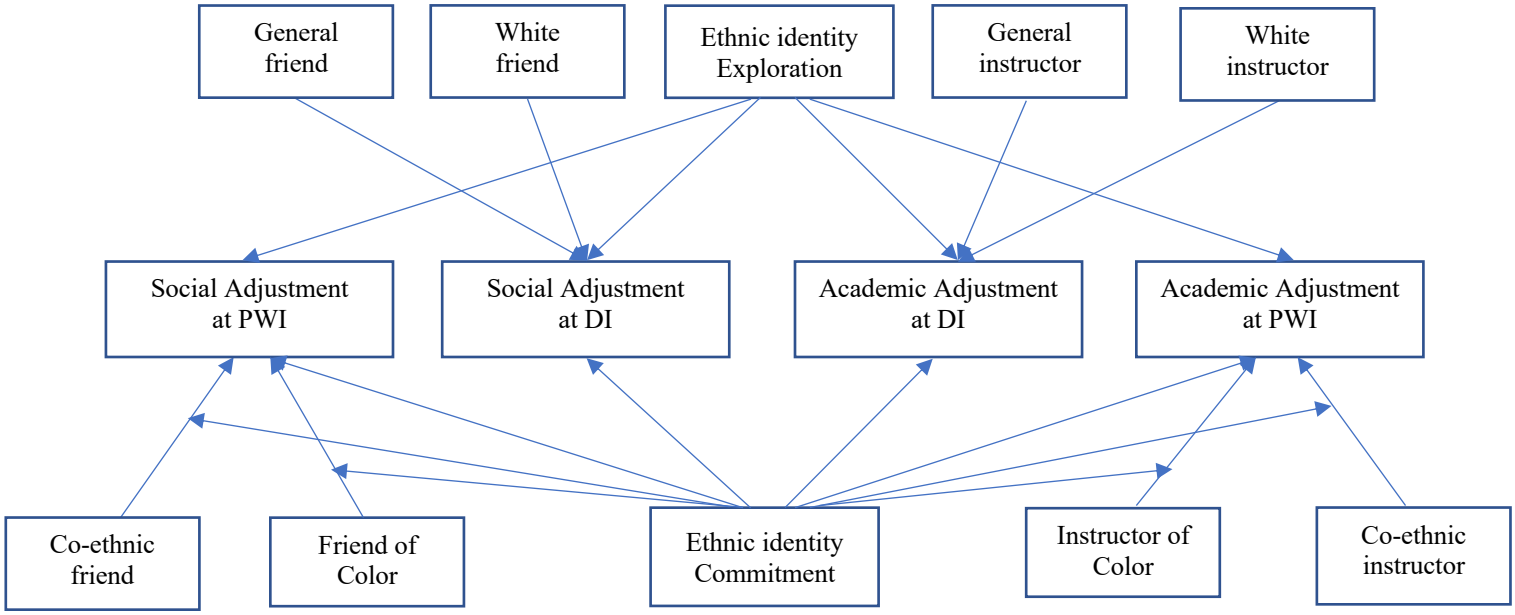
With respect to the general magnitude of associations (H4), I hypothesized that, in both institutions, instructor and friend support will have a larger correlation with academic and social adjustment, respectively, compared to ethnic identity.

Last, I hypothesized that ethnic identity commitment will have moderating effects (H5) on the relationship between social support variables and minoritized students' college adjustment in predominantly White higher education context: Ethnic identity commitment will moderate a relationship between co-ethnic faculty support (H5a) or support from instructors of Color (H5b) and academic adjustment of minoritized students at PWI, with more highly committed students benefiting the most from social support from co-ethnic instructors or instructors of Color. These associations will hold in the presence of main effects of ethnic identity and faculty support variables. Ethnic identity commitment will also moderate a relationship between co-ethnic friend support (H5c) or support from friends of Color (H5d) and social adjustment of minoritized

students at PWI, with more highly committed students benefiting the most from social support from co-ethnic friends or friends of Color. Similarly, these associations will hold in the presence of main effects of ethnic identity and friend support variables. Since no theoretical rationale exists for moderating effects of ethnic identity exploration on the relationship between co-ethnic sources of support and college adjustment, moderating effects of exploration were not hypothesized.

Figure 1

Conceptual Model for Ethnic Identity and Social Support Correlates of Social and Academic Adjustment at Predominantly White (PWI) and Diverse (DI) Institutions



Method

Sample Recruitment and Sample Characteristics

A survey was administered to the Students of Color at predominantly White and diverse institutions during the fall (late October-early December) semester of the 2019-2020 academic year.

Two higher education institutional contexts were chosen due to their similarity on most dimensions except for the compositional diversity of college campuses. Both are public research

and land-grant universities, and both institutions are comparable in size. The predominantly White institution is a university in the Midwest, enrolling approximately 44,000 students each year (fall 2018 Institutional Data). The university enrolled 67% White, 7.6% Asian American, 5% Hispanic, 3% African American or Black, 14% International, 0.9% American Indian and Alaska Native, 0.2% Native Hawaiian students in the Fall of 2018. Twenty-two percent of its faculty are individuals of Color. The diverse institution is located on the West coast, enrolling approximately 39,000 students each year (Fall 2018 Institutional Data). In the fall of 2018, its student body comprised 32% Asian American and Pacific Islander, 22% Hispanic, 23% White, 17% International, 4% African American or Black and 1% Native American students. This institution recently submitted an application to the US Department of Education to receive the HIS (Hispanic Serving Institution) designation, meaning that at least 25 percent of its domestic undergraduate students are from economically disadvantaged populations. Thirty-eight percent of its faculty are individuals of Color.

In the predominantly White institution, students were contacted via the listserves of the programs designed to serve historically underrepresented populations. A smaller pool of students was recruited via SONA system, which is the institutional website allowing students taking classes in a number of disciplines earn course credits for participating in research studies. Students were pre-screened in the survey to ensure that they meet the inclusion criteria (i.e., belonging to ethnic minority background). After survey completion, a gift card drawing was held for participants invited to complete the survey outside of SONA system: 10 students were randomly drawn from the participant pool to receive $25 gift cards. Participants recruited via the SONA system received course credit.

In the diverse institution, students were contacted via SONA system to complete the survey. Students received course credit via SONA for survey completion.

A total of 779 participants comprised the sample: 298 participants from the predominantly White institution, and 481 participants from the diverse institution (from hereon, DI for diverse institution). The sample is majority female (73%) and has a largely first-generation college student status (52%). The ethnic composition of the sample is as follows: 12% African American or Black, 34% Hispanic or Latinx, 48% Asian, 13% Southeast Asian, 4% American Indian or Alaska Native, 4% Pacific Islander and 1% Native Hawaiian. 15% of respondents shares ethnically/racially minoritized identity with White identity. The sample's distribution between years in college is relatively even: 25% first year, 23% second year, 24% third year, and 28% fourth+ year students. The summary descriptive statistics for the sample is presented in the Table 2 below.

Table 2

Participants' Demographic Data

	PWI	DI	Total
Number of respondents	298 (38%)	481 (62%)	779 (100%)
Gender			
Females	**232*** (78%)	340 (71%)	572 (73%)
Males	65 (22%)	**138*** (29%)	203 (26%)
Race/Ethnicity			
African American or Black	**64*** (22%)	26 (5%)	90 (12%)
Hispanic or Latinx	**121*** (41%)	144 (30%)	265 (34%)
Asian	89 (30%)	**281*** (58%)	370 (48%)
Southeast Asian	43 (14%)	58 (12%)	101 (13%)
American Indian or Alaska Native	**23*** (8%)	6 (1%)	29 (4%)
Pacific Islander	2 (0.7%)	**26*** (5%)	28 (4%)
Native Hawaiian	3 (1%)	4 (0.8%)	7 (1%)
White (shared with minoritized identity)	**74*** (25%)	43 (8%)	117 (15%)

Grade level			
First year	**90*** (30%)	105 (22%)	195 (25%)
Second year	67 (23%)	111 (23%)	178 (23%)
Third year	71 (24%)	119 (25%)	190 (24%)
Fourth+ year	70 (24%)	**146*** (30%)	216 (28%)

*significantly higher at $p < .05$.

The means of the demographic variables were analyzed for significant differences between two institutions. The PWI sample was significantly different from the diverse institution sample on the basis of gender, ethnic make-up and year in college. Compared to the DI sample, the PWI sample had proportionately more females and less males; more African American or Black, Hispanic, American Indian or Alaska Native participants, more students that share White identity with minoritized identity; less Asian and Pacific Islander participants; and more first year and less fourth+ year participants. Given these demographic differences between institutions, the models in multiple group analysis controlled for gender, race and students' college year.

Measures

Demographic Measures. Study participants provided information about their ethnic group affiliation, college year, and gender.

Ethnic Identity. Participants completed the Multidimensional Ethnic Identity Measure - Revised (MEIM; Phinney & Ong, 2007; Roberts et al., 1999). This widely used measure assesses ethnic identity exploration (6 items concerning efforts to learn more about one's group and participation in ethnic cultural practices) and commitment (6 items about positive affirmation of one's group, and clear sense of commitment). Participants indicated how applicable each item was to them on a 5-point Likert scale, from strongly disagree (1) to strongly agree (5), with 3 as a neutral position. Scale scores for commitment and exploration were calculated as means of items. Items were adapted from Phinney (1992). Phinney and Ong (2007) reported adequate

reliability for each subscale, with Cronbach alphas of .76 for exploration and .78 for commitment, and with the .81 alpha for the combined 6-item scale. Appendix A provides a full list of the measure's items.

Social Support Measures. Items were adapted from the Friends, Family and Significant Other subscales of the established Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) to assess study participants' perceptions of social support from various sources. MSPSS is a measure widely used in the literature and has been validated with undergraduate college students (Dahlem, Zimet & Walker, 1991; Kazarian & McCabe, 1991). The measure has also been validated across different cultures: with Hispanic (Ermis-Demirtas, et al., 2018), African American (Canty-Mitchell & Zimet, 2000), and Asian (Ho & Chan, 2017; Akhtar et al., 2010) populations. Participants indicate how they feel about each statement on a 7-point Likert scale (from "1" very strongly disagree to "7" very strongly agree, with "4 being a neutral position). Zimet et al. reported good reliability for the total scale (.88), as well as each of the subscales (.91 – Significant Other, .87 – Family, .85 - Friends). The test-retest reliability for the whole scale was .85; for each of the subscales - .72, .85, and .75, respectively (Zimet et al., 1988). Modest changes to the original items were made to direct participants to answer items regarding about peer support and instructor support. Peer support scales consisted of four items and assessed participants' perceived level of support from (1) friends in general, (2) White friends, (3) friends from the same ethnic and/or racial background and (4) friends of Color. Instructor support scales consisted of five items and assessed participants' perceived level of support from (1) instructors in general, (2) White instructors, (3) instructors from the same ethnic and/or racial background, and (4) instructors of Color (see Appendix A for item details). The scores were calculated as means of all items.

Academic and Social Adjustment. To measure academic and social adjustment to college, participants completed social and academic adjustment subscales of the **Student Adaptation to College Questionnaire** (SACQ; Baker & Syrik, 1984). The SACQ is a 67-item questionnaire widely used in the research literature on college adjustment; it consists of social, academic, personal-emotional adjustment and institutional attachment subscales. For the purposes of this study, only the 24-item academic adjustment and 19-item social adjustment subscales were used. The academic adjustment subscale measures students' attitudes toward their academic work, the degree to which students feel motivated to do their work, and their satisfaction with their program. The social adjustment subscale measures students' involvement in social activities, success with interpersonal relationships, and satisfaction with their social environment. Participants indicated how applicable each item was to them, using a 7-point Likert scale ranging from 1 (Not at all) to 7 (Very well). The scores were calculated as means of all items.

In a recent meta-analysis, the SACQ was found to have substantial reliability and validity (Crede & Niehorster, 2012). The SACQ has also shown reliability and validity cross-culturally (Beyers & Goossens, 2002; Young & Koplow, 1997). Young and Koplow (1997) confirmed the predictive validity of the academic adjustment scores for grades of African American and Hispanic American students. Cronbach alphas range from .83 to .91 for social adjustment subscale; .77 to .86 for academic adjustment subscale (Baker and Siryk, 1989).

Results

Missing Data

The sample was analyzed for missing data. For support items, missing data was calculated on the basis of both missingness as well as lack of support individuals. In the survey,

support items were preceded by the item asking participants about the number of support individuals available to them. If participants indicated that they had no support individuals for a given type of support (e.g., co-ethnic instructor support), the data were treated as missing. If a scale score was missing at least one item response, the missing items were first imputed on the basis of participants' responses to other questions ("predictive mean matching" technique), and the scale scores were calculated on the basis of both non-missing and imputed items.

The largest amount of missing data was observed for co-ethnic instructor support scale (358 observations missing, or 46% of the sample). Co-ethnic faculty support may be largely unavailable if there are very few faculty members of the same ethnic and/or racial background within a given institution. Similarly, instructor of Color support scale had large numbers of missing data (242 observations missing, or 31%). Relatively large numbers in missingness were observed for White friend (220 observations, or 28%), co-ethnic friend (142 observations, or 18%) and friend of Color (145 observations or 19%) support scales. If lack of White friends may be explained theoretically (Students of Color tend to affiliate less with their White peers, cite), lack of data on co-ethnic friend and friend of Color support may have reflected a lack of availability of individuals of ethnic minority, and especially, of the same ethnic backgrounds, in less diverse institutional contexts. The rest of the dependent and outcome variables had relatively small number of missing observations (see table 1 below).

The mice package implements a method to deal with missing data (van Buuren, 2018). Predictive mean matching technique (Rubin, 1986; Little, 1988) was used to impute missing observations. Predictive mean matching imputes missing observations according to the specified imputation model. "For each missing observation, the method forms a small set of candidate donors from all complete cases that have predicted values closest to the predicted value for the

missing observation. One donor is randomly drawn from all candidates, and the observed value of the donor is taken to replace the missing value" (van Buuren, 2018, https://stefvanbuuren.name/fimd/sec-pmm.html). In other words, the method serves to construct a metric for matching cases with missing data to similar cases with available data. A total of 10 datasets were imputed and data from these pooled datasets was used for subsequent SEM analyses. Since no known method for conducting exploratory factor analysis on the basis of multiple imputed datasets exists (to my knowledge), exploratory factor analysis was conducted on the basis of one imputed dataset.

Table 1

Missing Data for the Scale Scores

	Number of missing observations within scale	Percentage of missing data for total number of responses
Ethnic identity	14	1.8%
General friend support	49	6.3%
Co-ethnic friend support	142	18.2%
White friend support	220	28.2%
Friend of Color support	145	18.6%
General instructor support	32	4.1%
Co-ethnic instructor support	358	46%
White instructor support	58	7.5%
Instructor of Color support	242	31%
Academic adjustment	44	5.7%
Social adjustment	111	14.3%

Item Analysis

The following section describes the process by which the item analyses were conducted for endogenous and exogenous latent variables. The exploratory factor analyses were conducted on the basis of one imputed dataset under a multivariate normality assumption ("ml" estimator).

To check for correctness across imputed datasets, the follow-up confirmatory analysis with robust maximum likelihood estimation ("mlr") was conducted on 10 imputed datasets.

Ethnic identity. The scale consists of six items, and overall scale reliability is 0.88. Exploratory factor analysis with promax rotation showed that the two-factor solution has lower BIC compared to a one-factor solution (BIC(2-factor) = -9.45; BIC(1-factor) = 311.54). EFA showed that the items are loading highly on two factors (loadings are: .99, .69, .71 – on one factor, and .78, .83, .74 – on another). The two factors are "commitment" and "exploration", which are consistent with literature. These two factors are correlated (r=0.69). While items are loading highly on one factor (loadings are: .64, .77, .76, .75, .7, .81), the two-factor solution has higher factor loadings and is preferred on the basis of BIC. Consequently, confirmatory factor analysis shows that the two-factor solution fits better compared to a one-factor solution and has a much lower BIC (1-factor solution: $\chi 2$ =262.682, p-value=0; CFI=0.835; TLI=0.725; RMSEA=0.19; SRMR=0.079, BIC=11504.864; 2-factor solution: $\chi 2$ =34.2, p-value=0; CFI=0.983; TLI=0.968; RMSEA=0.065; SRMR=0.028, BIC=11185.529). On the basis of BIC and high loadings on two factors, the two-factor solution was preferred and used in subsequent analyses. The two factors are highly reliable: alpha (exploration)=0.84; alpha (commitment)=0.86.

General friend support. The scale consists of four items, and overall scale reliability is 0.95. Exploratory factor analysis with promax rotation revealed that items are loading on one or two factors. Since there are only two items per factor, two-factor solution has no BIC (item loadings are: 0.94, 0.59 on 1st factor and 0.88, 0.6 on 2nd factor). Two factors are extremely highly correlated (r=0.83). Compared to a 2-factor solution, items are highly loading on one factor (item loadings are: 0.86, 0.92, 0.92, 0.92). Confirmatory factor analysis shows an

acceptable fit for a 1-factor model on the basis of CFI and TLI, but not on the basis of chi-square and BIC. CFA shows a better fit on the basis of chi-square and BIC for a 2-factor compared to a 1-factor model (1-factor model: $\chi 2$ =25.571, p-value=0; CFI=0.984; TLI=0.951; RMSEA=0.123; SRMR=0.017; BIC=8056.004; 2-factor model indices: $\chi 2$ =2.17, p-value=0.106; CFI=0.999; TLI=0.993; RMSEA=0.046; SRMR=0.065; BIC=8008.917). Despite the better fit of a two-factor CFA model compared to a one-factor CFA model, based on high correlation between two factors and very high item loading on one factor in EFA, the decision was made to treat the scale as unidimensional.

Co-ethnic friend support. The scale consists of four items, and overall scale reliability is 0.95. Similar to general peer support scale, exploratory factor analysis with promax rotation revealed that items are loading on one or two factors. Since there are only two items per factor in a 2-factor solution, it doesn't report a BIC value (item loadings are: 0.68, 0.89 on 1 factor and 0.84, 0.65 on 2nd factor). Two factors are highly correlated (r=.84). One-factor solution has very high loadings, compared to a two-factor solution (0.86, 0.92, 0.94, 0.93), suggesting items are highly correlated. Confirmatory factor analysis shows a better fit for 2-factor model compared to 1-factor model on the basis of $\chi 2$ and BIC (1-factor model indices: $\chi 2$ =30.428, p-value=0; CFI=0; TLI=-3.153; RMSEA=0.135; SRMR=0.026; BIC=7529.112; 2-factor model indices: $\chi 2$ =0.362, p-value=0.547; CFI=1; TLI=1.186; RMSEA=0; SRMR=0.003; BIC=7433.115). Despite the better fit of a two-factor CFA model, based on high very correlation between two factors and extremely high item loadings on one factor in EFA, the decision was made to treat the scale as unidimensional.

White friend support. Since items were adapted from one scale for all of the peer support scales, we see similar results for White friend support and friend of Color support scales. White

friend support scale consists of 4 items and has a high reliability (alpha=0.95). Exploratory factor analysis with promax rotation revealed that items are loading on one or two factors. Since there are only two items per factor in a 2-factor solution, the analysis doesn't report a BIC value (item loadings are: 0.6, 0.86 on 1 factor and 0.84, 0.61 on 2nd factor). Two factors are highly correlated (r=.85). One-factor solution has very high loadings, compared to a two-factor solution (0.87, 0.93, 0.92, 0.9), suggesting items are highly correlated. Confirmatory factor analysis shows a better fit for a 2-factor model compared to a 1-factor model on the basis of $\chi 2$ and BIC (1-factor model: $\chi 2$ =14.342, p-value=0.001; CFI=0.988; TLI=0.963; RMSEA=0.089; SRMR=0.015; BIC=8374.672; 2-factor model indices: $\chi 2$ =2.083, p-value=0.149; CFI=0.999; TLI=0.993; RMSEA=0.037; SRMR=0.004; BIC=8339.951). One-factor CFA model has an acceptable fit on the basis of CFI and TLI. Despite the better fit of a two-factor CFA model, based on very high correlation between two factors and extremely high item loadings on one factor in EFA, the decision was made to treat the scale as unidimensional.

Friend of Color support. Similar pattern is seen in the friend of Color support scale. The scale consists of 4 items and has a high reliability (alpha=0.95). In the two-factor solution, based on exploratory factor analysis with promax rotation, the two factors are very highly correlated (r=0.85) and loading moderately on two factors (1st factor has factor loadings of 0.87 and 0.6; and 2nd factor has factor loadings of 0.78 and 0.62). One-factor solution has much higher factor loadings (0.85, 0.94, 0.94, 0.91). Both 1- and 2-factor CFA solutions fit on the basis of $\chi 2$, and BIC is only slightly better for a 2-factor solution (1-factor solution: $\chi 2$ =1.355, p-value=0.508; CFI=1; TLI=1.014; RMSEA=0; SRMR=0.01; BIC=7143.490; 2-factor solution: $\chi 2$ =0.84, p-value=0.359; CFI=1; TLI=1.007; RMSEA=0; SRMR=0.003; BIC=7127.888). Despite the better

fit of a two-factor CFA model, based on high very correlation between two factors and extremely high item loadings on one factor in EFA, we will be treating this scale as a unidimensional scale.

General instructor support. The scale consists of five items, and overall scale reliability is 0.91. Similar to peer support scales, items are loading highly on one factor (item loadings are: 0.84, 0.88, 0.73, 0.82, 0.8). Even though the two-factor EFA solution has lower BIC (BIC=8.67 for 2-factor solution, compared to BIC=176.85 for 1-factor solution), items are highly correlated (r=0.75), and loadings on two factors are not as high as loadings on one factor: loadings on 1st factor: 0.87, 0.78, 0.71; loadings on 2nd factor: 1.06, 0.56 (Heywood case is observed). Confirmatory factor analysis shows a slightly better fit for a 2-factor CFA model compared to a 1-factor model (1-factor model indices: $\chi 2$ =136.653, p-value=0; CFI=0.903; TLI=0.807; RMSEA=0.184; SRMR=0.046; BIC=10254.430; 2-factor model indices: $\chi 2$ =21.968, p-value=0; CFI=0.987; TLI=0.967; RMSEA=0.076; SRMR=0.016; BIC=10079.241). Even though the BIC is lower for a 2-factor CFA model, based on high item loadings on one factor and high correlation between two factors in EFA, the one-factor solution was used in the subsequent SEM analyses.

Co-ethnic instructor support. The scale consists of five items, and overall scale reliability is 0.93. Similar to instructor support scale, items are loading highly on one factor in EFA with promax rotation (item loadings: 0.84, 0.86, 0.79, 0.9, 0.87). In two factor solution, loadings are not quite as high, and the Heywood case is observed (item loadings on 1st factor: 0.65, 0.87, 0.88; 2nd factor: 0.5, 1). Even though the 2-factor solution has a lower BIC (1.96 vs.98.56), items are very highly correlated (r= 0.8). Confirmatory factor analysis returns the same fit for a 2-factor model as for a 1-factor model, and BIC remains the same ($\chi 2$ =40.579; p-value=0; CFI=0.766; TLI=0.532; RMSEA=0.096; SRMR=0.039; BIC= 10229.467). Based on high

correlation between two factors and high item loadings on one factor in EFA, the decision was made to treat the scale as unidimensional.

White instructor support. This is the five-item scale with high reliability (alpha=0.93). Smaller BIC is returned for a 2-factor solution, compared to a 1-factor solution during the EFA with promax rotation (1-factor BIC=115.61; 2-factor BIC=12.79). Two factors are highly correlated (r=0.78). Loadings are similar to co-ethnic instructor support scale: two-factor solution returns loadings of 0.9, 0.77, 0.75 and 1.03, 0.45. High loadings (0.84, 0.87, 0.79, 0.87, 0.88), small measurement error (under 0.37) and high communality (0.63-0.77) are observed for a 1-factor EFA solution. Confirmatory factor analysis returns the same solution for both 1- and 2-factor models ($\chi 2$ =55.926; p-value=0; CFI=0.959; TLI=0.918; RMSEA=0.114; SRMR=0.031; BIC= 10092.161). Similar to co-ethnic instructor support scale, on the basis of high factor loadings on one factor and high correlation between two factors in EFA, the one-factor solution was preferred.

Instructor of Color support. Results of the exploratory factor analysis with promax rotation for this scale are very much like the results for the instructor support scales above. Although two-factor solution has a lower BIC (BIC=12.14 for 2-factor solution, compared to BIC=132.48 for 1-factor solution). Two factors are highly correlated (r=.78), and item loadings return the Heywood case (0.98, 0.58, 0.62 and 1.08, 0.49). More consistent and higher loadings are observed on one factor: 0.86, 0.9, 0.77, 0.85, 0.83. Confirmatory factor analysis returns the same results for 1- and 2-factor models ($\chi 2$ =30.629; p-value=0; CFI=0.881; TLI=0.762; RMSEA=0.081; SRMR=0.035; BIC=9794.336). On the basis of high loadings on one factor and high factor correlations in EFA, the one-factor solution was preferred.

Adjustment. The scale consists of 43 items (24 items belonging to academic adjustment sub-scale, and 19 items – social adjustment subscale). Overall scale reliability is 0.91.

Exploratory factor analysis with promax rotation revealed that the 9-factor solution has the lowest BIC (-2231.93). Given that social and academic adjustment scales are established scales and widely used in literature as sub-scales of Baker and Siryk (1984) adjustment measure, analysis was conducted to eliminate items with low loadings and items that are split between two factors in the 2-factor model. Items with factor loadings of less than 0.6 were eliminated from analysis. The resulting scale consisted of 16 items, loading fairly well on a 2-factor structure. The exploratory factor analysis with "promax" rotation was conducted to test the factor structure of the 16-item adjustment scale. According to BIC, items are loading on 2- and 3-factors, and 3-factor model has lowest BIC (BIC=85.07 for 3-factor solution vs. BIC=328.23 for 2-factor solution). However, further analysis of 3-factor model revealed that the positively and negatively worded "academic adjustment" items were splitting into two factors, based on positive or negative wording. Therefore, the two-factor structure was preferred. Within the two-factor structure, academic adjustment items were loading on academic adjustment scale, and social adjustment items – on social adjustment scale. The factors have moderate-high reliability (social adjustment scale – 0.91; academic adjustment scale – 0.82), and are moderate correlated (r=.35), suggesting interrelated, but moderately independent scales. The graphic with factor loadings is presented in the Appendix. The items kept for analysis are presented in Table 3 below.

Table 3

Shortened Social and Academic Adjustment Scales

	Items	Item Loading
Social Adjustment		
(10 items)	1 - fitting in college	.63
	2 – meeting people, making friends	.85

	3 – involved in social activities	.75
	4 – adjusting well	.61
	7 – having close social ties	.75
	9 – satisfied with extracurriculars	.56
	11 – having enough social skills	.56
	13 – satisfied with participation in social activities	.82
	18 – having good friends and acquaintances	.6
	19 – satisfied with social life	.84
Academic Adjustment		
(6 items)	1 – keeping up with academic work	.69
	5 – satisfied with academic performance	.68
	12 – no motivation for studying	.59
	15 – trouble concentrating	.69
	20 – trouble with homework	.65
	24 – satisfied with academic situation	.59

Descriptive statistics for the scale scores

With regards to the predictor and outcome variables, the two samples differed significantly on ethnic identity exploration and co-ethnic instructor support: in all cases, significantly higher means at PWI were observed (see Table 4).

Table 4

Scale Means (with Standard Errors) by Institution

	DI	PWI
Exploration	3.68 (.9)	3.9* (.88)
Commitment	3.85 (.92)	3.79 (.9)
General friend support	5.52 (1.34)	5.6 (1.26)
Co-ethnic friend support	5.7 (1.26)	5.65 (1.16)
White friend support	4.73 (1.39)	4.98 (1.38)
Friend of Color support	5.49 (1.21)	5.57 (1.11)
General instructor support	4.32 (1.03)	4.42 (1.09)
Co-ethnic instructor support	4.82 (1.15)	5.05* (1.08)
White instructor support	4.47 (1.14)	4.48 (1.14)
Instructor of Color support	4.7 (1.02)	4.96 (1.12)
Academic adjustment (short)	4.01 (1.18)	4.08 (1.2)
Social adjustment (short)	4.51 (1.24)	4.63 (1.18)

Academic adjustment (full)	4.3 (.82)	4.48 (.83)
Social adjustment (full)	4.49 (.98)	4.57 (.98)

Note. Standard errors are listed in the parentheses.

*significantly higher at $p < .0035$.

The summary of the descriptive statistics for the dependent and outcome variables is presented in Table 5.

Table 5

Summary Statistics for Scales

	Scale Range	Mean	Median	Standard Error
Exploration	1-5	3.76	4	.9
Commitment	1-5	3.83	4	.91
General instructor support	1-7	4.36	4.8	1.05
Co-ethnic instructor support	1-7	4.91	4.82	1.13
White instructor support	1-7	4.47	4.4	1.14
Instructor of Color support	1-7	4.8	4.8	1.07
General friend support	1-7	5.55	5.75	1.31
Co-ethnic friend support	1-7	5.69	6	1.22
White friend support	1-7	4.82	4.93	1.39
Friend of Color support	1-7	5.52	5.5	1.17
Academic adjustment (short)	1-7	4.04	4	1.19
Social adjustment (short)	1-7	4.56	4.6	1.22
Academic adjustment (full)	1-7	4.37	4.26	.83
Social adjustment (full)	1-7	4.52	4.47	.98

The correlation statistics between continuous predictor (ethnic identity, social support) and continuous outcome variables are presented in the table in the Appendix. As seen in the table, general instructor support has a very high correlation with White instructor support variable (r=.8); co-ethnic instructor support is also highly correlated with instructor of Color support (r=.66). To avoid collinearity, these variables were analyzed in separate structural equation models.

Analysis of the Scale Scores by Demographic Factors

Three-way ANOVAs were conducted to analyze differences by gender, ethnicity and college year.

For ethnic identity *exploration*, significant differences emerged by gender ($F_{Female}(1, 1703) = 15.35$, $p < .001$) and race ($F_{Race}(1, 218) = 2.44$, $p < .05$). Post-hoc analyses showed that females on average were higher on ethnic identity exploration ($m_{Male} = 3.54$, $m_{Female} = 3.84$); African American or Black students were also on average higher on ethnic identity exploration ($m_{Black} = 4.05$).

For ethnic identity *commitment*, significant differences emerged by race ($F_{Race}(1, 11415) = 3.64$, $p < .001$). Follow-up analyses revealed that students that shared White identity with minoritized identity were lower on ethnic identity commitment, compared to students who do not have a shared White identity ($m_{White} = 3.4$).

For *general* instructor support, significant differences emerged by race ($F_{Race}(1, 478) = 2.49$, $p < .05$) and college year ($F_{Year}(1, 60.53) = 2.77$, $p < .05$). Post-hoc analyses revealed that Asian students had on average higher general instructor support scores ($m_{Asian} = 4.48$), first-year students also had higher general instructor support scores ($m_{First\text{-}year} = 4.6$).

For *White* instructor support, significant differences also emerged by race ($F_{Race}(1, 3054) = 3.26$, $p < .01$) and college year ($F_{Year}(1, 76.93) = 8.44$, $p < .001$). Once again, significantly higher scores were observed for Asian ($m_{Asian} = 4.63$) participants. First-year students also on average had higher White instructor support scores ($m_{First\text{-}Year} = 4.84$).

For *co-ethnic* instructor support, significant differences emerged by race only ($F_{Race}(1, 106492) = 2.72$, $p < .05$). Follow-up analyses revealed that Black students had on average higher

scores for co-ethnic instructor support (m_{Black} =5). No significant differences were observed for *instructor of Color* support by gender, race and college year.

For *general friend* and *friend of color* support, no significant differences emerged for gender, race and college year main effects. For *White friend* support, significant differences emerged by race only ($F_{White}(1, 18.06) = 5.56$, $p < .05$). Bi-racial minoritized students with shared White identity had higher scores for support from White friends ($m_{White} = 5.3$).

For *co-ethnic friend* support, significant differences emerged by gender only ($F_{Female}(1, 2686) = 6.72$, $p < .01$). Post-hoc analyses revealed that females were higher on co-ethnic friend support ($m_{Male} = 5.46$, $m_{Female} = 5.77$).

For *academic adjustment*, significant differences emerged by gender for both shortened ($F_{Female}(1, 4240) = 5.94$, $p < .05$) and full ($F_{Female}(1, 3250) = 5.22$, $p < .05$) adjustment scales. Follow-up analyses showed that males on average were higher on academic adjustment (academic adjustment (shortened): $m_{Male} = 4.22$, $m_{Female} = 3.97$; academic adjustment (full): $m_{Male} = 4.49$, $m_{Female} = 4.33$).

For *social adjustment*, no significant differences were observed by race, gender or college year. However, compared to students with only minoritized ethnic identity, students with shared White identity had significantly higher social adjustment scores (social adjustment (shortened): $m_{White} = 4.74$; social adjustment (full): $m_{White} = 4.74$). Also, compared to other racial/ethnic groups, Black students were on average lower on social adjustment scores ($m_{Black} = 4.28$).

Comparing Two Contexts: Multiple Group Analysis

To compare whether the models in both institutions are equal to each other, multiple group analyses were conducted. The goal here was to estimate school type differences in regression paths between predictor and outcome variables. Three models were built and analyzed

for differences between institutions: 1) model with ethnic identity and co-ethnic supports as predictors; 2) model with ethnic identity and general sources of support as predictors; and 3) model with White faculty and friends, and friends and faculty of Color as predictors. All three models were analyzed for shortened and full adjustment scales. All models were controlled for gender, ethnic group (except American Indian, Pacific Islander and Native Hawaiian, which had very small representation in the sample) and college year. Since all scales had moderate to high reliabilities, the imputed scale scores were used for the model analysis. The scale scores of predictor variables were calculated as means of item scores; the density plots for these composite scores were constructed to check for variability within the scales. The scale scores of outcome variables were calculated as sums of item scores. Moderation effects were calculated on the basis of centering ethnic identity commitment and co-ethnic support (or support of Color) variables (i.e., extracting the scale mean from item composites) and multiplying the centered values (e.g., ethnic identity commitment x instructor of Color support). Regression paths went from ethnic identity commitment, exploration and instructor support variables to academic adjustment, and from ethnic identity commitment, exploration and friend support variables – to social adjustment. Consistent with hypothesis H1, regression path went from ethnic identity commitment and exploration to both academic and social adjustment. To test hypotheses H2, the path went from instructor sources of support to academic adjustment: Model 1 tested such associations for co-ethnic instructor support (H2a, H2g), Model 2 – general instructor support (H2c, H2e), Model 3 – White instructor support (H2d, H2f) and support from instructors of Color (H2b, H2h). To test hypotheses H3, regression paths went from friend sources of support to social adjustment: Model 1 tested such associations for co-ethnic friend support (H3a, H3g), Model 2 – general friend support (H3c, H3e), Model 3 – White friend support (H3d, H3f) and support from friends of

Color (H3b, H3h). In order to test hypothesis H4, standardized regression coefficients in the final models were studied. Consistent with hypotheses 5, regression paths were tested between ethnic identity commitment x co-ethnic instructor support moderator and academic adjustment (H5a, Model 1); ethnic identity commitment x instructor of color support moderator and academic adjustment (H5b, Model 3); ethnic identity commitment x co-ethnic friend support moderator and social adjustment (H5c, Model 1); and ethnic identity commitment x friend of Color support moderator and social adjustment (H5d, Model 3).

All analyses were conducted on the basis of 10 imputed datasets. The "mlr" estimator was used to deal with non-normality. First, multiple group analyses were conducted for ethnic identity and **co-ethnic support** variables as predictors. Given that the sample had a large number of students reporting lack of co-ethnic friends ($N = 103$) or instructors ($N = 317$), those observations were eliminated, and the analyses were conducted only for participants that reported availability of at least one co-ethnic friend and co-ethnic instructor on their college campus ($N = 386$). In the lavaan model, two adjustment scales (academic and social adjustment) were included as outcome variables; ethnic identity exploration, commitment, co-ethnic friend and instructor support, and two moderators (commitment*co-ethnic friend, commitment*co-ethnic instructor) – as predictor variables, along with race, gender and college year controls. First, the free lavaan model was built for ***shortened*** adjustment scales. This model fit well ($\chi^2 = 4.48$, $p = .35$; BIC = 2444.91, CFI = .99; TLI = .95, RMSEA = .02, SRMR = .01). When institution type was added to the model, with added degrees of freedom, chi-square and BIC went up ($\chi^2 = 12.07$, BIC = 2600.61), but the model continued to fit on the basis of chi-square ($p = .15$). The model became worse on the basis of other indices (CFI = .95; TLI = .62; RMSEA = .05, SRMR = .01). Next, all paths were constrained, and the constrained model was compared to

the free model by institution. The constrained model had even larger chi-square value (χ^2 = 48.11), but the constrained model also fit (p = .09) and had a lower BIC compared to the free model by institution type (BIC = 2472.657), suggesting that the paths are similar between institutions. Model also showed a slightly better fit on the basis of TLI and RMSEA: CFI = .85; TLI = .75; RMSEA = .04, SRMR = .03. Furthermore, when compared, this completely constrained model was not significantly different from a free model by institution type (p = .11), suggesting that there is no variability between institutions. The completely constrained model was therefore chosen as final model for interpretation of the results.

Next, similar model was analyzed for ***full*** adjustment scales. The predictor variables were exactly the same as in the model specified above, and only the outcome variables were calculated as full scale scores. As such, social adjustment scale scores were calculated as a sum of 19 social adjustment items, and academic adjustment scale scores – as sum of 24 academic adjustment items. Both scales had high reliabilities (r = .89 – social adjustment, r = .88 – academic adjustment). The initial free model had a perfect fit according to chi-square and most indices (χ^2 = 3.61; p = 0.46; CFI = 1; TLI = 1; RMSEA = 0; SRMR = .01; BIC = 1915.91). When institution type was added to the model, chi-square and BIC went up (χ^2 = 9.12, BIC = 2068.75), and the model fit slightly worse on the basis of other indices (CFI = .99; TLI = .94; RMSEA = .03; SRMR = .01), but it continued to fit (p = .33). Next, all paths were constrained, and the constrained model was compared to the free model by institution type. Even though chi-square went up in this completely constrained model (χ^2 = 46.97), and the model indices showed a slightly worse fit (CFI = .93; TLI = .87; RMSEA = .04; SRMR = .03), the model continued to fit (p = .1); and the BIC showed substantial improvement (BIC = 1942.4). The constrained model was not significantly different from the free model by institution type (p = .08), suggesting no

variability between institutions. The completely constrained model was, therefore, chosen as the final model to interpret.

In comparing the two final models for both shortened and full adjustment scales, there were some differences that emerged:

Finding 1. No differences between institutions were found for all regression paths.

Finding 2. In the full adjustment model only, ***ethnic identity commitment*** has a significant positive relationship with minoritized students' ***academic adjustment*** in both institutions, while controlling for ethnic identity exploration, gender, race, and college year. Thus, hypothesis H1a was partially supported. Hypotheses H1b (predicting significant positive association between ethnic identity commitment and social adjustment), H1c and H1d (predicting significant negative associations between ethnic identity exploration and academic and social adjustment) were not supported.

Finding 3. In the full adjustment model only, ***co-ethnic instructor support*** has a significant positive relationship with minoritized students' academic adjustment in both institutions while controlling for ethnic identity, gender, race and college year. Hence, hypothesis H2a was partially supported. Since the finding is true for both institutions, hypothesis H2g was not supported.

Finding 4. ***Co-ethnic friend support*** has a significant positive relationship with minoritized students' social adjustment in both institutions, while controlling for ethnic identity, gender, race and college year. Hypothesis H3a was supported. Since the finding is true for both institutions, hypothesis H3g was not supported.

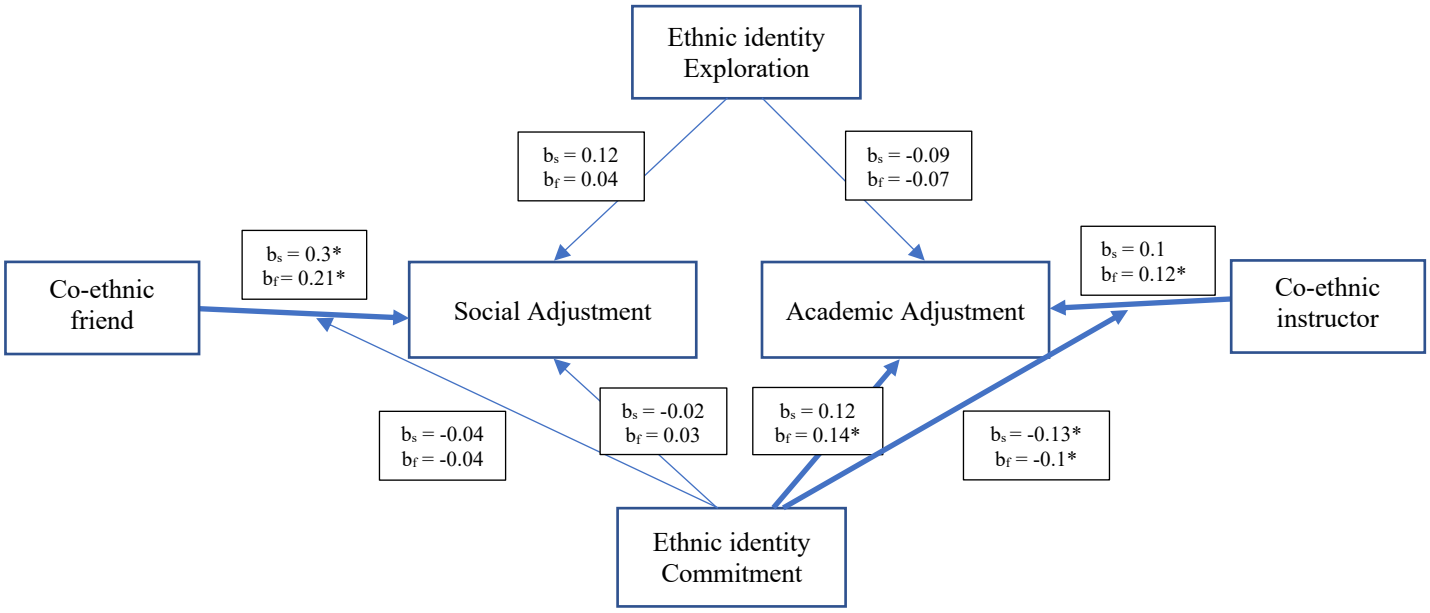
Finding 5. ***Ethnic identity commitment has a significant negative moderating effect*** on the association between co-ethnic instructor support and academic adjustment, suggesting that as

ethnic identity commitment becomes stronger, co-ethnic instructor support is less consequential for academic adjustment [or the less committed students are to their ethnic identity, the more important for academic adjustment is the presence of co-ethnic instructors]. Since the direction of the associations was opposite from what was expected, hypothesis H5a was not supported. Hypothesis H5c, predicting significant moderator effect on relationship between co-ethnic friend support and social adjustment, also was not supported.

Finding 6. The significance of ethnic identity commitment for academic adjustment is as large as that for co-ethnic instructor support, suggesting the importance of a strong ethnic identity commitment for academic adjustment. Hence, hypothesis 4 was not supported.

Figure 2

Associations between Ethnic Identity, Co-ethnic Support and Academic and Social Adjustment of Minoritized Students



Note. b_s = standardized regression slope for the shortened adjustment scale; b_f = standardized regression slope for the full adjustment scale. Thick regression lines indicate significant associations for shortened or full adjustment scales, or both.
*p < .05.

Second, multiple group analyses were conducted for ethnic identity and **general support** variables as predictors; and shortened and full adjustment scales – as outcome variables. In the lavaan model, two adjustment scales (academic and social adjustment) were included as outcome variables; ethnic identity exploration and commitment, general friend and instructor support – as predictor variables (along with controls). First, the free lavaan model was built for ***shortened*** adjustment scales. On the basis of chi-square, this model did not fit ($\chi 2$ =11.77, p = .003). The model had the following indices: BIC = 4823.818, CFI = .96; TLI = .5, RMSEA = .08, SRMR = .02. The model had a fair fit according to CFI and RMSEA. When institution type was added to the model, with added degrees of freedom, chi-square and BIC went up ($\chi 2$ =17.01, p = .002, BIC = 4997.16). The model also became worse on the basis of other indices (CFI= .95; TLI = .34; RMSEA = .09, SRMR = .01). Next, all paths were constrained, and the constrained model was compared to the free model by institution. The constrained model had even larger chi-square value ($\chi 2$ = 48.46), and the constrained model also did not fit (p = .018); it had a lower BIC compared to the free model by institution type (BIC = 4857.93), suggesting that the paths are similar between institutions. Model also showed better fit on the basis of most indices, especially TLI and RMSEA: CFI = .93; TLI = .88; RMSEA = .04, SRMR = .02. Furthermore, when compared, this completely constrained model was not significantly different from a free model by institution type (p = .24), suggesting that there is no variability between institutions. The completely constrained model was therefore chosen as final model for interpretation of the results.

Next, similar model was analyzed for ***full*** adjustment scales. The predictor variables were exactly the same as in the model specified above, and only the outcome variables were calculated as full scale scores. The initial free model also had a poor fit according to chi-square and most

indices ($\chi 2$ =24.48; p = 0; CFI = .94; TLI = .17; RMSEA = .12; SRMR = .02; BIC = 3818.15). When institution type was added to the model, $\chi 2$ remained the same ($\chi 2$ =24.03, p = 0), but the BIC went up (BIC = 3978.69), and no other significant changes were observed for other indices (CFI = .95; TLI = .27; RMSEA = .11; SRMR = .02). Next, all paths were constrained, and the constrained model was compared to the free model by institution type. Even though chi-square went up in this completely constrained model ($\chi 2$ =64.21, p = 0), the model fit better according to TLI and RMSEA, and the BIC showed substantial improvement (CFI = .91; TLI = .83; RMSEA = .05; SRMR = .03; BIC = 3848.22). The constrained model was not significantly different from the free model by institution type (p = .06), suggesting no variability between institutions. The completely constrained model was, therefore, chosen as the final model to interpret.

In comparing the two final models for both shortened and full adjustment scales, similar conclusions were drawn from significant regression paths:

Finding 1. No differences between institutions were found for all regression paths.

Finding 2. ***Ethnic identity commitment*** has a significant positive relationship with minoritized students' ***academic adjustment*** in both institutions, while controlling for ethnic identity exploration, general instructor support, gender, race, and college year. Thus, hypothesis H1a was supported. Hypotheses H1b (predicting significant positive association between ethnic identity commitment and social adjustment), H1c and H1d (predicting significant negative associations between ethnic identity exploration and academic and social adjustment) were not supported in this model.

Finding 3. ***General instructor support*** has a significant positive relationship with minoritized students' academic adjustment in both institutions while controlling for ethnic

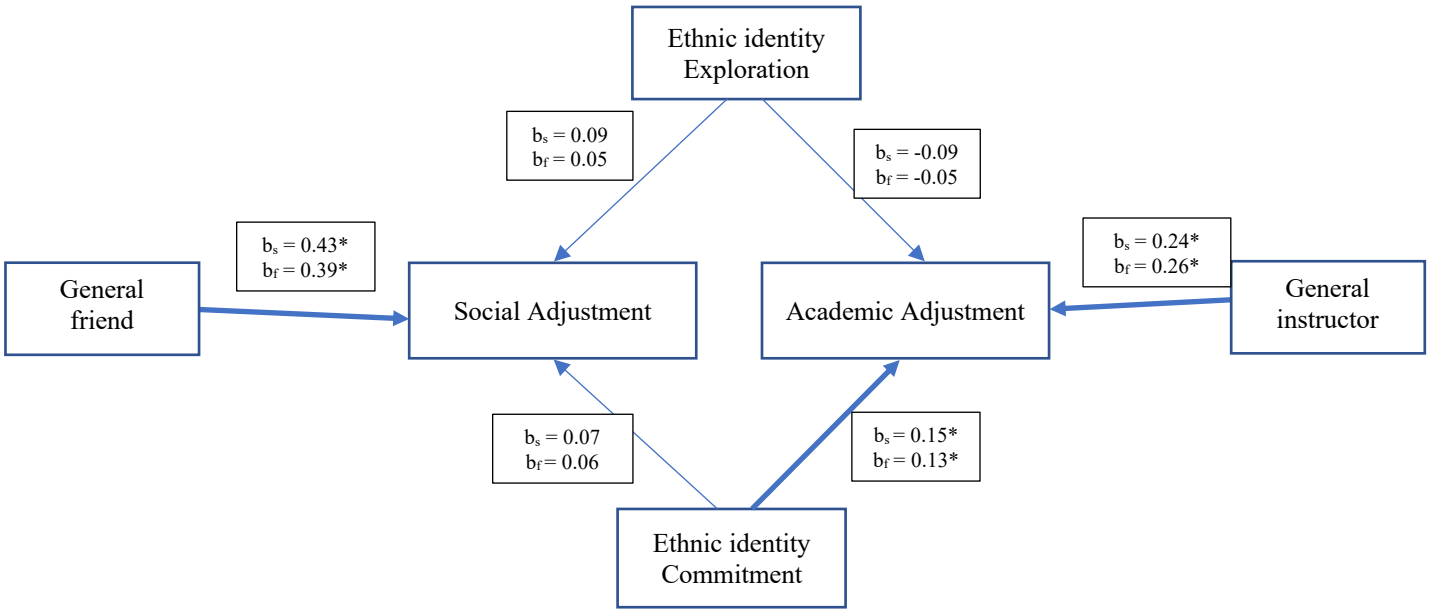
identity, gender, race and college year. Hence, hypothesis H2e was supported. Since the finding is true for both institutions, hypothesis H2c was not supported.

Finding 4. ***General friend support*** has a significant positive relationship with minoritized students' social adjustment in both institutions, while controlling for ethnic identity, gender, race and college year. Hypothesis H3e was supported. Since the finding is true for both institutions, hypothesis H3c was not supported.

Finding 5. Compared to ethnic identity, social support variables have a larger correlation with adjustment variables, suggesting stronger association between on-campus support and adjustment, compared to ethnic identity and adjustment. Hence, hypothesis 4 was supported in this model.

Figure 3

Associations between Ethnic Identity, General Support and Academic and Social Adjustment of Minoritized Students



Note. b_s = standardized regression slope for the shortened adjustment scale; b_f = standardized regression slope for the full adjustment scale. Thick regression lines indicate significant associations for shortened or full adjustment scales, or both.
*p < .05.

Third, multiple group analyses were conducted for ethnic identity, **White support and support of Color** variables as predictors, and social and academic adjustment scales – as outcome variables. Again, at first free model in lavaan was constructed on the basis of ***shortened*** adjustment scales: in the model, 6-item academic adjustment and 10-item social adjustment scale scores were included as outcome variables; ethnic identity exploration, commitment, White friend, friend support of Color, White instructor, instructor support of Color, and two moderators – as predictor variables. On the basis of chi-square, the model did not fit ($\chi2 = 16.44$, $p = .012$). The model had the following indices: BIC = 4908.076, CFI = .9; TLI = .4, RMSEA = .05, SRMR=0.02. The model had a fair fit according to RMSEA only. When institution type was added to the model, with added degrees of freedom, chi-square and BIC went up, but the model now fit ($\chi2 = 20.97$, $p = .05$, BIC = 5133.98; CFI = .92; TLI = .51; RMSEA = .04, SRMR = .02). Next, all paths were constrained, and the constrained model was compared to the free model by institution. The constrained model had larger chi-square value ($\chi2 = 51.01$), but it continued to fit ($p = .16$) and had a much lower BIC compared to the free model by institution type (BIC = 4967.55), suggesting that the paths are similar between institutions. Model also showed better fit on the basis of most indices: CFI = .92; TLI = .86; RMSEA = .02, SRMR = .03. Furthermore, when compared, this completely constrained model was not significantly different from a free model by institution type ($p = .49$), suggesting that there is no variability between institutions. The completely constrained model was therefore chosen as final model for interpretation of the results.

Similar analyses were conducted with ***full*** social and academic adjustment scales. All predictors and controls were kept as in previous model. The initial free model had a poor fit according to chi-square and model indices ($\chi2 = 28.97$, $p = 0$; CFI = .84; TLI = .06; RMSEA =

.07; SRMR = .02; BIC = 3911.83). When institution type was added to the model, the chi-square and BIC went up ($\chi 2 = 32.2$, $p = 0$; BIC = 4126), and the model fit only slightly better according to TLI (CFI = .87; TLI = .23; RMSEA = .07; SRMR = .03). Next, all paths were constrained, and the constrained model was compared to the free model by institution type. Even though chi-square went up in this completely constrained model ($\chi 2 = 70.57$, $p = .004$), the model fit better according to TLI and RMSEA, and the BIC showed substantial improvement (CFI = .81; TLI = .69; RMSEA = .04; SRMR = .03; BIC = 3968.29). The constrained model was not significantly different from the free model by institution type ($p = .17$), suggesting no variability between institutions. This model was therefore chosen as the final model for interpretation. Even though the model had a poor fit according to chi-square and most indices, it had a fair fit on the basis of RMSEA.

Similar conclusions were drawn from both final models, conducted on the bases of shortened and full adjustment scales:

Finding 1. No differences between institutions were found for all regression paths.

Finding 2. ***Ethnic identity commitment*** has a significant positive relationship with minoritized students' ***academic and social adjustment*** in both institutions, while controlling for gender, college year, ethnic group, ethnic identity exploration, White instructor and instructor of Color support. Thus, hypotheses H1a and H1b were both supported in this model. Hypotheses H1c and H1d (predicting significant negative associations between ethnic identity exploration and academic and social adjustment) were not supported.

Finding 3. ***White instructor support*** has a significant positive relationship with minoritized students' academic adjustment in both institutions, while controlling for gender, college year, ethnic group, ethnic identity and instructor of Color support. Hence, hypothesis H2f

was supported. Since the finding is true for both institutions, hypothesis H2d was not supported. Hypothesis H2b, predicting positive association between instructor of Color support and academic adjustment at PWI, was not supported; since the finding is true for both institutions, hypothesis H2h was supported.

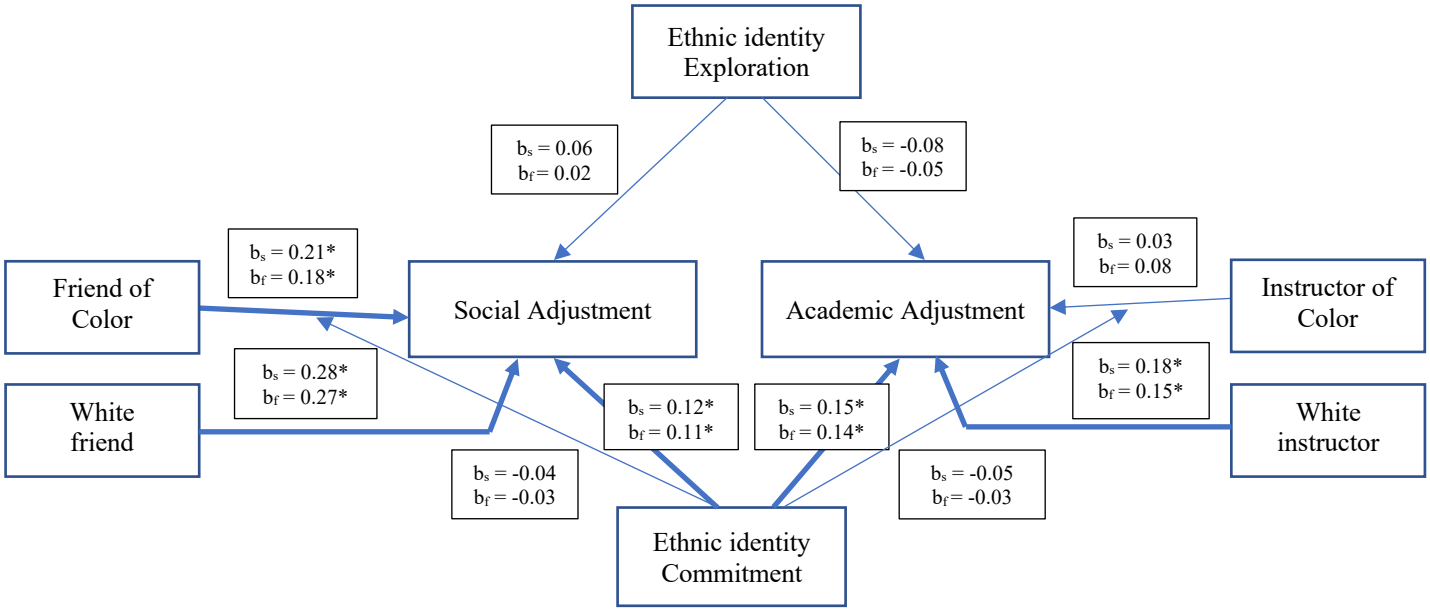
Finding 4. ***Support from White friends and friends of Color*** have a significant positive relationship with minoritized students' social adjustment in both institutions, while controlling for gender, college year, ethnic group and ethnic identity. Hypotheses H3f and H3b were supported; since the finding is true for both institutions, hypotheses H3d and H3h were not supported.

Finding 5. Compared to ethnic identity, social support variables have a larger correlation with social adjustment variables, suggesting stronger association between on-campus support and social adjustment, compared to ethnic identity and social adjustment. Interestingly, the significance of ethnic identity commitment for academic adjustment is as large as that for White instructor support, suggesting the importance of a strong ethnic identity commitment for academic adjustment. Hence, hypothesis 4 was only partially supported in this model.

No moderator effects were found to be significant, hence, hypotheses H5b and H5d were not supported.

Figure 4

Associations between Ethnic Identity, Support from White Instructor and Friend, Instructor and Friend of Color, and Academic and Social Adjustment of Minoritized Students



Note. b_s = standardized regression slope for the shortened adjustment scale; b_f = standardized regression slope for the full adjustment scale. Thick regression lines indicate significant associations for shortened or full adjustment scales, or both.
*p < .05.

Discussion

Retention and graduation of the Students of Color is a matter of critical importance during the time when opportunity gaps persist and Students of Color are graduating at lesser rates compared to White students. This study sought to explore whether ethnic identity commitment continues to serve as a source of resilience and strength for young people of Color during their college years. The study also extended the propositions of social identity theory to examine the significance of ethnic compositions of higher education institutions for the Students of Color, by exploring whether these contexts facilitate student feelings of being supported by ethnically similar or different sources, and the implications of these sources of support for

college adjustment. Results showed strong positive associations between ethnic identity commitment and academic adjustment, reinforcing the significance of achieved identity for the Students of Color during their college years. Findings are ambiguous in their support of social identity theory. Results affirmed the significance of social sources of support over and above the students' background factors, confirming positive associations between general, co-ethnic and White instructor support with academic adjustment, and general, co-ethnic, White friend and friend of Color support – with social adjustment of college Students of Color. Contrary to hypotheses, no differences were found in the relationship between ethnic identity and college-level support variables with academic and social adjustment in two compositionally different campuses. Also, contrary to hypotheses, no significant associations with adjustment were found for instructor of Color support and ethnic identity exploration; also, only one moderating effect was confirmed, but, contrary to our predictions, it had the opposite (negative) effect on the variables in the study.

The present study has theoretical significance by extending support to Phinney's theory of ethnic identity formation and Tajfel's social identity theory. The empirical evidence for the positive association between ethnic identity commitment and students' academic adjustment provides support to Phinney's theory of ethnic identity formation, affirming the role of achieved identity in late adolescent adjustment during college. With regards to social identity theory, the study did not find differences between two institutions in the adjustment regression paths: all sources of instructor support (except instructor of Color) were correlated with academic adjustment, and all sources of peer support were correlated with social adjustment. However, the results also showed that Students of Color feel more supported by co-ethnic instructors/peers and

peers/instructors of Color, and they feel particularly more supported by co-ethnic instructors at PWI.

Consistent with propositions of Phinney's ethnic identity theory, the study results affirm the positive implications of ethnic identity commitment. Past research exploring associations between ethnic identity and college student adjustment reported weak, although generally positive, associations (Kalsner & Pistole, 2003; White, 2000; Gonzalez, 2003). De-constructing ethnic identity into two components may explain the reasons behind these generally weak associations. The two components of ethnic identity may be interacting differently with college student adjustment of the Students of Color. According to Phinney's theory of ethnic identity development, individuals progress through three different stages in their quest to achieve ethnic identity (Phinney, 1990, 1992). Exploration occurs at the second stage of ethnic identity development and entails actively exploring one's own ethnic background, talking to people to learn and find out more about the history, traditions, and customs of their ethnic group. Research has shown that exploration is the construct developmentally most salient during early and middle adolescence (Pahl & Way, 2006). By the time individuals reach college, they are more likely to have achieved the commitment stage of ethnic identity development (Phinney & Chavira, 1992; White, 2000). As the final ethnic identity development stage, commitment points to a successful resolution of ethnic identity development and, consequently, is more likely to be positively linked with adjustment outcomes. The finding that commitment, but not exploration, is significant for academic adjustment affirms the importance of minoritized students' attachment to their ethnic group.

It is also possible that events that disrupt positive outcomes prompt individuals to question, re-evaluate, struggle with their ethnic identity – thus appearing higher in exploration. In

this study, African American students reported higher scores in ethnic identity exploration, compared to their non-Black peers. Also, students at PWI were on average significantly higher on ethnic identity exploration scores, compared to their peers in the diverse institution. In Pahl and Way's (2006) study of urban Black and Latino adolescents, Black students experienced less deceleration of exploration over time, compared to their Latino peers. This declining exploration in middle adolescence was moderated by perceived discrimination by peers, thus reflecting the high level of cultural and institutional discrimination that Black adolescents are subjected to. Similarly, high levels of ethnic identity exploration in Black students (as well as lower social adjustment scores) in the present study may be explained by the experiences that prompt them to re-evaluate and question their racial background, in the immediate context of their institution or the US context in general (it is noteworthy that both institutions in this study have low rates of Black student enrollment). It is also noteworthy that exploration scores are significantly higher for students attending predominantly White institution in our study – the context in which one's ethnic or racial identity is more likely to be at odds with institutions' ethnic composition and curriculum to which they are exposed (Nora & Cabrera, 1996; Meeuwisse, et al., 2010; Zepke & Leach, 2005). In light of previous research (e.g., Syed & Azmitia, 2010), higher exploration scores for Black students and students at PWI suggest that these students are more likely to have experiences that prompt them to re-evaluate their identities. Future line of research may benefit from exploring the differential impact of the types of experiences that show up high in exploration on students' college adjustment.

The finding that ethnic identity commitment serves as a negative moderator of the relationship between co-ethnic instructor support and academic adjustment is contrary to our expectations. This finding presumes that for students with low ethnic identity commitment, co-

ethnic instructor is a stronger predictor of academic adjustment; on the opposite, for students with high ethnic identity commitment, co-ethnic instructor support is not as important for adjustment. In other words, ethnic identity commitment may serve as a buffer for students lacking support from co-ethnic instructors in their institutions. While this finding is contrary to our expectations, it perhaps extends the role of ethnic identity commitment as a resilience factor for Students of Color in college.

The lack of any differences between examined higher education institutions in college-level factors associated with adjustment outcomes for Students of Color is contrary to study hypotheses and bears further discussion. Indeed, some literature points to the lack of differences in college student development outcomes in different institutional contexts (Kim, 1996; Tsai & Fuligni, 2012; Juang, Ngueyn, & Lin, 2006; Syed, Azmitia, & Phinney, 2007). Study results confirm that students at PWIs seek co-ethnically affiliated and similarly minoritized instructors for support, compared to students attending more diverse institutions. Results also show that Students of Color are more likely to feel supported by co-ethnic instructors/peers and instructors/peers of Color, compared to those of White backgrounds. Despite these differences in feelings of being supported, all of these social support sources appear to matter for college adjustment (except, instructors of Color when controlling for support from White instructors).

Further extending the finding about the lack of institutional differences, it is also possible that higher education contexts explored in this study are more similar than they are different. These are both public research land-grant universities, and the admissions in both institutions are highly selective. Even if the "diverse" institution boasts a more diverse student body, the number of faculty of Color is less than half of all faculty teaching at the institution (38%). Both are also historically White institutions; therefore, it is possible that institutional structures and policies of

these institutions are quite similar. Hence, more nuanced characteristics of institutional contexts may be more consequential for the study of student adjustment of the Students of Color, such as perceptions of racial/ethnic tension and discrimination experienced by students in their college environments, and perceptions of student-centered faculty (Hurtado et al., 1996).

Remarkably, the study results show that, when available, support from both White and non-White sources has implications for students' college adjustment. Also studying adjustment of Black students at a predominantly White university, Scott (1991) found that students involved in both Black and White-sponsored activities had highest social adjustment scores. Next highest were those involved with predominantly White sponsored activities, followed by those involved with predominantly Black-sponsored activities. Last were those with little to no involvement in campus activities. The difference between the first two categories was slight, underscoring the importance of interracial involvement for college adjustment. Thus, even though Students of Color feel most supported by ethnically related sources of support, feeling supported in general by both co-ethnic and non-co-ethnic sources appears to be important for successful adjustment to college.

The study affirms the positive influences of college-level support variables, compared to ethnic identity. This confirms our hypothesis for the importance of campus sources of support over and above student-level individual variables. However, the magnitude (as measured by the standardized scores) of the association of ethnic identity commitment with academic adjustment is nearly the same as or larger than that of White and co-ethnic instructor support. Consequently, a sense of achieved ethnic identity is particularly significant for academic adjustment of the Students of Color. These findings concur with racial identity research, which has shown the positive effects of strong racial identity on minoritized students' academic outcomes (Chavous et

al., 2003; Fuligni, et al., 2005; Phinney & Kohatsu, 1997; Anglin & Wade, 2007; Sellers et al., 1998), including academic performance and academic motivation. Future research might benefit from exploring the association between ethnic identity commitment and adjustment outcomes in middle and later adulthood. Based on our findings, however, there is a reason to believe that successful resolution of ethnic identity development process has positive implications for college students.

Practical Implications

The study has a number of practical implications for both secondary and higher education institutions. Affirming the role of ethnic identity has positive implications for empowering ethnic identity education and ethnic socialization for the Students of Color. Our results confirm positive implications for the students who enter college with the affirmed sense of ethnic identity (i.e., ethnic identity commitment). Hence, the process of ethnic identity development ought to start in middle adolescence in context of secondary institutions. Campus experiences that disrupt sense of positive ethnic identity and cause individuals to question their ethnic group membership are particularly consequential for minoritized students' academic adjustment.

Given the importance of social support factors for minoritized student adjustment, higher education faculty should be held accountable to promoting environments that are conducive to the students' feeling of belonging. Importantly, this is the responsibility that should not only be placed upon our faculty of Color, but any and all instructors coming in contact with racially and ethnically minoritized students. The significant role of general support factors places an important value on faculty mentoring relationships in minoritized student adjustment.

With regards to social adjustment, it appears that ability to find a sense of community, whether with students racially similar or different from oneself, is critical for the feelings of

social belonging of Students of Color. Even if Students of Color are feeling more supported by co-ethnic and similarly minoritized peers in higher education contexts, feeling supported by peers in general (as signified by the magnitude of associations) is significant for social adjustment of these students. Institutional administrators may develop programs that bring students from all backgrounds together in peer-to-peer mentoring and other community building opportunities. Opportunities to interact with peers both across and within racial lines should be presented to students, especially early in their college career. On the other hand, students can also take ownership of their social adjustment by building peer friendships both within and outside of their ethnic groups.

Limitations

This research has a number of limitations. Since data were collected at a single time point, all results presented here are correlational. Data collected during the spring semester of the same academic year could not be used to extend fall semester analyses, as students' in-residence participation in higher ed institutions in the study was disrupted by COVID-19. Since participants' academic learning experiences were moved to the remote (virtual) format during the spring data collection, the academic and social experiences measured in the fall and spring semesters were conceptually different. Hence, only fall in-residence data were used for the analysis, as they most closely capture participants' in-college experiences. Additionally, implications of this study are for residential colleges only, and the findings could not be generalized to non-residential higher education institutions.

The study employed a convenience sample, which may not be representative of minoritized students in each participating institution. Further, the sample in a diverse institution

was primarily Asian, and the study did not differentiate between domestic and international Asian students.

Future research may look at the longer-term implications of young adults' ethnic identity commitment on adjustment outcomes in later adulthood. Since the study confirmed the positive role that ethnic identity commitment plays in the adjustment of college Students of Color, the implications of achieved identity for individuals' adjustment later in life would extend theoretical implications of Phinney's theory. Future studies may also wish to explore the associations between the explored variables in contexts of higher education institutions that are truly compositionally different, i.e., conducting comparative analyses in historically Black institutions and predominantly White colleges may show differences in how and largely by which influences Students of Color are adjusting to their college campuses. The exploration of relationships between these variables in compositionally truly different institutions may offer support to the social identity theory in context of higher education. Last, future studies may consider exploring how ethnic identity and social support factors influence adjustment over time, with measurements taken at various time points over the course of students' college careers. While this study's results are correlational, measurement of variables over time would have the ability to confirm the predictive validity of these variables for minoritized students' college adjustment.

Conclusion

The study results confirmed the continued significance of positive sense of ethnic group membership into late adolescence, extending theoretical implications of Phinney's theory of ethnic identity development. The results also offered partial support to social identity theory, by confirming that Students of Color were more likely to feel supported by co-ethnic and similarly minoritized faculty and peers, and this was especially true for feeling supported by ethnically

affiliated faculty at PWI context. However, support from both ethnically and not ethnically affiliated sources was associated with minoritized students' college adjustment, and these relationships were generally stronger than associations between ethnic identity commitment and adjustment. Since the responsibility to support Students of Color tends to fall on the faculty of Color, White faculty in particular must be held accountable to being accessible and building supportive relationships with Students of Color in and out of classrooms. Kelly et al.'s (2019) study of Black students at PWIs confirmed that support from White instructors is possible, when it is built on validation through advocacy for and involvement of the Students of Color. White instructors must confront their biases towards the Students of Color and intentionally work to build supportive instructional spaces for all students.

In addition, students' ability to find peer support networks, regardless of those peers' ethnic background, was found to be instrumental for their social adjustment in college. In McCabe's (2015) words, "racial solidarity" and "racial diversity" are ways through which Students of Color can build the sense of social connectedness to their campus environments.

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Appendix A. Survey of Student Adjustment to College

Q0 Thank you for agreeing to participate in the study. First, we will ask you a few questions to make sure you meet our eligibility criteria.

Q1 Are you currently enrolled as an undergraduate student in a higher education institution?

- Yes
- No

Q2 Which of these institutions are you currently enrolled in?

- University of Wisconsin-Madison
- University of California-Davis

Q3 Are you at least 18 years old?

- Yes
- No

Q4 What is your self-identified ethnic or racial background? *(check all that apply)*

- African American or Black
- American Indian/Native American or Alaska Native
- Asian
- Southeast Asian
- Hispanic/Latinx
- Pacific Islander
- Native Hawaiian
- White/Caucasian
- Prefer not to identify

Display This Question:

If What is your self-identified ethnic or racial background? (check all that apply) = Hispanic/Latin@

Q4a What is your heritage? *(check all that apply)*

- Cuban
- Mexican/ Mexican American/ Chicanx
- Puerto Rican
- Other (please specify)

Display This Question:

If What is your self-identified ethnic or racial background? (check all that apply) = Southeast Asian

Q4b What is your heritage? *(check all that apply)*

- Cambodian
- Laotian
- Vietnamese
- Other (please specify)

Q5 Congratulations, based on your responses, we have concluded that you are eligible to participate in the study. Please read the informed consent form below. You must agree to the terms outlined in the consent form in order to participate.

- Yes, I have read the informed consent form and agree to participate in the study.
- No, I have not read the consent form.
- No, I do not agree to participate in the study.

Q5a Please provide your **institutional** email address to be entered in the raffle drawing, as well as for the follow-up study in spring semester. Please be sure to enter email address correctly:

Q6 What is your year in school? Please answer this question on the basis of the number of years since entry to college, not on the basis of your academic standing by number of credits.

- First year
- Second year
- Third year
- Fourth year and beyond

Q7 What is your gender? *(check all that apply)*

- Male
- Female
- Transgender
- Self-Identify (please specify)

Q8 What is your current age?

Q9 What is your current living situation?

- Residence halls
- Apartment with peers
- Apartment alone
- Home with family
- Other:

Q10 For each of the items below, please indicate how applicable each item is to you on a scale from 1 (strongly disagree) to 5 (strongly agree):

I have spent time trying to find more about my ethnic group, such as history, traditions, and customs.

I have a strong sense of belonging to my ethnic group.

I understand pretty well what my ethnic group membership means to me.

I have often done things that will help me understand my ethnic background better.

I have often talked to other people in order to learn more about my ethnic group.

I feel a strong attachment towards my own ethnic group.

Q11 Approximately, how many college friends do you have on campus in general?

Q12 Please indicate how you feel about each statement **about your friends on campus in general** on a scale from 1 (very strongly disagree) to 7 (very strongly agree). Please click "Not Applicable" if you have no college friends on campus.

I have college friends on campus…

… who really try to help me.

… whom I can count on when things go wrong.

… with whom I can share my joys and sorrows.

… I can talk about my problems with.

Q13 How many White/Caucasian friends do you have on campus?

Q14 Please indicate how you feel about each statement **about your White/Caucasian friends on campus** on a scale from 1 (very strongly disagree) to 7 (very strongly agree). Please click "Not Applicable" if you have no White/Caucasian college friends on campus.

I have **White/Caucasian college friends** on campus…

… who really try to help me.

… whom I can count on when things go wrong.

… with whom I can share my joys and sorrows.

… I can talk about my problems with.

Q15 How many college friends do you have on campus **from the same ethnic and/or racial background as you? (referring to your minoritized ethnic/racial identity)**

Q16 Please indicate how you feel about each statement **only about your friends on campus that belong to the same racial and/or ethnic background as you (referring to your minoritized ethnic/racial identity)** on a scale from 1 (very strongly disagree) to 7 (very strongly agree). Please click "Not Applicable" if you have no college friends on campus from the same ethnic and/or racial background.

I have college friends on campus **from the same ethnic and/or racial background as me**…

… who really try to help me.

… whom I can count on when things go wrong.

… with whom I can share my joys and sorrows.

… I can talk about my problems with.

Q17 How many of your college friends on campus are **the Students of Color?**

Q18 Please indicate how you feel about each statement **only about your college friends on campus that are Students of Color** on a scale from 1 (very strongly disagree) to 7 (very strongly agree). Please click "Not Applicable" if you have no college friends on campus that are Students of Color.

I have college friends on campus that are **Students of Color**…

… who really try to help me.

… whom I can count on when things go wrong.

… with whom I can share my joys and sorrows.

… I can talk about my problems with.

Q19 Please indicate how you feel about each statement **about your college instructors in general** on a scale from 1 (very strongly disagree) to 7 (very strongly agree). *College instructor is anyone who serves(-d) in a teaching role in your college classes.

I have college instructors…

… who really try to help me.

… I get the help and support I need from.

… I can talk about my problems with.

… who care about me.

… who are willing to help me make decisions.

Q20 Approximately, how many **White/Caucasian college instructors** have you had in your classes? *College instructor is anyone who serves(-d) in a teaching role in your college classes.

_____

Q21 Please indicate how you feel about each statement **about your White/Caucasian college instructors** on a scale from 1 (very strongly disagree) to 7 (very strongly agree). *College instructor is anyone who serves(-d) in a teaching role in your college classes. *Please click "Not Applicable" if you have had no White/Caucasian college instructors.

I have **White/Caucasian college instructors**…

… who really try to help me.

… I get the help and support I need from.

… I can talk about my problems with.

… who care about me.

… who are willing to help me make decisions.

Q22 Approximately, how many college instructors **from the same ethnic and/or racial background** as you (referring to your minoritized ethnic/racial identity) have you had in your classes? *College instructor is anyone who serves(-d) in a teaching role in your college classes.

Q23 Please indicate how you feel about each statement **only about your college instructors that belong to the same racial and/or ethnic background as you (referring to your minoritized ethnic/racial identity)** on a scale from 1 (very strongly disagree) to 7 (very strongly

agree). *College instructor is anyone who serves(-d) in a teaching role in your college classes. *Please click "Not Applicable" if you have had no college instructors from the same ethnic and/or racial background.

I have college instructors **from the same racial and/or ethnic background as me**…

… who really try to help me.

… I get the help and support I need from.

… I can talk about my problems with.

… who care about me.

… who are willing to help me make decisions.

Q24 Approximately, how many college instructors **of Color** have you had in your classes? *College instructor is anyone who serves(-d) in a teaching role in your college classes.

Q25 Please indicate how you feel about each statement **only about your college instructors of Color** on a scale from 1 (very strongly disagree) to 7 (very strongly agree). *College instructor is anyone who serves(-d) in a teaching role in your college classes. *Please click "Not Applicable" if you have had no college instructors of Color.

I have college instructors **of Color**…

… who really try to help me.

… I get the help and support I need from.

… I can talk about my problems with.

… who care about me.

… who are willing to help me make decisions.

Q26 On a scale from 1 (Not at all) to 7 (Very well), how well does each statement apply to you?

I have been keeping up to date on my academic work.

I know why I'm in college and what I want out of it.

I am finding academic work at college difficult.

I have not been functioning well during exams.

I am satisfied with the level at which I am performing academically.

I am not working as hard as I should at my course work.

My academic goals and purposes are well defined.

I'm not really smart enough for the academic work I'm expected to be doing now.

Getting a college degree is very important to me.

I haven't been very efficient in the use of study time lately.

I enjoy writing papers for courses.

I really haven't had much motivation for studying lately.

Lately I have been having doubts regarding the value of a college education.

I am satisfied with the number and variety of courses available at college.

Recently I have had trouble concentrating when I try to study.

I'm not doing well academically for the amount of work I put in.

I am satisfied with the quality or the caliber of courses available at college.

I am attending classes regularly.

I am enjoying my academic work at college.

I am having a lot of trouble getting started on homework assignments.

I am satisfied with my program of courses for this semester/quarter.

Most of the things I am interested in are not related to any of my coursework at college.

I am very satisfied with the professors I have now in my courses.

I'm quite satisfied with my academic situation at college.

Q27 On a scale from 1 (Not at all) to 7 (Very well), how well does each statement apply to you?

I feel that I fit in well as part of the college environment.

I am meeting as many people and making as many friends as I would like at college.

I am very involved with social activities in college.

I am adjusting well to college.

I have had informal, personal contacts with college professors.

I am pleased now about my decision to attend this college in particular.

I have several close social ties at college.

Lonesomeness for home is a source of difficulty for me now.

I am satisfied with extracurricular activities available at college.

I am getting along very well with my roommate(s) at college (type “No roommate” if you have no roommates(-s))

I feel that I have enough social skills to get along well in the college setting.

I am having difficulty with feeling at ease with other people at college.

I am satisfied with the extent to which I am participating in social activities in college.

I haven’t been mixing too well with the opposite sex lately.

I have been feeling lonely a lot at college lately.

I feel I am very different from other students at college in ways that I don’t like.

On balance, I would rather be home than here.

I have some good friends and acquaintances at college with whom I can talk about any problems I may have.

I am quite satisfied with my social life at college.

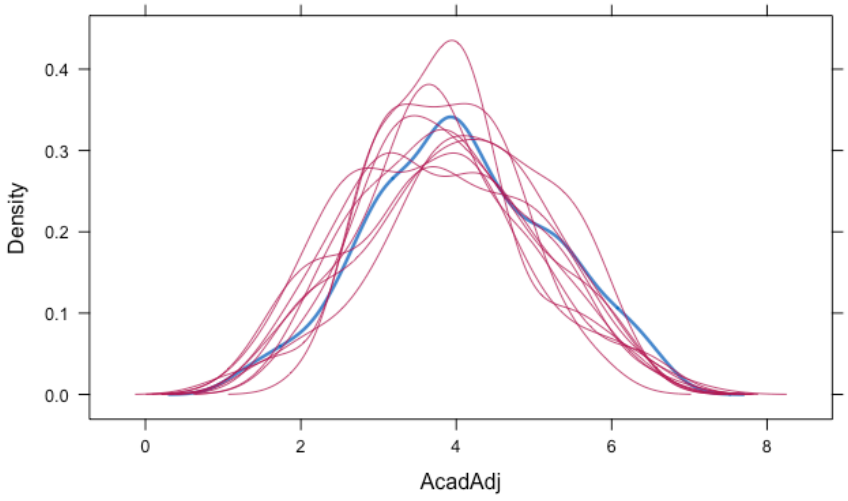
Q28 Please click below if you would like to be entered into a drawing for the prizes.

Q29 The survey is about to finish. If the survey has been upsetting to you in any way, please click here to access available counseling resources.

Appendix B. Plots, Graphs and Other Illustrations

Figure 5

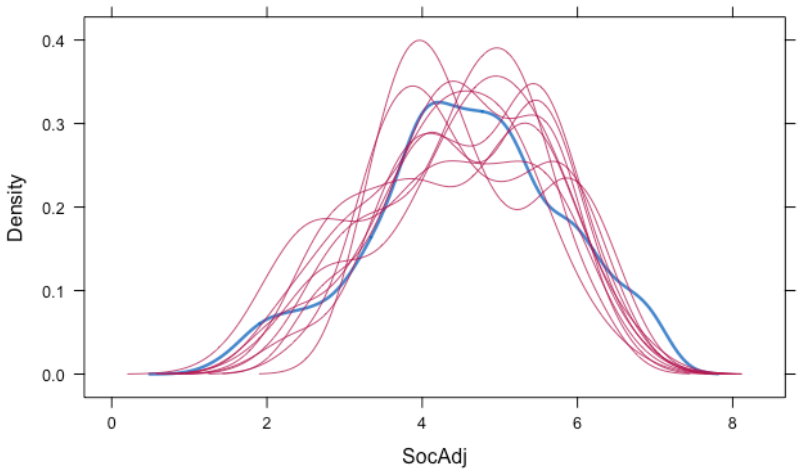
Density Plot of the Academic Adjustment Variable



Note. On the basis of 10 imputed datasets.

Figure 6

Density Plot of the Social Adjustment Variable



Note. On the basis of 10 imputed datasets.

Figure 7

2-factor Exploratory Factor Analysis Diagram of 16-item Adjustment Scale

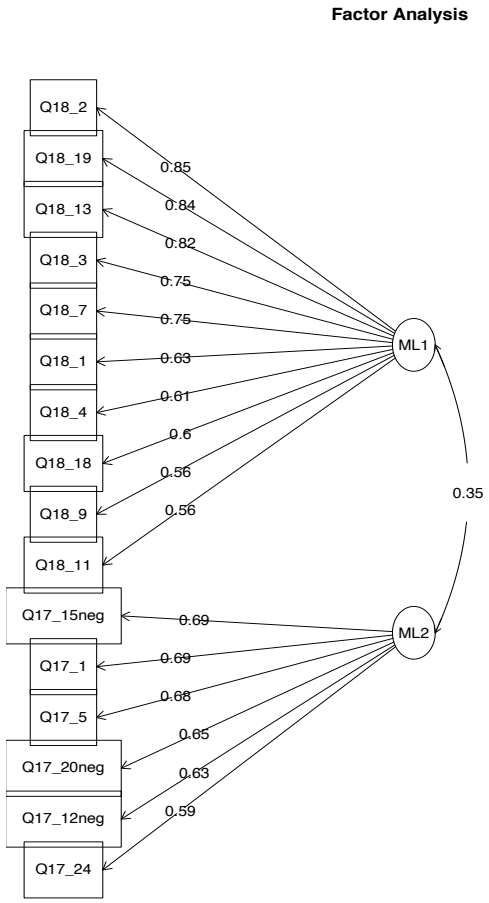


Table 6

Correlation Statistics for the Model Variables

	Commit	Gen instr	Co-ethn instr	White instr	Instr of Color	Gen friend	Co-ethn friend	White friend	Friend of Color	AA shrt	SA shrt	AA full	SA full
Explor	.62	-.01	.11	-.09	.14	.04	.12	-.06	.13	-.01	.12	.02	.07
Commit		.07	.14	-5.e-05	.13	.13	.22	-.07	.15	.11	.16	.11	.12
Gen instr			.4	.8	.5	.17	.04	.21	.09	.27	.2	.33	.24
Co-ethn instr				.34	.66	.07	.09	.05	.19	.12	.13	.16	.12
White instr					.49	.16	.06	.25	.1	.23	.23	.26	.27
Instr of Color						.13	.08	.16	.19	.14	.16	.19	.15
Gen friend							.56	.5	.54	.13	.45	.16	.43
Co-ethn friend								.29	.59	.03	.27	.05	.22
White friend									.37	.14	.37	.17	.37
Friend of Color										.08	.33	.14	.32

Note. Explor = ethnic identity exploration, commit = ethnic identity commitment, gen instr = general instructor support, White instr = White instructor support, instr of Color = instructor of Color support, gen friend = general friend support, co-ethn friend = co-ethnic friend, AA shrt= academic adjustment (shortened scale), SA shrt = social adjustment (shortened scale), AA full = academic adjustment (full scale), SA full = social adjustment (full scale).

SEM Models used for Multiple Group Analyses

Model 1. Free model – Co-Ethnic Support.

```
Model <- '
#no measurement
# Regressions
acadadj ~
Female+Black+Asian+Hispanic+White+Southeast+First_year+Third_year+Fourth_year+explor
+commit+coethinstr+commitcoethinstr
socadj ~
Female+Black+Asian+Hispanic+White+Southeast+First_year+Third_year+Fourth_year+explor
+commit+coethfriend+commitcoethfriend
acadadj ~~ socadj
```

Model 2. Free Model – General Support

```
Model 2 <- '
#no measurement
# Regressions
acadadj ~
Female+Black+Asian+Hispanic+White+Southeast+First_year+Third_year+Fourth_year+explor
+commit+geninstr
socadj ~
Female+Black+Asian+Hispanic+White+Southeast+First_year+Third_year+Fourth_year+explor
+commit+genfriend
acadadj ~~ socadj
'
```

Model 3. Free Model – White and Minoritized Support

```
Model3 <- '
#no measurement
# Regressions
acadadj ~
Female+Black+Asian+Hispanic+White+Southeast+First_year+Third_year+Fourth_year+explor
+commit+Whiteinstr+Colorinstr+commitColorinstr
socadj ~
Female+Black+Asian+Hispanic+White+Southeast+First_year+Third_year+Fourth_year+explor
+commit+Whitefriend+Colorfriend+commitColorfriend
acadadj ~~ socadj
'
```

Note. explor stands for ethnic identity exploration, commit – ethnic identity commitment, geninstr – general instructor support, coethinstr – co-ethnic instructor support, commitcoethinstr – ethnic identity commitment*co-ethnic instructor support interaction, Whiteinstr – White

instructor support, Colorinstr –instructor of Color support, commitColorinstr – ethnic identity commitment* instructor of Color support interaction, genfriend – general friend support, coethfriend – co-ethnic friend support, commitcoethfriend – ethnic identity commitment*co-ethnic friend support interaction; Whitefriend – White friend support, Colorfriend – friend of Color support, commitColorfriend – ethnic identity commitment*friend of Color support interaction; acadadj – academic adjustment, socadj – social adjustment).

SEM Outputs

1A. Free Model 1 with co-ethnic support variables and a shortened SACQ scale.

> summary(coethmodel3, standardized=TRUE, fit.measures=TRUE)
lavaan.mi object based on 10 imputed data sets.
See class?lavaan.mi help page for available methods.

Convergence information:
The model converged on 10 imputed data sets

Rubin's (1987) rules were used to pool point and SE estimates across 10 imputed data sets, and to calculate degrees of freedom for each parameter's t test and CI.
Robust corrections are made by pooling the naive χ2 d statistic across 10 imputations for which the model converged, then applying the average (across imputations) scaling factor to that pooled value.
To instead pool the robust test statistics, set test = "D2" and pool.robust = TRUE.

Robust corrections are made by pooling the naive χ2 d statistic across 10 imputations for which the model converged, then applying the average (across imputations) scaling factor to that pooled value.
To instead pool the robust test statistics, set test = "D2" and pool.robust = TRUE.

Model Test User Model:

Test statistic	50.910	48.106
Degrees of freedom	36	36
P-value	0.051	0.086
Scaling correction factor		1.058

Model Test Baseline Model:

Test statistic	158.201	144.351
Degrees of freedom	62	62
P-value	0.000	0.000
Scaling correction factor		1.096

User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.845	0.853
Tucker-Lewis Index (TLI)	0.733	0.747

```
  Robust Comparative Fit Index (CFI)                    0.858
  Robust Tucker-Lewis Index (TLI)                       1.000

Root Mean Square Error of Approximation:

  RMSEA                                     0.046       0.042
  90 Percent confidence interval - lower    0.000       0.000
  90 Percent confidence interval - upper    0.074       0.074
  P-value RMSEA <= 0.05                     0.555       0.555

  Robust RMSEA                                  0.043
  90 Percent confidence interval - lower        0.000
  90 Percent confidence interval - upper        0.072

Standardized Root Mean Square Residual:

  SRMR                                      0.025       0.025

Parameter Estimates:

  Information                                   Observed
  Observed information based on                 Hessian
  Standard errors                       Robust.huber.White


Group 1 [1]:

Regressions:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  AcadAdj ~
    Female  (.p1.)    0.011    0.141    0.078     Inf    0.938    0.011    0.004
    Black   (.p2.)   -0.573    0.288   -1.993     Inf    0.046   -0.573   -0.182
    Asian   (.p3.)   -0.305    0.230   -1.329     Inf    0.184   -0.305   -0.134
    Hispanc (.p4.)   -0.396    0.237   -1.666     Inf    0.096   -0.396   -0.171
    White   (.p5.)    0.255    0.211    1.206     Inf    0.228    0.255    0.093
    Southst (.p6.)   -0.302    0.218   -1.387     Inf    0.166   -0.302   -0.102
    Frst_yr (.p7.)    0.250    0.179    1.392     Inf    0.164    0.250    0.091
    Thrd_yr (.p8.)    0.043    0.154    0.280     Inf    0.780    0.043    0.017
    Frth_yr (.p9.)    0.251    0.160    1.572     Inf    0.116    0.251    0.101
    explor  (.10.)   -0.117    0.086   -1.368     Inf    0.171   -0.117   -0.093
    commit  (.11.)    0.163    0.093    1.761     Inf    0.078    0.163    0.114
    cthnstr (.12.)    0.094    0.049    1.923     Inf    0.055    0.094    0.096
    cmmtcth (.13.)   -0.138    0.053   -2.625     Inf    0.009   -0.138   -0.116
  SocAdj ~
    Female  (.14.)    0.077    0.129    0.598 6190.149    0.550    0.077    0.027
    Black   (.15.)   -0.414    0.294   -1.407 1867.666    0.160   -0.414   -0.129
    Asian   (.16.)    0.028    0.250    0.114     Inf    0.909    0.028    0.012
    Hispanc (.17.)   -0.197    0.260   -0.756     Inf    0.450   -0.197   -0.084
    White   (.18.)    0.458    0.178    2.578     Inf    0.010    0.458    0.164
    Southst (.19.)   -0.050    0.201   -0.249     Inf    0.804   -0.050   -0.017
    Frst_yr (.20.)    0.029    0.178    0.166     Inf    0.869    0.029    0.011
```

```
   Thrd_yr (.21.)    0.202    0.148    1.360      Inf    0.174    0.202    0.080
   Frth_yr (.22.)    0.163    0.145    1.123      Inf    0.261    0.163    0.064
   explor  (.23.)    0.157    0.093    1.700      Inf    0.089    0.157    0.123
   commit  (.24.)   -0.027    0.100   -0.270      Inf    0.787   -0.027   -0.018
   cthfrnd (.25.)    0.276    0.060    4.613      Inf    0.000    0.276    0.292
   cmmtcth (.26.)   -0.035    0.056   -0.633      Inf    0.527   -0.035   -0.028

Covariances:
             Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
 .AcadAdj ~~
  .SocAdj          0.176    0.113    1.564 9144.847    0.118    0.176    0.159

Intercepts:
             Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  .AcadAdj (.150)    3.662    0.460    7.958      Inf    0.000    3.662    3.310
  .SocAdj  (.151)    2.519    0.485    5.196      Inf    0.000    2.519    2.237

Variances:
             Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  .AcadAdj          1.160    0.134    8.659      Inf    0.000    1.160    0.948
  .SocAdj           1.059    0.162    6.531 5659.929    0.000    1.059    0.835


Group 2 [0]:

Regressions:
             Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  AcadAdj ~
   Female  (.p1.)    0.011    0.141    0.078      Inf    0.938    0.011    0.004
   Black   (.p2.)   -0.573    0.288   -1.993      Inf    0.046   -0.573   -0.097
   Asian   (.p3.)   -0.305    0.230   -1.329      Inf    0.184   -0.305   -0.128
   Hispanc (.p4.)   -0.396    0.237   -1.666      Inf    0.096   -0.396   -0.161
   White   (.p5.)    0.255    0.211    1.206      Inf    0.228    0.255    0.051
   Southst (.p6.)   -0.302    0.218   -1.387      Inf    0.166   -0.302   -0.064
   Frst_yr (.p7.)    0.250    0.179    1.392      Inf    0.164    0.250    0.070
   Thrd_yr (.p8.)    0.043    0.154    0.280      Inf    0.780    0.043    0.017
   Frth_yr (.p9.)    0.251    0.160    1.572      Inf    0.116    0.251    0.100
   explor  (.10.)   -0.117    0.086   -1.368      Inf    0.171   -0.117   -0.088
   commit  (.11.)    0.163    0.093    1.761      Inf    0.078    0.163    0.117
   cthnstr (.12.)    0.094    0.049    1.923      Inf    0.055    0.094    0.099
   cmmtcth (.13.)   -0.138    0.053   -2.625      Inf    0.009   -0.138   -0.136
  SocAdj ~
   Female  (.14.)    0.077    0.129    0.598 6190.149    0.550    0.077    0.032
   Black   (.15.)   -0.414    0.294   -1.407 1867.666    0.160   -0.414   -0.074
   Asian   (.16.)    0.028    0.250    0.114      Inf    0.909    0.028    0.013
   Hispanc (.17.)   -0.197    0.260   -0.756      Inf    0.450   -0.197   -0.085
   White   (.18.)    0.458    0.178    2.578      Inf    0.010    0.458    0.098
   Southst (.19.)   -0.050    0.201   -0.249      Inf    0.804   -0.050   -0.011
   Frst_yr (.20.)    0.029    0.178    0.166      Inf    0.869    0.029    0.009
   Thrd_yr (.21.)    0.202    0.148    1.360      Inf    0.174    0.202    0.083
   Frth_yr (.22.)    0.163    0.145    1.123      Inf    0.261    0.163    0.069
```

```
   explor  (.23.)    0.157    0.093    1.700      Inf    0.089    0.157    0.125
   commit  (.24.)   -0.027    0.100   -0.270      Inf    0.787   -0.027   -0.020
   cthfrnd (.25.)    0.276    0.060    4.613      Inf    0.000    0.276    0.307
   cmmtcth (.26.)   -0.035    0.056   -0.633      Inf    0.527   -0.035   -0.047

Covariances:
                Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
 .AcadAdj ~~
  .SocAdj          0.359    0.083    4.341      Inf    0.000    0.359    0.307

Intercepts:
                Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  .AcadAdj (.150)   3.662    0.460    7.958      Inf    0.000    3.662    3.119
  .SocAdj  (.151)   2.519    0.485    5.196      Inf    0.000    2.519    2.269

Variances:
                Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  .AcadAdj         1.293    0.101   12.779      Inf    0.000    1.293    0.937
  .SocAdj          1.058    0.095   11.081      Inf    0.000    1.058    0.858

Constraints:
                                |Slack|
   .p1. - (.p167.)                0.000
   .p2. - (.p168.)                0.000
   .p3. - (.p169.)                0.000
   .p4. - (.p170.)                0.000
   .p5. - (.p171.)                0.000
   .p6. - (.p172.)                0.000
   .p7. - (.p173.)                0.000
   .p8. - (.p174.)                0.000
   .p9. - (.p175.)                0.000
   .p10. - (.p176.)               0.000
   .p11. - (.p177.)               0.000
   .p12. - (.p178.)               0.000
   .p13. - (.p179.)               0.000
   .p14. - (.p180.)               0.000
   .p15. - (.p181.)               0.000
   .p16. - (.p182.)               0.000
   .p17. - (.p183.)               0.000
   .p18. - (.p184.)               0.000
   .p19. - (.p185.)               0.000
   .p20. - (.p186.)               0.000
   .p21. - (.p187.)               0.000
   .p22. - (.p188.)               0.000
   .p23. - (.p189.)               0.000
   .p24. - (.p190.)               0.000
   .p25. - (.p191.)               0.000
   .p26. - (.p192.)               0.000
   .p150. - (.p316.)              0.000
   .p151. - (.p317.)              0.000
```

1B. Free Model 1 with co-ethnic support variables and a full SACQ scale.

```
> summary(coethmodel33, standardized=TRUE, fit.measures=TRUE)
lavaan.mi object based on 10 imputed data sets.
See class?lavaan.mi help page for available methods.

Convergence information:
The model converged on 10 imputed data sets

Rubin's (1987) rules were used to pool point and SE estimates across 10 imputed data sets, and to
calculate degrees of freedom for each parameter's t test and CI.
Robust corrections are made by pooling the naive χ2 d statistic across 10 imputations for which the model
converged, then applying the average (across imputations) scaling factor to that pooled value.
To instead pool the robust test statistics, set test = "D2" and pool.robust = TRUE.

Robust corrections are made by pooling the naive χ2 d statistic across 10 imputations for which the model
converged, then applying the average (across imputations) scaling factor to that pooled value.
To instead pool the robust test statistics, set test = "D2" and pool.robust = TRUE.


Model Test User Model:

  Test statistic                49.411      46.966
  Degrees of freedom                36          36
  P-value                        0.067       0.104
  Scaling correction factor                  1.052

Model Test Baseline Model:

  Test statistic               232.073     210.643
  Degrees of freedom                62          62
  P-value                        0.000       0.000
  Scaling correction factor                  1.102

User Model versus Baseline Model:

  Comparative Fit Index (CFI)                0.921       0.926
  Tucker-Lewis Index (TLI)                   0.864       0.873

  Robust Comparative Fit Index (CFI)                     0.930
  Robust Tucker-Lewis Index (TLI)                        1.000

Root Mean Square Error of Approximation:

  RMSEA                                      0.044       0.040
  90 Percent confidence interval - lower     0.000       0.000
  90 Percent confidence interval - upper     0.072       0.072
  P-value RMSEA <= 0.05                      0.606       0.606

  Robust RMSEA                                           0.041
  90 Percent confidence interval - lower                 0.000
```

```
  90 Percent confidence interval - upper                0.070

Standardized Root Mean Square Residual:

  SRMR                                          0.025       0.025

Parameter Estimates:

  Information                                 Observed
  Observed information based on               Hessian
  Standard errors                  Robust.huber.White


Group 1 [1]:

Regressions:
                   Estimate  Std.Err  t-value       df  P(>|t|)   Std.lv  Std.all
  acadadjmean ~
    Female  (.p1.)   -0.008    0.089   -0.090      Inf    0.928   -0.008   -0.004
    Black   (.p2.)   -0.324    0.200   -1.617      Inf    0.106   -0.324   -0.152
    Asian   (.p3.)   -0.257    0.157   -1.641      Inf    0.101   -0.257   -0.166
    Hispanc (.p4.)   -0.103    0.158   -0.654      Inf    0.513   -0.103   -0.066
    White   (.p5.)    0.267    0.137    1.940      Inf    0.052    0.267    0.143
    Southst (.p6.)   -0.130    0.154   -0.845      Inf    0.398   -0.130   -0.065
    Frst_yr (.p7.)    0.189    0.119    1.588      Inf    0.112    0.189    0.101
    Thrd_yr (.p8.)    0.070    0.101    0.690      Inf    0.490    0.070    0.041
    Frth_yr (.p9.)    0.241    0.108    2.244      Inf    0.025    0.241    0.143
    explor  (.10.)   -0.063    0.061   -1.036      Inf    0.300   -0.063   -0.074
    commit  (.11.)    0.132    0.064    2.068      Inf    0.039    0.132    0.135
    cthnstr (.12.)    0.079    0.030    2.670      Inf    0.008    0.079    0.120
    cmmtcth (.13.)   -0.072    0.032   -2.234      Inf    0.025   -0.072   -0.088
  socadjmean ~
    Female  (.14.)    0.151    0.111    1.366 6340.122    0.172    0.151    0.063
    Black   (.15.)   -0.436    0.256   -1.701 2427.369    0.089   -0.436   -0.164
    Asian   (.16.)   -0.064    0.204   -0.316      Inf    0.752   -0.064   -0.033
    Hispanc (.17.)   -0.112    0.213   -0.525      Inf    0.599   -0.112   -0.057
    White   (.18.)    0.317    0.157    2.011      Inf    0.044    0.317    0.136
    Southst (.19.)   -0.079    0.160   -0.494      Inf    0.621   -0.079   -0.032
    Frst_yr (.20.)   -0.003    0.146   -0.021      Inf    0.984   -0.003   -0.001
    Thrd_yr (.21.)    0.096    0.123    0.778      Inf    0.437    0.096    0.046
    Frth_yr (.22.)    0.189    0.121    1.561      Inf    0.118    0.189    0.090
    explor  (.23.)    0.042    0.078    0.533      Inf    0.594    0.042    0.039
    commit  (.24.)    0.029    0.082    0.354      Inf    0.724    0.029    0.024
    cthfrnd (.25.)    0.162    0.042    3.873      Inf    0.000    0.162    0.207
    cmmtcth (.26.)   -0.027    0.039   -0.691      Inf    0.489   -0.027   -0.026

Covariances:
                   Estimate  Std.Err  t-value       df  P(>|t|)   Std.lv  Std.all
 .acadadjmean ~~
   .socadjmean        0.252    0.070    3.589 3703.102    0.000    0.252    0.401
```

Intercepts:

	Estimate	Std.Err	t-value	df	P(>|t|)	Std.lv	Std.all
.acddjmn (.150)	3.808	0.309	12.312	Inf	0.000	3.808	5.077
.socdjmn (.151)	3.317	0.374	8.858	Inf	0.000	3.317	3.542

Variances:

	Estimate	Std.Err	t-value	df	P(>|t|)	Std.lv	Std.all
.acadadjmean	0.511	0.066	7.715	Inf	0.000	0.511	0.908
.socadjmean	0.776	0.111	6.984	6015.805	0.000	0.776	0.885

Group 2 [0]:

Regressions:

	Estimate	Std.Err	t-value	df	P(>|t|)	Std.lv	Std.all
acadadjmean ~							
Female (.p1.)	-0.008	0.089	-0.090	Inf	0.928	-0.008	-0.005
Black (.p2.)	-0.324	0.200	-1.617	Inf	0.106	-0.324	-0.082
Asian (.p3.)	-0.257	0.157	-1.641	Inf	0.101	-0.257	-0.162
Hispanc (.p4.)	-0.103	0.158	-0.654	Inf	0.513	-0.103	-0.063
White (.p5.)	0.267	0.137	1.940	Inf	0.052	0.267	0.081
Southst (.p6.)	-0.130	0.154	-0.845	Inf	0.398	-0.130	-0.042
Frst_yr (.p7.)	0.189	0.119	1.588	Inf	0.112	0.189	0.079
Thrd_yr (.p8.)	0.070	0.101	0.690	Inf	0.490	0.070	0.040
Frth_yr (.p9.)	0.241	0.108	2.244	Inf	0.025	0.241	0.144
explor (.10.)	-0.063	0.061	-1.036	Inf	0.300	-0.063	-0.071
commit (.11.)	0.132	0.064	2.068	Inf	0.039	0.132	0.141
cthnstr (.12.)	0.079	0.030	2.670	Inf	0.008	0.079	0.126
cmmtcth (.13.)	-0.072	0.032	-2.234	Inf	0.025	-0.072	-0.105
socadjmean ~							
Female (.14.)	0.151	0.111	1.366	6340.122	0.172	0.151	0.075
Black (.15.)	-0.436	0.256	-1.701	2427.369	0.089	-0.436	-0.094
Asian (.16.)	-0.064	0.204	-0.316	Inf	0.752	-0.064	-0.035
Hispanc (.17.)	-0.112	0.213	-0.525	Inf	0.599	-0.112	-0.059
White (.18.)	0.317	0.157	2.011	Inf	0.044	0.317	0.082
Southst (.19.)	-0.079	0.160	-0.494	Inf	0.621	-0.079	-0.022
Frst_yr (.20.)	-0.003	0.146	-0.021	Inf	0.984	-0.003	-0.001
Thrd_yr (.21.)	0.096	0.123	0.778	Inf	0.437	0.096	0.048
Frth_yr (.22.)	0.189	0.121	1.561	Inf	0.118	0.189	0.097
explor (.23.)	0.042	0.078	0.533	Inf	0.594	0.042	0.040
commit (.24.)	0.029	0.082	0.354	Inf	0.724	0.029	0.027
cthfrnd (.25.)	0.162	0.042	3.873	Inf	0.000	0.162	0.219
cmmtcth (.26.)	-0.027	0.039	-0.691	Inf	0.489	-0.027	-0.043

Covariances:

	Estimate	Std.Err	t-value	df	P(>|t|)	Std.lv	Std.all
.acadadjmean ~~							
.socadjmean	0.361	0.050	7.252	Inf	0.000	0.361	0.550

Intercepts:

	Estimate	Std.Err	t-value	df	P(>|t|)	Std.lv	Std.all

```
   .acddjmn (.150)    3.808    0.309   12.312      Inf    0.000    3.808    4.868
   .socdjmn (.151)    3.317    0.374    8.858      Inf    0.000    3.317    3.618

Variances:
                 Estimate  Std.Err  t-value       df  P(>|t|)   Std.lv  Std.all
   .acadadjmean       0.563    0.052   10.834      Inf    0.000    0.563    0.920
   .socadjmean        0.767    0.070   10.958      Inf    0.000    0.767    0.913

Constraints:
                                    |Slack|
   .p1. - (.p167.)                    0.000
   .p2. - (.p168.)                    0.000
   .p3. - (.p169.)                    0.000
   .p4. - (.p170.)                    0.000
   .p5. - (.p171.)                    0.000
   .p6. - (.p172.)                    0.000
   .p7. - (.p173.)                    0.000
   .p8. - (.p174.)                    0.000
   .p9. - (.p175.)                    0.000
   .p10. - (.p176.)                   0.000
   .p11. - (.p177.)                   0.000
   .p12. - (.p178.)                   0.000
   .p13. - (.p179.)                   0.000
   .p14. - (.p180.)                   0.000
   .p15. - (.p181.)                   0.000
   .p16. - (.p182.)                   0.000
   .p17. - (.p183.)                   0.000
   .p18. - (.p184.)                   0.000
   .p19. - (.p185.)                   0.000
   .p20. - (.p186.)                   0.000
   .p21. - (.p187.)                   0.000
   .p22. - (.p188.)                   0.000
   .p23. - (.p189.)                   0.000
   .p24. - (.p190.)                   0.000
   .p25. - (.p191.)                   0.000
   .p26. - (.p192.)                   0.000
   .p150. - (.p316.)                  0.000
   .p151. - (.p317.)                  0.000
```

2A. Free Model 2 with general support variables and a shortened SACQ scale.

```
> summary(dismodel3, standardized=TRUE, fit.measures=TRUE)
lavaan.mi object based on 10 imputed data sets.
See class?lavaan.mi help page for available methods.

Convergence information:
The model converged on 10 imputed data sets
```

Rubin's (1987) rules were used to pool point and SE estimates across 10 imputed data sets, and to calculate degrees of freedom for each parameter's t test and CI.
Robust corrections are made by pooling the naive χ2 d statistic across 10 imputations for which the model converged, then applying the average (across imputations) scaling factor to that pooled value.
To instead pool the robust test statistics, set test = "D2" and pool.robust = TRUE.

Robust corrections are made by pooling the naive χ2 d statistic across 10 imputations for which the model converged, then applying the average (across imputations) scaling factor to that pooled value.
To instead pool the robust test statistics, set test = "D2" and pool.robust = TRUE.

Model Test User Model:

Test statistic	51.461	48.464
Degrees of freedom	30	30
P-value	0.009	0.018
Scaling correction factor		1.062

Model Test Baseline Model:

Test statistic	348.129	320.823
Degrees of freedom	54	54
P-value	0.000	0.000
Scaling correction factor		1.085

User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.927	0.931
Tucker-Lewis Index (TLI)	0.869	0.875
Robust Comparative Fit Index (CFI)		0.932
Robust Tucker-Lewis Index (TLI)		1.000

Root Mean Square Error of Approximation:

RMSEA	0.043	0.040
90 Percent confidence interval - lower	0.022	0.022
90 Percent confidence interval - upper	0.062	0.062
P-value RMSEA <= 0.05	0.705	0.705
Robust RMSEA		0.041
90 Percent confidence interval - lower		0.017
90 Percent confidence interval - upper		0.061

Standardized Root Mean Square Residual:

SRMR	0.023	0.023

Parameter Estimates:

Information	Observed

```
  Observed information based on                Hessian
  Standard errors                    Robust.huber.White


Group 1 [1]:

Regressions:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  AcadAdj ~
    Female  (.p1.)  -0.211    0.098   -2.164 2971.273    0.031   -0.211   -0.074
    Black   (.p2.)  -0.157    0.157   -1.001 2590.528    0.317   -0.157   -0.055
    Asian   (.p3.)  -0.154    0.142   -1.084      Inf    0.278   -0.154   -0.060
    Hispanc (.p4.)  -0.055    0.149   -0.370      Inf    0.711   -0.055   -0.023
    White   (.p5.)   0.045    0.122    0.372  857.640    0.710    0.045    0.017
    Southst (.p6.)  -0.103    0.140   -0.732 6517.133    0.464   -0.103   -0.030
    Frst_yr (.p7.)   0.126    0.116    1.084 2031.888    0.278    0.126    0.049
    Thrd_yr (.p8.)   0.203    0.123    1.653 3047.566    0.098    0.203    0.073
    Frth_yr (.p9.)   0.164    0.119    1.376 2042.139    0.169    0.164    0.059
    explor  (.10.)  -0.116    0.064   -1.820 2049.996    0.069   -0.116   -0.086
    commit  (.11.)   0.197    0.062    3.196 1023.166    0.001    0.197    0.148
    gennstr (.12.)   0.266    0.042    6.375 7689.674    0.000    0.266    0.247
  SocAdj ~
    Female  (.13.)  -0.160    0.088   -1.808  779.539    0.071   -0.160   -0.055
    Black   (.14.)  -0.218    0.162   -1.341 1533.904    0.180   -0.218   -0.074
    Asian   (.15.)   0.267    0.134    1.989 3881.330    0.047    0.267    0.101
    Hispanc (.16.)   0.026    0.141    0.187 6098.071    0.852    0.026    0.011
    White   (.17.)   0.342    0.127    2.702 2832.263    0.007    0.342    0.122
    Southst (.18.)  -0.138    0.122   -1.134  919.020    0.257   -0.138   -0.040
    Frst_yr (.19.)  -0.011    0.111   -0.096  692.594    0.924   -0.011   -0.004
    Thrd_yr (.20.)   0.110    0.108    1.016  486.838    0.310    0.110    0.039
    Frth_yr (.21.)   0.035    0.111    0.315 2373.797    0.753    0.035    0.012
    explor  (.22.)   0.117    0.062    1.889      Inf    0.059    0.117    0.085
    commit  (.23.)   0.099    0.062    1.608      Inf    0.108    0.099    0.073
    genfrnd (.24.)   0.400    0.044    9.173 9069.797    0.000    0.400    0.419

Covariances:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
 .AcadAdj ~~
   .SocAdj           0.257    0.079    3.259 1077.209    0.001    0.257    0.213

Intercepts:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
   .AcadAdj (.119)   2.713    0.322    8.428 3496.880    0.000    2.713    2.294
   .SocAdj  (.120)   1.457    0.311    4.687 3567.736    0.000    1.457    1.209

Variances:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
   .AcadAdj          1.262    0.099   12.808 1728.652    0.000    1.262    0.902
   .SocAdj           1.154    0.100   11.572  334.422    0.000    1.154    0.793
```

Group 2 [0]:

Regressions:

	Estimate	Std.Err	t-value	df	P(>|t|)	Std.lv	Std.all
AcadAdj ~							
Female (.p1.)	-0.211	0.098	-2.164	2971.273	0.031	-0.211	-0.081
Black (.p2.)	-0.157	0.157	-1.001	2590.528	0.317	-0.157	-0.030
Asian (.p3.)	-0.154	0.142	-1.084	Inf	0.278	-0.154	-0.064
Hispanc (.p4.)	-0.055	0.149	-0.370	Inf	0.711	-0.055	-0.021
White (.p5.)	0.045	0.122	0.372	857.640	0.710	0.045	0.011
Southst (.p6.)	-0.103	0.140	-0.732	6517.133	0.464	-0.103	-0.028
Frst_yr (.p7.)	0.126	0.116	1.084	2031.888	0.278	0.126	0.044
Thrd_yr (.p8.)	0.203	0.123	1.653	3047.566	0.098	0.203	0.074
Frth_yr (.p9.)	0.164	0.119	1.376	2042.139	0.169	0.164	0.064
explor (.10.)	-0.116	0.064	-1.820	2049.996	0.069	-0.116	-0.088
commit (.11.)	0.197	0.062	3.196	1023.166	0.001	0.197	0.152
gennstr (.12.)	0.266	0.042	6.375	7689.674	0.000	0.266	0.232
SocAdj ~							
Female (.13.)	-0.160	0.088	-1.808	779.539	0.071	-0.160	-0.060
Black (.14.)	-0.218	0.162	-1.341	1533.904	0.180	-0.218	-0.041
Asian (.15.)	0.267	0.134	1.989	3881.330	0.047	0.267	0.109
Hispanc (.16.)	0.026	0.141	0.187	6098.071	0.852	0.026	0.010
White (.17.)	0.342	0.127	2.702	2832.263	0.007	0.342	0.081
Southst (.18.)	-0.138	0.122	-1.134	919.020	0.257	-0.138	-0.037
Frst_yr (.19.)	-0.011	0.111	-0.096	692.594	0.924	-0.011	-0.004
Thrd_yr (.20.)	0.110	0.108	1.016	486.838	0.310	0.110	0.039
Frth_yr (.21.)	0.035	0.111	0.315	2373.797	0.753	0.035	0.013
explor (.22.)	0.117	0.062	1.889	Inf	0.059	0.117	0.087
commit (.23.)	0.099	0.062	1.608	Inf	0.108	0.099	0.075
genfrnd (.24.)	0.400	0.044	9.173	9069.797	0.000	0.400	0.441

Covariances:

	Estimate	Std.Err	t-value	df	P(>|t|)	Std.lv	Std.all
.AcadAdj ~~							
.SocAdj	0.329	0.067	4.918	Inf	0.000	0.329	0.279

Intercepts:

	Estimate	Std.Err	t-value	df	P(>|t|)	Std.lv	Std.all
.AcadAdj (.119)	2.713	0.322	8.428	3496.880	0.000	2.713	2.302
.SocAdj (.120)	1.457	0.311	4.687	3567.736	0.000	1.457	1.205

Variances:

	Estimate	Std.Err	t-value	df	P(>|t|)	Std.lv	Std.all
.AcadAdj	1.274	0.080	15.895	Inf	0.000	1.274	0.917
.SocAdj	1.093	0.083	13.119	Inf	0.000	1.093	0.747

Constraints:

	|Slack|
.p1. - (.p134.)	0.000
.p2. - (.p135.)	0.000
.p3. - (.p136.)	0.000

.p4. - (.p137.)	0.000
.p5. - (.p138.)	0.000
.p6. - (.p139.)	0.000
.p7. - (.p140.)	0.000
.p8. - (.p141.)	0.000
.p9. - (.p142.)	0.000
.p10. - (.p143.)	0.000
.p11. - (.p144.)	0.000
.p12. - (.p145.)	0.000
.p13. - (.p146.)	0.000
.p14. - (.p147.)	0.000
.p15. - (.p148.)	0.000
.p16. - (.p149.)	0.000
.p17. - (.p150.)	0.000
.p18. - (.p151.)	0.000
.p19. - (.p152.)	0.000
.p20. - (.p153.)	0.000
.p21. - (.p154.)	0.000
.p22. - (.p155.)	0.000
.p23. - (.p156.)	0.000
.p24. - (.p157.)	0.000
.p119. - (.p252.)	0.000
.p120. - (.p253.)	0.000

2B. Free Model 2 with general support variables and a full SACQ scale.

> summary(dismodel33, standardized=TRUE, fit.measures=TRUE)
lavaan.mi object based on 10 imputed data sets.
See class?lavaan.mi help page for available methods.

Convergence information:
The model converged on 10 imputed data sets

Rubin's (1987) rules were used to pool point and SE estimates across 10 imputed data sets, and to calculate degrees of freedom for each parameter's t test and CI.
Robust corrections are made by pooling the naive $\chi 2$ d statistic across 10 imputations for which the model converged, then applying the average (across imputations) scaling factor to that pooled value.
To instead pool the robust test statistics, set test = "D2" and pool.robust = TRUE.

Robust corrections are made by pooling the naive $\chi 2$ d statistic across 10 imputations for which the model converged, then applying the average (across imputations) scaling factor to that pooled value.
To instead pool the robust test statistics, set test = "D2" and pool.robust = TRUE.

Model Test User Model:

Test statistic	67.226	64.208
Degrees of freedom	30	30
P-value	0.000	0.000
Scaling correction factor		1.047

Model Test Baseline Model:

Test statistic	453.393	423.035
Degrees of freedom	54	54
P-value	0.000	0.000
Scaling correction factor		1.072

User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.907	0.907
Tucker-Lewis Index (TLI)	0.832	0.833
Robust Comparative Fit Index (CFI)		0.909
Robust Tucker-Lewis Index (TLI)		1.000

Root Mean Square Error of Approximation:

RMSEA	0.056	0.054
90 Percent confidence interval - lower	0.038	0.038
90 Percent confidence interval - upper	0.075	0.075
P-value RMSEA <= 0.05	0.259	0.259
Robust RMSEA		0.055
90 Percent confidence interval - lower		0.037
90 Percent confidence interval - upper		0.074

Standardized Root Mean Square Residual:

SRMR	0.028	0.028

Parameter Estimates:

Information	Observed
Observed information based on	Hessian
Standard errors	Robust.huber.White

Group 1 [1]:

Regressions:

	Estimate	Std.Err	t-value	df	P(>|t|)	Std.lv	Std.all
acadadjmean ~							
Female (.p1.)	-0.151	0.064	-2.350	1946.112	0.019	-0.151	-0.077
Black (.p2.)	-0.108	0.109	-0.997	2983.452	0.319	-0.108	-0.054
Asian (.p3.)	-0.144	0.098	-1.472	Inf	0.141	-0.144	-0.081
Hispanc (.p4.)	0.087	0.102	0.858	Inf	0.391	0.087	0.052
White (.p5.)	0.097	0.084	1.154	897.387	0.249	0.097	0.051
Southst (.p6.)	-0.018	0.097	-0.183	Inf	0.855	-0.018	-0.008
Frst_yr (.p7.)	0.158	0.080	1.965	5071.575	0.049	0.158	0.088
Thrd_yr (.p8.)	0.156	0.083	1.886	9341.710	0.059	0.156	0.081
Frth_yr (.p9.)	0.148	0.084	1.770	2382.643	0.077	0.148	0.077

```
   explor  (.10.)   -0.049    0.045   -1.087 3173.059    0.277   -0.049   -0.052
   commit  (.11.)    0.122    0.043    2.827  992.737    0.005    0.122    0.132
   gennstr (.12.)    0.198    0.026    7.592  785.170    0.000    0.198    0.265
  socadjmean ~
   Female  (.13.)   -0.092    0.072   -1.282 1501.732    0.200   -0.092   -0.039
   Black   (.14.)   -0.221    0.135   -1.640 4707.114    0.101   -0.221   -0.092
   Asian   (.15.)    0.178    0.110    1.622 2535.892    0.105    0.178    0.083
   Hispanc (.16.)    0.092    0.115    0.802 5108.310    0.422    0.092    0.046
   White   (.17.)    0.239    0.103    2.319 1426.734    0.021    0.239    0.105
   Southst (.18.)   -0.088    0.099   -0.882 1099.000    0.378   -0.088   -0.031
   Frst_yr (.19.)    0.013    0.090    0.150 1504.790    0.881    0.013    0.006
   Thrd_yr (.20.)    0.067    0.089    0.756 1581.768    0.450    0.067    0.029
   Frth_yr (.21.)    0.080    0.089    0.900 3660.721    0.368    0.080    0.035
   explor  (.22.)    0.049    0.051    0.958      Inf    0.338    0.049    0.044
   commit  (.23.)    0.066    0.050    1.317      Inf    0.188    0.066    0.060
   genfrnd (.24.)    0.288    0.031    9.421 4696.073    0.000    0.288    0.372

Covariances:
                Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
 .acadadjmean ~~
   .socadjmean       0.255    0.048    5.355  806.514    0.000    0.255    0.371

Intercepts:
                Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
   .acddjmn (.119)    3.263    0.221   14.775 1199.764    0.000    3.263    3.980
   .socdjmn (.120)    2.391    0.239   10.011 2385.946    0.000    2.391    2.439

Variances:
                Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
   .acadadjmean      0.588    0.049   12.065 2331.340    0.000    0.588    0.875
   .socadjmean       0.805    0.065   12.417  245.542    0.000    0.805    0.837


Group 2 [0]:

Regressions:
                Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  acadadjmean ~
   Female  (.p1.)   -0.151    0.064   -2.350 1946.112    0.019   -0.151   -0.084
   Black   (.p2.)   -0.108    0.109   -0.997 2983.452    0.319   -0.108   -0.030
   Asian   (.p3.)   -0.144    0.098   -1.472      Inf    0.141   -0.144   -0.087
   Hispanc (.p4.)    0.087    0.102    0.858      Inf    0.391    0.087    0.049
   White   (.p5.)    0.097    0.084    1.154  897.387    0.249    0.097    0.034
   Southst (.p6.)   -0.018    0.097   -0.183      Inf    0.855   -0.018   -0.007
   Frst_yr (.p7.)    0.158    0.080    1.965 5071.575    0.049    0.158    0.080
   Thrd_yr (.p8.)    0.156    0.083    1.886 9341.710    0.059    0.156    0.083
   Frth_yr (.p9.)    0.148    0.084    1.770 2382.643    0.077    0.148    0.083
   explor  (.10.)   -0.049    0.045   -1.087 3173.059    0.277   -0.049   -0.054
   commit  (.11.)    0.122    0.043    2.827  992.737    0.005    0.122    0.136
   gennstr (.12.)    0.198    0.026    7.592  785.170    0.000    0.198    0.249
  socadjmean ~
```

```
   Female  (.13.)   -0.092    0.072   -1.282 1501.732    0.200   -0.092   -0.044
   Black   (.14.)   -0.221    0.135   -1.640 4707.114    0.101   -0.221   -0.053
   Asian   (.15.)    0.178    0.110    1.622 2535.892    0.105    0.178    0.092
   Hispanc (.16.)    0.092    0.115    0.802 5108.310    0.422    0.092    0.045
   White   (.17.)    0.239    0.103    2.319 1426.734    0.021    0.239    0.072
   Southst (.18.)   -0.088    0.099   -0.882 1099.000    0.378   -0.088   -0.030
   Frst_yr (.19.)    0.013    0.090    0.150 1504.790    0.881    0.013    0.006
   Thrd_yr (.20.)    0.067    0.089    0.756 1581.768    0.450    0.067    0.030
   Frth_yr (.21.)    0.080    0.089    0.900 3660.721    0.368    0.080    0.039
   explor  (.22.)    0.049    0.051    0.958      Inf    0.338    0.049    0.047
   commit  (.23.)    0.066    0.050    1.317      Inf    0.188    0.066    0.063
   genfrnd (.24.)    0.288    0.031    9.421 4696.073    0.000    0.288    0.406

Covariances:
                Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
 .acadadjmean ~~
  .socadjmean       0.310    0.040    7.712      Inf    0.000    0.310    0.472

Intercepts:
                Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  .acddjmn (.119)    3.263    0.221   14.775 1199.764    0.000    3.263    3.995
  .socdjmn (.120)    2.391    0.239   10.011 2385.946    0.000    2.391    2.521

Variances:
                Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  .acadadjmean      0.601    0.046   13.079      Inf    0.000    0.601    0.901
  .socadjmean       0.718    0.056   12.806      Inf    0.000    0.718    0.799

Constraints:
                                |Slack|
   .p1. - (.p134.)                 0.000
   .p2. - (.p135.)                 0.000
   .p3. - (.p136.)                 0.000
   .p4. - (.p137.)                 0.000
   .p5. - (.p138.)                 0.000
   .p6. - (.p139.)                 0.000
   .p7. - (.p140.)                 0.000
   .p8. - (.p141.)                 0.000
   .p9. - (.p142.)                 0.000
   .p10. - (.p143.)                0.000
   .p11. - (.p144.)                0.000
   .p12. - (.p145.)                0.000
   .p13. - (.p146.)                0.000
   .p14. - (.p147.)                0.000
   .p15. - (.p148.)                0.000
   .p16. - (.p149.)                0.000
   .p17. - (.p150.)                0.000
   .p18. - (.p151.)                0.000
   .p19. - (.p152.)                0.000
   .p20. - (.p153.)                0.000
   .p21. - (.p154.)                0.000
```

.p22. - (.p155.)	0.000
.p23. - (.p156.)	0.000
.p24. - (.p157.)	0.000
.p119. - (.p252.)	0.000
.p120. - (.p253.)	0.000

3A. Free Model 3 with White and minoritized support variables and shortened SACQ.

> summary(dismodelW3, standardized=TRUE, fit.measures=TRUE)
lavaan.mi object based on 10 imputed data sets.
See class?lavaan.mi help page for available methods.

Convergence information:
The model converged on 10 imputed data sets

Rubin's (1987) rules were used to pool point and SE estimates across 10 imputed data sets, and to calculate degrees of freedom for each parameter's t test and CI.
Robust corrections are made by pooling the naive χ2 d statistic across 10 imputations for which the model converged, then applying the average (across imputations) scaling factor to that pooled value.
To instead pool the robust test statistics, set test = "D2" and pool.robust = TRUE.

Robust corrections are made by pooling the naive χ2 d statistic across 10 imputations for which the model converged, then applying the average (across imputations) scaling factor to that pooled value.
To instead pool the robust test statistics, set test = "D2" and pool.robust = TRUE.

Model Test User Model:

Test statistic	55.280	51.012
Degrees of freedom	42	42
P-value	0.082	0.161
Scaling correction factor		1.084

Model Test Baseline Model:

Test statistic	193.695	175.878
Degrees of freedom	70	70
P-value	0.000	0.000
Scaling correction factor		1.101

User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.893	0.915
Tucker-Lewis Index (TLI)	0.821	0.858
Robust Comparative Fit Index (CFI)		0.916
Robust Tucker-Lewis Index (TLI)		1.000

Root Mean Square Error of Approximation:

```
  RMSEA                                          0.028       0.023
  90 Percent confidence interval - lower         0.000       0.000
  90 Percent confidence interval - upper         0.047       0.047
  P-value RMSEA <= 0.05                          0.972       0.972

  Robust RMSEA                                   0.024
  90 Percent confidence interval - lower         0.000
  90 Percent confidence interval - upper         0.045

Standardized Root Mean Square Residual:

  SRMR                                           0.025       0.025

Parameter Estimates:

  Information                                    Observed
  Observed information based on                  Hessian
  Standard errors                                Robust.huber.White


Group 1 [1]:

Regressions:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  AcadAdj ~
    Female  (.p1.)  -0.223    0.102   -2.198 3524.735    0.028   -0.223   -0.079
    Black   (.p2.)  -0.167    0.166   -1.004 1629.436    0.316   -0.167   -0.058
    Asian   (.p3.)  -0.142    0.151   -0.942      Inf    0.346   -0.142   -0.055
    Hispanc (.p4.)  -0.041    0.157   -0.262      Inf    0.793   -0.041   -0.017
    White   (.p5.)   0.041    0.126    0.321  708.935    0.748    0.041    0.015
    Southst (.p6.)  -0.123    0.146   -0.844 6130.442    0.399   -0.123   -0.037
    Frst_yr (.p7.)   0.101    0.121    0.833 1002.444    0.405    0.101    0.039
    Thrd_yr (.p8.)   0.176    0.127    1.385 2291.900    0.166    0.176    0.064
    Frth_yr (.p9.)   0.171    0.124    1.380 1407.495    0.168    0.171    0.061
    explor  (.10.)  -0.104    0.067   -1.545 1565.117    0.122   -0.104   -0.077
    commit  (.11.)   0.202    0.065    3.094  650.815    0.002    0.202    0.152
    whtnstr (.12.)   0.188    0.047    4.025  849.750    0.000    0.188    0.184
    clrnstr (.13.)   0.029    0.050    0.582  203.499    0.561    0.029    0.027
    cmmtclr (.14.)  -0.056    0.051   -1.080 1180.006    0.280   -0.056   -0.053
  SocAdj ~
    Female  (.15.)  -0.104    0.091   -1.145 4831.356    0.252   -0.104   -0.036
    Black   (.16.)  -0.253    0.161   -1.567  399.074    0.118   -0.253   -0.088
    Asian   (.17.)   0.325    0.135    2.396 1640.563    0.017    0.325    0.125
    Hispanc (.18.)  -0.008    0.141   -0.059 2847.926    0.953   -0.008   -0.003
    White   (.19.)   0.240    0.131    1.832 1428.117    0.067    0.240    0.088
    Southst (.20.)  -0.110    0.126   -0.875  836.950    0.382   -0.110   -0.033
    Frst_yr (.21.)  -0.085    0.117   -0.730  401.595    0.466   -0.085   -0.033
    Thrd_yr (.22.)   0.044    0.115    0.383  576.840    0.702    0.044    0.016
    Frth_yr (.23.)   0.024    0.115    0.209  127.039    0.835    0.024    0.009
    explor  (.24.)   0.074    0.064    1.154 8009.491    0.248    0.074    0.054
    commit  (.25.)   0.165    0.063    2.599  999.435    0.009    0.165    0.123
```

```
   whtfrnd (.26.)    0.250    0.037    6.798   94.061    0.000    0.250    0.289
   clrfrnd (.27.)    0.219    0.044    4.928  214.480    0.000    0.219    0.205
   cmmtclr (.28.)   -0.036    0.040   -0.913  306.535    0.362   -0.036   -0.034

Covariances:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
 .AcadAdj ~~
  .SocAdj            0.247    0.082    3.012 2244.703    0.003    0.247    0.206

Intercepts:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  .AcadAdj (.185)    2.852    0.372    7.664 2310.774    0.000    2.852    2.415
  .SocAdj  (.186)    1.185    0.322    3.675  310.929    0.000    1.185    0.998

Variances:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  .AcadAdj           1.280    0.103   12.480 2469.669    0.000    1.280    0.918
  .SocAdj            1.122    0.096   11.650  851.787    0.000    1.122    0.797


Group 2 [0]:

Regressions:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  AcadAdj ~
   Female  (.p1.)   -0.223    0.102   -2.198 3524.735    0.028   -0.223   -0.086
   Black   (.p2.)   -0.167    0.166   -1.004 1629.436    0.316   -0.167   -0.032
   Asian   (.p3.)   -0.142    0.151   -0.942      Inf    0.346   -0.142   -0.059
   Hispanc (.p4.)   -0.041    0.157   -0.262      Inf    0.793   -0.041   -0.016
   White   (.p5.)    0.041    0.126    0.321  708.935    0.748    0.041    0.010
   Southst (.p6.)   -0.123    0.146   -0.844 6130.442    0.399   -0.123   -0.034
   Frst_yr (.p7.)    0.101    0.121    0.833 1002.444    0.405    0.101    0.035
   Thrd_yr (.p8.)    0.176    0.127    1.385 2291.900    0.166    0.176    0.065
   Frth_yr (.p9.)    0.171    0.124    1.380 1407.495    0.168    0.171    0.067
   explor  (.10.)   -0.104    0.067   -1.545 1565.117    0.122   -0.104   -0.079
   commit  (.11.)    0.202    0.065    3.094  650.815    0.002    0.202    0.156
   whtnstr (.12.)    0.188    0.047    4.025  849.750    0.000    0.188    0.183
   clrnstr (.13.)    0.029    0.050    0.582  203.499    0.561    0.029    0.025
   cmmtclr (.14.)   -0.056    0.051   -1.080 1180.006    0.280   -0.056   -0.049
  SocAdj ~
   Female  (.15.)   -0.104    0.091   -1.145 4831.356    0.252   -0.104   -0.039
   Black   (.16.)   -0.253    0.161   -1.567  399.074    0.118   -0.253   -0.047
   Asian   (.17.)    0.325    0.135    2.396 1640.563    0.017    0.325    0.132
   Hispanc (.18.)   -0.008    0.141   -0.059 2847.926    0.953   -0.008   -0.003
   White   (.19.)    0.240    0.131    1.832 1428.117    0.067    0.240    0.056
   Southst (.20.)   -0.110    0.126   -0.875  836.950    0.382   -0.110   -0.030
   Frst_yr (.21.)   -0.085    0.117   -0.730  401.595    0.466   -0.085   -0.029
   Thrd_yr (.22.)    0.044    0.115    0.383  576.840    0.702    0.044    0.016
   Frth_yr (.23.)    0.024    0.115    0.209  127.039    0.835    0.024    0.009
   explor  (.24.)    0.074    0.064    1.154 8009.491    0.248    0.074    0.055
   commit  (.25.)    0.165    0.063    2.599  999.435    0.009    0.165    0.124
```

```
   whtfrnd (.26.)    0.250    0.037    6.798   94.061    0.000    0.250    0.279
   clrfrnd (.27.)    0.219    0.044    4.928  214.480    0.000    0.219    0.214
   cmmtclr (.28.)   -0.036    0.040   -0.913  306.535    0.362   -0.036   -0.040

Covariances:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
 .AcadAdj ~~
  .SocAdj             0.314    0.068    4.647 3474.045    0.000    0.314    0.261

Intercepts:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  .AcadAdj (.185)    2.852    0.372    7.664 2310.774    0.000    2.852    2.422
  .SocAdj  (.186)    1.185    0.322    3.675  310.929    0.000    1.185    0.975

Variances:
                   Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  .AcadAdj            1.290    0.084   15.268     Inf    0.000    1.290    0.930
  .SocAdj             1.123    0.083   13.556 1386.930    0.000    1.123    0.761

Constraints:
                                |Slack|
   .p1. - (.p204.)                0.000
   .p2. - (.p205.)                0.000
   .p3. - (.p206.)                0.000
   .p4. - (.p207.)                0.000
   .p5. - (.p208.)                0.000
   .p6. - (.p209.)                0.000
   .p7. - (.p210.)                0.000
   .p8. - (.p211.)                0.000
   .p9. - (.p212.)                0.000
   .p10. - (.p213.)               0.000
   .p11. - (.p214.)               0.000
   .p12. - (.p215.)               0.000
   .p13. - (.p216.)               0.000
   .p14. - (.p217.)               0.000
   .p15. - (.p218.)               0.000
   .p16. - (.p219.)               0.000
   .p17. - (.p220.)               0.000
   .p18. - (.p221.)               0.000
   .p19. - (.p222.)               0.000
   .p20. - (.p223.)               0.000
   .p21. - (.p224.)               0.000
   .p22. - (.p225.)               0.000
   .p23. - (.p226.)               0.000
   .p24. - (.p227.)               0.000
   .p25. - (.p228.)               0.000
   .p26. - (.p229.)               0.000
   .p27. - (.p230.)               0.000
   .p28. - (.p231.)               0.000
   .p185. - (.p388.)              0.000
   .p186. - (.p389.)              0.000
```

3B. Free Model 3 with White and minoritized support variables and full SACQ.

> summary(dismodelWlong3, standardized=TRUE, fit.measures=TRUE)
lavaan.mi object based on 10 imputed data sets.
See class?lavaan.mi help page for available methods.

Convergence information:
The model converged on 10 imputed data sets

Rubin's (1987) rules were used to pool point and SE estimates across 10 imputed data sets, and to calculate degrees of freedom for each parameter's t test and CI.
Robust corrections are made by pooling the naive χ2 d statistic across 10 imputations for which the model converged, then applying the average (across imputations) scaling factor to that pooled value.
To instead pool the robust test statistics, set test = "D2" and pool.robust = TRUE.

Robust corrections are made by pooling the naive χ2 d statistic across 10 imputations for which the model converged, then applying the average (across imputations) scaling factor to that pooled value.
To instead pool the robust test statistics, set test = "D2" and pool.robust = TRUE.

Model Test User Model:

Test statistic	77.272	70.565
Degrees of freedom	42	42
P-value	0.001	0.004
Scaling correction factor		1.095

Model Test Baseline Model:

Test statistic	248.045	222.255
Degrees of freedom	70	70
P-value	0.000	0.000
Scaling correction factor		1.116

User Model versus Baseline Model:

Comparative Fit Index (CFI)	0.802	0.812
Tucker-Lewis Index (TLI)	0.670	0.687
Robust Comparative Fit Index (CFI)		0.816
Robust Tucker-Lewis Index (TLI)		1.000

Root Mean Square Error of Approximation:

RMSEA	0.046	0.042
90 Percent confidence interval - lower	0.030	0.030
90 Percent confidence interval - upper	0.063	0.063
P-value RMSEA <= 0.05	0.621	0.621
Robust RMSEA		0.044
90 Percent confidence interval - lower		0.025

```
  90 Percent confidence interval - upper                0.061

Standardized Root Mean Square Residual:

  SRMR                                          0.030       0.030

Parameter Estimates:

  Information                                 Observed
  Observed information based on                Hessian
  Standard errors                    Robust.huber.White


Group 1 [1]:

Regressions:
                   Estimate  Std.Err  t-value       df  P(>|t|)   Std.lv  Std.all
  acadadjmean ~
    Female  (.p1.)   -0.166    0.068   -2.452 2040.359    0.014   -0.166   -0.084
    Black   (.p2.)   -0.130    0.116   -1.129 2209.970    0.259   -0.130   -0.065
    Asian   (.p3.)   -0.125    0.106   -1.182      Inf    0.237   -0.125   -0.069
    Hispanc (.p4.)    0.092    0.109    0.841 9149.111    0.400    0.092    0.055
    White   (.p5.)    0.100    0.088    1.128  793.933    0.259    0.100    0.052
    Southst (.p6.)   -0.037    0.103   -0.360      Inf    0.718   -0.037   -0.016
    Frst_yr (.p7.)    0.150    0.085    1.766 1811.395    0.078    0.150    0.084
    Thrd_yr (.p8.)    0.136    0.086    1.583 5895.194    0.114    0.136    0.070
    Frth_yr (.p9.)    0.151    0.087    1.736 2363.968    0.083    0.151    0.078
    explor  (.10.)   -0.050    0.048   -1.037 2446.089    0.300   -0.050   -0.053
    commit  (.11.)    0.130    0.046    2.841  845.782    0.005    0.130    0.140
    whtnstr (.12.)    0.104    0.031    3.330  605.774    0.001    0.104    0.145
    clrnstr (.13.)    0.058    0.036    1.635  359.982    0.103    0.058    0.078
    cmmtclr (.14.)   -0.025    0.036   -0.695  831.278    0.487   -0.025   -0.035
  socadjmean ~
    Female  (.15.)   -0.054    0.074   -0.730      Inf    0.466   -0.054   -0.023
    Black   (.16.)   -0.249    0.134   -1.859 1769.374    0.063   -0.249   -0.106
    Asian   (.17.)    0.220    0.110    2.001  996.469    0.046    0.220    0.104
    Hispanc (.18.)    0.064    0.114    0.563 2330.460    0.573    0.064    0.033
    White   (.19.)    0.166    0.106    1.560 1349.370    0.119    0.166    0.074
    Southst (.20.)   -0.072    0.102   -0.708 1197.643    0.479   -0.072   -0.026
    Frst_yr (.21.)   -0.039    0.093   -0.424  578.719    0.672   -0.039   -0.019
    Thrd_yr (.22.)    0.020    0.093    0.212 1712.943    0.832    0.020    0.009
    Frth_yr (.23.)    0.072    0.091    0.791  164.017    0.430    0.072    0.032
    explor  (.24.)    0.018    0.052    0.347      Inf    0.728    0.018    0.017
    commit  (.25.)    0.114    0.051    2.225 1043.473    0.026    0.114    0.105
    whtfrnd (.26.)    0.187    0.027    7.016   85.688    0.000    0.187    0.266
    clrfrnd (.27.)    0.152    0.033    4.641  113.058    0.000    0.152    0.176
    cmmtclr (.28.)   -0.026    0.030   -0.865  507.433    0.387   -0.026   -0.030

Covariances:
                   Estimate  Std.Err  t-value       df  P(>|t|)   Std.lv  Std.all
 .acadadjmean ~~
```

```
  .socadjmean       0.250    0.048    5.164 1459.893    0.000    0.250    0.363

Intercepts:
                  Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  .acddjmn (.185)    3.375    0.250   13.479 1132.672    0.000    3.375    4.095
  .socdjmn (.186)    2.194    0.251    8.751  344.320    0.000    2.194    2.277

Variances:
                  Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  .acadadjmean       0.613    0.053   11.630 8683.134    0.000    0.613    0.903
  .socadjmean        0.775    0.063   12.272  520.150    0.000    0.775    0.835


Group 2 [0]:

Regressions:
                  Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
  acadadjmean ~
    Female  (.p1.)   -0.166    0.068   -2.452 2040.359    0.014   -0.166   -0.092
    Black   (.p2.)   -0.130    0.116   -1.129 2209.970    0.259   -0.130   -0.036
    Asian   (.p3.)   -0.125    0.106   -1.182      Inf    0.237   -0.125   -0.075
    Hispanc (.p4.)    0.092    0.109    0.841 9149.111    0.400    0.092    0.051
    White   (.p5.)    0.100    0.088    1.128  793.933    0.259    0.100    0.035
    Southst (.p6.)   -0.037    0.103   -0.360      Inf    0.718   -0.037   -0.015
    Frst_yr (.p7.)    0.150    0.085    1.766 1811.395    0.078    0.150    0.076
    Thrd_yr (.p8.)    0.136    0.086    1.583 5895.194    0.114    0.136    0.072
    Frth_yr (.p9.)    0.151    0.087    1.736 2363.968    0.083    0.151    0.085
    explor  (.10.)   -0.050    0.048   -1.037 2446.089    0.300   -0.050   -0.055
    commit  (.11.)    0.130    0.046    2.841  845.782    0.005    0.130    0.145
    whtnstr (.12.)    0.104    0.031    3.330  605.774    0.001    0.104    0.145
    clrnstr (.13.)    0.058    0.036    1.635  359.982    0.103    0.058    0.073
    cmmtclr (.14.)   -0.025    0.036   -0.695  831.278    0.487   -0.025   -0.032
  socadjmean ~
    Female  (.15.)   -0.054    0.074   -0.730      Inf    0.466   -0.054   -0.026
    Black   (.16.)   -0.249    0.134   -1.859 1769.374    0.063   -0.249   -0.059
    Asian   (.17.)    0.220    0.110    2.001  996.469    0.046    0.220    0.114
    Hispanc (.18.)    0.064    0.114    0.563 2330.460    0.573    0.064    0.031
    White   (.19.)    0.166    0.106    1.560 1349.370    0.119    0.166    0.050
    Southst (.20.)   -0.072    0.102   -0.708 1197.643    0.479   -0.072   -0.025
    Frst_yr (.21.)   -0.039    0.093   -0.424  578.719    0.672   -0.039   -0.017
    Thrd_yr (.22.)    0.020    0.093    0.212 1712.943    0.832    0.020    0.009
    Frth_yr (.23.)    0.072    0.091    0.791  164.017    0.430    0.072    0.035
    explor  (.24.)    0.018    0.052    0.347      Inf    0.728    0.018    0.017
    commit  (.25.)    0.114    0.051    2.225 1043.473    0.026    0.114    0.109
    whtfrnd (.26.)    0.187    0.027    7.016   85.688    0.000    0.187    0.265
    clrfrnd (.27.)    0.152    0.033    4.641  113.058    0.000    0.152    0.190
    cmmtclr (.28.)   -0.026    0.030   -0.865  507.433    0.387   -0.026   -0.036

Covariances:
                  Estimate  Std.Err  t-value      df  P(>|t|)   Std.lv  Std.all
 .acadadjmean ~~
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   .socadjmean       0.309    0.040    7.710 4570.205    0.000    0.309    0.460

Intercepts:
                  Estimate  Std.Err  t-value       df  P(>|t|)   Std.lv  Std.all
   .acddjmn (.185)    3.375    0.250   13.479 1132.672    0.000    3.375    4.123
   .socdjmn (.186)    2.194    0.251    8.751  344.320    0.000    2.194    2.304

Variances:
                  Estimate  Std.Err  t-value       df  P(>|t|)   Std.lv  Std.all
   .acadadjmean       0.618    0.049   12.641      Inf    0.000    0.618    0.923
   .socadjmean        0.731    0.056   13.032 1543.118    0.000    0.731    0.807

Constraints:
                                |Slack|
   .p1. - (.p204.)                0.000
   .p2. - (.p205.)                0.000
   .p3. - (.p206.)                0.000
   .p4. - (.p207.)                0.000
   .p5. - (.p208.)                0.000
   .p6. - (.p209.)                0.000
   .p7. - (.p210.)                0.000
   .p8. - (.p211.)                0.000
   .p9. - (.p212.)                0.000
   .p10. - (.p213.)               0.000
   .p11. - (.p214.)               0.000
   .p12. - (.p215.)               0.000
   .p13. - (.p216.)               0.000
   .p14. - (.p217.)               0.000
   .p15. - (.p218.)               0.000
   .p16. - (.p219.)               0.000
   .p17. - (.p220.)               0.000
   .p18. - (.p221.)               0.000
   .p19. - (.p222.)               0.000
   .p20. - (.p223.)               0.000
   .p21. - (.p224.)               0.000
   .p22. - (.p225.)               0.000
   .p23. - (.p226.)               0.000
   .p24. - (.p227.)               0.000
   .p25. - (.p228.)               0.000
   .p26. - (.p229.)               0.000
   .p27. - (.p230.)               0.000
   .p28. - (.p231.)               0.000
   .p185. - (.p388.)              0.000
   .p186. - (.p389.)              0.000
```